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Selected Factors In Relation To State Anxiety Among PE 1 Students In Msu-Marawi

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Abstract
This study centered mainly on selected factors of age, sex, scholarship status, and ethnicity in relation to state anxiety of students in Physical Education 1 classes at the College of Sports, Physical Education and Recreation in Mindanao State University – Marawi Campus during the 1st semester A.Y. 2015 – 2016. Descriptive statistics was used in the form of frequency and percentage distribution while for the relationship between variables, Pearson r was employed. There were 150 male and female respondents selected through quota sampling procedure. The study utilized a questionnaire composed of two parts to gather data. The first part was for the profile of the respondents while the state anxiety was measured through the Physical Education State Anxiety Scale (PESAS) developed by Barkoukis (2007) with subscales on cognitive processes, somatic anxiety, and worry. Based on the results, it was found out that majority of the respondents were 16 – 17 years old. Majority were female respondents while in terms of scholarship status, majority were classified as paying students. Majority were Muslims. It was also revealed that majority of the respondents displayed very low cognitive processes or the symptoms related to information processing during their PE classes. Most of these students were assessed with low somatic anxiety or bodily symptoms. In terms of worry or the negative expectations about performance and the consequences of potential failure, majority were rated moderate. Majority were assessed low as to the overall state anxiety. Age and sex correlated significantly with cognitive processes and overall state anxiety. Scholarship status, on the other hand, had significant relationship with somatic anxiety and worry. Based on the findings of the study, it is recommended that PE classes, in general, in MSU-Marawi should be continued to be student-friendly, enjoyable, and fun, to cater to the needs of the students, regardless of age, sex, scholarship status, and ethnicity, so as to lessen state anxiety. In addition, conduct similar studies involving students in PE 2, PE 3, and PE 4 to compare and contrast the result of this particular study. Keywords: age, sex, scholarship status, ethnicity, state anxiety

Introduction
The aim of Physical Education (PE) classes is the development of skills, knowledge, values, and attitudes of the students needed for establishing and enjoying an active and healthy lifestyle. Oyco (2004) defined it as an "important segment of general education which aims to the total development of the learner through participation in selected vigorous activities."
Yet, when students enrol in college, they sometimes neglect the value of a Physical Education class. They say "PE *lang yan*," or "PE *ra bitaw na*," (That is just PE), and is therefore, considered not as important as the other courses. They would spend less time preparing for PE, while some would skip classes to give way for their Math or Physics lessons. There are students who claim that Physical Education is a generally "fun" course but there are also a lot of them who perceive it as a difficult course requiring physical skill and

dexterity. It is a complex course in which complex skills are needed to perform a task. With this, these students may actually feel anxious before going to their PE classes, or much more, before or even while attending a practical examination. People, as in the case of students, usually experience anxiety about events they cannot control or predict, or about events that seem threatening or dangerous. This commonly occurs when there is a perceived imbalance between the demands of the situation and the ability to meet those demands.

Anxiety is defined as "an anticipation of a certain danger, although it is sometimes defined as a reaction to stimuli which do not represent real danger" (Zdravkovic as cited by Mitrovic et al., 2012). Cox (2002) differentiated trait anxiety and state anxiety. *Trait anxiety* refers to "the predisposition to perceive certain environmental situations as threatening" while *state anxiety* is "an immediate emotional state that is characterized by apprehension, fear, tension, and an increase in physiological arousal."

In this study, the focus is state anxiety. Researches have shown that there are sources of state anxiety in Physical Education. Tremayne (1995) as cited in Psychology for Physical Educators: Student in Focus (2007), enumerated physical factors (e.g., inadequate body build, low fitness levels), psychological factors (e.g., dislike of the course or teacher, fear, low interest), and environmental factors (e.g., poor facilities and equipment, bad weather) resulting in feelings of alienation and threat during activities.

State anxiety in Physical Education classes are manifested in many ways. As mentioned in Psychology for Physical Educators: Student in Focus (2007), the following are the symptoms: cognitive-emotional (e.g., feelings of discomfort about performing a task, fear of failure, peers' and teachers' evaluations), physiological (e.g., muscle tension), behavioral (e.g., refusal to demonstrate a difficult or demanding task, poor class attendance). It is thought that age, sex, scholarship status, and ethnicity are factors related to state anxiety among PE 1 students. It is believed that reduced level of state anxiety is important to get maximum benefits from PE classes.

Statement Of The Problem

This study aimed to answer the following questions:

- What is the profile of the respondents in terms of age, sex, scholarship status, and ethnicity?
- What is the state anxiety profile of the respondents particularly their cognitive processes, somatic anxiety, worry, and overall state anxiety?
- Is there a significant relationship between the independent variables of age, sex, scholarship status, and ethnicity and the dependent variables of cognitive processes, somatic anxiety, worry, and overall state anxiety?

Methods & Materials

Samples

The research was conducted on 150 PE 1 students enrolled during the 1st semester 2015 – 2016 in the College of Sports, Physical Education and Recreation.

Instrumentation

In gathering data, this study used a questionnaire which was comprised of two parts. The first part gathered information of the respondents' name (optional), age, sex, scholarship status, and ethnicity. The second part is the standardized test called the Physical Education State Anxiety Scale (PESAS), developed by Barkoukis (2007). It assessed the three (3) dimensions of anxiety: cognitive processes, somatic anxiety, and worry. The cognitive processes subscale estimates anxiety symptoms related to information processing, such as attention, memory, and problem solving. The somatic anxiety subscale evaluates feelings of

tension and apprehension. The worry subscale assesses negative expectations from involvement in the activity.

Statistical Analyses

The descriptive statistics in the form of frequency and percentage distribution for the profile of the respondents was used. In testing to determine the extent or magnitude of the relationship between the variables, the correlation coefficient was used through the Pearson Product Moment of Correlation (Pearson r). The Statistical Package for the Social Sciences (SPSS) version 20 was utilized to come up with the results.

Results And Discussion

It is revealed that majority of the respondents (f=115 or 76.67%) were 16 – 17 years old. The age range fitted that of freshmen college students. In the Mindanao State University – Marawi, Physical Education 1 is offered to freshmen students and is a pre-requisite course to any higher PE courses. There were more female respondents (f=89 or 59.33%) compared to male respondents (f=61 or 40.67%). This is attributed to the fact that in the MSU-Marawi campus, female students outnumbered the male students. In the entire existence of the College of SPEAR, there are always more female sections offered than sections for males. Majority of the respondents were classified as Paying students (f=82 or 54.67%) which clearly supports the fact that MSU-Marawi is considered as the "Melting Pot of the South." Even if these students do not feel the perks of being scholars, their parents can still afford to send them to college because the university offers the lowest tuition fee ever.

Majority of the respondents were Muslim students (f=79 0r 52.67%). This is due to the fact that MSU-Marawi is located in an Islamic city. However, there were also a large percentage of Non-Muslim respondents (f=71 or 47.33%) coming from all corners of Mindanao. It is revealed that majority of the respondents (f=92 or 61.33%) experienced *very low level* of **cognitive processes** during their Physical Education 1 classes. It further reveals that these PE 1 students found it very easy to remember information about the PE tasks presented by their instructors. They were able to focus well on their practical examinations, even if some of these activities involved understanding patterns of such complex tasks. It is found out that a combined majority of the respondents had *low* (f=63 or 42.00%) and *very lowlevel*(f=60 or 40.00%) of **somatic anxiety** during practical examinations in their PE 1 classes. Furthermore, it is claimed that these students felt comfortable about their physical well-being, experiencing very little pressure. Majority of the respondents (f=82 or 54.67%) only felt *moderately***worried** in their PE 1 classes. It can be inferred that these students were a bit concerned about making errors during task execution, making them feeling uneasy about potential mistakes. Majority of the respondents (f=97 or 64.67%) experienced *low level* of **overall state anxiety**. This implies that these students considered their PE 1 classes fun and enjoyable. This supports the statement of Barkoukis (2007) that Physical Education classes consist of playful drills with a structure that is less strict than that of other classes. Definitely, the physical (ex. low fitness level), psychological (ex. low interest), and environmental (ex. poor facilities and equipment) factors mentioned by Tremayne (1995) which cause feelings of alienation and threat during PE activities in schools were not really felt by the respondents while performing tasks during their PE 1 lessons.

Correlation of the Variables

When the p-value obtained is greater than 0.05 level of significance, the relationship between variables is not significant. However, if the p-value is lesser than 0.05 level of significance, the relationship between variables is significant.

Cognitive processes had a significant correlation with age and sex. These cognitive processes include memory, attention, thinking, and problem-solving. With regards to age, it is revealed that there was an inverse relationship as shown by the negative r-value (r= -

0.127) with p= 0.030, wherein older respondents had better signs of information processing during their PE 1 lessons. With regards to sex (p= 0.026), the male respondents were able to have better cognitive processes compared to the female respondents which means that they find it easier to remember information about the tasks presented by the PE teachers. It is easier for the males to understand patterns of complex tasks. This may be due to the fact that men are naturally stronger than women when it comes to strength and fitness skills, thus performing tasks in PE may come easier for them. When it comes to somatic anxiety(p= 0.016) and worry (p= 0.021), it was found out that these two subscales had significant relationship with scholarship status. Those academic scholars and non-academic scholars, as compared to paying students,experienced more somatic symptoms of anxiety like feeling dizzy, having shortness of breath, or it is as though something is choking them while performing practical exams. When performing the tasks, they feel more uneasy about potential mistakes. They are more concerned about failing when performing PE skills, and always thinking about the consequences of possible mistakes. In Mindanao State University, PE grades are part of the computation of the Cumulative Grade Point Average (CGPA), thus, can also affect the maintenance or demotion of the scholarships of these students. Furthermore, the study found out that the overall state anxiety significantly correlated with age (p= 0.030) and sex (p= 0.026).This still maintained the findings that male PE 1 students and those older respondents experience lesser amount of overall state anxiety compared to their female counterparts.

Recommendations

The following are the recommendations of the study:

- PE classes, in general, in MSU-Marawi should be continued to be student-friendly, enjoyable, and fun, to cater to the needs of the students, regardless of age, sex, scholarship status, and ethnicity, so as to lessen state anxiety since it was found out that majority of the PE 1 students experienced very low, low, and moderate levels of state anxiety.
- Conduct similar studies involving students in PE 2, PE 3, and PE 4 to compare and contrast the result of this particular study.

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Adaptation To The Levels Of MDA and SOD Enzyme Activity Of MICT and HIIT Exercise On Wistar

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Abstract
The purpose of this research is to reveal the influence of moderate intensity continuous training (MICT) and high intensity interval training (HIIT) against the levels of malondialdehyde (MDA) and superoxide dismutase enzyme activity (SOD) in blood circulation. The sample in this research using animals trying to be the male wistar rat tail 21 numbers of appropriate criteria for inclusion and is divided into three treatment groups (control, MICT, HIIT). MICT method applied with exercise intensity 60-80% baseline maximum ability, whereas the method of exercise HIIT applied with 100% intensity baseline maximum ability. Exercise interventions in this study provided for 6 weeks with a frequency of 4 x per week. MDA levels known data collection based on the reading of the spectrophotometry of blood serum. SOD enzyme activity known by observation rate of inhibition of the reduction of ferisitokrom c by superoxide anion from xantin/xantin oxidase. The results showed that exercise HIIT and influence the MICT method changed the levels of MDA (Sig. < 0.05), but no effect on enzyme activity of SOD (Sig. > 0.05). It showed, MICT method considered more safe and effective in improving metabolic status based on the trend of changes in average levels of MDA and SOD enzyme activity. Key words—MDA, SOD, MICT, and HIIT.

Introduction

Passive lifestyle and nutritional intake against the inefficient provision of output energy impact on overweight and obesity (Faghri, P., Stratton, K., & Momeni, K 2015); (Jung, U. J., & Choi, M 2014); (Sahoo, K., Sahoo, B., & Choudhury, A. K 2015**).** The lancet journal published in national geographic (2014) mentioned that based on the survey results number of individuals known to obesity in the world reached 875 million in 1980 have elevated into a 2.1 billion in 2013**.** Health research data base (RISKESDAS) also mentioned that the prevalence of obesity in Indonesia is still experiencing an increase each year and tends to occur in the population with age > 18 years. Percentage of population males with 7.8% in 2007 increased to 19.7% in 2013, the percentage of women with 15.5% in 2010 increased to 32.9% in 2013, while the overall increase in numbers of all ages and genders during the year 2010-2013 shows the percentage of 18.8% increased to 26.6%.

Obesity can trigger an increase in the degree of oxidative stress due to adipose tissue mainly on visceral compartment capable of unleashing a biological active molecules in the form of various adipocytokines (adipokin) which is on a mechanism for performance generates reactive oxygen species (ROS) (Marseglia, L., Manti, s., D'Angelo, G 2015); (Sanchez, A. F., Santillan, E. M., Bautista, M 2011). Other opinions also delivered by Manna, *et al*., that the obese are able to induce oxidative stress due to high formation of superoxide (O2•-) through various biochemical mechanism in the form of adenine dinucleotide nicotiamide

phosphate (NADPH oxidases oxidases), oxidative phosphorylation, activation of protein kinase C (PK-C), activation of the polyol pathway and hexosamine (Manna, P., Obesity 2015). While according to Birben, *et al*., oxidative stress on obesity next able to flourish and triggers the onset of various pathological problems such as cancer, neurological disorders, hypertension, atherosclerosis, ischemia/perfusion, diabetes mellitus, idiophatic pulmonary fibrosis, and asthma (Birben, E., Sahiner, U. M., Sackesen, C 2012).

The sport with the right dosage, measurable, and regular handling strategy is overweight and obesity through a nonpharmachologic approach (Iguichi, M., Littmann, A.E., Chang, S 2012); (Sugiharto 2014); (Sword, D. O., & Carolina, S 2012); (Wadden, T. A., Neiberg, R. H., Wing, R. R 2011). Exercise program to decrease the levels of body fat according to Mikami, *et al*., can be done by the method of moderate intensity continuous training (MICT) at 60-70% VO2 peak intensity for 45 minutes in continuous (Mikami, M. E., Sato, K., Kurihara, T., & Hasegawa, N 2015). Yet another opinion delivered by Maillard, *et al*., that high intensity interval training (HIIT) (60 x (8 seconds at 77-85% HRmax, with 12 minutes active recovery)) has been shown to significantly lower levels of total fat capable, abdominal subcutan, and visceral (Maillard, F., Rousset, S., Pereira, B 2016). These conditions because of the exercise by the method of HIIT responded bodily through the increased activity of the enzyme cytocrome c oxydase (COX) as well as the components of cardiometabolic marked by declining fat content and hormone insulin in blood plasma (Racil, G., Coquart, J. B., Elmontassar, W 2016); (Gibala, M. J., Little, J. P., Essen, M. V., Wilkin, G. P., Burgomaster, K. A., Safdar, A., Raha, S., and Tarnopolsky, M. A 2006).

Although the exercise with the method more effective than HIIT rated MICT in lowering the levels of body fat, but the adaptation of biokemis on the complex free-radical and endogenous antioxidant enzymes activity of the body based on a dose of exercise should still be Note: for the methods of exercise is known to involve high intensity even reached the verge of supramaximal. These problems need attention in particular due to exercises conducted with high intensity can increase the levels of malondialdehyde (MDA), which is the product of the concentration of lipids is at once an indicator of oxidative stress (Cunningham, P., Geary, M., Harper, R 2005). While the high production of ROS and the degree of oxidative stress subsequent capable aggravate, master, even triggering the failure of endogenous antioxidant enzymes in particular performance superoxide dismutase (SOD) in the reduction of exposure to free radicals (Lubrano, V. & Balzan, S 2015); (Nita, M., & Grzybowsky, A 2016); (Winarsi, H., Wijayanti, S. P. M., & Purwanto, A 2012). It is this underlying condition causes damage to components of the biomolecules of cells and normal tissue mainly on deoxyribonucleic acid (DNA), polyunsaturated fatty acids (PUFA), amino acids, and a variety of proteins active in the body (Nita, M., & Grzybowsky, A 2016); (Yavari, A., Javadi, M., Mirmiran, P., & Bahadoran, Z 2016)**.** Based on the background of problems, needed research on adaptation of biochemist body of MICT and HIIT against levels of MDA and SOD enzyme activity.

Material And Method

A. Animal Research

This research is a true experimental laboratories conducted in in vivo involving animals try to form rat rattus norvegicus wistar strain types. The number of samples in the study involves 21 rats that consists of a control group (n = 7), MICT (n = 7), and HIIT (n = 7). Counting the number of sample refers to the "guideline for the care and use mammals in neuroscience and behavioral research".

Incubation place animals try (animal house) in this research have the temperature maintained at 22 ° C, with humidity 50-55%, and do control of light-dark cycle of 12 hours. Inclusion criteria for animal statutes try in this research include the rat rattus norvegicus type strain wistar males, age

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	32213.968	2	16106.984	27.360	.000
Within Groups	10596.887	18	588.716		
Total	42810.856	20			

2-3 months, untrained, overweight, and healthy and are not defects. The use of animals try to the criteria of inclusion in this research has been awarded the legality of the Commission of ethics of the research University of Brawijaya Malang with numbers: 900-KEP-UB that have passed and declared to be "ELIGIBLE to CONDUCT".

B. ***Exercise Protocol***

The implementation of the exercise protocol on experimental animals was carried out using a treadmill specifically for mice with the CIS3 IDEAS industries of electronic & software brands. The MICT method exercise is applied to a maximum intensity of 50-60% capability with an initial velocity of 40 m / minute. While the HIIT method is applied to an intensity of 100% maximum baseline with an initial speed of 40 m / minute. Progress increased load exercise performed with the increased speed of the treadmill of 1 m/min for HIIT, and 0.6 m/min for MICT is applied in each of the first exercises start 2nd week. The total duration of the exercise HIIT has done for 15 minutes (9 minutes "on" and "off" 6 minutes) intervals. While the MICT performed for 30 minutes in continuous in each practice session. The exercise intervention in this study was given for 6 weeks with frequency of 4 times per week.

Dependent Variable: MDA Level					
Test	**(I) Treatment group**	**(J) Treatment group**	**Mean Difference (I-J)**	**Std. Error**	**Sig.**
Tukey HSD	Control	MICT	57.62000*	12.96937	.001
		HIIT	-37.62000*	12.96937	.025
	MICT	Control	-57.62000*	12.96937	.001
		HIIT	-95.24000*	12.96937	.000
	HIIT	Control	37.62000*	12.96937	.025
		MICT	95.24000*	12.96937	.000

C. ***Blood Sampling and Laboratory Analysis***

Blood sampling is done by taking blood from the heart of mice by as much as 5 cc. To avoid coagulation and damage. blood samples included on anticoagulant tubes ethylene diamine tetra acetate (EDTA) purple. Separation of serum and blood plasma is carried out by centrifuge at 2000 rpm rotation speed for 10 minutes.

Serum MDA levels known to be based on the results of serum reaction with TCA 100%. Na Thio 1%. and HCL 1N. which is then incubated and observed results using spectrofotometri. The serum SOD enzyme activity to known based on the rate of inhibition of the reduction of ferisitokrom c by superoxide anion generated by the xantin/xantin oxidase activity of the reaction is read using spectrofotometri with wavelength 500-600 nm.

II. STSTISTICAL ANALYSIS

TABLE 1. Mean ± SD of MDA Level and SOD Activity

Group	MDA level	SOD activity
Control	146.45 ± 41.45	6.90 ± 0.81
MICT	88.83 ± 3.04	9.33 ± 3.28
HIIT	184.07 ± 6.19	6.98 1.53

[a.] MDA level (ng/ml)
[b.] SOD activity (Unit/ml)

TABLE 2. Anova of MDA Level

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	26.679	2	13.339	2.913	.080
Within Groups	82.435	18	4.580		
Total	109.113	20			

TABLE 3. Anova of SOD Activity

TABLE 4. Tukey-HSD of MDA Level

*. The mean difference is significant at the 0.05 level.

Discussion

A. The Effect of MICT on MDA Level and SOD Activity

Based on the results of the anova test (TABLE 4) show that the MICT effect significantly changes the levels of MDA (*Sig*. < α, with α = 0.05). The results of this study supports previous research conducted by Narasimhan & Rajasekaran, the findings of such research that high ROS on exercise that includes the concept of endurance training method as on MICT, turns Note that the increased production of ROS low to moderate levels of not always cause loss and damage to the body, for the improvement of the conditions of the ROS also functioned as up-regulator of activation mechanism of antioxidants in detoxification system (Narasimhan, M., & Rajasekaran, N. S 2016). It is also proven in this study showing that the average value of the activity of the enzymes SOD on higher MICT method when compared with the control group and HIIT (TABLE 1). Earlier findings about mechanisms and increased MDA levels decrease enzyme activity of SOD on exercise moderate has been described by Gounder, *et al*., that the long-term impact on the molecular level of moderate exercise in continuous causes activation of the signaling oxidizing nuclear erytroid p-45 related factor-2 (Nrf-2) (Gounder, S. S., Kannan, S., Devadoss, D 2012), as a regulator of transcription factor genes contain various antioxidant response element (ARE) to establish homeostasis with radical formation against reactive (Narasimhan, M., & Rajasekaran, N. S 2016). A variety of conditions such as one of the causes of the decline in the levels of MDA significantly followed by an increase in the average activity of enzymes SOD in this research.

B. The Effect of HIIT on MDA Level and SOD Activity

The results of the anova test (TABLE 4) show that HIIT effect significantly to increased levels of MDA (*Sig*. < α, with α = 0.05), which was not followed by an increase in average enough SOD enzyme activity means (TABLE 1). The results of this study resemble the previous research conducted by the Goto, with high intensity exercise intervention for 12 weeks proved to increase the oxidative stress marker in the form of MDA **(6).** Findings from such research that high intensity exercise causes the body are on oxygen deficit condition further enlarge the oxygen consumption of the network of post exercise, other sources refer to it as excess post exercise oxygen consummation (EPOC) that could potentially increase

the formation of ROS quite rapidly, even Nita & Grzybowski, explaining that in this the high concentration of lipids through the ROS work against PUFA produce derivatives of the pillars in the form of MDA (Nita, M., & Grzybowsky, A 2016). Other detrimental impacts from this condition also advanced by Aldred, high levels of ROS that will suppress endogenous antioxidant activity (Aldred, S 2007). The occurrence of the antioxidant deficiency which was alleged to be one of the factors the causes of the high levels of MDA and SOD enzyme activity rate low in the study.

Conclusion

The study found the presence of a significant change in the method of MICT against MDA levels (TABLE 2), but there was no increase in the activity of the enzymes SOD (TABLE 3) and the control group comparison. It shows that the practice is still recommended as one of the metabolic status of the repair strategy and controlling deposits of body fat that is safe and effective, because of the low levels of MDA at the MICT than HIIT and control is MICT have indication that risk against oxidative stress and potential tissue damage due to the work of ROS.

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Indian Sports Administration And Funding

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Political responsibility for sport in India is with the Ministry of Youth affairs and Sports, which is headed by a cabinet minister and managed by National Sport Federations.) The only major exception is the BCCI which is the administrative body of Cricket, is not a NSF. Presently there are more than 70 recognized national sports federations (NSF), of which 38 have politicians at the helm. Sports Authority of India, the field arm of the Ministry, supports and nurtures talent in youth, and provides them with requisite infrastructure, equipment, coaching facilities and competition exposure. Dorabji Tata, with the support of Dr.A.G.Noehren, then director of YMCA, established the Indian Olympic Association (IOA) in 1927. IOA is responsible for the Indian contient's participation in the Olympic Games, Commonwealth Games, Asian Games (outdoor, indoor and beach), and south Asian Games. Each Olympic and non-Olympic sport has a federation at the national level.

The selection of the national teams is done by the respective national federations and then recommend to IOA for official sponsorship for participation in the games conducted under the auspices of the International Olympic Committee, Olympic Council of Asia, Commonwealth Games Federation, and SAG. A special feature of the Indian Olympic Association is that the National Federations and the State Olympic Associations are affiliated with and recognized by it. The main task of the State Olympic Associations is to promote the Olympic sport and to ensure co-ordination among the State Sports Associations. In 2010-11, the total budget for sports and physical education schemes is 31,177 million (US$450 million). Hockey, in which India has an impressive record with eight Olympic gold medals, is said to be the national sport. The Rajiv Gandhi Khel Ratna and the Arjuna Award are India's highest awards for achievement in sports, while the Dronacharya Award is awarded for excellence in coaching. India has been criticized for neglecting women is sports, as depicted in the film "Chak De! India", where women's sports associations are under-sponsored and out of funds.

Olympics

A single athlete, Norman Pritchard, represented India in the 1900 Olympics, winning two silver medals. India sent its first national team to the Olympics in 1920, and has participated in every Summer Olympic Games ever since. India has also completed at several Winter Olympic Games since 1964.

India has won a total of 26 Olympic medals. India won its first gold medal in men's field hockey in the 1928 Olympic Games. Abhinav Bindra became the first Indian to win an individual gold medal at the Olympic Games, and India's first gold medal since 1980, when the men's field hockey team won the gold.

India has won very few Olympic medals, despite a population exceeding one billion, around half of them under the age of 25. Numerous explanations have been offered for the dearth, including poverty, malnutrition, neglected infrastructure, the lack of sponsorship, the theft of money and equipment political corruption, institutional disorganization, social immobility, the predominance of cricket, and other cultural factors.

According to several informal statics, India is the country with the lowest number of total Olympic medals per capita (out of those countries which have won at least one medal). In the Winter Olympic Games, India has seen four consecutive representations – Nagano (Japan, 1998), Salt City (Utah, USA, 2002), Turin (Italy, 2006), and Vancouver (British Columbia, Canada, 2010). Shiva Keshavan, Asian Champion in luge represented India in all four winter games.

Commonwealth Games

India has competed in fourteen of the eighteen previous Commonwealth Games; starting at the second Games in 1934 hosted the games one time. India hosted the Games in 2010, at Delhi. India is the fourth most successful country with a total of 436 medals including 156 gold medals.

Asian Games

India hosted the Asian Games in 1951 and 1982 at New Delhi. India is the 4th most successful country winning 602 medals including 139 gold. India has won the gold medal in Kabbadi ever since its inception except in 2018.

The National Games Of India

The national Games of India is a sporting event held in India. It comprises various disciplines in which sportsmen from the different states of India participate against each other. The country's first few Olympic Games, now christened as National Games. Shooting is an important Olympic sport in India. Of India's 26 Olympic medals, 4 have come from Shooting including a Gold by Abhinav Bindra in the 2008 Olympics. Indian shooters who have excelled at the world stage include Abhinav Bindra, Jitu Rai, Rajyavardhan Singh Rathore, Vijay Kumar, Gagan Narang, Apurvi Chandela, Ronjan Sodhi and Anjali Bhagwat.

The Indian shooting contingent for the 2012 London was one of the largest to date. There were a total of 11 shooters including 4 female shooters. India's first medal in the 2012 Olympics was when Gagan Narang won the bronze in the 10m Air Rifle event. This was the same event in which Abhinav Bindra won India's first individual gold medal in the 2008 Summer Olympics Beijing. The second medal came from the unheralded army man Vijay Kumar when he won the silver in the 25m rapid fire pistol event after finishing 4th in the qualification rounds. He had to fend off some tough competition from the third-placed Chinese Ding Feng.

A notable performance was made by Joydeep Karmakar who finished 4th in the 50m rifle prone event. A strong medal prospect Ronjan Sodhi who is an Asian Games gold medallist, however, crashed out in the qualification rounds of the Double trap event.

Olympic Sports

Field Hockey is a popular sport in India. Until the mid-1970s, India men's team dominated international field hockey, winning 7 Olympic gold medals and won the 1975 Men's Hockey World Cup. Since then, barring a gold medal at the 1980 Olympics, India's performance in field

hockey has been dismal, with other hockey-playing nations such as Australia, Netherlands and Germany improving their standards and catching up with India. Its decline is also due to the change in rules of the game, introduction of artificial turf, and internal politics in Indian field hockey bodies. The popularity of field hockey has also delined massively parallel to the decline of the Indian hockey team. In recent years, the standard of Indian hockey has gone from bad to worse, with the Men's team not qualifying for the 2008 Olympics and finishing last in the 2012 Olympics. Since 2014, the men's team is trying to regain its lost glory little by little as they become runners up at the 2014 Commonwealth Games, then winning a much needed 2014 Asian Games gold and 2017 Men's Hockey Asia Cup to finally establishing the Asian dominance after long time but before that India lost to Belgium in the quarter final of 2016 Rio Olympics. India Men's hockey team is eyeing for gold at the 2018 Men's Hockey World Cup as its going to hold in India, as support of home crowds which is a must need to defeat the aura of the Australians who constantly dominating the Indian team in the recent years in various finals such as the 2014 & 2018 Hockey Champions Trophy. Currently, the Indian men's team is 5th in the rankings of the Federation International de Hockey sur Gazon (FIH, English: International Hockey Federation), the international governing body of field hockey and indoor field hockey.

The Women's team came of age in 1980 when they first participated at the Summer Olympics and achieved the 4th place. The first golden moment for the team was in 1982 at the Asian Games. Since then not much of happening moments in the team history, though in 2016 after 34 years, it's a little hope when Indian women's team qualified for the Summer Olympics and they went on to win the 2017 Women's Hockey Asia Cup claiming the Asia dominance after 2004. India Women's team failed to win any medal in the Women's Hockey World Cup. The present team is ranked 10th.

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IMPACT OF PROPRIOCEPTIVE EXERCISES WITH AGILITY TRAINING ON GOAL SHOOTING AMONG FIELD HOCKEY PALYERS

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ABSTRACT
The present study was undertaken to analyze the impact of proprioceptive exercises with agility training on selected skill related performance variables among hockey players. The investigator has selected sixty male inter collegiate hockey players at random from Acharaya Nagrarjuna University team, Guntur District of Andhra Pradesh. Their age ranged from 18-23 years. The subjects chosen for the study were divided into four equal groups and designated as three experimental group and control group namely Group 'A' underwent proprioceptive Exercises [PEG], Group 'B' underwent agility training [ATG], Group 'C' underwent combined proprioceptive exercises and agility training [PEATG] and Group 'D' act as control group [CG] did not participated in any of the training programme apart from their regular activities. The trainings were given for a period of twelve weeks. The data were collected before and after the training by conducting shooting from 16 yards. The obtained data were analyzed by Analysis of Covariance (ANCOVA). The level of significant was fixed at 0.05 levels. The results of the study showed that three experimental groups significantly improved than control group.
Keywords: – proprioceptive exercises - agility – Goal shooting.

Introduction
Proprioceptive exercises means to control the body position. Proprioceptive senses continuously send the information to the brain as the position, location, orientation and movement of the body. Whereas propriception involve in every physical activities. Properioceptive exercises perform in this study namely exercises on swiss ball, exercises on balance board and exercises on Bosu ball. Agility training means drills perform by athletes to change directions quickly and effectively with moving as nearly as possible of full speed. Agility training exercises perform in study namely agility ladder exercises, agility cone exercises and agility hurdle exercises.
Goal shooting ability of the subjects in terms of total points taken by them from the target board. As shooting at the center of the goal area was comparatively easy, and subject was given less credit for shooting at the middle and highest credit was given for shooting at right and left extreme of goal mouth (Nripendra and Dasnd2017). Goal shooting from 16 yards the area needed was 25 meters by 10 meters. A line was marked 2 meters from the top of the shooting circle with 3.66 meters width. The goal post was divided into three equal areas and point was given3, 1 and 3 respectively. The area between the starting and retraining line was 2 meters. The player stands at the starting line on blowing the whistle the subject's moves in the given area and shoots the ball at the goal just inside the shooting circle. The place where the ball hits was counted. If the ball hit on the line nearest highest point was awarded. Totally five chance was given to each subject and total score was taken as score (Suresh 2010).

Statement Of The Problem

The purpose of the study was to investigate the "impact of proprioceptive exercises with agility training on goal shooting among field hockey players".

Hypothesis

- It was hypothesis that there will be a significant improvement in goal shooting after the twelve weeks of proprioceptive exercises, agility training and proprioceptive exercises with agility training as compared with control group.
- It was hypothesis that proprioceptive exercises with agility training would be superior than the prorioceptive exercises group and agility training group on goal shooting.

Methodology

The purpose of this study was to find out the impact of proprioceptive exercises with agility training on goal shooting. To achieve the purpose of the study 60 inter collegiate hockey players were selected at random from Acharaya Nagarjuna University. Their age ranged from 18 to to 23 years. The subjects chosen for study was divided into four groups namely Group 'A" proprioceptive Exercises [PEG], Group 'B' agility training [ATG], Group 'C' combined proprioceptive exercises and agility training [PEATG] and Group 'D' act as control group [CG] was restricted to participate in any of the training programme other than their regular activities. Each groups consisted of fifteen hockey players. Training was given three days in a week for twelve weeks. The subject were tested on goal shooting at the beginning (Pre-test) and at the end of the experimental period (Post-test). To measure the goal shooting from 16 yards were used respectively because of their simplicity and availability of necessary facilities, instrument and equipment's. The analysis of data on goal shooting have been examine by ANCOVA for each variables separately in order to determine the differences if any among the group at pre and posttest.

Table: I Analysis of Covariance for goal shooting on Pre Test and Post Test Data of Experimental and Control Groups (In points)

Tests	PEG	ATG	PEATG	CG	Source of variance	Sum of Squares	df	Mean Squares	'F' Ratio
Pre Test									
Mean	5.46	5.73	5.13	5.13	B	3.80	3		0.77
SD	1.30	1.27	1.30	1.24	W	92.13	56	1.26	
								1.64	
Post Test									
Mean	11.66	11.60	13.13	5.60	B	502.73	3	167.57	111.36*
SD	1.04	1.24	1.40	1.18	W	84.26	56	1.50	
Adjusted Post Test Mean	11.62	11.43	13.24	5.70	B	487.05	3	162.35	137.63*
					W	64.87	55	1.18	

***Significant at 0.05 level of confidence (Required table value at 0.05 level of significant with df 3 and 56 is 2.77 and df 3 and 55 is 2.77)**

The above table-I shows that there is a significant difference in goal shooting among the four groups such as PEG, ATG, PEATG and CG. Since the calculated 'F' value required being significant at 0.05 level for 3,57 and 3, 58 degree of freedom is 2.77, but the calculated values of

goal shooting post and adjusted posttest 'F' values are 111.36 and 137.63 respectively. Which are higher than the tabulated value. Since the obtained 'F' ratio is found significant. The significant differences exist in the adjusted post test mean, further multiple comparison test was applied Scheffe's post hoc test and results are presented in the table II.

Table -II The Scheffes Test for the Mean Differences Between Paired Mean of Groups on Goal shooting (In points)

Mean Value				Mean Difference	C.I
PEG	ATG	PEATG	CG		
11.62	11.43	-	-	0.19	0.67
11.62	-	13.24	-	1.62*	
11.62	-	-	5.70	5.92*	
-	11.43	13.24	-	1.81*	
-	11.43	-	5.70	5.73*	
-	-	13.24	5.70	7.54*	

*Significant at 0.05 level of confidence

The above table-2 reveals that there is significant difference among pairs adjusted posttest means between PEG and PEATGCTG, PEG and CG, ATG and PEATG, ATG and CG, PEATG and CG in relation to goal shooting.

Hence it also observed that there is no significant differences exist between PEG and ATG. It is clearly showed that there is significant improvement in goal shooting due to the influence of as PEG, ATG and PEATG when compared with control group. It also shows that PEATG is significantly better than the PEG and ATG in relation to goal shooting. The pretest and posttest mean values of the four groups have been graphically presented in figure-1

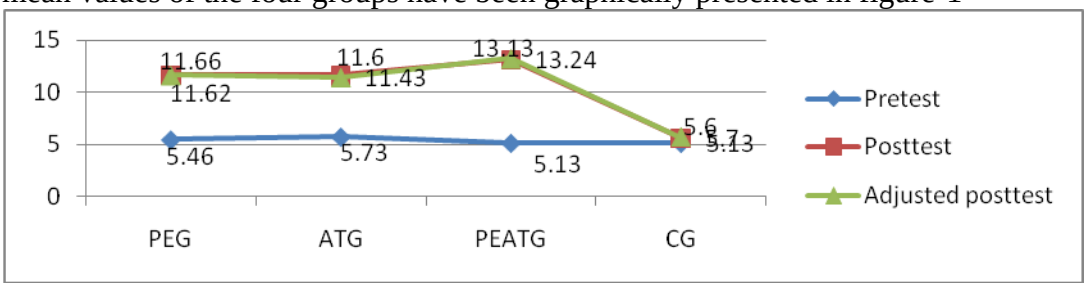

Figure :1Bar diagram showing the pretest, posttest and adjusted posttest mean of experimental group and control groups on goal shooting [In points]

Discussion on Hypothesis

- The first hypothesis says that there may be significant difference between experimental group and control group on goal shooting. The result of the study shows that there were significant differences exist between experimental group and control group. Hence the research hypothesis is accepted.
- The second hypothesis says that proprioceptive exercises with agility training would be superior than the proprioceptive exercises group and agility training group on goal shooting. Hence the research hypothesis is accepted.

Discussion and Findings

The result of the study reveals that after the twelve weeks of Proprioceptive exercise [PEG], Agility training [ATG] and proprioceptive exercises with agility significantly improved goal shooting. The finding of the study are aligned with the following studies Satheeskumar and Simson (2016) Ganesh et al., (2014), Muniyappan and Vallimurugan (2017), Kavitha et al., (2016), Shelvam and Baljit (2016) as an effective method to improve goal shooting.

Conclusions:

Goal shooting was significantly improved by the Proprioceptive exercise [PEG], Agility training [ATG] and proprioceptive exercises with agility training [PEATG] when compared with control group and Combined training [PEATG] was superior than isolated training PEG and ATG.

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Evaluating the Influence of Chess Play on Developing Meta-Cognitive Knack and Math Problem-Solving Command among Primary School Students

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Abstract
The aim of this study was to evaluate the effect of learning of chess play on developing meta-cognitive and mathematical problem –solving capability of students at various levels of schooling. For this 86 school students (no gender bias) were randomly selected and they taught chess for six months, and another group of 94 students randomly selected for control group. The subjects were examined via meta-cognitive questionnaire of Panaoura, Philippou, and Christou (2003)and mathematics problem solving capabilities than other non-chess players. Further positive and significant relationship was found between students' meta-cognitive ability and their mathematical problem-solving power. These results suggest that we can use chess as an effective tool for developing higher order thinking skills.

Introduction
Chess develops mental activities which are used throughout life. Some of these activities such as problem-solving, focusing, critical thinking, mental reasoning, deliberate planning, analysis, creativity, calculation and synthesis. As an instrument to teach problem –solving and mental reasoning, we can use chess effectively. Learning how to solve a problem is probably more important than finding a solution for a specific problem. By means of chess, we learn how to evaluate a context. Chess is self-motivating. The game has attracted people for about 2000 years and the aims of attack and defense resulting in checkmate encourage us. To penetrate into our mental store (Celone,2001).

Several studies have been done about the advantage of chess in education. The findings of the studies showed that chess can advance academic accomplishment, particularly problem solving strategies, enhance memory, focusing, score of IQ tests, critical thinking and creativity, it also augment spatial and visual power, and the ability to recognize patterns (frank,1974; Ferguson,1995;Liptrap, 1977; Dauvergne, 2000 Thompson 2003; Stefurak, 2003;Brend,2003;Ferreria & Palharse, 2008). Some Researchers have endorsed the influence of Chess play on advancing problem solving ability. Having found similarities between mathematical problem solving and chess, Horgan (1998) pointed out that chess is clearly a problem-solving instrument and the best possible way analyze problem-solving and decision-making because it is a closed system with clear and determined rules. The first step in in encountering a problem is to analyze it in an introductory and subjective way. Assessing the problem and perhaps trying to find patterns of similarities to prior experiences. Just as mathematics is the study of patterns, so in chess pattern recognition is very important in problem solving. By recognizing similarity and patters, we can formulate a general strategy to solve the problem includes developing other choices and a creative process. A skillful chess

player, like a good problem solver, has obtained a great number of relevant schemata; thus making it possible for good alternatives to come up. We can a process of calculations known as decision tree analysis –to assess these alternatives.

Problem solving is a complicated interaction between cognition and –cognition. Perhaps the basic source of trouble in problem solving is that the students cannot actively watch, check and regulate the cognitive process they encounter upon solving the problems (ArtZt & Armour –thomos, 1992).Flavell (1971) developed the concept of storage of input, intelligent and retrieval activity, notion of intelligent checking, and called such knowledge as generally a kind of "meta-memory"(p.227). Meta-cognition is a persons' knowledge about his or her own cognitive processes and products. It is also active checking, following regulations and assessment of cognitive (Flaveell,1979). Brown (1987) divided meta –cognitive into two categories: knowledge of cognition and regulation of cognition.

Knowledge of cognition is the information that is fixed, certain, late developing that human thinkers have as objects of consideration. Regulation is the activities used to check and monitor learning. These activities consist of planning activities (predicting outcomes, setting time strategies, and different forms of indirect trial and error, etc.) before solving the problem; checking activities (monitoring, testing, revising and resetting one" s strategies for learning) in the process of learning and outcomes (assessing the outcomes of strategic actions with the criteria of effectiveness and efficiency.

These activities are not usually stable, though in the past adults have used them on simple problems and are not fixed (knowing how to do something does not necessarily mean that one can bring the action to the level of conscious awareness and reporting to others). They are also independent of age that is, task and situation dependent (Brown, 1987). One basic aspect of learning ignored is students have the necessary knowledge and skills to do complex tasks but they do not use them. The reason is that students do not have motivation or confidence to use them and they do not accept that the situation demands using those skills (Hartmen, 2001). The different meat-cognitive skills are necessary for successful solution of any complicated problem-solving task. It is clear that people, who have higher level of meat-cognitive, do much better in problem-solving. They do their best to find out the relationship among the facts in a problem. They ma y check their accuracy , take apart complex problems toward simpler steps, and may ask themselves questions, and look for answers to make their thought clear (panaoura et al., 2003).

Some evidence shows that chess play can enhance meat-cognitive skills and some other tasks that may be important for success during challenging task, such as mathematical-solving. About the influence of chess, Milat(1997) says;

1. Chess increases intelligence creativity, enhances strategic thinking skills and enriches problem-solving ability. Further, it increases self-esteem.
2. Chess improves and develops higher order thinking skills (that is meat-cognitive skills); in addition youngsters evaluate the actions and results and predict future possibilities.
3. When chess is highly practiced in specific countries, practicing students show ability to be among the top in math's and science and recognize complicated pattern as well.

Given the academic benefits of chess, Meyers (20050 states that we have brought chess to school because we believe that it can directly contribute to academic performance. Chess makes children smarter .It does this function by teaching following skills;

- **Focus:** children learn about the advantages of observing and. in addition, children cannot respond to what is happening unless they watch it.

- **Visualize;** children are encouraged to imagine a imagine a series of actions before it occurs by training and asking them to visualize and to move pieces in their mind ,first one move, then several moves ahead.
- **Thinking forward;** children think to move on or act. We educate them to ask themselves ‘’if I do this, what may happen later and how can I respond/ chess helps to develop calmness or attentiveness.
- **Balancing:** children may learn they do not have to express whatever first occurs to their mind, they learn to find out other choices and take into account the advantages of different actions.
- **Scrutinizing:** children learn to assess the results of particular actions and arrangements. Does this sequence help me or hurt me? It is better to make a decision based on logic instead impulse.
- **Abstract thinking:** children move back occasionally from details and pay attention to the whole pictures. They learn to apply patterns to various or related situations especially when they discover them in one specific context.
- **Planning:** children learn to define long –term goals and do to achieve them. They feel the need to re- evaluate their plans particularly when new improvements change the situation. So, the objectives in this study are to investigate the impact of chess play on developing meat-cognitive ability and math’s problem-solving powers of students at different levels of education.

1. Method

The statistical population of this study was the students (including girls and boys) of fifth , sixth, and seventh grade at primary schools in Kalaburagi, In Karnataka, India. The statistical sample includes 180 student were randomly chosen among the schools. 86 students chosen were taught chess for 6 months along with routine activities of the school (experimental group or chess player students).the remaining 94 students, were in control group or non-chess player students. The frequency of participants is showed in table 1.

Table No. 1. Frequency of the participants

Students	Chess player students’	Non-chess player
Fifth grade	28	29
Sixth grade	27	32
Seventh grade	31	33
Total	**86**	**94**

The questionnaire of meta-cognitive ability measurement, that is, Panaoura, et al. (2003), was used for all participants. The questionnaire consists of 30 met cognitive items designed on the basis of five-choice Likert-scale ranging from always, often, sometimes, rarely, to never and they are given points 5,4,3,2,1 respectively. Maximum meta-cognitive score of the students was set at 150 and the minimum was 30. The reliability of the questionnaire, based on Cranach’s alpha is 0.82.The researcher-made math test was applied to measure problem-solving ability of students at different education grades. To design researcher-made tests, third international mathematics and science study questions (TIMSS), textbooks and non- textbook, and math teacher experiences were targeted. In the end three tests were selected and applied to participants, based on their respective grades (educational levels). Maximum possible score for each student in the math test was 6.

3. Rusults

The results obtained from analysis of meta-cognitive questionnaires applied to the participants along with two independent samples suggest that there is a significant difference at the level $p<0.01$ between meta-cognitive scores means of the chess player students and non-chess player students ($t(178)=5.08$, $p<0.01$). These results are in tables 2.

Table No. 2. Results of independent samples t-test for comparing meta-cognitive score means between two groups

Groups	N	M	SD	t	df	P(2-tailed)
Chess player	86	132.75	7.23	5.08	178	0.000
Non-chess player	94	125.56	9.93			

From table 2, we see that the meat-cognitive scores mean of chess player students was more than non-chess players (as much as 7.19) and this suggests that chess play, as an independent variable, has significant role in developing meat-cognitive ability of the students. In addition, the results that suggest that the difference was significant for meat-cognitive scores mean of chess player students at $p<0.01$ (for fifth grade),$p<0.05$ (for sixth grade) and $p<0.01$ (for seventh grade) students when compared with non-chess player students. The results are in table 34.

Table No.3 Results of independent samples t –test for comparing meta-cognitive score means of students at different age group

Education level	Groups	N	M	SD	t	df	Significance level
Fifth grade	Chess players	**28**	**134.80**	**7.73**	**2.71**	**55**	level 99%
	Non chess player	**29**	**124.57**	**10.49**			p= 0.009
Sixth grade	Chess players	**27**	**113.26**	**6.81**	**2.36**	**57**	Level95%
	Non chess player	**32**	**126.67**	**10.26**			p=0.02
Seventh grade	Chess players	**31**	**133.10**	**7.31**	**3.76**	**62**	Level 99%
	Non chess player	**33**	**125.09**	**9.30**			p<0.001

Although the result of the current study is indicative of positive effects of chess play on developing meta-cognitive ability of the students, there is little or no study in this respect to challenge our results or to support it even more. Another result of this study is that, as pearson correlation test shows, there is a positive and significant relationship between meat-cognitive ability of students and their problem-solving power at $p<0.01$ level. The Pearson correlation was 0.719 which signifies a strong relationship. This result is consistent with other research done in mathematics and meat-cognitive domain. Here, some of these studies are addressed briefly.

The result of various studies show that there is a positive and significant relationship between mathematical problems solving and mea-cognitive elements, that is the more the students gain the power of meat-cognitive ability of problem-solving, the more the prospect of their success in solving challenging problems (lester, Garofalo ,& krool, 1989;schoenfeld, 1985; Gooya,1992; lucangli &cornoldi, 1997; pape & smith,2002; kazemi, Fadae,&Bayat,2010).According to silver (1982) any Learner and math teacher agrees that problem-solving ability involves more than just the accumulation of skills and techniques; in fact the capability to monitor the progress or process of problem-solving and knowing the limitation and ability of the individuals are also important silver called these ‘’ meat-cognitive abilities’’ (cited in Gooya, 1992). Gooya (1992) pointed out that

many researchers believe that the ability to make managerial or executive decisions may signify whether the person can be a problem-solver or not. She asserted that meta-cognition has an effect on problem-solving and the failure to assess individual strategies may result in failing to reach a reasonable conclusion. In this way, the behavior or response of who knows the required and right strategies to solve a problem is justifiable or rational, though she /he may not be able to solve it. Schoenfeld (1985),in the process of observing beginner problem –solver, reports that such students have real knowledge and right strategies to solve the problems but their possible inability to find the answer to the problems is mainly due their weak executive decisions. Panauora et al. (2003) belive that, those who have higher meta-cognitive power, are more meticulous. Are more meticulous and attentive in discovering or understanding the reality of problems. These people would evaluate their possible solution easily, analyze complicated problems in a detailed and specific ways and control their own thinking processes by self-asking. The result if the researcher-made math test and applying T-independent samples test suggest that there is a significant difference at $p<0.01$). between the mean of problem-solving score of chess player students and the non-chess player students ($t[178]=2.89, p<0.01$). Table 4, summarizes the results.

Table No. 4 Results of independent samples t-test for comparing math score means between two groups

Groups	N	M	SD	t	df	P(2-tailed)
Chess player	86	4.41	0.93	2.89	178	0.008
Non-Chess player	94	3.74	1.01			

From the table 4, it is clear that the mean of math scores of the chess player students was more than the non-chess player students; suggesting that chess play as an independent variable, has a positive role on developing problem –solving ability of the students. Furthermore, the results suggest that the mean difference of math scores of chess player students was significant at $p < 0.05$ in fifth grade students $p <0.01$ in the seventh grade students when compared with non-chess player students. Table 5 summarizes the result.

Table No. 5 Results of independent samples t-test for compare of math scores means in different age group

Education level	Groups	N	M	SD	t	df	Significance level
Fifth grade	Chess players	28	4.44	0.9	2.13	55	Level 95%
	Non chess players	29	3.79	0.83			p= 0.03
Sixth grade	Chess players	27	4.39	0.99	2.25	57	Level 95%
	Non chess players	32	3.71	1.08			p=0.01
Seventh grade	Chess players	31	4.37	1.95	2.72	62	Level 99%
	Non chess players	33	3.68	1.11			p=0.004

The result of this study is consistent with other research done in this respect. Here we review some of them briefly. In a study carried out by Gaudreau (1992), in New Brunswick , Canada, it was shown that there is a significant and extensive relationship between math skill and chess play. In this study which was done on 437 fifth grades of elementary students, chess was injected in the curriculum of concerned groups. The result of this study suggests that the students, who had participated in chess play, got higher scores in problem-solving activity. Thus the role of chess play was accepted as an instrument to enhance problem-solving among students. Accordingly, the researchers started to publish the texts called "challenging mathematics" and utilized chess for logical teaching of math to students from second grade to eighth grade of junior high school. By applying this program the score mean of student's problem-solving increased from 62% well up to 81%. In province of Quebec, Canada. when this

program was first started, applying this program improved the students' math score when compared with the scores of other Canadian students in other parts. Furthermore, math mean score of Canadian students was higher than those of American peers in international mathematics exams (cited in Ferguson,1995). Celone (2001) tried to answer the question whether notional or conceptual teaching of chess can develop student's abstract thinking and their problem-solving ability or not. To answer this question he did a research on 19 students of elementary school who voluntarily participated in a one –week program that lasted 20 hours. Students were tested just before and after this program and by using equivalent forms of the TONI-3 test of Non-verbal intelligence, a valid and reliable instrument associated with abstract reasoning and problem-solving ability. The result of this study suggests that significant increase between scores just before and after the test was observed and the improvement was both in their problem-solving ability and intelligence quotient (IQ). In another study done in New York on 3000 students in 100 public schools, the efficacy of chess on developing problem –solving ability and reading comprehension was observed (Margulies, 1993). The result of another study done by Ferguson (1995) shows that by including chess in the curriculum, math teachers could detect significantly improvement of math scores of students and their problem-solving power when compared with those students who had not teken part in these programs. Ferguson goes on to say that in 1989 only 120 students were enrolled and trained in chess clubs but in three years, that is. In 1992, the number of students in chess schools amounted to 19000. The increase was owing to appraising the results of relevant studies and convincing the families and education personnel of usefulness and its pedagogical and social effects.

Conclusion

The results of the present study and other relevant researches in this area suggest that chess teaching to students at different age groups, improves significantly their mathematical problem-solving ability. Furthermore, the result of this study suggests that chess play has the potential to increase meta- cognitive ability of the learners. Documented or compelling research has not done much in this regard. Interested researchers and scholars can do new similar studies with the hope that they may contribute to this field of study. Pedagogical implications of the current study is directed to educational administers, educators, professors and all those who are interested in developing mathematics teaching and instruction. The question or suggestion is, "why should not we introduce chess teaching along with teaching of other subjects? Should we use chess as a useful educational tool, in improving math teaching or enhancing problem-solving strategies?"If we apply the above-mentioned suggestions, we hope to achieve the following objectives.

1. The students would be able to think on problems reasonably and plausibly and would find the ability to analyze the problems correctly. In fact, they would learn the main framework and approaches of solving the problems.
2. Enhancing perception, creativity and reasoning of the students by analysis and practice of different chess positions.
3. When students experience the subtlety and sophistication of chess play, upon encountering
4. Complex and subtle matters, they often associate or link these two elements and discover the logic and subtlety of mathematics. In reality, this complexity may take tangible or real forms for students.
5. Chess play enhances thinking and abstract thought.

6. Chess play can impression or the sort of thinking in the students to the effect that they might not get disappointed or frustrated on facing a difficult problem. The students do their best to the problem in an optimistic or persistent way.
7. This study unveils that chess creates a healthy confidence in the folks as problem-solvers

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Effect Of Breathing Exercises And Mental Training On Anxiety And Coordination Among Kabaddi Players

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Abstract
Purpose of this study to find out the Effect of Breathing Exercises And Mental Training On Anxiety And Coordination Among Kabaddi Players The randomly selected subjects (N=60) were grouped into three groups, namely experimental group I, experimental group II and control group respectively, each consisting of twenty subjects. Pre-tests were conducted for all the subjects on selected psychological and performance variables such as anxiety, and coordination in kabaddi. The experimental group participated in their respective treatments, experimental group I in breathing exercises and experimental group II in mental training for twelve weeks. The control group was strictly under the supervision of the investigator and did not participate in any special activity except of their routine. Immediately after completion of experimental period, all the subjects were measured of the selected psychological and performance variables which formed Post-Test scores. The difference between the initial and final means was considered as the effect of respective experimental treatments on the subjects. The mean differences were subjected to statistical treatment using ANCOVA. **Key Words:** Anxiety and Coordination

Introduction

Sport is an activity that is governed by a set of rules or customs and often engaged in competitively. Sports commonly refer to activities where the physical capabilities of the competitor are the sole or primary determinant of the outcome (winning or losing), and motor sports where mental acuity or equipment quality are major factors. Sport is commonly defined as an organized, competitive and skillful physical activity requiring commitment and fair play. Some view sports as differing from games based on the fact that there are usually higher levels of organization and profit involved in sports. Accurate records are kept and updated for most sports at the highest levels, while failures and accomplishments are widely announced in sport news.

Objectives Of The Study

The objectives of this study are detailed as below:

- To formulate suitable breathing exercises and mental training that can beneficially alter selected psychological and performance variables for the benefit of kabaddi players.
- To experiment with the breathing exercises and mental training among kabaddi players and to find out the effect of breathing exercises and mental training on selected psychological and performance variables.

- To compare the effect of breathing exercises and mental training on selected psychological and performance variables of kabaddi players to find out which of the two experimental treatment is more useful than the other on selected psychological and performance variables.

Statement of the Problem

The purpose of the study was to find out The Effect of Breathing Exercises and Mental Training on Anxiety and Coordination among Kabaddi Players

Hypothesis

It was hypothesized that:

- There would be significant influence due to breathing exercises and mental training on Anxiety and Coordination among kabaddi players compared to control group.
- There would be significant influence due to breathing exercises and mental training on selected performances variable among kabaddi players compared to control group.
- There will not be any significant difference between breathing exercises and mental training on selected psychological and performance variables among kabaddi players.

Significance Of The Study

The present investigation will contribute significantly to the field of physical education and sports in the following ways.

- This study may help the Coaches and Physical Educators to train the kabaddi players to improve their selected psychological variables, anxiety and performance variables coordination of kabaddi.
- This research may help the sports scientists to suggest ways and means to improve better standard in sports through suggesting suitable training methods.The results of this study will give a clear picture to the sports coaches that which are all the specific exercises to be included in the training schedule for the improvement of selected psychological of kabaddi players. .
- The study will give a clear conception to the researcher, whether the breathing exercises or mental training influences selected psychological and performance variables of kabaddi players
- This finding of this research would pave further ways and means to explore similar researches on framing suitable training methods for the improvement of players.
- This study stimulates the players' interest in activities through self evaluation of the performance they do and the importance they show.

Delimitations

The study was delimited as follows:

- The study was conducted only on school level men kabaddi players who represented their schools in inter school competitions.
- The subjects were taken from the age group of 16 to 18 years.
- Only 60 randomly selected school level kabaddi players were selected and randomly assigned into three groups, namely, breathing exercise group, mental training group and control group.
- Breathing exercises advocated through Manavalakalai Yoga Physical Exercises were adopted for this study.

- The kabaddi performance variables, touch, kicking, rotation, hold, block were measured subjectively through experts.
- The following are the dependent and independent variables selected for this study.

Limitations

The study was limited in the following way:

- Regular activities pertaining to their day to day routine were not taken into account.
- Certain factors like rational habits like life style, daily routine, diet and climatic conditions were not taken into account in the study.
- The influence of vigorous academic activity of students could have discouraged or motivated the subjects during training and during testing period.
- The heterogeneous characters of the subjects in hereditary and environmental factors were recognized as a limitation.
- The subject's body type and socio-economic status of the students were not taken into consideration, and
- The environmental factors at the time of responding to the experimental study would be attached the responses of the subjects which recognized as a limitation.

Methodology

Selection Of Subjects, Sixty school level male kabaddi players aged sixteen to eighteen were randomly selected from different schools in Andhra Pradesh as subjects for this study. All the subjects selected were school level kabaddi players who have represented their school in different local competitions including inter-school level competitions. They were assigned into three different groups, namely, experimental group I, experimental group II and control group consisting of twenty subjects in each group. Experimental group I was considered as breathing exercises group, experimental group II was considered as mental training group and the third group, control group was not provided with any special training. The requirements of the experimental procedures, testing as well as exercise schedules were explained to the subjects so as to avoid any ambiguity of the effort required on their part and prior to the administration of the study, the investigator got the individual consent from each subject.

Selection Of Variables

The research scholar reviewed the various scientific literatures pertaining to breathing exercises and mental training on psychological variables and performance variables of kabaddi from books, journals, periodicals, magazines and research papers. Taking into consideration of feasibility criteria, availability of instruments and the relevance of the variables of the present study, the following variables were selected.

Dependent Variables

- Anxiety
- Coordination

Independent Variables

- Breathing exercises for 12 weeks
- Mental Training for 12 weeks

Experimental Design

The randomly selected subjects (N=60) were grouped into three groups, namely experimental group I, experimental group II and control group respectively, each consisting of twenty

subjects. Pre-tests were conducted for all the subjects on selected psychological and performance variables such as anxiety, and coordination in kabaddi. The experimental group participated in their respective treatments, experimental group I in breathing exercises and experimental group II in mental training for twelve weeks. The control group was strictly under the supervision of the investigator and did not participate in any special activity except of their routine. Immediately after completion of experimental period, all the subjects were measured of the selected psychological and performance variables which formed Post-Test scores. The difference between the initial and final means was considered as the effect of respective experimental treatments on the subjects. The mean differences were subjected to statistical treatment using ANCOVA.

Criterion Measures

By glancing the literature, and in consultation with professional experts, the following variables were selected as the criterion measures in this study.

- Psychological variable anxiety was assessed through Speilberger's Anxiety Test Questionnaire.
- Coordination was measured through Hand Eye Coordination test and scores recorded in seconds.

The intraclass correlation coefficient obtained for test-retest data are presented in Table I.

Table I - Intra Class Correlation Coefficient of Test – Retest Scores

S.No.	Variables	Coefficient of Correlation
1	Anxiety)	0.83*
2	Coordination	0.78*

***** Significant at 0.05 level

Measurement Of Psychological Variables - Sports Competition Anxiety

A Sport Competition Anxiety was measured through the anxiety questionnaire developed by Speilberger (1979), the anxiety questionnaire was designed to measure the degree of sports competition anxiety experience prior to the competition. The questionnaire consists of twenty items were adopted from Spielbergers Trait Anxiety questionnaire for this investigation. The complete questionnaire is scores as follows:

S.No.	Response	Score of Positive statements	Score of Negative statements
1	Not at all	1	4
2	Some what	2	3
3	Moderately so	3	2
4	Very much	4	1

Positive Statements	1,2,5,8,10,11,15,16,19,20+
Negative Statements	3,4,6,7,9,12,13,14,17,18

Coordination

Purpose : To measure hand eye coordination **Equipments:** Two large boxes (or) containers (capable of holding more than 5 balls of 10 inches diameter each) and a stopwatch. **Procedure:** The tester after giving a demonstration asks a subject to stand in the middle of two boxes lying a distance of 15 feet from each five (or) more ordinary play ground balls of 10 inches diameter are put in the box lying on the left hand side of the subjects. The tester gives the commands ready, set, go, at the word go the tester switches the stopwatch. While the subjects runs to the box on

his left, takes out one ball, runs back to the right box puts the ball in the box run back to the left box to take another ball for putting in the might box and repeats the process till the last ball in the right box. As soon as the subjects puts the last ball in the right box, the tester stops the stop watch to record the time taken by the subject to transfer the balls. **Scoring:** The subject was given two trials after a slow practice trial. The best timing is the score of the test.

Statistical Technique: In this study, random group design was used. The selection of subjects, allotment of groups as control and experimental group were done randomly. Data were collected before and after breathing exercises and mental training on the selected dependent variables. No attempt was made to equate the groups before the commencement of training. Thus, to nullify the differences in the initial means on the post data, analysis of covariance was used. The level of significance was set at 0.05 level. The data obtained were analysed by analysis of variance (ANOVA) and analysis of covariance (ANCOVA). The analysis of variance was used to assess the significance of difference between the pre-test and post-test, for each of the variables on the assisted, resisted and combination of assisted and resisted sprint training groups separately.

Analysis of covariance was computed for any number of experimental groups, the final means were adjusted for differences in the means were tested for significance. The analysis of variance was first computed to find out the difference between the initial means. The obtained 'F' ratio compared with critical F-value for significance, will provide confidence that the critical samples came from the same population and are devoid of sampling bias. When the F-ratio was found to be significant, Scheffe's post-hoc test was used to find out the paired mean significant difference (Thirumalaisamy, 1998). Scheffe post-hoc test has the greatest power and is the most conservation with respect to Type 1 error: this method loads to the smallest number of significance differences. The difference between two means would be significant if it exceed Scheffe F. In order to be significant, F' must equal $(k - 1)$ ($F_{.05}$ or $F_{.01}$). Thus, the necessary F' ratios for the difference between paired adjusted mean (k-1) would be computed and compared for significance.

Results And Discussions

This chapter deals with analysis of data and discussions on the results presented. The purpose of the study was to find out the effect of breathing exercises and mental training on selected psychological and performance variable of Kabaddi players. Sixty school level male kabaddi players aged sixteen to eighteen were randomly selected from different schools in Andhra Pradesh as subjects for this study. They were assigned into three different groups, namely, experimental group I, experimental group II and control group consisting of twenty subjects in each group. Experimental group I was considered as breathing exercises group, experimental group II was considered as mental training group and the third group, control group was not provided with any special training. Psychological variables, anxiety, and performance variables, coordination in kabaddi were selected for this study. The randomly selected subjects (N=60) were grouped into three groups, namely experimental group I, experimental group II and control group respectively, each consisting of twenty subjects. Pre-tests were conducted for all the subjects on selected psychological and performance variables such as anxiety, and coordination in kabaddi. The experimental group participated in their respective treatments, experimental group I in breathing exercises and experimental group II in mental training for twelve weeks. The control group was strictly under the supervision of the investigator and did not participate in any special activity except of their routine. Immediately after completion of experimental

period, all the subjects were measured of the selected psychological and performance variables which formed Post-Test scores. The difference between the initial and final means was considered as the effect of respective experimental treatments on the subjects.

Computation of analysis of variance and post- hoc test - Results on anxiety

The statistical analysis comparing the initial and final means of Anxiety due to Breathing exercises and mental training among school level kabaddi players is presented in Table-III.

C. Table III

Ancova Results On Effect Of Breathing Exercises And Mental Training Compared With Controls On Anxiety

	BREATHING EXERCISES	MENTAL TRAINING	CONTROL GROUP	SOURCE OF VARIANCE	SUM OF SQUARES	df	MEAN SQUARES	OBTAINED F
Pre-Test Mean	59.00	61.15	60.35	Between	47.23	2	23.62	0.99
				Within	1355.10	57	23.77	
Post-Test Mean	54.40	53.55	59.65	Between	436.63	2	218.32	9.81*
				Within	1268.30	57	22.25	
Adjusted Post-Test Mean	55.29	52.80	59.51	Between	459.46	2	229.73	26.82*
				Within	479.62	56	8.56	
Mean Diff.	-4.60	-7.60	-0.70					

Table F-ratio at 0.05 level of confidence for 2 and 57 (df) =3.16, 2 and 56 (df) =3.16.
*Significant at 0.05 level.

As shown in Table III, the obtained Pre-Test means on Anxiety on Breathing exercises group was 59.00, Mental training group was 61.15 was and control group was 60.35. The obtained Pre-Test F-value was 0.99 and the required table F-value was 3.16, which proved that there was no significant difference among initial scores of the subjects. The obtained Post-Test means on Anxiety on Breathing exercises group was 54.40, Mental training group was 53.55 was and control group was 59.65. The obtained Post-Test F-value was 9.81 and the required table F-value was 3.16, which proved that there was significant difference among Post-Test scores of the subjects. Taking into consideration of the Pre-Test means and Post-Test means adjusted Post-Test means were determined and analysis of covariance was done and the obtained F-value 26.82 was greater than the required value of 3.16 and hence it was accepted that there was significant differences among the treated groups. Since significant differences were recorded, the results were subjected to post-hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table IV.

Multiple Comparisons of Paired Adjusted Means and Scheffe's Confidence Interval Test Results on Anxiety

MEANS				Required C.I.
Breathing exercises Group	Mental training Group	Control Group	Mean Difference	
55.29	52.80		2.49*	2.32
55.29		59.51	-4.22*	2.32
	52.80	59.51	-6.71*	2.32

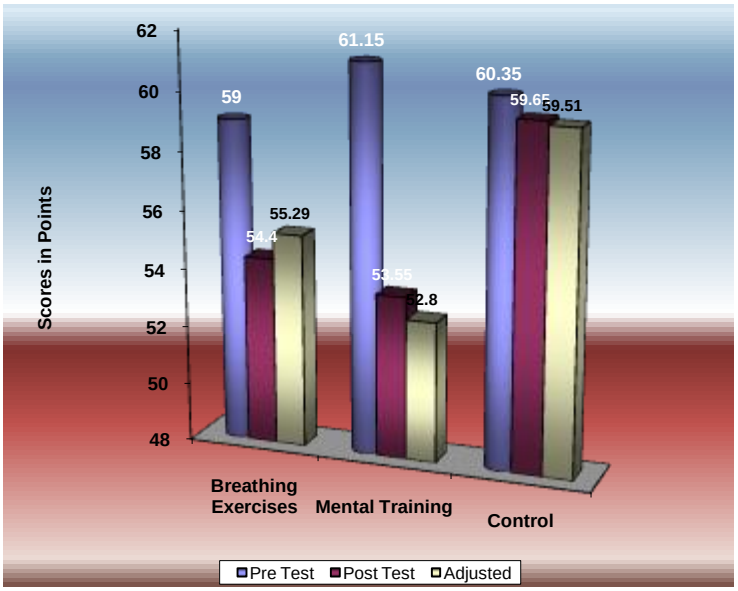
***** Significant at 0.05 level

The post-hoc analysis of obtained ordered adjusted means proved that there was significant differences existed between Breathing exercises group and control group (MD: -

4.22). There was significant difference between Mental training group and control group (MD: -6.71). There was significant difference between treatment groups, namely, Breathing exercises group and Mental training group (MD: 2.49).

The ordered adjusted means were presented through bar diagram for better understanding of the results of this study in Figure I.

Figure I - Bar Diagram Showing Pre-Test, Post-Test And Ordered Adjusted Means On Anxiety



Discussions On Findings On Anxiety

In order to find out the effect of Breathing exercises and Mental training on Anxiety, the obtained pre and Post-Test means were subjected to ANCOVA and post-hoc analysis through Scheffe's confidence interval test. The effect of Breathing exercises and Mental training on Anxiety is presented in Table III.

The analysis of covariance proved that there was significant difference between the experimental group and control group as the obtained F-value 26.82 was greater than the required table F-value to be significant at 0.05 level. Since significant F-value was obtained, the results were further subjected to post-hoc analysis and the results presented in Table IV proved that there was significant difference between Breathing exercises group and control group (MD: -4.22) and Mental training group and control group (MD: -6.71).

Comparing between the treatments groups, it was found that there was significant difference between Breathing exercises and Mental training group among school level kabaddi players. Thus, it was found that mental training was significantly better than Breathing exercises and control group in reducing Anxiety of the school level kabaddi players.

Results On Coordination

The statistical analysis comparing the initial and final means of Coordination due to Breathing exercises and mental training among school level kabaddi players is presented in Table V.

Table V Ancova Results On Effect Of Breathing Exercises And Mental Trainin Compared With Controls On Coordination

	BREATHING EXERCISES	MENTAL TRAINING	CONTROL GROUP	SOURCE OF VARIANCE	SUM OF SQUARES	df	MEAN SQUARES	OBTAINED F
Pre-Test Mean	27.70	28.65	27.80	Between	10.90	2	5.45	0.19
				Within	1601.95	57	28.10	
Post-Test Mean	34.45	33.55	28.40	Between	426.23	2	213.12	8.29*
				Within	1464.70	57	25.70	
Adjusted Post-Test Mean	34.74	33.06	28.61	Between	401.52	2	200.76	29.71*
				Within	378.43	56	6.76	
Mean Diff	6.75	4.90	0.60					

Table F-ratio at 0.05 level of confidence for 2 and 57 (df) =3.16, 2 and 56 (df) =3.16.
*Significant at 0.05 level.

As shown in Table V, the obtained Pre-Test means on Coordination on Breathing exercises group was 27.70, Mental training group was 28.65 was and control group was 27.80. The obtained Pre-Test F-value was 0.19 and the required table F-value was 3.16, which proved that there was no significant difference among initial scores of the subjects.

The obtained Post-Test means on Coordination on Breathing exercises group was 34.45, Mental training group was 33.55 was and control group was 28.40. The obtained Post-Test F-value was 8.29 and the required table F-value was 3.16, which proved that there was significant difference among Post-Test scores of the subjects. Taking into consideration of the Pre-Test means and Post-Test means adjusted Post-Test means were determined and analysis of covariance was done and the obtained F-value 29.71 was greater than the required value of 3.16 and hence it was accepted that there was significant differences among the treated groups. Since significant differences were recorded, the results were subjected to post-hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table VI.

Multiple Comparisons of Paired Adjusted Means and Scheffe's Confidence Interval Test Results on Coordination

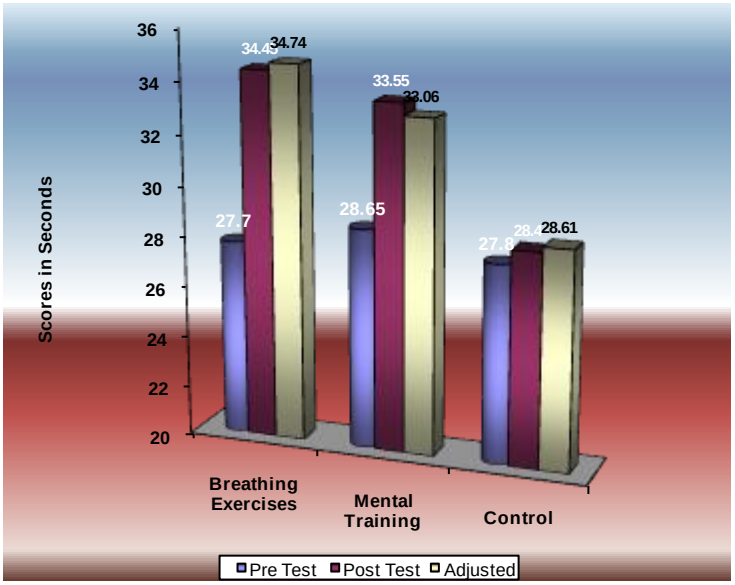
MEANS				Required C.I.
Breathing exercises Group	Mental training Group	Control Group	Mean Difference	
34.74	33.06		1.68	2.06
34.74		28.61	6.13*	2.06
	33.06	28.61	4.45*	2.06

***** Significant at 0.05 level

The post-hoc analysis of obtained ordered adjusted means proved that there was significant differences existed between breathing exercises group and control group (MD: 6.13). There was significant difference between mental training group and control group (MD: 4.45). There was no significant difference between treatment groups, namely, Breathing exercises group and mental training group. (MD: 1.68).

The ordered adjusted means were presented through bar diagram for better understanding of the results of this study in Figure VII.

Figure VII - Bar Diagram Showing Pre-Test, Post-Test And Ordered Adjusted Means On Coordination



Discussions On Findings On Coordination

In order to find out the effect of Breathing exercises and mental training on Coordination the obtained pre and Post-Test means were subjected to ANCOVA and post-hoc analysis through Scheffe's confidence interval test. The effect of Breathing exercises and mental training on Coordination is presented in Table VII. The analysis of covariance proved that there was significant difference between the experimental group and control group as the obtained F-value 29.71 was greater than the required table F-value to be significant at 0.05 level. Since significant F-value was obtained, the results were further subjected to post-hoc analysis and the results presented in Table VII proved that there was significant difference between Breathing exercises group and control group (MD: 6.13) and Mental training group and control group (MD: 4.45). Comparing between the treatment groups, it was found that there was significant difference between Breathing exercises and Mental training group among school level kabaddi players. Thus, it was found that breathing exercises and Mental training were significantly better htan control group in improving Coordination of the school level kabaddi player

CONCLUSIONS

Within the limitations and delimitations of the study, the following conclusions were drawn.

1. It was concluded that breathing exercises and mental training significantly reduced psychological variable, anxiety among school level kabaddi players compared to control group. Comparing between the treatment groups, it was found that mental training was significantly better than breathing exercises in altering anxiety of the subjects.
2. It was concluded that breathing exercises and mental training significantly improved performance variable, coordination among school level kabaddi players compared to control group. Comparing between the treatment groups, it was found that there was no significant difference between breathing exercises and mental training.

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Effect Of Resistance And Sand Training On Kicking And Agility Among Inter Collegiate Kabaddi Players

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Abstract
Purpose of this study to find out the Effect of Resistance and Sand Training on Kicking and Agility among Inter Collegiate Kabaddi Players. The study was formulated as a true random group design, consisting of a pre-test and post-test. The forty five men kabaddi players who represented their colleges in inter collegiate tournaments were randomly selected as subjects (N=45). The subjects were divided into three groups consisting of 15 in each group. The groups were assigned as Experimental Groups I, II, and group V. Experimental group I was given experiment resistance training, experimental group II was given sand training and the third one was considered as control group which did not underwent any special treatment. Pre-test was conducted for all forty five (N=45) subjects on selected performance variables such as, agility, kicking. The experimental groups participated in their respective, training such as, resistance training and sand training for twelve weeks. The control group was did not underwent any experimental training. Immediately after the experimental period post-test was conducted on the above said dependent variables after a period of twelve weeks. The pre and post-test scores on selected criterion variables were tabulated and tested for statistical significance using ANACOVA. In all cases 0.05 levels was fixed to test the hypothesis of this study. **Key Words:** Kicking and Agility

Introduction

Sports in the present world have become extremely competitive. It is not the mere participation or practice that brings out victory to an individual. Therefore, sports life is affected by various factors like physiology, biomechanics, sports training, sports medicine, sociology and psychology etcetera. All the coaches, trainers, physical educational personals and doctors are doing their best to improve the performance of the players of their country. Athlete players of all the countries are also trying hard to bring laurels, medals for their countries in International competitions (Kerr, R. 1982). Athletic performance has dramatically progressed over the past few years. Performance levels unimaginable before are now commonplace and the number of athletes capable of outstanding results is increasing. One factor is that athletics is a challenging field, and intense motivation has encouraged long, hard hours of work. Also, coaching has become more sophisticated, partially from the assistance of sport specialists and scientists. A broader base of knowledge about athletes now exists, which is reflected in training methodology (Bompa, 1999).

Statement Of The Problem

The purpose of the study is to find out the Effect of Resistance and Sand Training on Kicking and Agility among Inter Collegiate Kabaddi Players.

Hypothesis

- It was hypothesized that there may be significant differences on the effect of Resistance and sand training on selected performance related variables; agility among inter collegiate kabaddi players.
- It was hypothesized that there may be significant difference on the effect of Resistance and sand training on selected performance variables, such as kicking among inter collegiate kabaddi players.

Limitation

- Heredity and environment factors which will contribute to mental efficiency could not be controlled.
- The day to day activities and life style could not be controlled.
- The environmental factors at the time of responding to the experimental study would be attached the responses of the subjects which recognized as a limitation.

Delimitation

The study was delimited in terms of concerns and sample as follows:

- Only Kabaddi men players were are selected for the study.
- The age of the subjects were ranged from 19 to 25 years.
- Only the following performance related variables were selected for the study namely agility
- The performance variables such as, kicking were selected for this study.

Methodology

Selection of subjects: The purpose of the study was to find out the effect of resistance and sand training on selected performance variables among intercollegiate kabaddi players. To achieve the purpose of this study, forty five intercollegiate level kabaddi players from different colleges in Andhra Pradesh were selected. The selected subjects' age group was ranging from nineteen to twenty five years. The subjects were randomly divided into three groups and each group consists of fifteen subjects. Experimental group one underwent resistance training and experimental group two underwent sand training for twelve weeks, whereas the control group did not participate in any special training.

Selection Of Variables: The investigator reviewed the available scientific literatures pertaining to the resistance training, sand training from books, journals, periodicals, magazines and research papers on performance variables and performances of kabaddi players. Based on the consideration of feasibility criteria, availability of instruments and the relevance of the variables to the present study, following variables were selected.

Dependent variables

1. Agility
2. Kick

Independent Variables

- Experimental Group I - Resistance Training for 12 weeks
- Experimental Group II - Sand Training for 12 weeks

Experimental Design

The study was formulated as a true random group design, consisting of a pre-test and post-test. The forty five men kabaddi players who represented their colleges in inter collegiate tournaments were randomly selected as subjects (N=45). The subjects were divided into three groups consisting of 15 in each group. The groups were assigned as Experimental Groups I, II, and group V. Experimental group I was given experiment resistance training, experimental

group II was given sand training and the third one was considered as control group which did not underwent any special treatment. Pre-test was conducted for all forty five (N=45) subjects on selected performance variables such as, agility, kicking. The experimental groups participated in their respective, training such as, resistance training and sand training for twelve weeks. The control group was did not underwent any experimental training. Immediately after the experimental period post-test was conducted on the above said dependent variables after a period of twelve weeks. The pre and post-test scores on selected criterion variables were tabulated and tested for statistical significance using ANACOVA. In all cases 0.05 level was fixed to test the hypothesis of this study.

Criterion Measures

The following criterion measures were adopted to measure the test.

- Agility was measured using 4 x 10 m shuttle run.
- Performance variables, kick were measured objectively by three experts.

The correlation of coefficient correlation obtained for the tests variables were given in Table I.

Table I - Intra Class Correlation Coefficient of Test – Retest Scores

S.No	Variables	Coefficient of Correlation
1	Agility	0.91*
2	Kick	0.85*

***** Significant at 0.05 level

Resistance Training

The experimental groups underwent resistance training for a period of twelve weeks. The experimental group had practices by wearing weight jackets in their body with different weights. They were also had practices on the sandy run way. The training schedule for resistance training group was detailed in Table II.

Table II - Showing Schedule of Resistance Training to Experimental Group I

S.No.	**Resistance Training**	**I and IV Weeks**		**V & VIII Weeks**		**IX to XII Weeks**	
		Repe-titions	**Sets**	**Repe-titions**	**Sets**	**Repe-titions**	**Sets**
1	Light weight Jackets	4	2	4	3	4	4
2	Heavy weight Jackets	4	2	4	3	4	4
3	Heavier weight Jackets	4	2	4	3	4	4
4	Sandy Run way	4	2	4	3	4	4

Sand Training

Running on the sand is very difficult than running on the plain surface. The investigator had a thought and vision that the kabaddi players could have the ability to run or to perform their activities better than the other boys if they trained in beach running. The investigator selected sand training that is beach running for kabaddi players which improved certain selected physical variables, namely, cardiovascular endurance, leg strength and speed. As the result the performance in kabaddi would improve. Keeping the above things in mind the investigator with the consultation of his guide formulated the following schedule of training to be imparted to the subjects selected for this study.

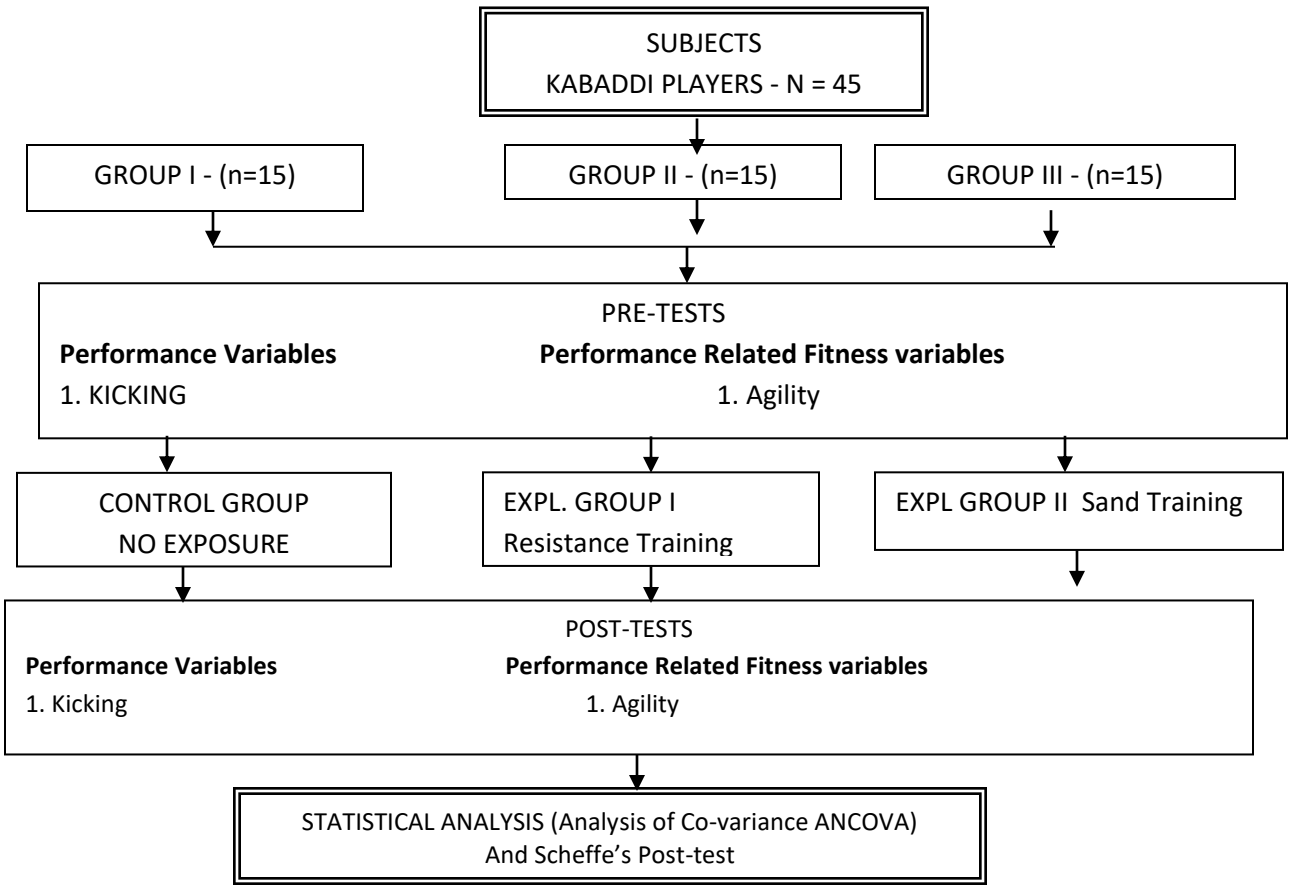
Table III - Schedule Of Sand Training

Days	Monday	Wednesday	Friday
First 4 weeks	1 ½ km Beach running	2 km Beach running	2½ km Beach running
Second 4 week's	Beach running + 1 ½ km plus Hopping and Bounding (repetition)	Beach running + 2 km plus hopping, bounding High knee & speed repetition.	Beach running + 2½ km plus hopping, bounding High knee & speed repetition.
Third 4 week	Beach running + 2 km plus Hopping and Bounding repetition.	Beach running + 2 ½ km plus Hopping, Bounding High knee & Speed Repetition.	Beach running + 3 km plus Hopping, Bounding High knee & Speed Repetition.

Statistical Techniques

To find out the effect of resistance training and aerobic training on selected anthropometric and skill related fitness variables among intercollegiate kabaddi players, the pre-test and post-test scores were analysed by using ANCOVA statistical technique. When the F-ratio was found to be significant, Scheffe's post-hoc test was used to find out the paired mean significant difference (Thirumalaisamy, 1998).

Flow Chart Showing the Methodology adapted in the Study



Results And Discussions

This chapter deals with analysis of data and discussions on the results presented. The purpose of the study was to find out the effect of resistance and sand training on selected performance variables among intercollegiate kabaddi players. To achieve the purpose of this study, forty five intercollegiate level kabaddi players from different colleges in Andhra Pradesh were selected. The selected subjects' age group was ranging from nineteen to twenty five years. The subjects were randomly divided into three groups and each group consists of fifteen subjects. Experimental group one underwent resistance training and experimental group two underwent sand training for twelve weeks, whereas the control group did not participate in any special training. Based on the consideration of feasibility criteria, availability of instruments and the relevance of the variables to the present study, following variables were selected.

I. Performance related variables

1. Agility

2. Performance variables

1. Kick

Pre-test was conducted for all forty five (N=45) subjects on selected performance related and performance variables such as, agility, kicking. The experimental groups participated in their respective, training such as, resistance training and sand training for twelve weeks. Immediately after the experimental period post-test was conducted on the above said dependent variables after a period of twelve weeks. The pre and post-test scores on selected criterion variables were tabulated and tested for statistical significance using ANACOVA.

Computation Of Analysis Of Variance And Post- Hoc Test - Results On Agility

The statistical analysis comparing the initial and final means of Agility due to Sand training and Resistance training among inter collegiate level kabaddi players is presented in Table-IV.

D. Table IV ***Ancova Results On Effect Of Sand Training And Resistance Training Compared With Controls On Agility***

	SAND TRAINING	**RESISTANCE TRAINING**	**CONTROL GROUP**	**SOURCE OF VARIANCE**	**SUM OF SQUARES**	**df**	**MEAN SQUARES**	**OBTAINED F**
Pre-test Mean	10.65	10.86	10.98	Between	0.83	2	0.41	2.23
				Within	7.76	42	0.18	
Post-test Mean	10.58	10.73	10.97	Between	1.12	2	0.56	3.92*
				Within	6.00	42	0.14	
Adjusted Post-test Mean	10.74	10.71	10.84	Between	0.14	2	0.07	6.76*
				Within	0.42	41	0.01	
Mean Diff	-0.06	-0.12	-0.01					

Table F-ratio at 0.05 level of confidence for 2 and 42 (df) =3.16, 2 and 41 (df) =3.16.
*Significant at 0.05 level

As shown in Table IV, the obtained pre-test means on Agility on Sand training group was 10.65, Resistance training group was 10.86 was and control group was 10.98. The obtained pre-test F-value was 2.23 and the required table F-value was 3.16, which proved that there was no significant difference among initial scores of the subjects.

The obtained post-test means on Agility on Sand training group was 10.58, Resistance training group was 10.73 was and control group was 10.97. The obtained post-test F-value was 3.92 and the required table F-value was 3.16, which proved that there was significant difference among post-test scores of the subjects. Taking into consideration of the pre-test means and post-test means adjusted post-test means were determined and analysis of covariance was done and the obtained F-value 6.76 was greater than the required value of 3.16 and hence it was accepted that there was significant differences among the treated groups. Since significant differences were recorded, the results were subjected to post-hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table V.

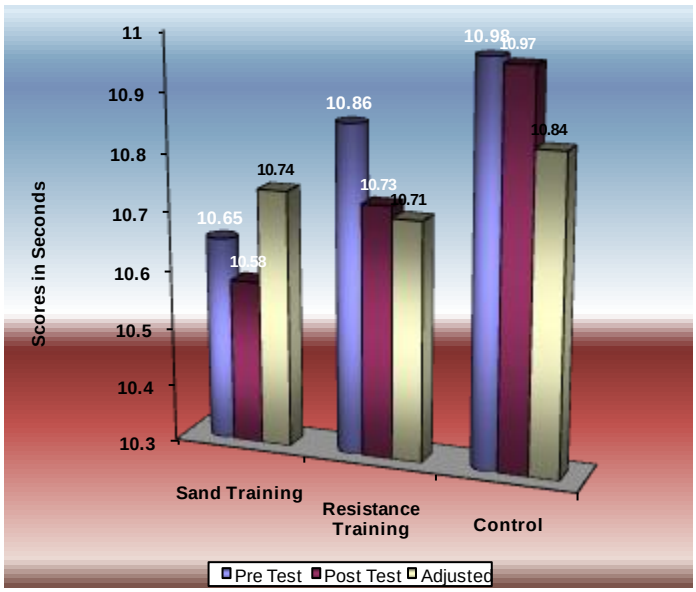
1) Table V Multiple Comparisons of Paired Adjusted Means and Scheffe's Confidence Interval Test Results on Agility

MEANS				**Required C.I.**
Sand training Group	**Resistance training Group**	**Control Group**	**Mean Difference**	
10.74	10.71		0.03	0.09
10.74		10.84	-0.11*	0.09
	10.71	10.84	-0.13	0.09

*****Significant at 0.05 level

The post-hoc analysis of obtained ordered adjusted means proved that there was significant differences existed between Sand training group and control group (MD: -0.11). There was significant difference between Resistance training group and control group (MD: -0.13). There was no significant difference between treatment groups, namely, Sand training group and Resistance training group. (MD: 0.03). The ordered adjusted means were presented through bar diagram for better understanding of the results of this study in Figure I.

Figure I - Bar Diagram Showing Pre-Test, Post-Test And Ordered Adjusted Means On Agility



Discussions On Findings On Agility

In order to find out the effect of Sand training and Resistance training on Agility the obtained pre and post-test means were subjected to ANCOVA and post-hoc analysis through Scheffe's confidence interval test. The effect of Sand training and Resistance training on Agility is presented in Table IV. The analysis of covariance proved that there was significant difference between the experimental group and control group as the obtained F-value 6.76 was greater than the required table F-value to be significant at 0.05 level. Since significant F-value was obtained, the results were further subjected to post-hoc analysis and the results presented in Table V. proved that there was significant difference between Sand training group and control group (MD: -0.11) and Resistance training group and control group (MD: -0.13). Comparing between the treatment groups, it was found that there was no significant difference between Sand training and Resistance training group among inter collegiate level kabaddi players. Thus, it was found that sand training and Resistance training was significantly better than control group in improving Agility of the inter collegiate level kabaddi players.

Results On Kick

The statistical analysis comparing the initial and final means of Kick due to Sand training and Resistance training among inter collegiate level kabaddi players is presented in Table VI.

E. Table VI - ***Ancova Results On Effect Of Sand Training And Resistance Training Compared With Controls On Kick***

	SAND TRAINING	**RESISTANCE TRAINING**	**CONTROL GROUP**	**SOURCE OF VARIANCE**	**SUM OF SQUARES**	**df**	**MEAN SQUARES**	**OBTAINED F**
Pre-test Mean	16.53	17.13	17.07	Between	3.24	2	1.62	0.39
				Within	176.40	42	4.20	
Post-test Mean	19.53	19.13	17.40	Between	38.58	2	19.29	5.43*
				Within	149.07	42	3.55	
Adjusted Post-test Mean	19.86	18.94	17.27	Between	51.31	2	25.65	53.40*
				Within	19.70	41	0.48	
Mean Diff	3.00	2.00	0.33					

Table F-ratio at 0.05 level of confidence for 2 and 42 (df) =3.16, 2 and 41 (df) =3.16.

*Significant at 0.05 level

As shown in Table VI, the obtained pre-test means on Kick on Sand training group was 16.53, Resistance training group was 17.13 was and control group was 17.07. The obtained pre-test F-value was 0.39 and the required table F-value was 3.16, which proved that there was no significant difference among initial scores of the subjects. The obtained post-test means on Kick on Sand training group was 19.53, Resistance training group was 19.13 was and control group was 17.40. The obtained post-test F-value was 5.43 and the required table F-value was 3.16, which proved that there was significant difference among post-test scores of the subjects. Taking into consideration of the pre-test means and post-test means adjusted post-test means were determined and analysis of covariance was done and the obtained F-value 53.40 was greater than the required value of 3.16 and hence it was accepted that there was significant differences among the treated groups. Since significant differences were recorded, the results were subjected to post-hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table VII.

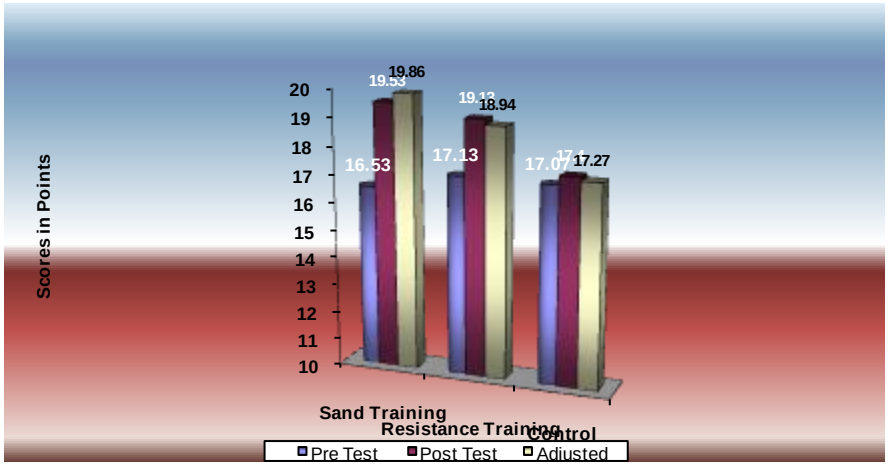
1) Table VII Multiple Comparisons of Paired Adjusted Means and Scheffe's Confidence Interval Test Results on Kick

MEANS				Required C.I.
Sand training Group	Resistance training Group	Control Group	Mean Difference	
19.86	18.94		0.91*	0.64
19.86		17.27	2.59*	0.64
	18.94	17.27	1.68*	0.64

***** Significant at 0.05 level

The post-hoc analysis of obtained ordered adjusted means proved that there was significant differences existed between Sand training group and control group (MD: 2.59). There was significant difference between Resistance training group and control group (MD: 1.68). There was significant difference between treatment groups, namely, Sand training group and Resistance training group (MD: 0.91). The ordered adjusted means were presented through bar diagram for better understanding of the results of this study in Figure II.

Figure II - Bar Diagram Showing Pre-Test, Post-Test And Ordered Adjusted Means On Kick



Discussions On Findings On Kick

In order to find out the effect of Sand training and Resistance training on Kick the obtained pre and post-test means were subjected to ANCOVA and post-hoc analysis through Scheffe's confidence interval test. The effect of Sand training and Resistance training on Kick is presented in Table VI. The analysis of covariance proved that there was significant difference between the experimental group and control group as the obtained F-value 53.40 was greater than the required table F-value to be significant at 0.05 level. Since significant F-value was obtained, the results were further subjected to post-hoc analysis and the results presented in Table VII proved that there was significant difference between Sand training group and control group (MD: 2.59) and Resistance training group and control group (MD: 1.68). Comparing between the treatment groups, it was found that there was significant difference between Sand training and Resistance training group among inter collegiate level kabaddi players. Thus, it was found that sand training was significantly better than resistance training and control group in improving Kick of the inter-collegiate level kabaddi players.

Conclusions

Within the limitations and delimitations of the study, the following conclusions were drawn.

- It was concluded that 12 weeks sand training and resistance training significantly improved performance related variable agility of the kabaddi players, as the obtained F-value of 6.76 was significant at 0.05 level. The paired mean comparisons further proved that there was no significant difference between sand training and resistance training in altering agility of the kabaddi players.
- It was concluded that 12 weeks sand training and resistance training significantly improved performance variable kick of the kabaddi players, as the obtained F-value of 53.40 was significant at 0.05 level. The paired mean comparisons further proved that sand training was significantly better than resistance training in improving kick skill of the kabaddi players.

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Aerobic And Resistance Training On Muscular Endurance And Vital Capacity Among College Men Students

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Abstract
Purpose of this study to find out the effect of aerobics, resistance and concurrent training aerobic and resistance training on muscular endurance and vital capacity among college men students. The study was formulated as a true random group design, consisting of a pre-test and post-test. The subjects (n=80) were randomly assigned to four equal groups of twenty college men students each. The groups were assigned as Experimental Groups- I, II, III and control group respectively. Pre-tests were conducted for all the subjects on selected biomotor and physiological variables such as, muscular endurance, vital capacity which formed initial scores of the subjects the experimental groups participated in their respective training programmes for 12 weeks.Immediately after completion of the experimental period of 12 weeks, all the subjects were measured of their selected biomotor and physiological variables through standard tests which formed the final scores. The difference between the initial and final mean scores was considered as the effect of respective experimental treatment on the subjects. To test statistical significance of the differences, statistical tool ANCOVA was used. In all cases 0.05 levels was fixed to test the hypothesis of the study. **Key Words**: Muscular Endurance and Vital Capacity

Introduction

The body is the temple of soul and can be a sound mind only in healthy body. To attain the harmony body, mind and spirit, the body must be physically fit. The future of the nation depends on today's younger generation and the health of the people is the wealth of the nation.
If the proper study of mankind is man, the proper study of physical activity is sport. It is imparting learning to choose appropriate physical activity for personal growth well being and pleasure in performance. Sports are one of the physical activities played at level for in conditioning fitness and recreation. Sports itself is a form of culture in society. In this aspect, it stands for highly competitive exertion and specialized motivation.

Aerobic Exercises

Aerobic exercise refers to exercise that involves or improves oxygen consumption by the body. Aerobic means "with oxygen", and refers to the use of oxygen in the body's metabolic or energy-generating process (Concise Oxford English Dictionary). Many types of exercise are aerobic, and by definition are performed at moderate levels of intensity for extended periods of time. To obtain the best results, an aerobic exercise session involves a warming up period, followed by at least 20 minutes of moderate to intense exercise involving large muscle groups, and a cooling down period at the end.

Resistance Training

Resistance Training involves the application of elastic or hydraulic resistance to muscle contraction rather than gravity. Weight training provides the majority of the resistance at the beginning, initiation joint angle of the movement, when the muscle must overcome the inertia of the weight's mass. After this, point the overall resistance alters depending on the angle of the joint. In comparison, hydraulic resistance provides a fixed amount of resistance throughout the range of motion, depending on the speed of the movement. Elastic resistance provides the greatest resistance at the end of the motion, when the elastic element is stretched to the greatest extent. In the manual of weight training, Kirkely and Goodbody (1970) say, there are numerous resistance exercises that the jumper can use to build up leg power that one closely related to jumping itself bouncing, skipping and hopping through sand or wearing a weighted jacket or even doing these activities with a bar-bell or weighted sand bag across the shoulders can supplement the weight training. All are excellent for toughening the ankle and knee joints and are ideal preparation for jumping.

Objectives Of The Study

This research is to find out answers to the following research questions:

- Does participation in Aerobics, Resistance training and concurrent training of Aerobic and Resistance Training would improve muscular endurance, among college men students.
- Does participation in Aerobics, Resistance training and Concurrent training of Aerobic and Resistance Training would improve selected vital capacity among college men students.

Statement Of The Problem

The purpose of the present study was to determine the effect of aerobics, resistance and concurrent training aerobic and resistance training on muscular endurance and vital capacity among college men students.

Hypotheses

The following hypotheses were formulated on the basis of available literature, the subject knowledge and experience of the research scholar.

- It was hypothesized that "there will be significance difference on selected biomotor variables such as muscular endurance due to aerobics, resistance training and concurrent training of aerobics and resistance training among college men students compared to control group".
- It was hypothesized that "there will be significance difference on selected physiological variables such as vital capacity due to aerobics, resistance training and concurrent training of aerobics and resistance training among college men students compared to control group.
- It was hypothesized that "there will be no significant difference on selected biomotor and physiological variables among experimental groups, namely, aerobic training, resistance training and concurrent aerobic and resistance training among college men students".

Delimitations

The following delimitations were recorded for this study.

- The study was delimited to eighty college men students selected from different colleges in Andhra Pradesh.
- In the present study, random method of sampling was used.
- In distribution of samples to experimental group used in the study, the present study was confined to equal number of samples, each group consisting of 20 men. The age of the samples for the present study was confined to the range of 21–25 years.
- For the purpose of the study, treadmill exercises were considered as aerobic training for college men students.
- For the purpose of the study, resistance training consisting of weight training was considered as resistance training.
- For the purpose of the study concurrent training consists of both treadmill training and weight training for the college men students.
- As biomotor variables, the present study was confined to muscular endurance.
- As physiological variables, the present study was confined to vital capacity.
- The duration of the treatments for the present study was confined to six days a week for 12 weeks as total period.

Limitations

- The study was limited in the following ways, which would be taken into consideration at the time of findings of this study.
- The influence of certain factors like life style, daily routine work, diet and other factors on the results of the study were not taken into consideration.
- No attempt has been made to control the factors like air resistance, intensity of light atmosphere and temperature during training and testing period.
- The difference in economic and educational back ground of the subjects was not taken into consideration.
- The knowledge of the subjects in exercise science and their previous experiences in doing physical activities were not taken into consideration.
- Since the subjects were motivated orally during testing and training periods no attempt was put to differentiate their level of motivation.
- The psychological stress and other factors which affect the metabolic function were not taken into consideration.
- The heredity of the subjects and its influence on the selected criterion variables.

Methodology

Selection of subjects To facilitate the study 80 college men students from different colleges in Andhra Pradesh were randomly selected as subjects and their age was between 21 to 25 years. The subjects were from different colleges and expressed' willingness to participate in the research programme were got by explaining the usefulness of this research, the benefits of incorporating different training methods in the daily routine and the resultant health benefits. Thus, all the subjects selected for this study were volunteers. The selected subjects were assigned into four groups consisting of 20 in each group. The first group served as aerobic exercise group, group two served as resistance training group, third group served as concurrent training group and fourth group served as control group. The requirements of the experimental procedures, testing as well as exercise schedules were explained to the subjects so as to avoid

any ambiguity of the effort required on their part and prior to the administration of the study, the investigator got the individual consent from each subject.

Selection Of Variables

The research scholar reviewed the various scientific literature pertaining to the different forms of aerobic exercises, resistance training and concurrent training and its effects on biomotor abilities and physiological variables among different groups from books, journals, periodicals, magazines and research papers. Taking into consideration of feasibility criteria, availability of instruments and the relevance of the variables of the present study, the following variables were selected.

Dependent Variables

a. Muscular Endurance
b. Vital Capacity

Independent Variables

1. Twelve weeks of aerobic exercises in treadmill.
2. Twelve weeks of resistance training in multi gym.
3. Twelve weeks combined aerobic exercises in treadmill and resistance exercises Multi Gym.

Experimental Design

The study was formulated as a true random group design, consisting of a pre-test and post-test. The subjects (n=80) were randomly assigned to four equal groups of twenty college men students each. The groups were assigned as Experimental Groups- I, II, III and control group respectively. Pre-tests were conducted for all the subjects on selected biomotor and physiological variables such as, muscular endurance, vital capacity which formed initial scores of the subjects the experimental groups participated in their respective training programmes for 12 weeks. Immediately after completion of the experimental period of 12 weeks, all the subjects were measured of their selected biomotor and physiological variables through standard tests which formed the final scores. The difference between the initial and final mean scores was considered as the effect of respective experimental treatment on the subjects. To test statistical significance of the differences, statistical tool ANCOVA was used. In all cases 0.05 level was fixed to test the hypothesis of the study. **Tester's Competency** Reliability was established by the test-retest processes. Twelve men from all the groups were tested on selected variables. The repeated measurement of individuals on the same test is done to determine reliability. It is a univariate not a bivariate situation, it makes sense then to use a univariate statistics like the interaclass correlation coefficient (Baumgartner and Jackson, 1975).

The intraclass correlation coefficient obtained for test-retest data are presented in Table I.

Table I - Intra Class Correlation Coefficient of Test – Retest Scores

S.No.	Variables	Coefficient of Correlation
1	Muscular Endurance	0.93*
2	Vital Capacity	0.78*

***** Significant at 0.01 level

Collection Of Data

The purpose of the study was to estimate the effects of aerobic training, resistance training and concurrent training on muscular endurance and vital capacity among college men students. For this purpose, the research scholar followed the following procedure. The subjects of the study were selected at random and divided into four homogeneous groups. Among the four groups, the control group was strictly under control, without undergoing any special activity. The

experimental groups were undergone with the experimental treatments. The experimental groups were well acquainted with their allotted techniques and did only the experimental treatment given to them for a period of twelve weeks under the personal supervision of the researcher. Data were collected from all the subjects prior to experimental treatment and immediately after the completion of experimental period which formed pre and post-test scores.

Training Programme

Experimental Group I: Aerobic Training- Experimental group I underwent treadmill exercises training. The training schedule consists of selected exercises, duration, rest period are given in Table II.

Table II - Training Schedule For Experimental Group I - (Aerobic Training)

S.No.	Description of Exercises	Time	Sets	Rest in between Sets
1	Low pace walking	2 mts	2	30 seconds
2	Medium pace walking:	2 mts	2	30 seconds
3	30^o Inclination (uphill) Walk	2 mts	2	30 seconds
4	Fast pace walking	2 mts	2	30 seconds
5	30^o declination (downhill) walk	2 mts	2	30 seconds
6	Low pace running	2 mts	2	30 seconds
7	Medium pace running:	2 mts	2	30 seconds
8	30^o Inclination (uphill) running	2 mts	2	30 seconds
9	Fast pace running	2 mts	2	30 seconds
10	30^o declination (downhill) running	2 mts	2	30 seconds

Schedule of aerobic exercises shown in Table II was followed by experimental group for aerobic training for six days in a week for 12 weeks with a brief warm up at the beginning and cool down at the end.

Experimental Group II (Resistance Training)

After the completion of multi gym exercises as scheduled in Table III, the subjects underwent cool down session for 5 minutes with slow walking.

Table III - Schedule Of Gym Exercises For Experimental Group II (Multi Gym Training)

S.No.	Description of Exercises	Sets	No. of Repetitions
1	Bench Press	2	15
2	Flyes	2	15
3	Behind the Neck Press (Standing)	2	15
4	Leg Presses	2	20
5	Squats	2	15
6	Leg Extensions	2	15
7	Seated Rows	2	15
8	Wide Grip Pulldowns	2	15

The experimental group underwent resistance training for six days in a week days, thus experimental group II underwent resistance training for 12 weeks. Each session started with a brief worm up and brief cool down sessions.

Experimental Group III (Concurrent Training)

Experimental group III underwent concurrent training consisting of aerobic training and resistance training. This group under aerobic training on 3 days in a week days alternatively, namely, Monday, Wednesday and Friday as showed in Table II. And on Tuesday, Thursday and Saturday underwent resistance training in multi gym as shown table III. Thus experimental group underwent concurrent training of aerobic and resistance training for 12 weeks.

Computation of analysis of covariance and post- hoc test- Results on muscular endurance

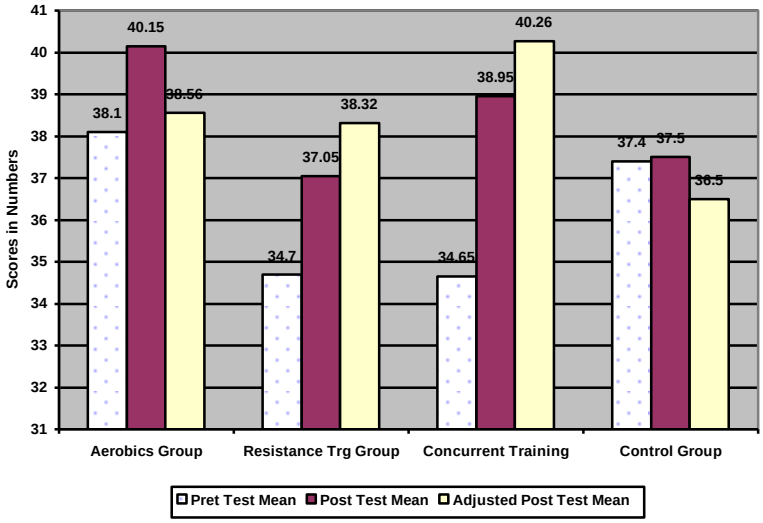
The descriptive statistics comparing the initial and final means of variable Muscular endurance due to aerobic training, Resistance training, concurrent training and control groups of college men is presented in Table 4.10.

Table 4.1 - Descriptive Statistics on effect of Aerobic training, Resistance training, Concurrent training and Control Groups of College Men

Groups	Test	Mean	Standard Deviation	RANGE	
				Min	Max
Aerobic training	Initial	38.10	5.34	23.00	46.00
	Final	40.15	5.05	27.00	48.00
	Adjusted Mean	38.56			
Resistance training	Initial	34.70	6.84	23.00	46.00
	Final	37.05	6.10	27.00	48.00
	Adjusted Mean	38.32			
Concurrent training	Initial	34.65	6.08	27.00	44.00
	Final	38.95	4.68	33.00	46.00
	Adjusted Mean	40.26			
Control Group	Initial	37.40	5.74	28.00	47.00
	Final	37.50	4.48	30.00	44.00
	Adjusted Mean	36.50			

Table 4.1 shows that the pre-test mean on Muscular endurance of aerobic training group was 38.10 with standard deviation $\pm$ 5.34 pre-test mean of resistance training group was 34.70 with standard deviation $\pm$ 6.84, the pre-test mean of concurrent training group was 34.65 with standard deviation $\pm$ 6.08, the pre-test mean of control group was 37.40 with standard deviation $\pm$ 5.74. The descriptive statistics on post-test mean on Muscular endurance of aerobic training group was 40.15 with standard deviation $\pm$ 5.05 post-test mean of resistance training group was 37.05 with standard deviation $\pm$ 6.10, the post-test mean of concurrent training group was 38.95 with standard deviation $\pm$ 6.10, the post-test mean of control group was 37.50 with standard deviation $\pm$ 4.48. The adjusted mean on Muscular endurance on aerobic training group was 38.56, resistance training group was 38.32, concurrent training group was 40.26 and control group was 36.50, as shown in Table 4.1. The obtained mean values on the experimental and control groups were presented in Figure I.

Figure I - Bar Diagram Showing Pre, Post And Adjusted Means On Muscular Endurance Due To Aerobic, Resistance And Concurrent Training Among College Men



The results on descriptive statistics proved that physiological variable Muscular endurance was improved. And to test statistical significance of the differences, the obtained data on Muscular endurance using ANCOVA was presented in Table 4.2

Table 4.2 - Computation Of Analysis Of Covariance Due To Aerobic, Resistance And Concurrent Training And Control Group On Muscular Endurance Among College Men

	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F
Pre-test Mean	Between	194.04	3	64.68	1.78
	Within	2759.35	76	36.31	
Post-test Mean	Between	119.94	3	39.98	1.53
	Within	1989.45	76	26.18	
Adjusted Post-test Mean	Between	139.19	3	46.40	92.17*
	Within	37.75	75	0.50	

Required $F_{(0.05),\,(df\ 3,75)}$ =2.77 *Significant at 0.05 level of confidence

As shown in Table 4.2, the obtained F-ratio of 1.78 on pre-test means of the groups was not significant at 0.05 level, as the obtained F-value was less than the required table F-value of 2.77 to be significant at 0.05 level. This shows that there was no significant difference in means of the groups at initial stage. The results presented in Table 4.2, the obtained F-ratio of 1.53 on post-test means of the groups was significant at 0.05 level as the obtained F-value was greater than the required table F-value of 2.77 to be significant at 0.05 level. This shows that there was no significant difference in means of the groups at initial stage. Taking into consideration of the pre-test means and post-test means, adjusted post-test means were determined and analysis of covariance was done. The obtained F-value on adjusted means was 92.17. The obtained F-value was greater than the required value of 2.77 and hence it was accepted that there was significant differences among the adjusted means on the Muscular endurance of the subjects. Since significant improvements were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table 4.3

2) Table 4.3 - Multiple Paired Adjusted Means Comparisons between varied physical exercises among college men on Muscular endurance

Aerobic training Group	Resistance training Group	Concurrent training Group	Control Group	Mean Diff	C.I
38.56	38.32			0.24	0.64
38.56		40.26		-1.70*	0.64
38.56			36.50	2.06*	0.64
	38.32	40.26		-1.94*	0.64
	38.32		36.50	1.82*	0.64
		40.26	36.50	3.76*	0.64

*****Significant at 0.05 level.

The post-hoc analysis of obtained ordered adjusted means proved that to be significant at 0.05 level confidence the required confidence interval was 0.64. The following paired mean comparisons were greater than the required confidence interval and were significant at 0.05 level. Aerobic training Vs Concurrent training Groups (MD: -1.70). Aerobic training Vs Control Groups (MD: 2.06). Resistance training Vs Concurrent training Group (MD: -1.94). Resistance training Vs Control Groups (MD: 1.82). Concurrent training Vs Control Groups (MD: 3.76). The following paired mean comparisons were less than the required confidence interval and were not significant at 0.05 level. Aerobic training Vs Resistance training Groups (MD: 0.24).

Results On Vital Capacity

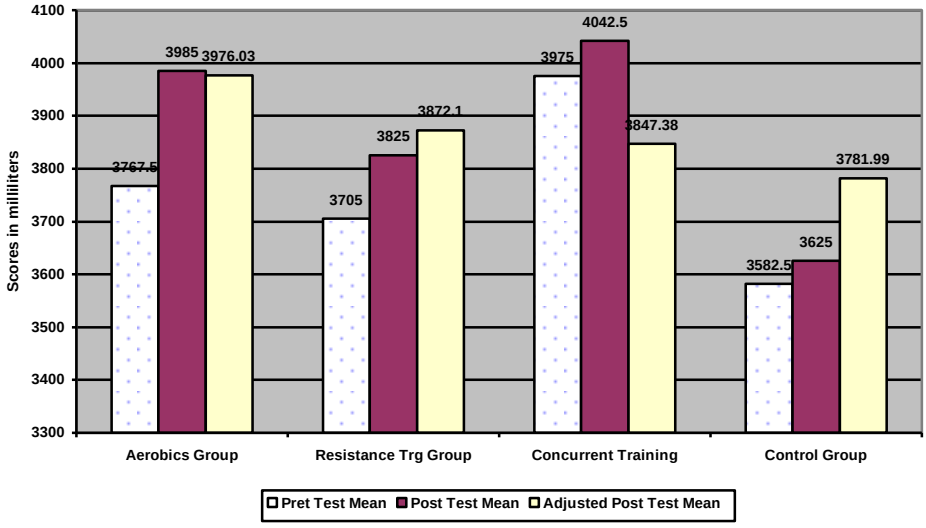
The descriptive statistics comparing the initial and final means of variable Vital capacity due to aerobic training, Resistance training, concurrent training and control groups of college men is presented in Table 5

Table 5 - Descriptive Statistics on effect of Aerobic training, Resistance training, Concurrent training and Control Groups of College Men

Groups	Test	Mean	Standard Deviation	RANGE	
				Min	Max
Aerobic training	Initial	3767.50	484.30	3150.00	4450.00
	Final	3985.00	524.87	3350.00	4750.00
	Adjusted Mean	3976.03			
Resistance training	Initial	3705.00	567.98	2650.00	4750.00
	Final	3825.00	533.42	2750.00	4750.00
	Adjusted Mean	3872.10			
Concurrent training	Initial	3975.00	550.48	2850.00	4750.00
	Final	4042.50	509.20	3150.00	4750.00
	Adjusted Mean	3847.38			
Control Group	Initial	3582.50	428.67	2550.00	4050.00
	Final	3625.00	303.27	3050.00	4000.00
	Adjusted Mean	3781.99			

Table 5 shows that the pre-test mean on Vital capacity of aerobic training group was 3767.50 with standard deviation ± 484.30 pre-test mean of resistance training group was 3705.00 with standard deviation ± 567.98, the pre-test mean of concurrent training group was 3975.00 with standard deviation ± 550.48, the pre-test mean of control group was 3582.50 with standard deviation ± 428.67. The descriptive statistics on post-test mean on Vital capacity of aerobic training group was 3985.00 with standard deviation ± 524.87 post-test mean of resistance training group was 3825.00 with standard deviation ± 533.42, the post-test mean of concurrent training group was 4042.50 with standard deviation ± 533.42, the post-test mean of control group was 3625.00 with standard deviation ± 303.27. The adjusted mean on Vital capacity on aerobic training group was 3976.03, resistance training group was 3872.10, concurrent training group was 3847.38 and control group was 3781.99, as shown in Table 5. The obtained mean values on the experimental and control groups were presented in Figure II

Figure II - Bar Diagram Showing Pre, Post And Adjusted Means On Vital Capacity Due To Aerobic, Resistance And Concurrent Training Among College Men



The results on descriptive statistics proved that physiological variable Vital capacity was improved. And to test statistical significance of the differences, the obtained data on Vital capacity using ANCOVA was presented in Table 5.1

Table 5.1 - Computation Of Analysis Of Covariance Due To Aerobic, Resistance And Concurrent Training And Control Group On Vital Capacity Among College Men

	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F
Pre-test Mean	Between	1615750.00	3	538583.33	2.06
	Within	19834750.00	76	260983.55	
Post-test Mean	Between	2100593.75	3	700197.92	3.07*
	Within	17314375.00	76	227820.72	
Adjusted Post-test Mean	Between	387596.54	3	129198.85	7.17*
	Within	1351157.11	75	18015.43	

Required $F_{(0.05),\ (df\ 3,75)} = 2.77$

*Significant at 0.05 level of confidence

As shown in Table 5.1, the obtained F-ratio of 2.06 on pre-test means of the groups was not significant at 0.05 level as the obtained F-value was less than the required table F-value of 2.77 to be significant at 0.05 level. This shows that there was no significant difference in means of the groups at initial stage. The results presented in Table 5.1, the obtained F-ratio of 3.07 on post-test means of the groups was significant at 0.05 level as the obtained F-value was greater than the required table F-value of 2.77 to be significant at 0.05 level. This shows that there was significant difference in means of the groups at initial stage. Taking into consideration of the pre-test means and post-test means, adjusted post-test means were determined and analysis of covariance was done. The obtained F-value on adjusted means was 7.17. The obtained F-value was greater than the required value of 2.77 and hence it was accepted that there was significant differences among the adjusted means on the Vital capacity of the subjects. Since significant improvements were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table 5.2

Table 5.2 - Multiple Paired Adjusted Means Comparisons between varied physical exercises among college men on Vital capacity

Aerobic training Group	**Resistance training Group**	**Concurrent training Group**	**Control Group**	**MEAN DIFF**	**C.I**
3976.03	3872.10			103.93	121.25
3976.03		3847.38		128.65*	121.25
3976.03			3781.99	194.03*	121.25
	3872.10	3847.38		24.72	121.25
	3872.10		3781.99	90.10	121.25
		3847.38	3781.99	65.38	121.25

*****Significant at 0.05 level.

The post-hoc analysis of obtained ordered adjusted means proved that to be significant at 0.05 level confidence the required confidence interval was 121.25. The following paired mean comparisons were greater than the required confidence interval and were significant at 0.05 level. Aerobic training Vs Concurrent training Groups (MD: 128.65) Aerobic training Vs Control Groups (MD: 194.03). The following paired mean comparisons were less than the required confidence interval and were not significant at 0.05 level. Aerobic training Vs Resistance training Groups (MD: 103.93). Resistance training Vs Concurrent training Group (MD: 24.72). Resistance training Vs Control Groups (MD: 90.10). Concurrent training Vs Control Groups (MD: 65.38)

Conclusions

Within the limitations and delimitations of the study, the following conclusions were drawn:

- It was concluded that biomotor variable muscular endurance was significantly improved due to aerobic training, resistance training and concurrent training were significantly compared to control group among college men. The comparisons on effect of these experimental protocols through paired mean comparisons proved that concurrent training was significantly better than aerobic training and resistance training groups of college men.
- It was concluded that physiological variable vital capacity can be significantly improved through aerobic training compared to control group among college men. The

comparisons on effect of these experimental protocols through paired adjusted mean comparisons proved that aerobic training was significantly better than concurrent training in improving vital capacity of college men.

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Influence Of Medium Intensity Cardio Respiratory Training, Strength And Interval Training Protocols On HDL-C In Young Women

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Abstract

Back ground: This study examined the impact of 16 week program of medium intensity Battle Rope, strength and interval training protocol on HDL-C in 60 untrained women ages 18-20 years. **Objective:** To investigate the training effect of sixteen weeks of medium intensity progressive Battle Rope, strength and interval training program on HDL-C in young women. **Methods:** Participants were randomly assigned to an Cardio Respiratory based training group (CRTG) n=15, strength based training group (SBTG) n=15, Interval based training group (IBTG) n=15 and control group (CG) n=15 participants in the experimental groups performed their training protocols. **Results:** Medium intensity Battle Rope, strength and interval training program on HDL-C show significant improvement when compared to control group and in between exercise protocol groups HDL-C is identical. **Key Words: HDL-C, Battle Rope, Strength, Interval.**

Introduction

The health related physical fitness which is considered as key component in an individual's life is develop and protected through participation in various physical activities. This physical activity may be by means of direct involvement in various kinds of activities or else through leading active and quality life style. The quality life of an individual is measured not by the length of life alone but mainly on how an individual is possessed with better vigor and health to save him and the society. High density lipoprotein Cholesterol (HDL-C) is considered the most potent independent risk factor for coronary heart disease (CHD) and is inversely correlated with CHD. High levels of HDL-C may have a protective role against coronary atherosclerosis **(1)**. Endurance exercise training characterized by continuous activity at moderate exercise intensity demonstrates significant increases in HDL-C in both men and women after a period of training, typically 20-30% for endurance athletes compared with inactive controls **(2, 3).** Aerobic based training has been proposed as an effective mechanism for improving cardio vascular protection, with training resulting in increases of HDL-C in men 18 years of age and older **(4)** also found positive training related adaptation on Total Cholesterol, Triglycerides, Low density lipoproteins Cholesterol and High density lipoprotein Cholesterol **(5)** or only on Low density lipoprotein Cholesterol and T.C/HDL-C without changes on HDL-C and T.G**(6).** Considering the observed deterioration of the Cardio vascular system and the metabolic profile that tends to accompany young men, it is important to know the potential benefits derived from the exercise. Although the effects of aerobic versus resistance training on Cardio vascular risk factors have been compared (7,8).

Methodology and Materials

Sixty sedentary individuals (21-25years) volunteered (mean (SD) age ± 22.5 (2) years) to participate in this study. Participants were informed about any potential risks and / or discomforts associated with participation in this study and were required to provide their written informed consent before being included in the study. Participants were randomized in to three training groups and one control group. All the participants were from the various colleges of Anantapuramu town under the Sri Krishna Devaraya University, Andhra Pradesh, Andhra Pradesh, India. **Cardio Respiratory Based Training Group (CRTG):** the training was supervised by an exercise physiologist and the frequency was kept three times per weeks for 16 weeks with 45 minutes per session. The intensity of the main part of the session started with work heart rate 40-50% $HR_{reserve}$ (1^{st} to 4^{th} week) increasing progressively to 51-60% $HR_{reserve}$ (5^{th} to 8^{th} week), 61-70% $HR_{reserve}$ (9^{th} to 12^{th} week), 71-80% $HR_{reserve}$ (13^{th} to 16^{th} week). **Strength Based Training Group (SBTG):** after an adequate warm-up the participants completed resistance exercise for three days a week for 16 weeks. They performed 8 exercises with elastic bands for the major muscular groups respecting the following progression

1 set of 8 repetitions (1^{st} -2^{nd} week),1 set of 12 repetitions (3^{rd} – 4^{th} week)

2 sets of 8 repetitions (5^{th} – 6^{th} week),2 set of 10 repetitions (7^{th}-8^{th} week)

2 sets of 12repetitions (9^{th} -10^{th} week),2 sets of 15 repetitions (11^{th} – 12^{th} week)

3 sets of 12 repetitions (13^{th} -14^{th} week)3 sets of 15 repetitions (15^{th} -16^{th} week) an interval period of at least 3 minutes was assured between sets of the same exercise. **Interval Based Training Group:** The experimental participants run a distance of 3.2 km, 3 days per week for 16 weeks. Participants ran 4 sets of 800metres interval i.e. 4 X 800mts interval 1:1 work: rest ratio at approximately 60-70 of their age predicted maximal heart rate (HR Max 220-age in complete years) **Control group:** The control group was instructed not to undertake any vigorous exercise during the training period. **Materials:** Venous blood samples were collected in the morning between 8 AM and 9.30AM by two specialized staff nurses before the training session and the blood samples has collected after completion of 16 week training session. HDL –C was determined using a direct two point Kinetic assay kit (CH2652, Randox, laboratories Ltd., U.K.). **Statistical Analysis:** Analysis of Covariance technique was used to study the effect of the experimental variable on the selected physiological variables. Scheffe's post hoc test also applied to find out the source of significant difference among the groups and to test the hypotheses to arrive at conclusion. The level of significance was 0.05.

Analysis On HDL Cholesterol:

Table I depicts analysis of covariance for the HDL Cholesterol of the subjects on the experimental variable selected. The table indicates that there is significant effect through the selected experimental variable i.e. aerobic, interval and strength based training for the selected experimental period. The obtained F value i.e. 51.73617 is much higher than the table F value i.e. 2.78 and hence the selected experimental variables caused the significant change in the selected HDL cholesterol levels of the subjects. Table II contains the mean values of the selected criterion variable i.e. HDL Cholesterol of the subject. The table brings out the following observations. The CRTG showed significant improvement in HDL cholesterol levels when compared to the other two groups viz. IBTG and SBTG. The Cardio respiratory training group's post training HDL cholesterol mean is 53.887, the Interval based training group's post training HDL Cholesterol mean is 47.454 and the Strength based training group's post training HDL Cholesterol mean is 45.224 When compared with the mean values of the three groups, it is clear that the CRTG showed significant improvement in HDL Cholesterol when compared to the other two groups.

The Interval based training group also improvement in the HDL Cholesterol levels when compared to the Strength based training group. This simple analysis on the post training adjusted mean values shows that there is significant improvement in the HDL cholesterol levels of the subjects due to the selected activity at the selected intensity.

Table-I - ANCOVA TABLE

SOURCE	DF	SS	MS	F	CR.F
TOTAL	59	1529.063			
BG	3	1128.991	376.3303	51.73617	2.78
WG	55	400.0716	7.274028		

Table- II Pre training, Post training and adjusted Post training means for HDL Cholesterol

GROUPS	N	MX	MY	MY.X
SBTG	15	41.8	46.33333	45.22428
IBTG	15	40.26667	47.53333	47.45492
CRTG	15	42.4	55.4	53.88765
CG	15	36.13333	38.4	41.09983
		40.15	46.91667	46.91667

ADJUSTMENT ON PRETEST Analysis of Covariance for HDL Cholesterol (For Pre training and Post training)

SSTY.X	1529.063
SSWGY.X	400.0716
SSBGY.X	1128.991

Though there is variance in the mean values of the HDL Cholesterol because of the three protocols of the exercise, to find out the real difference and the cause of significant difference the Scheffe's post hoc individual comparison test was conducted. The Scheffe's post hoc individual comparison test for the individual groups is presented in table III. The individual comparisons through the Scheffe's post hoc test elicited that the CRTG group has brought out significant improvement in the HDL Cholesterol of the subjects when compared to the other two experimental protocols of exercise. The IBTG and SBTG post training adjusted averages are different in values, the Scheffe's post hoc comparison test indicated that the difference between the groups is insignificant and hence the training effect of the IBTG and SBTG is identical. But, all the three exercise protocol groups of the experimentation showed improvement in the HDL cholesterol levels as per the Scheffe's post hoc individual comparison test when compared to the Control group.

Groups & Values	CRTG	IBTG	SBTG
IBTG	-6.452 Sig*		
SBTG	8.66 Sig*	2.230 n.sig	
CG	12.78 Sig*	6.355 Sig*	4.124 Sig*

Conclusions And Recommendatons

The following conclusions have been derived after analyzing the experimentation results through the appropriate statistical tools:

1. All the three different protocols selected for the aerobic based training exercise capsule, interval based training capsule and strength based training capsule at the moderate intensity of maximal heart rate caused for the significant increase in the HDL cholesterol levels of the subjects.
2. Among the three different protocols for each exercise capsule the aerobic based training for the experimentation period showed more significant increase in HDL cholesterol when compared to the other two protocols of the exercise capsules.

Recommendations:

The following recommendations are offered by the scholar in this regard:

1. Aerobic exercise programs at a moderate intensity of 60-70% percent of the maximal heart rate of not less than four kilometers distance should be needed to better control the precipitating factors for the degenerative diseases like Coronary Heart Disease, Hypertension etc.
2. Similar study may be conducted cross sectionals for various populations changing the geographical limitations.
3. Same type of study may be done for various ages of the same geographical population or to the different geographical area population.
4. Similar study may be conducted for longitudinal studies with an increased experimentation period.Many similar studies may be conducted changing the intensity factor of the experimentation exercise protocol.

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Effects Of Alcohol On Sports Performance Of Athletes And Their Physical Fitness

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Abstract:
Alcohol is a diuretic, which means it makes your kidney produce more urine, drinking too much of it can lead to dehydration. Exercising soon after drinking alcohol can make this dehydration worse because you sweat as your body temperature rises. Combined, sweating and the diuretic effect of exercise make dehydration much more likely. You need to be hydrated when you exercise to maintain the flow of blood through your body, which is essential for circulating oxygen and nutrients to your muscles. Alcohol interferes with the way your body makes energy. When you're metabolising or breaking down alcohol the liver can't produce as much glucose, which means you have low levels of blood sugar. Exercise requires high levels of sugar to give you energy. If your liver isn't producing enough glucose, your performance will be adversely affected. "If your body is forced to run from your supplies of fat rather than blood sugar, you will be slower and have less energy and won't be able to exercise as intensely," says Professor Whyte. As a result, your coordination, dexterity, concentration and reactions could be adversely affected. Through people know the health hazards, yet they do not think or care for their own health in life abuse of alcohol and drugs cause severe damage to the human body because these produce harmful effects on the health of people directly or indirectly. Alcohol abuse interferes with work or disturbs social or family relationship. On the other hand drugs are known for their actions and side effects. These are organic and inorganic materials. Overuse of drugs is harmful for sports performance so, we can surely say that Alcohol and drugs in our life we achieved our goals. **Keywords:** Alcohol, Sports, psychology, Physical fitness.

Introduction:

Alcohol abuse may eventually impede physical performance; individuals diagnosed with alcohol dependence have displayed varying degrees of muscle damage and weakness. Furthermore, alcohol abuse is at least as prevalent in the athletic community as it is in the general population; the vast majority of athletes have begun drinking by the end of high school. Alcohol is not a stimulant as is generally considered. It is depressant. It reduces body's functional activity, makes people less efficient and mental processes become dulled, when people drink it. It affects vision also. When taking in small amounts, it acts as a seductive and calms nervousness or excitement. It is for this reason people claim that alcohol is relaxing. In some cases it may even have beneficial effects of health. When it is taken in large amount, it is hypnotic, because it puts the drinker to sleep. Since it also combats pain some people consider it analgesic or pain killer. When it is taken in excessive amounts, it acts as an intoxicant or poison and has a harmful effects

on the body and its functions. Alcohol abuse is at least as prevalent in the athletic community as it is in the general population; in fact, the majority of athletes have begun drinking by the end of high school. Both male and female college students have higher rates of binge drinking than non-athletes, and drinking five or more drinks on any one occasion affects the brain and body for several days. When we discuss uses of alcohol in medicine, we can briefly say that alcohol is a disinfectant, which kills bacteria when used in strong concentration, on the outside of the body. How alcohol affects a person depends on the amount consumed, the environmental context, and individual differences in capacity. While a small amount of alcohol consumed daily may have a protective effect on the cardiovascular system, chronic heavy alcohol use is associated with a wide range of physically negative outcomes, which account for approximately 100,000 deaths yearly in the United States. It is also used as a germ-killer in preparation of germicides. The alcohol should, therefore, not consume liquor and should always stay away from alcohol drinks. It detected under the influence of intoxication. It brings bad name to the athlete himself, his family, hia coach his team his association or club and the country. People hate them. It further leads to disqualification and he is also debarred. The career, thus, is ruined. Sports controlling bodies have, therefore, banned use of alcoholic drinks. Drug abuse creates problems of personal and social career and educational developments. In some cases it leads to damage certain body parts and in some cases there is a risk of death. The athlete take drugs (doping) for the sake of temporary enhancement of performance, power to win the game and medals to brings game at national and international levels. Sports competitions are becoming highly professional. Through the drugs are banned yet doping cases are coming to light and athlete are found guilty in certain sports competitions. The sportsmen should, therefore, stay away from drugs as its misuse and abuse, when detected, damage the prestige of a country at national and international levels, and not only this, the sportsman is debarred for future competitions. While alcohol use to celebrate sport has long been an Australian tradition, there is increasing evidence to show what a poor partnership it really is. Good Sports identifies that alcohol can affect your sport and exercise performance in directly and indirectly way.

Objective of the study : To find out the effect of Alcohol and on athletic performance as whole.

Effects of alcohol on sports performance: Alcohol has been described as a performance impairing drug. Exercise is a complex activity utilizing many of the body's organ systems; alcohol exerts an effect on most of these systems, including the central nervous system, muscle energy stores and the cardiovascular system.

Motor Performance :

Low amounts of alcohol (0.02- 0.05g/dL) can result in decreased hand tremors, improved balance and throwing accuracy, and a clearer release in archery, but in slower reaction time and decreased eye-hand coordination. A moderate (0.06-0.10 g/dL) amount of alcohol negatively affects such skills. **Alcohol as a Nutrient**: Each gram of alcohol (ethanol) provides seven kilocalories compared to nine for fat and four each for carbohydrate and protein. Other nutrients may be present, depending on the type of beverage. Beer, for example, has been seen as a good source of many nutrients and has sometimes been used in preparation for endurance events or to replenish nutrients following competition. Actually, orange juice supplies four times the potassium plus almost three times the carbohydrates, and it would take 11 beers, for example, to obtain the B-vitamin recommended daily allowance (RDA). **Alcohol and strength, power, and short-term performances**: Alcohol decrease in overall performance levels lowed running and cycling times weakening of the pumping force of the heart impaired temperature regulation during exercise decreased grip strength, decreased jump height, and decreased 200- and 400-

meter run performance faster fatigue during high wasters energy, strength, power, speed, endurance and causes early tiredness and fatigue leading to poor performance in play.

Alcohol and Aerobic performance: Alcohol causes dehydration and significantly reduced aerobic performance impaired 800- and 1500-meter run times increased health risks during prolonged exercise in hot environments. **Medical Concerns:** Alcohol has been linked to exercise-induced anaphylaxis and asthma. Acute ingestion may cause myocardial irritability, resulting in arrhythmias. Consumption before water activities increases the risk of injury. Harmful to the body systems, reduces ability to regulate body temperature, obstructs neuromuscular co-ordination.

Heavy alcohol consumption impairs exercise performance by :

- impairing the cardiovascular response to exercise
- causing nutritional deficiencies from alterations in nutrient intake, digestion, absorption, metabolism, physiological effects, turnover, and excretion of nutrients
- causing myopathy, or muscle damage, wasting, and weakness, in various muscles, including the heart
- changing the body's hormonal environment, making it less conducive to increasing muscle mass and strength
- compromising cardiovascular and muscular performance in people with alcoholism

Alcohol effects on women Athletes

Women's muscular strength is inversely correlated with total life-time doses of alcohol. Women may be more sensitive than men to the toxic effects of alcohol on the heart.

- **Liver Disease**: The risk of cirrhosis and other alcohol-related liver diseases is higher for women than for men.
- **Impact on the Brain**: Excessive drinking may result in memory loss and shrinkage of the brain. Research suggests that women are more vulnerable than men to the brain damaging effects of excessive alcohol use, and the damage tends to appear with shorter periods of excessive drinking for women than for men.
- **Impact on the Heart**: Studies have shown that women who drink excessively are at increased risk for damage to the heart muscle than men even for women drinking at lower levels.
- **Cancer**: Alcohol consumption increases the risk of cancer of the mouth, throat, esophagus, liver, colon, and breast among women. The risk of breast cancer increases as alcohol use increases.
- **Sexual Assault**: Binge drinking is a risk factor for sexual assault, especially among young women in college settings. Each year, about 1 in 20 college women are sexually assaulted. Research suggests that there is an increase in the risk of rape or sexual assault when both the attacker and victim have used alcohol prior to the attack.

How alcohol affects your physical fitness

Speed: Alcohol affects you even after you've finished drinking. Alcohol affects the central nervous system and slows down the information processing ability of the brain. This in turn slows down your reaction time, hand eye-coordination, accuracy and balance. Even a small number of drinks can affect performance. **Energy and stamina:** The blood sugar that your body needs for energy is produced by your liver when it releases glucose into the blood stream. Alcohol keeps the liver too busy to produce the required sugar levels to sustain an athlete's energy and stamina to perform at their peak. **Cramps:** While exercising, your muscles burn up glucose, producing lactic acid as a waste product. Too much lactic acid leads to muscle fatigue

and cramps. Alcohol that remains in your system contributes to greater build-up of lactic acid, increasing the risk of cramping dramatically. **Dehydration:** The 'drys' is a term often used to describe an extreme symptom of alcohol's diuretic (increased urination) effect. This extra fluid loss added to what an athlete sweats out increases the risk of dehydration significantly. **Muscle cramps:** Alcohol affects the body's ability to create energy therefore it slows down reaction times, increases body heat loss and reduces endurance. After exercising, the body needs to be rehydrated. It's not helpful to drink only alcohol as it will continue to dehydrate the body further. If you sustain injury while exercising, and you have had alcohol the night before or drink any alcohol afterwards (while injured), you are likely to increase your recovery time significantly. **Testosterone:** Alcohol, when consumed in amount typical with brings drinkers can dramatically decrease serum testosterone levels. Decrease in testosteorane are associated with decrease in aggression less muscle mass and overall athletic performance. In female athlete this may cause an increase in the production of estradiol (a form of estrogen) which may increase the risk of breast cancer. **Fat Storage**: Alcohol has seven calories per gram. Fat has nine calories per gram. Alcohol is much storage like fat in the body, also, alcohol, demainates (destroys) amino acids and stores them as fat. In the case of storage fat powerful energy pathways (like glycolysis) are impaired and large amount of lactic acid are produce, this results in decreased energy, decrease muscle recovery, and increase muscle soreness.

Psychological aspects :

- Social damage ,Alcohol effects a daytime repercussion of alcohols effects on sleep. Alcohol effects attention. Lake of confidence. Alcohol use cancels outgains from your workout. Alcohol use hampers memory and retention.

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A Study On Physical And Physiological Profiles In Relation To Aerobic Capacities Of Male Sprinters And Long Distance Runners Of Mahabubnagar District

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Introduction

Today, the preparation of an athlete for high level achievement is complex dynamic matter, characterized by a high level of physical and physiological efficiency and the degree of perfection of necessary skill and knowledge and proper teaching and policy. As a result of exercise and work, many physical, physiological and structural changes take place at various tissue, organ and system. Organ and systematic function at various levels of rest and work become of interest as they interact with each other.

The nature of the performance and the varying stresses placed on the organs determine whether the training effects occur. For example in exercise such as sprinters and long distance running, the specific components of physical and Physiological performance primarily stressed and the component that provides an explanation of success and failure in the run. The two activities place the greatest stress on different system or tissue, but they both obviously involve the same Physical and physiological mechanism. In the present study, the researcher has aimed at comparing the selected Physical and physiological variables among sprinters and long distance runners. The scientific training methods and applications of basic principles of body mechanics in sports skills have been established to the higher level of performance. Performance is the combined result of coordinated exertion and integration of a variety body functions.

Sports activities consists of motor movement action and their success depends to a great extent on how correctly they are formed Interval training is based on the concept of more work can be performed at higher exercise intensities with the same or less compared to continuous exercise. By choosing appropriate exercise intensities, exercise duration and rest interval, the appropriate energy systems can be trained this may be due to the improvement in the track, sports fields, and sport equipment and to a greater degree to improvement in the methods and accessibility of coaching. The techniques have been increasingly efficient as a result of research in biomechanical and physiological aspects of sports.

Objective of the study

The objective of the study is to compare male sprinters and long distance runners of Telangana state athletes on physical and physiological profiles in relation to aerobic capacities. The purpose of this study is to compare physical fitness and physiological variables of Sprinters and Long

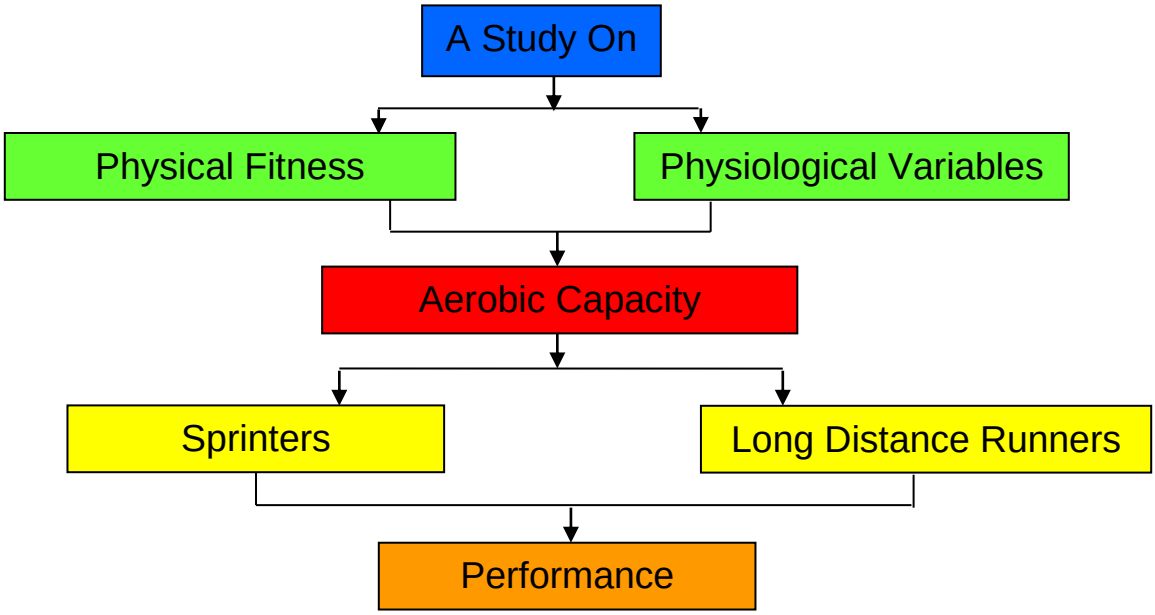
distance runner's variables among College men at Mahabubnagar district and to find out which of the two categories is more physically fit and physiological sound in responding to standardized level fitness.

Hypothesis

There may not be any significant difference between sprinters and long distance runners in relation to Aerobic capacities on physical and physiological variables of Telangana State.

Design of the study

The diagrammatic presentation was presented hereunder.



Methodology

The purpose of the study was to find out the aerobic capacity on selected physical and physiological variables among Govt. College men at Mahabubnagar district. To achieve this purpose, 50 male sprinters and 50 male long distance runners studying in Govt. Degree College at Mahabubnagar district were randomly selected as subjects. The age of the subjects were ranged from 18 to 22 years.

Tools Used

The following physical fitness components are speed, explosive strength, cardio respiratory endurance, agility, flexibility. Physiological Variables the resting pulse rate test and Vital Capacity were administrated on sprinters and long distance runners of Govt. College men at Mahabubnagar district.

Criterion Measures

The selected variables were measured by using standard testing procedures.

- Speed, 60 meters run and recorded in time

- Explosive strength, standing broad jump and recorded in meter
- Cardio respiratory Endurance was measured by Coopers 12 Minutes run and recorded in meter.
- Agility, 4x10 meters shuttle run recorded in time
- Flexibility, sit and reach and recorded in meter
- Resting Heart rate was measured by gently pressing over the radial artery and recorded in numbers for one minute by using stop watch.
- Vital capacity was measured by Dry Spirometer and recorded in milliliters

Statistical Procedure

The data were analyzed by applying descriptive statistical and Analysis of Co-Variance (ANCOVA). The data analyzed with the help of SPSS (16.0 version) software and the level of significance was set at 0.05 level of confidence.

Result and Findings of the Study

The Analysis of covariance on Speed, explosive strength, cardio respiratory endurance, agility, flexibility, resting heart rate and Vital capacity of the sprinters and Long distance runner's scores of have been analyzed and presented in table.

Sl.No	Variables	Groups	Mean	S.D	"t" -v	P-v
1.	Speed	Sprinters	11.016	0.34	0.003	0.000
		Long distance runners	12.017	0.70		
2.	Strength	Sprinters	2.547	7.63	0.025	0.022
		Long distance runners	2.101	4.28		
3.	Endurance	Sprinters	6561.5	609.13	0.033	0.370
		Long distance runners	7555.8	501.02		
4.	Agility	Sprinters	10.437	1.96	0.004	0.338
		Long distance runners	15.434	1.82		
5.	Flexibility	Sprinters	2.90	5.19	0.037	0.007
		Long distance runners	2.85	2.95		
6.	Resting Heart Rate	Sprinters	58.13	5.21	1.99	0.149
		Long distance runners	56.53	4.50		
7.	Vital Capacity	Sprinters	2.60	0.34	0.81	0.451
		Long distance runners	2.03	0.39		

Discussions of the study

- In physical fitness variable speed the mean value of sprinters is 11.016, SD value is 0.34, and for the Long distance runners of the mean value is 12.017 and SD value is 4.28. The t-value is 0.003 and p-value is 0.000. It is very clear a significant difference was found between sprinters and long distance runners of Govt. Degree College at Mahabubnagar district with regards to the physical fitness variable on speed.

- In physical fitness variable explosive strength the mean value of sprinters is 2.547, SD value is 7.63, and for the Long distance runners of the mean value is 2.101 and SD value is 0.70. The t-value is 0.025 and p-value is 0.022. It is very clear a significant difference

was found between sprinters and long distance runners of Govt. Degree College at Mahabubnagar district with regards to the physical fitness variable explosive strength on standing broad jump.

- In physical fitness variable cardio respiratory endurance the mean value of sprinters is 6561.5, SD value is 609.13, and for the Long distance runners of the mean value is 7555.8 and SD value is 501.02. The t-value is 0.033 and p-value is 0.370. It is very clear a significant difference was found between sprinters and long distance runners of Govt. Degree College at Mahabubnagar district with regards to the physical fitness variable cardio respiratory endurance on 12 minutes run / walk cooper test.

- In physical fitness variable agility the mean value of sprinters is 10.437, SD value is 1.96, and for the Long distance runners of the mean value is 15.434 and SD value is 1.82. The t-value is 0.004 and p-value is 0.338. It is very clear a significant difference was found between sprinters and long distance runners of Govt. Degree College at Mahabubnagar district with regards to the physical fitness variable agility on 4x10 shuttle run.

- In physical fitness variable Flexibility the mean value of sprinters is 2.90, SD value is 5.19, and for the Long distance runners of the mean value is 2.85 and SD value is 2.95. The t-value is 0.037 and p-value is 0.007. It is very clear a significant difference was found between sprinters and long distance runners of Govt. Degree College at Mahabubnagar district with regards to the physical fitness variable Flexibility on sit and reach.

- In Physiological variable resting pulse rate the mean value of sprinters is 58.13, SD value is 5.21, and for the Long distance runners of the mean value is 56.53and SD value is 4.50. The t-value is 1.99 and p-value is 0.149. It is very clear a significant difference was found between sprinters and long distance runners of Govt. Degree College at Mahabubnagar district with regards to the Physiological variable resting pulse rate.

- In Physiological variable vital capacity the mean value of sprinters is 2.60, SD value is 0.34, and for the Long distance runners of the mean value is 2.03 and SD value is 0.39. The t-value is 0.81and p-value is 0.451. It is very clear a significant difference was found between sprinters and long distance runners of Govt Degree College at Mahabubnagar district with regards to the Physiological variable vital capacity.

Conclusions

Although sprinters performance is subject to other factors including race-to-race variability, reaction time, lever length, and psychological state, the physiological components out-lined in this review not only have predictive accuracy, but they can also be manipulated through training. The trainability of these factors makes them ideal candidates to track an athlete's progression and develop training programs. Hence, their predictive accuracy for sprint performance is in-creased when measured in situations that closely mimic actual race conditions. Researchers argue for the use of concentric and eccentric contractions in training and tracking an athlete's performance in the acceleration and top-end speed phases respectively. While the study have found moderate to strong correlations of muscular strength, anaerobic power, and aerobic capacity to sprint

performance individually, their predictive accuracy may be further improved if these three components are considered together.

Sprinting is an activity that involves the entire body in both concentric and eccentric contractions and the contribution of alactic, lactic, and aerobic energy sources. It remains to be seen whether large gains in muscular strength, anaerobic power, or aerobic capacity have an associated negative effect on other physiological variables. Thus, there is great potential for future research in this field, and the results will have widespread application to a variety of athletic events.

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Sport Participation Of People In Can Tho City, Viet Nam

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Abstract

By qualitative and quantitative methods, the study conducted a survey of over 487 peoples participating in sports in Can Tho City. Results have to find out is just to practice the real situation, the needs and the factors affect sports practice. Research results are an objective scientific basis to propose solutions to contribute to the development of sports activities in the City in the future. **Key words**: Situation, practice, sport, people, CanTho City

Introduction

In recent years, the sport movement of the masses has made new developments in both width and depth. The management mechanism for sports activities is strengthened and improved; forming a system of social organizations for sports. Sports potential increased markedly. Material and technical facilities for research have been gradually modernized.Besides, the socialization of sports activities has also been promoted, many clubs and many business enterprises about sports and physical development have been developed in accordance with the current trend of social development, etc…

However, in addition to the achievements achieved, in recent years, the Vietnam's sport has some shortcomings such as: Mass sports movement developed strongly but not synchronized, the quality is not high; Physical education in the school and the extracurricular sports activities of students have not been respected and not met the requirements of maintaining and improving health for students. The management of the industry is still affected by the subsidy mechanism, not yet catching up with the current socio-economic development situation; mechanisms and policies on sports human resources are limited and inadequate; Ideological education, ethics in competition, sports enjoyment has not been paid due attention; The proportion of state budget invested in sports development is still low. Activities of some sports unions and associations remain passive, depending on the support of state management agencies; lack of legal regulations on participation in implementing some operational activities in the field of sports etc. Therefore, the survey on the status and needs of sport participation of the people, especially in Can Tho city - one of Vietnam's major cities, to have more effective orientations to develop mass movement in the future. From practical issues mentioned above, the "**Sport participation of people in Can Tho City, Viet Nam**" study is necessary to provide objective scientific bases to support the improvement of the mass movement of people in Can ThoCity, will be better in the future.

Methods: The research process uses the following methods: reading, analyzing and synthesizing documents; Sociological survey and statistical mathematics on SPSS 22.0 software. **Sample:** Survey on the subjects who are people living in the city. Can Tho. The questionnaire set is compiled from reference sources. The number of issued votes is 500 votes, 487 valid votes.

Results

Through survey results,the thesis carried out an analysis of the situation of sports movements of people in the city. Can Tho, the results of the reality of the sport movement of people with the following contents:

Sport participation of people in Can Tho City

Most people in Can Tho City chose the answer as "Yes" to spend time for sportsactivities with a proportion of 84%. The remaining, accounting for 16%, is to choose the answer "No".

The reasons for not participating in sports activities of people in Can Tho City

Through the data in Figure 2.1, people have many reasons for not participating in Sport activities.In particular, the reason "no time" is the reason for the highest proportion of the reasons for not participating in sports activities of people (accounting for 48.9%).

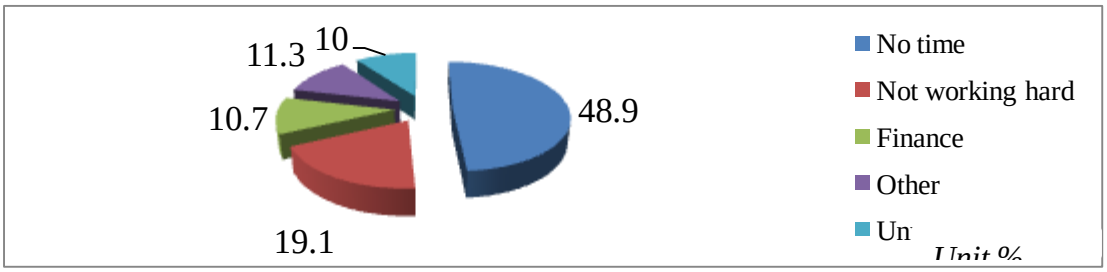


Fig 2.1: The reasons for not participating in sports activities of people in Can Tho City

Perspectives on sports of people in Can Tho City

The proportion of people chose "Important" is the highest percentage (accounting for 50.3%).

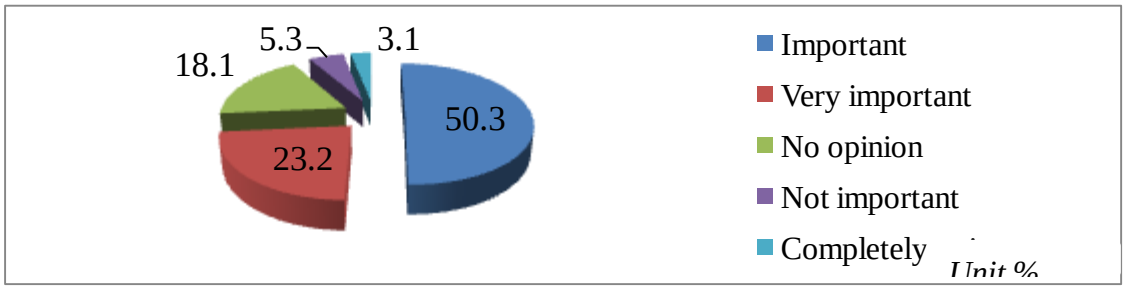
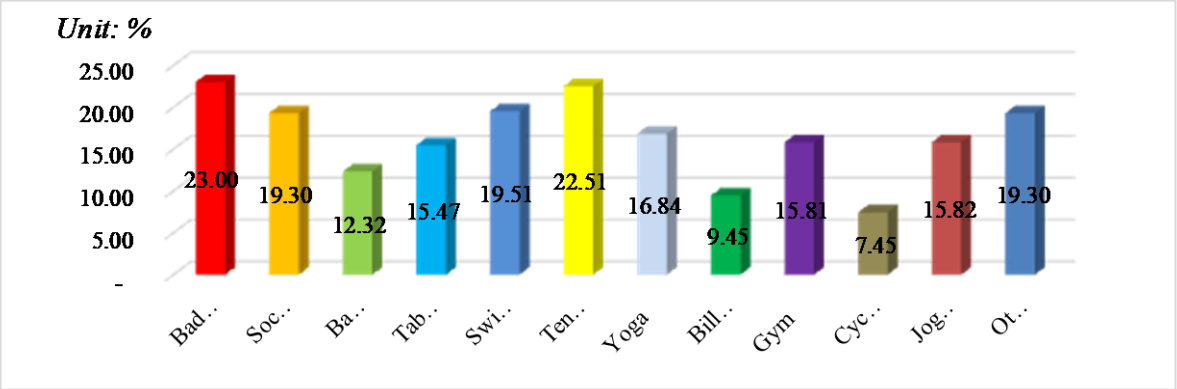


FIG 2.2: PERSPECTIVES ON SPORTS OF PEOPLE IN CAN THO CITY

Statistics on sports chosen by people in Can Tho City

Statistics from chart 2.3 show that people mainly participate in the practice of Sports with high popularity such as "Badminton" (accounting for 23%); "Tennis" (accounting for 22.5%); "Swimming" (accounting for 19.5%). In which, "Cycling" was less popular among people and accounted for the lowest percentage (7.4%)

FIG



2.3: STATISTICS ON SPORTS CHOSEN BY PEOPLE IN CAN THO CITY

Time for sports activities of people in Can Tho City

Through detailed statistics in chart 2.4, the idea of "Less than 60 minutes" about the time for Sport activities of people in Can Tho City accounted for the highest rate (accounting for 50.2%).

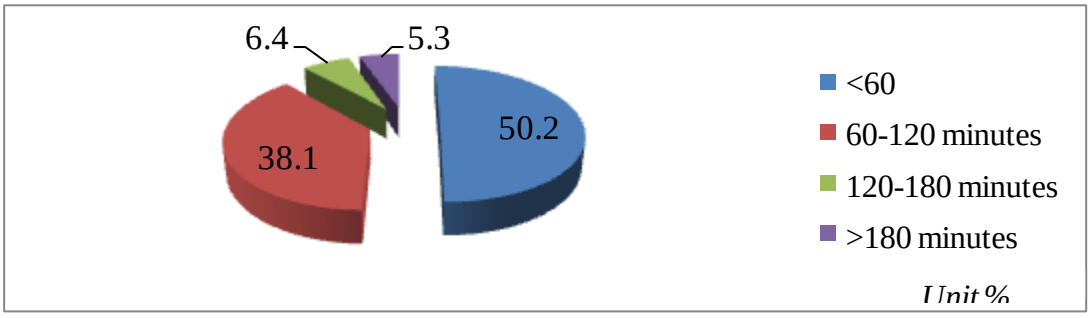


Fig2.4: Time for sportsactivities of people in Can Tho City

Places of practice sports by people in Can Tho City

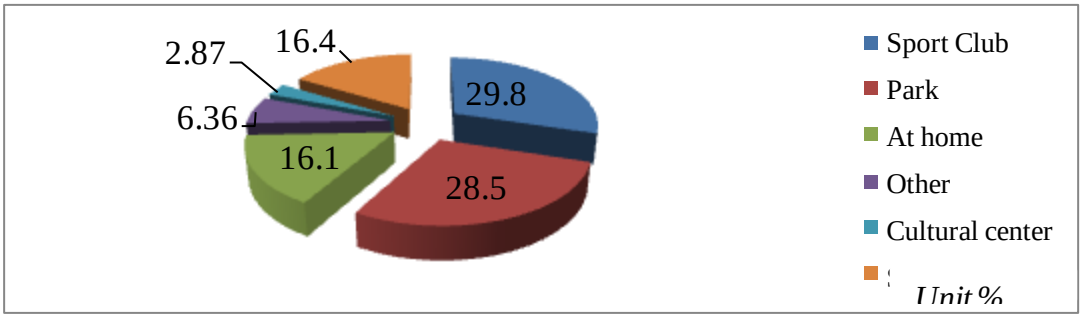


Fig 2.5: Places of practice sports by people in Can Tho City

From the statistical results in chart 2.5, most is “Sport Club”, accounting for the highest proportion (accounting for 29.8%).

The frequency of participation in sports of people in Can Tho City. Figure 2.7 shows that the idea of "A few days of the week" is the frequency of participating in sports training that accounts for the highest percentage (accounting for 52.2%).

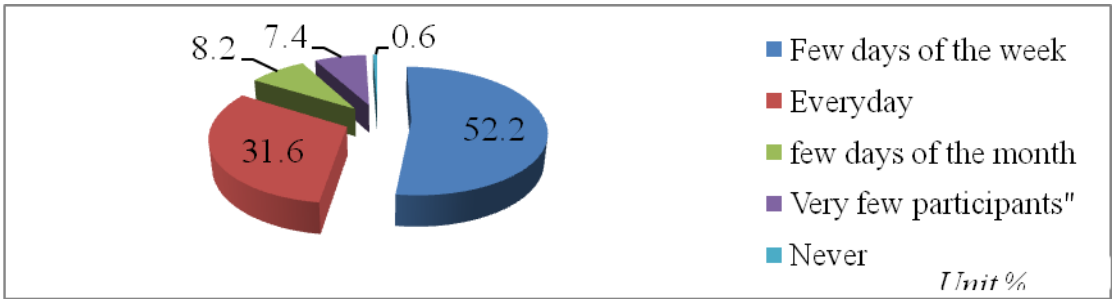


FIG 2.6: THE FREQUENCY OF PARTICIPATION IN SPORTS OF PEOPLE IN CAN THO CITY

TIME OF DAY OF PARTICIPATION IN SPORTS

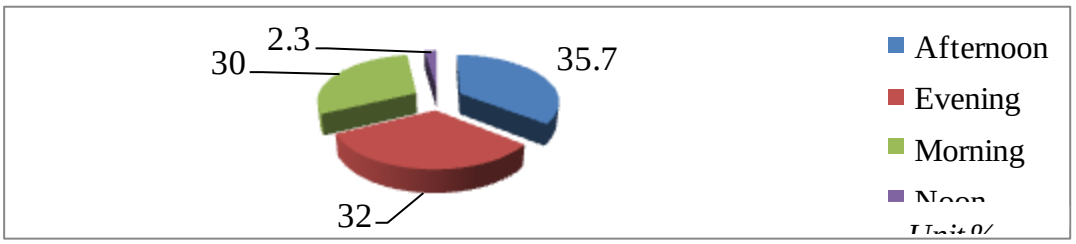


Fig 2.7: Time of day of sports participation

Through detailed statistics in Figure 2.8, it is shown that the time when people usually choose sports is the highest rate of "Afternoon" (accounting for 35.7%).

Number of people in a family practicing sports

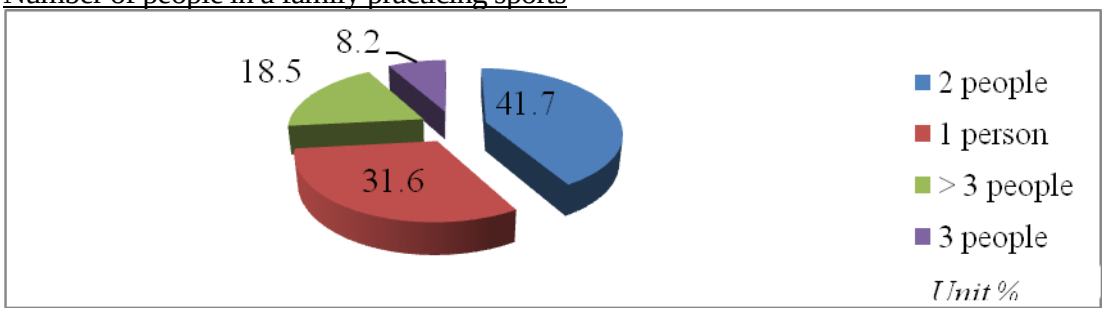


FIG 2.8: NUMBER OF PEOPLE IN A FAMILY PRACTICING SPORTS

The statistical results from chart 2.9 show that the number of people in a family participating in sports accounted for the highest rate of "2 people" (accounting for 41.7%).

Needs when practicing sportsof people in Can Tho City

The scale is used to measure the demand for sports training of people in Can Tho City, including 28 factor formed from sources: open questions; theoretical basis of Maslow's needs, previous research topics. Through the process of processing Cronbach'sAnpha test and factor analysis, the study identified 5 research groups affecting the participation in sport training of people in Can Tho City: Basic, Safety, Social, Esteem, Self-actualization.

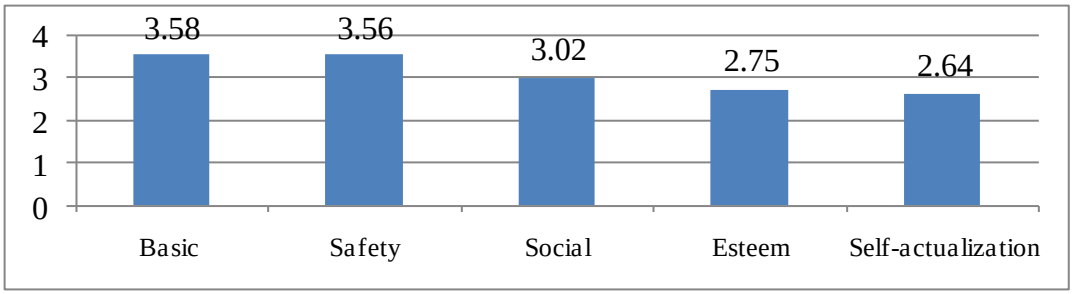


FIG 2.9: NEEDS WHEN PRACTICING SPORTSOF PEOPLE IN CAN THO CITY

In order to better understand the needs of people practicing in Can Tho City, the topic of conducting in-depth analysis in each group. The results obtained include the following:

Basic group

Through the chart 2.11, it is shown that the basic study of sports exercise of the highest population is "I practice sports for health" (Mean = 4.05); The lowest is "I practice sports because of my habit" (Mean= 3.09). The other is "I practice sports for entertainment" (Mean = 3.62) and "I practice sports to eat and sleep well" (Mean= 3.58).

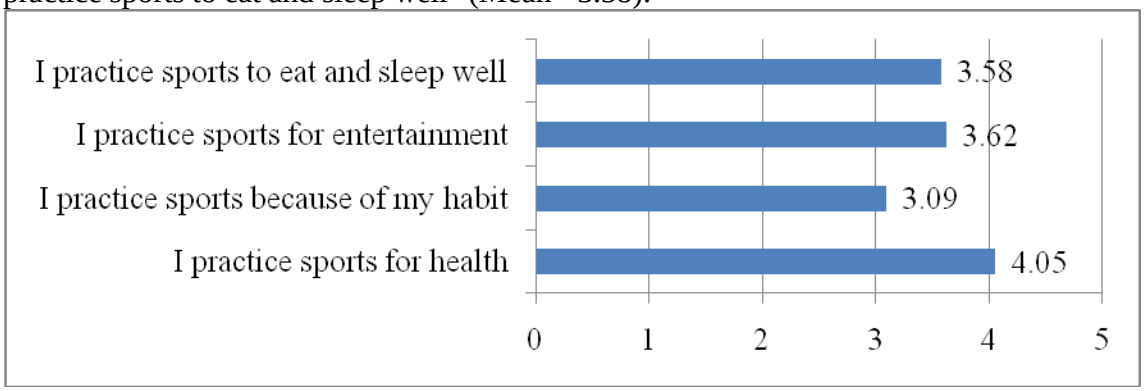


Fig 2.11: Basic group

Safety group

Through the results in Table 2.2, the highest safety demand for sports practice of people is "I exercise to increase resistance and improve health" (Mean = 3.81); The lowest demand for exercise in sports is "I practice sports which makes me confident in life" (Mean= 3.45).

Table 2.2: Safety group

Content	**Mean**	**Sd**
I practice sports because it helps me reflect and react quickly to movement situations	3.61	0.92
I practice sports for healing	3.46	0.99
I practice sports to extend life	3.56	0.91
I practice sports because it's a healthy game	3.49	0.90
I practice sports that makes me confident in life	3.45	0.79
I practice sports to increase resistance and improve health	3.81	0.80

Social group

FROM THE RESULTS OF THE SURVEY OF SOCIAL NEEDS WHEN PRACTICING SPORTS OF PEOPLE IN TABLE 2.3, THE HIGHEST SOCIAL DEMAND IS "I EXERCISE TO INTERACT WITH FRIENDS" (MEAN = 3.66). IN CONTRAST, THE LOWEST SOCIAL DEMAND IS "I PRACTICE SPORTS BECAUSE I WANT TO BE LIKE AN IDOL" (MEAN = 2.66).

Table 2.3: Social group

Content	**Mean**	**Sd**
I practice sports to interact with my friends	3.66	0.98
I practiced sports due to the appeal of my friends	2.85	1.15
I practiced sports because of the influence of sports idols	2.80	1.17
I practiced sports because of the near-home sportsenvironment	2.97	1.10
I practiced sports because it helped me to have many friends and many social relationships	3.34	1.01

I practiced sports because it made me not lose my friends	2.87	1.11
I practice sports because I want to be like an idol	2.66	1.15
I practiced sports because I found my favorite friend	3.01	1.07

Esteem group

Through the results in chart 2.12, the highest demand in the group of the most important needs for sports practice is "I exercise because I want to become a famous athlete" (TB = 2.83); The lowest average value among the most important needs of the people in sports is “I exercise because people care about me” (TB = 2.77).

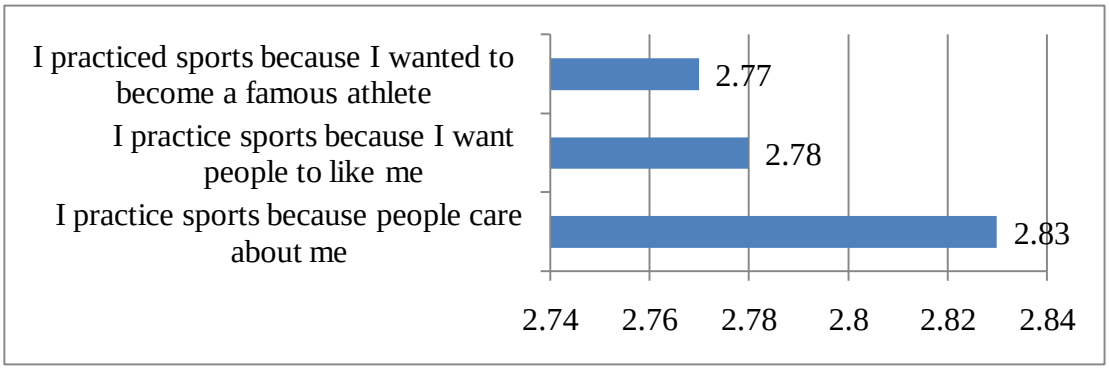


Fig 2.12 Esteem group

Self-actualization group

Through chart 2.13, the need shows when the practicing sports of the people is the highest: "I practice sports because I want to show my abilities" (Mean = 2.79); The lowest research is "I practice sports to express myself before everyone" (Mean = 2.46).

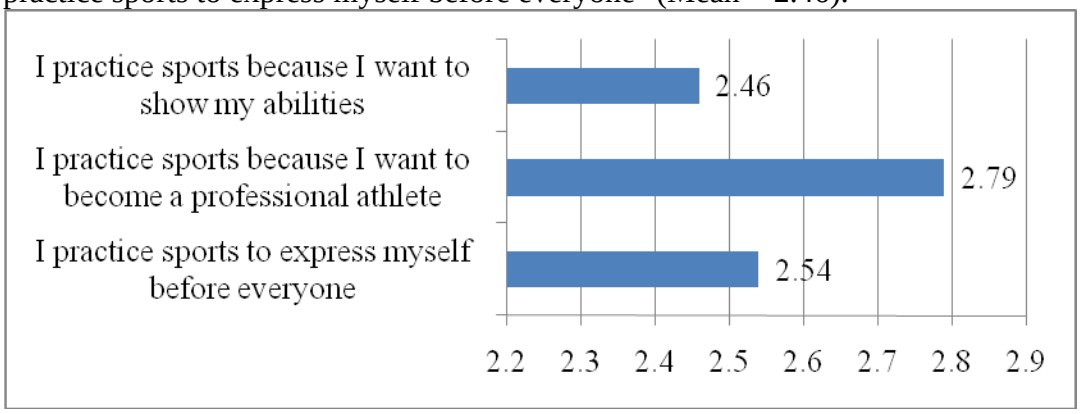


Fig 2.13: Self-actualization group

Conclusion

From the results, the research has found the content related to the actual needs practicing sports of people in Can Tho City as follows:- Their opinion is "Important for daily life" (50.3%). In which the sport is practiced by people most often: "Badminton" (23%).The time for people to participate in sports training is mostly less than 60 minutes (52%) and the place they often participate in training at clubs is mainly (accounting for 29.8%). And in the family of the people participating in the study, almost 2 people participated sports. In addition, through research shows that lack of coaches or instructors is the most dissatisfied of people when participating in sports. Besides, the most influential factor is "Busy work" affecting sports practice activities of people in Can Tho City.- From the results of the survey of people's needs when practicing sports in the chart, people have the highest "basic needs" (Mean = 3.58). The remaining "express demand" has the lowest demand (Mean = 2.6).Research results are the basis for managers to have solutions for development, attracting sports participants in Can Tho City more effectively in the future.

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Recreational Participation In Relation To Stress Management Among Employees Of MSU-Marawi City, Philippines

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Abstract
The purpose of this study is to identify the significant relationship between recreational participation and stress managementas well as the intervention of the identified moderating variables such as: age, ethnicity, civil status, tenure of work, gender and net monthly income. This study employed the descriptive-correlational type of research in determining the relationships between and among variables. Recreational participation is measured in terms of frequency and duration using recreational participation questionnaire developed and pilot tested by Henry C. Daut; stress management on the other hand is measured through the standard questionnaire developed by Delia Franklin. The respondents were the 245 male and female faculty members of Mindanao State University Marawi City. Product Moment Correlation of Coefficient or Pearson *r* was used in analyzing the data through the Statistical Package for Social Science v.16. Results show that there is a significant relationship established between the duration of participation in recreational activities and stress management with p-value = 0.041; and between the duration of recreational activities and net monthly income with p-value = 0.018. Also, a strong relationship is observed between ethnicity and stress management with p-value = 0.011. Results imply that taking advantage of recreational activities can be a great source in managing stress. Hence, this study recommended that the faculty members should have adequate recreational activity participation to better manage the stressful environment; thereby become more effective and efficient and improves quality of work. Keywords: recreation, stress management, participation, employees

Introduction
On the twentieth century recreation was needed for all ages and all social classes. The term recreation means that which refreshes or restores. In its traditional sense, recreation has been as a period of light and activity, voluntarily chosen, which restores one from heavy, obligatory activity or work. It is an activity that rests men from works. These activities indulge physical, mental, social and emotional involvement. This includes a wide range of activities such as: sports, games, arts and crafts, travel and social activities which are socially accepted and that provides immediate and inherent satisfaction to the individual who voluntarily participate in an activity(Kraus, 1997). Stress management on the other hand, encompasses techniques intended to equip a person with effective coping mechanism for dealing with psychological stress, with stress defined as a person's psychological response to an internal or external stimulus that triggers the fight-or-flight response. It is the wear and tear our bodies experiences as we adjust to our continually changing environment; it has physical and emotional effects on us and can create positive or negative feeling. As a positive influence, stress can help compel us to action; it can

result in a new awareness and an exciting new perspective. As a negative influence, it can result to distrust, rejection, anger and depression which in turn can lead to health problems such as: headaches, upset stomach, insomnia, ulcers, high blood pressures, heart disease and stroke with the death of a love ones, the birth of an unwanted child, or a new relationship; we experience stress as we adjust on a situation. In adjusting to the different circumstances, stress will help or hinder us depending on how we react to it. Here we can see that most illness is related to unrelieved stress. And have gone beyond the optimal stress level. In this case one needs to reduce the stress in life and/or improve the ability to manage it (Dunn, n.d.)

Objectives

The study has determined the relationship between recreational participation and stress management among faculty members, and intended to realize the following objectives:

- To provide information on the importance of recreational activities participation in relation to stress management.
- To help faculty members and other employees in knowing some techniques on how to cope with the distress in life and to utilize the good stress in order to have a positive impact in life.
- To supply information for recreation leaders, recreation programmers, physical educators and school administrators in planning and providing recreational activities
- To serve as a serve as a reference for future researchers as their basis for their researches and studies.

Review Of Related Literature

Managing stress is an ongoing process. We learn about who we are as human beings, why we act and react to the world around us, and how to deal more effectively with life's insults and frustrations as well as its joys and pleasures (Singer, 1993). According to Morgan (1965), as cited in the study of Quilang (1994), nobody can work all the time. A person must find ways of relaxation and exercises to keep him in good mental and physical shape. Also,there are six ways of how one can manage stress better. First is to become aware of the stressors, emotional and physical reactions; second is to recognize what one can change; third, is to reduce the intensity of emotional reactions to stress; fourth is to learn to moderate physical reactions to stress through relaxation techniques; fifth is to build physical resources, exercise for cardiovascular fitness and participating in any worthwhile activities is one way to maintain a physically fit body; and sixth is to maintain the emotional reserves (http://www.ivf.com.stress.html).

Jay Shivers (1987) states that one of the more efficient ways for the fulfillment of the human being is that increased leisure be used productively rather than wasted in frivolity. The individuals' daily task requires commitment to whatever social and economic system to which he or she belongs but there is also as need for a relaxation from labor. In addition, Shryock and Swartout (1970) presented ways to promote a successful outcome. The first is to reduce the impact of the stressful situation. Second is to improve one's tolerance for different circumstances. This involved following a fitness program designed to improve one's health, both physical and mental. Such a program includes moderation in all activities, physical exercises and recreation, adequate sleep, a well-balanced diet, and the cultivation of faith in God.

Methods & Materials

This study make use of the descriptive - correlational method of research.Samples of were drawn from the total population of 635 male and female faculty members of Mindanao State University, Marawi City.To have an adequate sample size, the Slovens' formula was used. Out of 635 faculty members, a computed size was 245 and a simple random sampling procedure was used in order to determine the exact respondents of this study. The instrument used was a modified questionnaire which consists of three (3) parts. Part 1 was the demographic profile, wherein the respondents were asked to supply or check the necessary information such as name, age, gender, net monthly income, ethnicity, tenure of work, and civil status.Part II was recreational participation questionnaire developed Henry C. Daut and Part III was stress management questionnaire developed by Delia Franklin. It is standardized questionnaire that consists of ten questions which assess how an individual manages stress. Frequency and percentage distribution has been used to assess the demographic profile of the respondents. Product Moment Correlation of Coefficient or Pearson *r* was employed totest the significant relationship between variables.

Results And Discussions

Table 1: Results of the Test Statistics on the Significant Relationship between Moderating and Independent Variables

Moderating Variables		Independent Variable (Recreational Participation	
		Frequency	Duration
Age	r-value	0.34	-0.054
	p-value	0.652	0.466
	remarks	NS	NS
Ethnicity	r-value	0.27	0.053
	p-value	0.724	0.476
	remarks	NS	NS
Civil Status	r-value	0.58	0.045
	p-value	0.431	0.529
	remarks	NS	NS
Tenure of Work	r-value	-0.006	0.015
	p-value	0.932	0.835
	remarks	NS	NS
Gender	r-value	-.0129	0.138
	p-value	0.079	0.053
	remarks	NS	NS
Net Monthly Income	r-value	0.008	-0.184
	p-value	0.917	0.018
	remarks	NS	*

*Legend: NS – Not Significant * - Significant*

As shown in this table, the variables age, ethnicity, civil status, tenure of work, gender, and net monthly income were not significantly correlated with recreational participation in terms of the frequency of participation. However, a strong positive relationship is established between the

respondents' net monthly income and the duration of recreational participation with p-value = 0.018. This implies that those who have larger net monthly income participated in recreational activities longer. This is supported by the findings of the study conducted by the Outdoor Recreation Foundation in America (2013), which shows that more than half of those who participated in recreational activities are employed while 6% are unemployed and a quarter are students and do not have jobs yet. Thus, recreational participation entails financial expenditure.

Table 2: Results of the Test Statistics on the Significant RelationshipBetween Moderating and Dependent Variables

Moderating Variables	Dependent Variable (Stress Management)		
	F-value	p-value	remarks
Age	1.481	0.221	NS
Ethnicity	3.970	0.011	*
Civil Status	0.235	0.872	NS
Tenure of Work	1.576	0.196	NS
Gender	0.913	0.435	NS
Net Monthly Income	2.236	0.085	NS

*Legend: NS – Not Significant * - Significant*

Results of the test statistics on the significant relationship between moderating and dependent variables is shown in Table 2. As revealed in this table, there was no significant relationship between moderating variables of age, civil status, tenure of work, gender, net monthly income, and stress management as shown in the p-values of 0.221, 0.872, 0.196, 0.435, and 0.085, respectively. However, a significant relationship is observed between ethnicity (as one of the moderating variables) andstress management as the moderating variables with p-value = 0.011. Result implies that non-Maranao faculty members of MSU-Marawi City more likely experienced higher level of stress than Maranao. Factors such as: the peace and order situation in the campus (where some faculty members and other university employees were kidnapped); the living location (where most of non-maranaofaculty members are non-campus residents which means they have to travel to and from Marawi everyday); and the demand of quality education, believed to contribute in the result of this study. Furthermore, a study on ethnicity, work characteristics, stress and health conducted by Health and Safety Executive (2005) showed an association between ethnicity and work stress. In addition, ethnicity and psychological distress were associated, reflecting links between psychological distress and both racial discrimination and work stress. Well-established associations between work characteristics and stress were replicated.

Table 3: Results of the Test Statistics on the Significant Relationship Between Independent and Dependent Variables

Independent Variable (Recreational Participation)	Dependent Variable (Stress Management)		
	r-value	p-value	remarks
Frequency	-0.109	0.134	NS
Duration	0.145	0.041	*

*Legend: NS – Not Significant * - Significant*

Results of the test statistics on the significant relationship between independent and dependent variables are shown in Table 3. As revealed in this table, recreational participation in terms of frequency showed no correlation with stress management as the dependent variable as shown in the p-value = 0.134. Result implies that the frequency of participation in recreational activities will not influence stress management. However, recreational participation in terms of the duration of participation showed a significant correlation with stress management with p-value = 0.041. This implies that the longer the time a person has spent in recreational activities in a day/week, the higher the tendency of having a low stress coping mechanism skills. According to Haskell et.al (2007) a routine of daily physical activity stimulates a number of beneficial physiologic changes in the body and can be highly effective for prevention and treatment of many of our most prevalent and pernicious chronic diseases. However, as with any pharmacological agent, a safe upper-dose limit potentially exists; beyond which the adverse effects of physical activity may outweigh its benefits (O'Keefe et.al, 2012). Very large recent study found that in sedentary individuals, even a modest dose of physical activity, as little as 15 minutes per day, confers substantial health benefits and that these benefits accrue in a dose-dependent fashion up to about an hour per day of vigorous physical activity, beyond it does not yield further benefits (Wen et.al, 2011). In like manner, spending more time in recreation each day may lead to physical and emotional tiredness which may weaken the individual's stress coping mechanism.

Conclusions

Based on the findings, the following conclusions are drawn:

- Net monthly income is significantly correlated with recreational participation as measured in terms of the duration of participation;
- A significant relationship is observed between the respondents' ethnicity and stress management; and
- Recreational participation measured in terms of the duration of participation is significantly correlated with stress management.

Recommendations

Based on the result of this study, the following were recommended:

- Organize seminar-workshop regarding the importance of regular participation in recreation design merely for professionals specifically teachers and instructors.
- Professionals and experts in the field of Physical education may provide regular exercises and programs for faculty members and other employees in the company in order to enhance their interest and motivation in recreational participation.
- Organize recreation or sports clubs among faculty members in the University or company in order to provide venue for participati

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A Comparitive Analysis Of Speed And Endurance Of School Runners In High And Low Altitude

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Abstract:-
Running (Athletic) is a game played by both sexes and mainly requires physical fitness components such as speed endurance and coordinative ability. There may be various reasons, but the investigator felt that the altitude deference may help .In better performance of Runners. Fifteen male school Runners in high and low altitude were selected as subjects. Their performance of speed and endurance were measured by 50 yards run and 12 minutes run and walk test respectively. School Runners living in high altitude have more endurance than the School Runners living in low altitude. There is no deference in Speed between the School Runners in high and low altitude. Based on the calculation of "t" ratio the study proves that there is no deference in speed between the school Runners in high and low altitude. The study also proves that there is significance deference in the performance of endurance between the school Runners of high and low altitude. The school Runners living in high altitude have more endurance than the school Runners living on low altitude. **Keywords** : Physical Education, Speed, Endurance, Altitude training

Introduction:-

Running is a Individual game played by both sexes requiring high level of skills and physical fitness components such as Speed Endurance and coordinative ability. The game is largely dependent upon skill, physical, physiological and motor qualities of players. The goal of physical fitness program is to improve the performance of daily living, job demands, sports and recreational activities. Physical fitness is the basic fitness of all sports. It is a combination of strength, speed, flexibility, agility and endurance. Deferent sports persons require deferent types of fitness according to their profession. Donald quoted that, "Fitness is composed of many complex factors where complete evaluation cannot be done by testing a single factor. Many variables those which include measuring cardio- respiratory, balance, flexibility and nutrition reflex each in special way and some aspects of total physical fitness. High altitude is considered to be between 5000 to 11500 feet (1524 and 3505.2 meters) above sea level. Atmospheric pressure or barometric pressure is a measurement of airs force against a surface. At low elevation the pressure is greater since the molecules of air are compressed from the weight of the air above them. At higher elevations because of less pressure the molecules are more depressed.

The percentage of oxygen in the air at sea level is the same at high altitude, but because the air molecules are more depressed and oxygen is delivered less, at high altitude our bodies make adjustments creating more RBC's to carry oxygen through the blood streams pushing the air into normally unused portions of the lungs and producing citrate synthesis that helps the oxygen make its way into body tissues, found in hemoglobin.

Speed is defined as the ability to move the entire body rapidly from one place to another. Running speed can be discussed in terms of two factors; rate of acceleration and maximal velocity. Endurance is defined as the capacity to continue to work under strain for long period of time without any undue fatigue. It is the ability to persist in strenuous activity. Endurance is one of the basic components of general athletic ability and it is usually considered to be the most important component of physical fitness. In most of the activities such as running, swimming hockey, basketball and football endurance training occupies an important place in preparation and performance.

Need of the study

A running must have speed, endurance and coordination in order to perform skill and play a better game. To acquire the required skills and develop the game. A running player needs to practice continuously with strenuous physical exercises which is directly related to fitness. Players at high altitude have more endurance due to the climatic conditions where more RBC's are created in our body to carry oxygen. The hemoglobin level will be more in high altitude which may be the reason for the players at high altitude to have more endurance than the players living in low altitude. Athletes performing primarily anaerobic activity do not benefit from altitude training as they do not rely on oxygen to fuel their performance.

Objectives:

- To study the motor components of players in high and low altitude.
- To analyze the deference between speed and endurance of school runners living in high and low altitude.
- To study the efficiency of runners living in high and low altitude.

Hypothesis:

1. There will be no significance difference between speed and endurance of runners living in high & low altitude.
2. There will be no significance difference between efficiency of runners living in high & low altitude.

Methodology

The study is mainly based on the primary data. In this study fifteen school Runners were selected randomly from the Solan and the Chamba District who have represented their district under the age of 17. 50 yards run and 12 minutes run and walk test were conducted for the school Runners. The better of two trails for 50 yards run were conducted and the best timing was taken as data. The distance covered in 12 minutes were measured as data for the endurance.

Variables

SL.	VARIABLE	EQUIPMENT
1	Speed	Stop watch
2	Endurance	Stop watch

Findings: - Table 1

Fitness components	Subjects	No of players	Mean	SD	T- Ratio	t- value
Speed	High altitude	**15**	**8.23**	**0.3574**	**0.20**	**2.131**
	Low altitude	**15**	**8.21**	**0.3051**		

Table 2

Fitness components	Subjects	No of players	Mean	SD	T- Ratio	T- value
Endurance	High altitude	**15**	**2355.33**	**299.47**	**88.68**	**2.13**
	Low altitude	**15**	**2886.67**	**243.21**		**1**

Result and Discussion:- Based on the study the investigator has drawn the following conclusions. School Runners of high altitude and low altitude have no deference in speed. The School Runners living in high altitude have more endurance than the players living in low altitude. The reason is that altitude doesn't make deference in speed because no oxygen is required to perform a 50 yards run in high and low altitude. Since Speed is an anaerobic activity altitude deference doesn't affect the performance of School Runners in high and low altitude. Endurance is an aerobic activity performed for longer time and oxygen plays an important role in the performance of school Runners in high and low altitude. Since the oxygen is less in high altitude the body creates more hemoglobin to carry oxygen. the increase of hemoglobin may be a reason for the performance of school Runners in high altitude to perform better than the school Runners living in low altitude. This study proves that basically training in high altitude before competition may result in better performance due to the increase of hemoglobin during practice in high altitude.

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The Influence Of Coaching Behaviour On The Competitive Anxiety And Burnout Among Athletes Of Region X

HARLYN MAE SOLIS-OMPOC

Abstract

The purpose of this study is to determine the influence of the athletes' perception on their coaches' behavior to their level of competitive anxiety and burnout as well as the relationship of the identified moderating variables such as: athletes' age, gender, type of sport, level of participation, length of playing experience, and their coaches' age, gender, civil status and length of coaching experience relate to the three main variables. The study used Coaching Behavior Questionnaire (CBQ) developed by Scott B. Martin (2003) to measure coaching behavior, while the Sport Competitive Anxiety Test (SCAT) developed by Rainer Martens (1977) to evaluate the athletes' sport competitive anxiety, and the Athlete Burnout Questionnaire (ABQ) modified by Raedeke and Smith (2008) to assess the athletes' burnout. The respondents were the 158 college athletes and 15 coaches from the State Universities in Region X, Philippines.

Furthermore, Chi-square and Pearson r were used in analyzing the data through the Statistical Package for Social Science v.20. The results then show no significant relationship between coaching behavior and the athletes' competitive anxiety and burnout. However, a strong positive relationship is established between the athletes' length of playing experience and coaching behavior; and between coaches' age and length of coaching with coaching behavior. Also, a strong relationship is observed between the coaches' civil status and the athletes' level of burnout. The findings suggest that coaches undergo trainings and seminar-workshops on effective coaching to develop a more positive and efficient coaching behavior. Coaches may also help their athletes learn to recognize anxiety and develop anxiety management skills to cope with it during competition, thus avoiding the possibility of burnout and being able to improve performance and coach-athlete relationship. Keywords: Coaching, competitive anxiety, burnout, athletes

Introduction

Coaches are among the most influential adults in the lives of young athletes. The effect that a coach has could last for an extended period of time beyond the season. In this way, the personality, action and word of the coach could have dramatic positive or negative effects on an athlete. The way a coach structures practice and game situations, his way of making decisions, the quality and quantity of feedback he provides in response to athletes' performances, the relationships he establishes with athletes as well as his leadership style can all have an impact on the athletes' behaviors, cognitions, and affective responses. In the field of sport psychology, a question arises as to which coaching behaviors facilitate and which behaviors decrease the athletes' motivation.

Many athletes at all levels of sports have higher levels of anxiety related to their sports, and are losing motivation and will to play the game. This is because a competition can cause athletes to react both physically (somatic) and mentally (cognitive) in a manner which can negatively affect their performance abilities. Stress, arousal and anxiety are terms used to describe this condition (Gallwey, 2000). Anxiety is defined as a natural reaction to threats in the environment and part of the preparation for the 'fight or flight' response. This is the body's primitive and automatic response that prepares it to 'fight' or 'flee' from perceived harm or attack. It is a 'hardwired' response that ensures survival of the human species. Sporting competition promotes similar psychological and bodily responses because there is often a threat posed towards the ego, sense of self-esteem (Karageorghis& Terry, 2010). However, sport still offers athletes an opportunity for growth – a chance to push back personal boundaries, and a means by which to liberate the body and the mind. At the same time as providing challenge and stimulation, sport also provides considerable uncertainty. At the precise moment, the Olympic archer releases an arrow, or the rugby fly-half kicks for goal, the outcome is unknown. The stress that sport provides therefore is inevitably linked with its inherent uncertainty.

Sport is a cultural focal point because it is a theatre of unpredictability. While stress and uncertainty may motivate some athletes, they induce anxiety in others. There are some distinct factors that can increase athletes' level of anxiety. For example, the more important the contest the greater the stress, and the more likely it is that anathlete is prone to anxiety (William, Frank & Lester,2000). Competitive state-anxiety therefore usually follows a pattern of subjective feelings of tension and inadequacy, combined with heightened arousal of the autonomic nervous system (Hackfort&Schwenkmezger, 1989). The intensity and duration of the anxious state alternates according to: the amount of stressful stimuli the athlete encounters, and the period of subjective threat created by the stimuli (Hackfort&Schwenkmezger, 1989). Burnout,on the other hand, is referred to as "a withdrawal from sport noted by a reduced sense of accomplishment, devaluation/resentment of sport, and physical/psychological exhaustion", and occurs when an athlete experiences an increase in stress-induced costs, such as the mounting pressure to perform (Smith, 1986; Raedeke et al., 2002). There are three main theories on burnout among athletes. One possible explanation is related to excessive stress and constant pressure to win, train and perform that could lead to mental and physical exhaustion and stress, which ultimately leads to burnout. A second possible cause is the feeling of entrapment. The athlete who experiences feelings of entrapment has invested a lot of time and energy into the sport but does not experience any rewards from participation or enjoyment in the sport. The costs begin to outweigh the benefits, and they eventually burnout and drop out (Cox, 2002). Hence, this study looks intothe influence of coaching behavior on competitive anxiety and burnout among the athletes of Region X, as well as the intervention of the variables such as the athletes' age, gender, type of sport, level of participation, and length of playing experience under their current coaches, and their coaches' gender, age, civil status and length of coaching experience.

Objectives Of The Study

This study is significant in providing information on the influence of coaching behavior on competitive anxiety and burnout among college athletes of Region X. For coaches, this study gives awareness towards their influence on their athletes. This helps them develop intervention strategies, alter organizational climates, modify their leadership styles, and implement reward strategies to reduce athlete burnout, improve working conditions, and create healthier environment. Furthermore, the study can educate the athletes on the matter of knowing and

understanding their coaches which can help them minimize the stressor and burnout from their coaches' behavior. Finally, this study aims to contribute ideas to the sports administrators on the matter of choosing coaches for their athletes.

Theoretical Framework

One of the negative achievement-related and psychological outcomes of coaching behavior mentioned in this study is burnout. It is defined by sport psychologists as "physical/emotional exhaustion, sport devaluation, and reduced athletic accomplishment. Gould & Whitley (n.d.) haveidentifiedthe following models of athlete burnout. Cognitive-Affective Stress Model. In 1986, sport psychologist Ron Smith conceptualizes burnout as a process involving four stages: situational demands, cognitive appraisal, physiological responses, and behavioral responses. He hypothesizes that the process of burnout unfolds when an athlete faces a "situational demand," such as high intensity training or high expectation for success.

- Unidemensional Identity Development and External Control Model. This model of burnout was presented by Jay Coakley in 1992. Coakley contends that although stress is involved in athlete burnout, it is not necessarily the cause. He suggeststhat burnout occurs because of the way sport is structured in our society–by minimizing the personal control that athletes have in decision making and constricting the development of normal identities for young people. Young athletes are socialized to focus almost exclusively on their sporting success, creating a sport-centered identity. When the athlete is unable to attain goals, he or she experiences increased levels of stress, and eventually, burnout.
- Negative Training Stress Models. This model of burnout suggests that burnout occurs as a result of overtraining and inadequate rest.
- Motivational Models. There are three motivational models offered as explanation for burnout:

Trait anxiety (A-Trait), on the other hand, involves a long-lasting, chronic predisposition to experience anxiety in stressful environments. Martens et al. (1990) has presented a theory attempting to explain the relationship between state and trait anxiety using an interactional model. The model begins by including the athlete's perceptions of the uncertainty and importance of the outcome. Furthermore, feelings of anxiety tend to increase as situations become more uncertain. Similarly, as a competition grows in importance, so too will feelings of anxiety. Perceptions of competition uncertainty and importance lead to one's perceptions of the threat of the competition. Highly important yet uncertain games yield high levels of threat in competitive environment (Martens et al., 1990). With this, it has been established that the connection between performance and arousal was an uncomplicated Inverted-U (Yerkes and Dodson, 1908) that is the best performance could be guaranteed with an average level of arousal (a.) if the level of arousal was too low, (b.) or too high, (c.) poor performance would result (see figure 1 below)

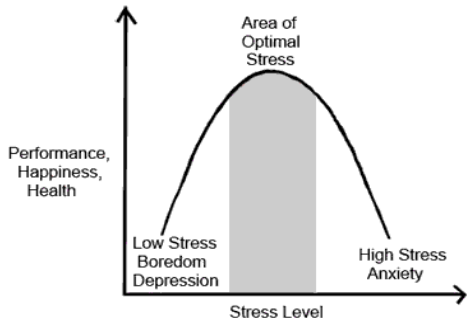

Figure 1. The Inverted-U (Yerkes & Dodson, 1908): The early explanation of the relationship between arousal and performance.

As many theories in psychology suggest, that human actions, behavior and personality are greatly influenced by those within their lives, like friends, parents, teachers, or even the coaches in a sporting scenario. Thus, coaching behaviors can "lead to negative achievement-related and psychological outcomes (e.g. poor performance, low self-esteem, high levels of competitive anxiety and burnout)" (Amorose& Horn,2001).

Research Methodology

This study employed the descriptive-correlational type of research in determining the relationships between the coaching behavior as independent variable and the competitive anxiety and burnout as dependent variables. It also has determined the relationship of athletes' age, gender, type of sport, level of participation, length of playing experience, and coaches' gender, age, civil status, and length of coaching experience as moderating variables to the coaching behavior as independent variable and the competitive anxiety and burnout among athletes as dependent variables.

Population: The population of this study is composed of coaches and athletes in team sports particularly basketball men and women, and volleyball men and women of the selected State Universities in Region X in the academic year 2014-2015. These Universities are: MSU-Iligan Institute of Technlogy (MSU-IIT), Iligan City; Mindanao University of Science and Technology (MUST), Cagayan de Oro City; Bukidnon State University (BSU), Malaybalay City; and Central Mindanao University (CMU), MaramagBukidnon.

Samples and Sampling Procedure: This study utilizedtotal sampling procedure. A total of 158 players in basketball men and women, and volleyball men and women along with 15 coaches were taken as respondents of the study. The distribution of the respondents according to school and type of sport is presented in the table below.

Table 1. Distribution of Respondents According to School and Type of Sport

University	Basketball Men	Basketball Women	Volleyball Men	Volleyball Women	TOTAL
CMU	11	7	14	9	**41**
BSU	8	8	15	8	**39**
MUST	7	0	13	8	**28**
MSU-IIT	14	10	14	12	**50**
TOTAL	**40**	**25**	**56**	**37**	**158**

Instrumentation

The questionnaire is the principal instrument used in this study. It consisted of four (4) parts. Part I is the demographic profile of the athleteswhich contains the necessary information such as athletes' name, age, gender, type of sport, level of participation, length of playing experience, and a separate questionnaire for the coaches' profile which contains coaches' information such as gender, age, civil status, and length of coaching experience. Part II is the Coaching Behavior Questionnaire (CBQ) developed by Scott B. Martin (2003). The 48 questions were categorized into 12 types of behaviors. These are: Reinforcement, Mistake Contingent Encouragement, Keeping Control, General Technical Instruction, General Encouragement, Organization, General Organization Non-reinforcement, Mistake Contingent Technical Instruction, Punishment, Punitive Technical Instruction and Ignoring Mistake based on the questions asked. An average score of 1.00 – 2.59 means Negative Coaching Behavior, 2.60 – 3.39 means Neutral and 3.40 – 5.00 means Positive Coaching Behavior.

Part III is the Sport Competitive Anxiety Test (SCAT) developed by Rainer Martens (1977. This test aims to be objective, proof against response bias (demand characteristics) and easy to fill in and score. The SCAT was found to be high in test-retest reliability ($\boldsymbol{r}$ =0.77). This has 15 questions answered through a 3 point likert scale. Items 1, 4, 7, 10 and 13 are distracter questions. The rest are scored 1 for A, 2 for B and 3 for C, except for items 6 and 11 which are scored in reverse (C is 1, B is 2, A is 3). A total of less than 17 mean low trait anxiety and over 24 means high trait anxiety (Appendix D). Finally, Part IV is the Athlete Burnout Questionnaire (ABQ) modified by Tom D. Raedeke and Allan L. Smith (2008). The ABQ is a 15-item multidimensional questionnaire that measures three components of burnout in athletes, emotional/physical exhaustion (E), reduced sense of accomplishment (RA), and devaluation (D). Each subscale consists of 5 items measured on a 5-point Likert-type scale ranging from 1 (almost never) to 5 (almost always).

Data Collection: The selection of State Universities for the conduct of the study was based on the list of the Official Gazette of the Philippines. After finalizing the questionnaire, the researcher then proceeded to Cagayan De Oro then to Bukidnon to give the letter-request addressed to the head of the Institution/Sport/Athletic office requesting for permission to conduct the study among the varsity players and coaches of their basketball men and women, and volleyball men and women teams. While waiting for the approval that would take more than 24 hours, the researcher, contacted the P.E. teachers from each University except MSU-IIT, to ask for assistance in the distribution of the questionnaires. They were instructed and oriented on the proper way of conducting the research as well as the proper orientation of the respondents. When the orientation was done, the researcher left the questionnaires to them and the task of getting the approved letter-request. As for MSU-IIT respondents, the researcher herself distributed the questionnaire during the varsity training period by presenting the approved letter to the coaches. The coaches then gave themselves and their athletes a time to answer the questionnaires.

Two days after the letter-requests were distributed, the researcher then called the persons in charge in each University to check on the letter-requests. Fortunately, all of the requests were approved. A week later, the completed questionnaires from MUST were submitted by the in charge herself. Since BSU was holding their foundation day and followed by an examination week, the questionnaires were completed a month and a half later but were not yet sent to the researcher. It was only after two months that the completed questionnaires from BSU reached the researcher through LBC along with the questionnaires from CMU.

Finally, the completed questionnaires were gathered, tallied, organized and subjected to statistical treatment using Statistical Package for Social Science version 20 (SPSS 20) to answer the questions raised in the study.

Statistical Treatment: This study employed the descriptive statistics to analyze descriptive data. Frequency and percentage distribution has been used to assess the demographic profile of the respondents. Furthermore, Chi-square was employed for the assessment of the relation between two nominal variables and the Pearson r was used for ordinal variables. The results where *p* was smaller than the accepted level of significance α=0.05 were considered statistically significant.

Presentation And Analysis Of Data

Table 1 . Results of the Test Statistics on the Significant Relationship Between Independent Variable and Moderating Variables

Moderating Variables (Athletes' Profile)	Independent Variable (Coaching Behavior)			
	r-value	x^2 - value	p-value	Remarks
Age	0.089		0.276	Not Significant
Gender		2.605	0.272	Not Significant
Type of Sport		0.403	0.817	Not Significant
Level of Participation	-0.077		0.337	Not Significant
Length of Playing Experience	0.233		0.003	Significant

As show in Table 1, the athletes' age is not correlated with their coach behavior as evidenced by the very small correlation coefficient, r = 0.089, between the two variables.

However, in a cross tabulated data on age against coaching behavior, of the 47% athletes who belong to young adulthood, 2.5% perceived to have a coach with a negative coaching behavior, while of the 46% athletes that belong to adolescence, 6.5% perceived to have a negative coaching behavior. This may imply that the younger athletes perceive negatively more than the older ones. In Erikson's stages of psychosocial development, he named the adolescence stage as

Identity vs. Role Confusion. His theory suggests that pressuring someone in this stage into an identity can result in rebellion in the form of establishing a negative identity and feeling of unhappiness. In addition, Groff, J. (n.d.) in the article "Characteristics of Youth by Age", he describes those that are 15 to 18 years older as those who exhibit smaller range in size and maturity. Young adult in the other hand, according to Erikson is leading towards maturity, intimacy and commitment; Fully understand abstract concepts and be aware of consequences and personal limitations.

Due to the equal distribution of positive and neutral behaviour, between the adolescence and young adult, and Pearson R yielding an independent result between the athletes' age and their coaches' behaviour, this study does not find enough evidence to support the relationship between the two variables.

When grouped according to gender, the Chi-Square test for independence was tested true. The probability value equal to 0.272 implies that the chi-square value equal to 2.605 is not significant. At α = 0.05, perceived level of coaching behavior is independent of gender.

However, with the few female athletes, their dominance in the negative coaching behavior is very meaningful. This study shows that more females (60%) perceived that their coach/es is/are: non-reinforcing, mistake-contingent technical instruction, punishing, punitive technical instruction and ignore mistakes than male athletes. This finding supports the study of Lam, Cheung, Pearson and Bae (2009) that female athletes have significantly higher preference scores in situational consideration but lower scores in autocratic behavior than male athletes. Furthermore, according to Sherman & Fuller, (2001) as suggested in the study of Lam et.al (2009), when dealing with female athletes, coaches should consider factors such as time, environment, skill level, and physical condition of the athletes before selecting them for the appropriate game position. Coaches should also avoid autocratic behaviors such as overemphasis on his/her power or authority which can be counterproductive when dealing with female athletes.
Coaching behavior is also independent of athletes' type of sport as evidenced by the very small value of $x^2 = 0.403$ that corresponds to a p value = 0.817 which is rendered not significant based on $\alpha = 0.05$. The result implies that the type of sports the athletes play does not influence the perception of their coaches' coaching behavior.

The athletes' level of participation and coaching behavior are also not correlated as shown by the very small correlation coefficient r = -0.077. This outcome shows no relationship between the athletes' level of participation and their perception of their coaches' coaching behavior.

However, based on the tabulated data on the athletes' level of participation against coaching behavior, of the 10 athletes who reached national level competitions, 2 or 10% perceive to have a coach with negative coaching behavior, none of the 96 athletes who play only in the local competitions, and 3 or 7% among 31 athletes that play in the regional level believe to have a coach with negative coaching behavior. This finding implies a meaningful result. Having a greater percentage of the athletes who have reached national level perceive their coaches to be those who fail to respond to a good performance, instruct or demonstrate to an athlete in order to correct a mistake he/she has made, demonstrate a negative reaction (verbal or nonverbal) following a mistake, technical instruction following a mistake given in a punitive or hostile manner and fails to respond to an athlete's mistake.
Conversely, a highly significant relationship is observed between the athletes' length of playing experience and their perception on their coaches' coaching behavior. The correlation coefficient r = 0.233 is highly significant at $\alpha = 0.003$. The result reveals that as athletes' length of playing experience increases, their perception on their coaches' coaching behavior becomes more positive.

Table 2. Results of the Test Statistics on the Significant Relationship Between Independent Variable and Moderating Variables

Moderating Variables (Coaches' Profile)	Independent Variable (Coaching Behavior)			
	r-value	x^2 - value	p-value	Remarks
Age	**0.277**		**0.008**	Significant
Civil Status		1.044	0.377	Not Significant
Length of Coaching Experience	0.335		0.001	Significant

The variable related to coaches' gender has not been shown in all table of relationship with coaching behavior, as well as in the preceding tables concerning its relationship with the athletes' competitive anxiety and burnout since the data in the frequency of coaches is relatively unequal: among the fifteen (15) coaches only one is female. Thus, it has been considered as not significant when correlated with all the variables mentioned in this study.

However, a strong positive relationship is established between coaches' age and coaching behaviour as evidenced by the correlation coefficient r = 0.277 at the level of significance equal to 0.008. The finding implies that the older the coach, the more positive is his coaching behavior. Also, there is strong positive relationship between the length of coaching experience and coaching behavior as shown by the correlation coefficient r = 0.335 at the level of significance equal to 0.001. This implies that the longer the experience of the coach is, the more positive his or her coaching behavior becomes.

As the person grows older and more experienced, they become more mature. Thus, confirming a positive behavior of understanding and learning to adjust with the varied personalities of the people around. This holds true for the coaches. The more aged they are, the more experienced they have become.

However, the civil status of coaches is not related with how their athletes perceive of their coaching behavior. This is possibly because 92% of the respondents are male, which contributed to more positive perception of behavior because according to study of Rosch (2014) women are more stressed and depressed than men, thus the positive perception on the coaches' behavior.

Table 3. Results of the Test Statistics on the Significant Relationship Between Dependent Variables and Moderating Variables

Moderating Variables (Athletes' Profile)	Dependent Variable (Competitive Anxiety)			
	r-value	x^2 - value	p-value	Remarks
Age		0.640	0.726	Not Significant
Gender		4.268	0.118	Not Significant
Type of Sport		4.162	0.125	Not Significant
Level of Participation	-0.092		0.255	Not Significant
Length of Playing Experience	-0.084		0.298	Not Significant

Table 3 shows that there is no relationship between the athletes' age and competitive anxiety level as determined by the very small chi-square value equal to 0.640 with a probability value of 0.726. The Chi-Square value shows no significance which means that competitive anxiety level is independent of age.

Also, there is no relationship between the athletes' gender and competitive anxiety level as shown by the Chi-Square value = 4.268 and p-value = 0.118. Type of sports is also not related to competitive anxiety level with a Chi-Square value = 4.162 and p-value 0.125.

The result on the correlation of age and competitive anxiety level does not support the findings of Ferreira, Leite, and Nascimento's study that there is significant correlation with higher ages

and lower levels of competitive anxiety, and that age can be a significant factor in analyzing competitive anxiety.

The Chi-Square test on gender and competitive anxiety relationship in this study shows independency. However, a significant number of 14% among the female athletes have a high level state anxiety compared the male athletes with 4.7%. This finding supports the study of Aycan (2014) that female athletes have significantly higher competitive trait anxiety perceptions than male athletes ($p<0.01$). The other result demonstrate that male athletes have a significantly higher self-efficacy perception than female athletes ($p<0.01$). In other words, male athletes have higher self-efficacy and lower competitive trait anxiety level than female athletes. However, with the equal distribution of data in gender and competitive anxiety, chi-square finds no enough evidence to support the relationship between the two variables.

Ichraf et al. (2013) finds that practitioners of team sports are characterized by low self-esteem and a high level of anxiety. However, practitioners of individual sports are characterized by a high level of self-esteem and low anxiety. Consequently, the recent study has compared both team sports (basketball and volleyball) and has found no relationship between competitive anxieties and cannot support the findings of Ichraf et.al (2013).

The results also show that the correlation coefficient, $r = -0.092$, between athletes' level of participation and competitive anxiety level is not significant. However, a significant percentage of 9.4% among the athletes who participated locally have high level of state anxiety compared to the 4.8% from those who perform in the regional level. Consequently, scores are scattered equally causing the chi-square to give an independent relationship.

Furthermore, there is no significant relationship found between the athletes' length of playing experience and the competitive level of anxiety with $r = -0.084$.

Table 4. Results of the Test Statistics on the Significant Relationship Between Dependent Variables and Moderating Variables

Moderating Variables (Coaches' Profile)	Dependent Variable (Competitive Anxiety)			
	r-value	x^2 - value	p-value	Remarks
Age	-0.133		0.208	Not Significant
Civil Status		1.674	0.433	Not Significant
Length of Coaching Experience	-0.146		0.164	Not Significant

As shown in Table 4, the coaches' age is independently related to the athletes' anxiety level with $p = 0.208$, showing no relationship among the two variables. Hence, the age of the coaches does not have an effect on the athletes' level of anxiety. Also, the coaches' civil status is independent of the athletes' level of competitive anxiety as evidenced by the p-value = 0.433. Thus, the civil status of the coach does not influence the athletes' level of competitive anxiety.

Contrary to its relationship with coaching behavior, the length of coaching experience as well does not show evidence of relationship with the athletes' competitive anxiety. This means that the length of experience of the coach does not affect the competitive anxiety among the athletes.

Table 5. Results of the Test Statistics on the Significant Relationship Between Dependent Variables and Moderating Variables

Moderating Variables (Athletes' Profile)	Dependent Variable (Burnout)			
	r-value	x^2 - value	p-value	Remarks
Age		2.099	0.552	Not Significant
Gender		5.228	0.156	Not Significant
Type of Sport		7.001	0.072	Not Significant
Level of Participation	0.093		0.250	Not Significant
Length of Playing Experience	-0.060		0.458	Not Significant

Table 5 shows that the athletes' age is not correlated with their burnout level as shown by the Chi Square value = 2.099 and p-value 0.552. The result is possibly because most of the athletes constitute the adolescence group with a very short age gap leaving no difference at all.

Gender also does not have a significant relationship between the athletes' level of burnout. The result supports the findings of Lai and Wiggins (2003), Harris (2005), and Smith et al. (2010) that while burnout syndrome significantly increased throughout a competitive season, no gender differences in burnout were existent. Furthermore, there is no relationship found between the type of sport and burnout as evidenced by a Chi-Square = 7.001.

Similarly, the athletes' level of participation does not correlate with their burnout level, as well as the length of playing experience. However, cross tabulation data in both consistently showing 10% of the athletes who play in the regional level and athletes who have 2-3 years of experience to be highly burnout. This may imply that the level of participation and length of playing experience can be contributing factors of burnout level.

Table 6. Results of the Test Statistics on the Significant Relationship Between Dependent Variables and Moderating Variables

Moderating Variables (Coaches' Profile)	Dependent Variable (Burnout)			
	r-value	x^2 - value	p-value	Remarks
Age	-0.048		0.649	Not Significant
Civil Status		**5.120**	**0.077**	Significant
Length of Coaching Experience	-0.044		0.678	Not Significant

The result shows that there is no significant relationship between the coaches' age and the burnout of athletes. This implies that the age of the coach does not contribute to the burnout level of athletes. This result is supported by the findings of the Journal on the Biology of Exercise where the perceived level of burnout was examined among football coaches in Greece. The result show that age is not statistically significant on the burnout subscales.

However, a significant relationship is viewed between the coaches' civil status and the athletes' burnout. The Chi-square of 5.120 is highly significant at $\alpha = 0.077$. The finding shows that those athletes who are under single coaches are more burnout than the athletes who are under married coaches. This result supports the findings of Shaw, Gorely and Corban (n.d.) that single coaches have been associated with high burnout among their athletes.

Furthermore, no significant relationship is found between the coaches' length of coaching behavior and the respondents' level of burnout. This indicates that the experience of the coach does not contribute to the burnout level of the athletes.

Table 7. Results of the Test Statistics on the Significant Relationship Between Independent Variable and Dependent Variables

Dependent Variables	Independent Variable (Coaching Behavior)			
	r-value	x^2 - value	p-value	Remarks
Competitive Anxiety	4.064		0.397	Not Significant
Burnout	0.040		0.613	Not Significant

The test statistic presented in Table 7 interestingly does not yield a significant relationship between the coaching behavior and the level of competitive anxiety among athletes. This finding is consistent with the result of a similar study on athletes and coaches, and particularly on how athletes' perceptions of their coaches' behavior and communication style may relate to levels of burnout and anxiety experienced by female athletes of Vealey, Armstrong, Comar and Greenleaf. The study found that the perceived coaching style/behavior was not a significant predictor of athlete anxiety.

However, this study does not support the findings of the following studies using the athletes' perceptions of a variety of coaching behaviors and their perceived effects on performance. It is shown that athletes high in performance anxiety tend to evaluate a variety of coaching behavior more negatively (Jowett, 2007). Also, the study conducted by Bai et.al (2013) has shown that there is a meaningful and negative relation between coaches' positive reaction behaviors and athletes' competitive anxiety. These studies show an established relationship between the athletes' competitive anxiety and their coaches coaching behavior, which is not evident in this study.

Furthermore, this study reveals that coaching behavior shows no relationship with burnout. Previous studies have found a correlation between coach behavior and athlete burnout as seen in the study of Vealey et.al (n.d.) where perceived coaching styles/behavior was predictive of athlete burnout, as well as the study by Price and Weiss (2000), which found that the coaches' negative behaviors like negative rapport with the athletes increased the high school soccer players' overall burnout. The results of the present study, however, support the findings of Maykut and Davis where there is no relationship established between the coaches' behavior and athletes' burnout level.

Conclusions

Based on the findings, the following conclusions are drawn:

- No significant relationship is found between the athletes' age, gender, type of sport, level of participation, coaches' gender, civil status as moderating variables and the coaching behavior as independent. However, a significant relationship is found between the

athletes' length of playing experience, coaches' age, length of coaching experience and the coaching behavior. Thus, the first null hypothesis stating there is no significant relationship between the athletes'age, gender, type of sport, level of participation, coaches' gender, civil status as moderating variables and the coaching behavior as independent variable is accepted, except for the relationship between the athletes' length of playing experience, coaches' age, coaches' length of coaching experience and the coaching behavior;

- There is no significant relationship between the athletes'age, gender, type of sport, level of participation, length of playing experience, coaches' gender, age, civil status, length of coaching experience as moderating variables and the athletes' level of competitive anxiety as one of the dependent variables. Thus, the second null hypothesis stating there is no significant relationship between the athletes' age, gender, type of sport, level of participation, length of playing experience, coaches' gender, age, civil status, and length of coaching experience as moderating variables and competitive anxiety and burnout of the athletes as the dependent variables is accepted.
- There is no significant relationship between the athletes'age, gender, type of sport, level of participation, length of playing experience, coaches' gender, age, length of coaching experience as moderating variables and the athletes' burnout as one of the dependent variables. Nonetheless, a significant relationship is found between the coaches' civil status and the athletes' burnout as one of the dependent variables. Hence, the second null hypothesis stating there is no significant relationship between the athletes' age, gender, type of sport, level of participation, length of playing experience, coaches' gender, age, civil status, length of coaching experience as moderating variables and the competitive anxiety and burnout of the athletes as dependent variables is accepted, except for the relationship between the coaches' civil status and the athletes' burnout; and
- There is no significant relationship between the coaching behavior as independent variable and the competitive anxiety and burnout as dependent variables. Hence, the third null hypothesis stating there is no significant relationship between the coaching behavior as independent variable and the competitive anxiety and burnout as dependent variable is accepted.

Recommendations

- Based on the results of this study, the following are recommended:
- Coaches may undertake several trainings and seminar-workshops on effective coaching to develop positive coaching behavior, and therefore, understand and be understood by their athletes;
- Coaches are encourage to be knowledgeable on the different anxiety management skills to educate their athletes and develop anxiety coping mechanisms to improve performance;
- Coaches may design recreational activities for their teams in order to give the athletes time to be free from the pressure of training and competition. This does not only free them from stressful environment but also strengthens the ties of friendship and bonds among the athletes;
- Higher Institutions in the field of Sport Psychology may help the coaches and athletes by designing programs, workshops and trainings to develop positive behavior and perception;

- School administrators can maximize incentives of the athletes to motivate them and to increase longer and higher participation in competitions;
- A further research on coach-athlete relationship is encourage to be conducted in a much wider scope especially that in the Philippines since only very few studies have been conducted in the field of sport psychology.

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Physical Factors That Affect Training And Performence Of Female Athlets In Sports In Teacher Training Colleges In Visakhapatnam Region

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Introduction

Most of the female athletes have special concern about their bodies when engaging in sports. The body image effects their choice and participation in sports. Researchers argue with that female athletes feel conflict about how participation in competitive sport and exercise affects their femininity. Female athletes report across sports a preoccupation with their appearance and a concern with avoiding masculinity of the body that some believe inevitably follows sports participation. Researchers argue that a female's lacks of muscular development are features of attractiveness. Girls and women are hesitant about participating in sports for fear of becoming too muscular. Female athletes prefer a coaching style which includes participation in decision making. Indeed, female athletes feel most comfortable in relationships where power is shared equally by all. Female athletes prefer a democratic and participatory coaching style that allows them to help make decisions.

The female athlete combines two roles, that of an athlete and that of a student. She must establish a style that allows her to function comfortably in both roles. Student athletes by definition must deal with the role conflict inherent in acting as both students and athletes. Student athletes face challenges of individual nature including their personal involvement in academic-oriented activities, time constraints, class attendance, personal goal setting, physical and emotional fatigue, coach's demands and institutional policies. These college environmental factors may affect the way the female athletes respond to their coaches and the way they would want to be coached.

In Visakhapatnam, the teaching of physical education is compulsory in teacher training colleges. Therefore, female athletes are compelled to be involved in sports. However, scholars and researchers have highlighted some factors that affect their coaching such as concern for body shape, freedom to choose what to play and academic demands. It is in the light of this situation that this study was designed to assess the extent to which these physical factors influence the training and performance of female athletes in sports in teacher training colleges of Visakhapatnam. This paper therefore, discuses the physical factors that affect the training and performance of female athletes in sports in teacher training colleges of Visakhapatnam.

Purpose of the Study

The intent of the study was to assess the physical factors that affect the training and performance of female athletes in sports in teacher training colleges of Visakhapatnam. The specific physical factors that were assessed include concern for body shape, academic demands, and freedom to choose the mode of training.

Objectives of the study

The objectives of the study:

- To scrutinize if the extent to which the concern for body shape affects female athletes involvement in training activities prescribed by coaches is the same between first year and second year teacher training colleges.

- To find out the extent to which academic demands and freedom to choose the mode of training affects female athletes' participation in sports in teacher training colleges of Visakhapatnam.

Research question

- Is the extent to which the concern for body shape affects female athletes involvement in training activities prescribed by coaches the same between first year and second year students in teacher training colleges?
- To what extent does academic demands and freedom to choose the mode of training affect participation of female athletes in physical training activities prescribed by their coaches?

Hypothesis

The following null hypothesis guided the study:

Ho – The extent to which concern for body shape affects female athletes' participation in sports training activities in second year teacher training college would not significantly differ from that of female athlete in first year teacher training college.

Significance of the study

The findings of the study may help female athletes understand what affects their coaching and the areas of concern they need to address. It may also help the coaches to understand their female clients and hence be better equipped to provide them with a satisfying experience that will ensure their long-term participation in the sports classes, sessions or programmes. The research is expected to contribute to the knowledge on issues dealing with coaching of female athletes. The findings of the study could also be used as a point of reference for future researchers. The findings may be used to upgrade the training programmes for coaches so that they are able to effectively handle female athletes.

Methodology

The research adopted the descriptive survey research design. The variables were studied without manipulation or introducing any control group. The location of the study was Visakhapatnam region. Visakhapatnam region was chosen as the area of study because it has a cross-section of various levels of teacher training colleges. The population for the study comprised female athletes in teacher training colleges of Visakhapatnam region. There are four teacher training colleges in Visakhapatnam region. There are a total of 1028 female students in the four colleges;

866 in first year students in teacher training colleges and 162 in second year students in teacher training colleges. The sample size was obtained using stratified random sampling procedure. The teacher training colleges were stratified into two strata; first year students in teacher training colleges and second year students in teacher training colleges. A proportion of 50% of second year students in teacher training colleges was randomly selected using simple random sampling technique. The sample size for first year students in teacher training colleges was therefore 2 (50%). Since there was relatively small number of female in the second year students in teacher training colleges in Visakhapatnam region, it was purposively selected. A proportion of 50% of female athletes from each of the colleges was then selected using simple random sampling. The study selected 222 (21.6%) respondents from the two randomly selected first year students in teacher colleges and the second year student in teacher training colleges. A proportion of 20% sample size is acceptable in surveys.

Research instrument

The study used the questionnaire as the main instrument for data collection. A questionnaire is very useful as it eliminates bias since respondents are given the same questions. The questionnaire was constructed by the researcher. Pre-testing of the instrument for data collection was conducted prior to the main study. Both first and second year students in teaching training colleges were represented. The first year students in teacher training college used in the pilot study was not included in the actual research. A few athletes in second year students in teacher training college were used in the pilot study but were not included in the main study. In second year students in teacher training college, a pre-test sample of 5% of the total female population was used while in first year students in teacher training college a pre-test sample of 3% was used. Normally, the pre-test sample is between 1% and 10% depending on the sample size. The pre-testing was conducted to help determine the suitability, appropriateness and clarity of the questionnaire items in addressing the variables under investigation and at the same time determine the reliability of the instruments.

Results

Table 1 indicates that first year students in category had the highest number of respondents (168, 75.7%) while second year students category had the least (54, 24.3%. A total of 222 female athletes participated in the study

Table 1. Distribution of respondents in relation to category of their years

Years	Frequency	Percent
First year	168	75.7
Second year	54	24.3
Total	222	100

Table 2 present's findings on the extent to which the concern for body shape of female athletes on both first and second year students in teacher training colleges affects their involvement in training activities prescribed by their coaches. It is evident from table 2 that majority of female athletes 41.7%(43.8% of female athletes from first year students in teacher training colleges and 35.2% of female athletes from second year students in teacher training colleges) indicated that their concern for body shape very much influences their training, 35.6% (34.2% of female athletes from first year students in teacher training colleges and 39.8% of the female athletes from the second year students in teacher training colleges) to a lesser extent, while 22.7%(22%

of female athletes from first year students in teacher training colleges and 25% of female athletes from second year students in teacher training college) indicated that it does not affect them at all.

To test the extent to which concern for body shape influences female athletes' participation in sports training activities in second and first year students in teacher training colleges, Chi-square test of association was computed to test the hypothesis and the results are summarized in table 2. The Chi-square analysis of the findings revealed no significant difference (xs 2=2.474, P=.290).For example, it is evident from table 2 that 22% of female athletes from first year students in teacher training colleges are not worried at all with the influence their concern for body shape might have on participation in sports training activities which compares very well with 25% of those in second year students in teacher training colleges. Therefore, the null hypothesis that the extent to which concern for body shape influences female athletes' participation in sports training activities in second year students in teacher training colleges would not significantly differ from that of female athletes in first year students in teacher training colleges was not rejected.

This implies that the concern for body shape influences female athletes' involvement in training activities regardless of whether they are in second year students or first year students in teacher training colleges. This further suggests that games tutors and sports coaches need to create awareness to female athletes about the benefits of engaging in training activities. This will help to change female athletes' perception about the effects of exercises prescribed by coaches on their body shape and instead appreciate that training activities on the contrary helps in maintenance of an individuals' body shape. The current findings regarding the influence of female athletes concern for body shape on training activities tallies with those by who contend that female athletes have special concern for body shape when participating in sports. Table 3 shows the extent to which fear of developing muscular body features affects female athletes' involvement in training activities prescribed by the coach.

Table 3 reveals that out of the total number of respondents, majority of female athletes 40.8% (42.6% of female from first year students in teacher training colleges and 35.2% of female athletes from second year students in teacher training colleges) indicated that their training to a lesser extent is influenced by fear of developing muscular body features, 30.6% (27.7% of female athletes from first year students in teacher training colleges and 39.8% of female athletes from second year students in teacher training colleges) indicated very much, while 28.6% (29.8% of female athletes from first year students in teacher training colleges and 25% of female athletes from second year students in teacher training colleges) indicated the fear of developing muscular body features did not influence at all.

Table 2. Influence of concern for body shape on training activities

Variables	Category on years		Options			Total	Chi-square test		
			Not at all	Lesser extent	Very much		Value	Df	Sig.
Influence of concern for body shape on	First year	F	37	57	74	68	2474	2	.290
		%	22	34.2	43.8	100			
	Second year	F	13	22	19	54			

training activities		%	25	39.8	35.2	100			
Total		F	50	7	93	222			
		%	22.7	35.6	41.7	100			

Table 3. Influence of fear of developing Muscular body features on training

Variables	Category on years		Options			Total	Chi-square test		
			Not at all	Lesser extent	Very much		Value	df	Sig.
Fear of developing muscular body features affect your involvement in training activities prescribed by the coach	First year	F	50	72	46	168	5.668	2	0.59
		%	29.8	42.6	27.7	100			
	Second year	F	13	19	22	54			
		%	25	35.2	39.8	100			
Total		F	63	191	68	222			
		%	28.6	40.8	30.6	100			

Table 4. Influence of Academic demands and freedom to choose the mode of training on training activities

Variables	Not at all		Lesser extent		Very much		Total	
	F	%	F	%	F	%	F	%
Academic demands	44	19.8	95	42.6	83	37.6	222	100
Freedom to choose the mode of training	43	21.2	70	31.5	105	47.3	222	100

Chi-square analysis of responses of female athletes in second year students and first year students in teacher training colleges indicated no significant difference on the extent to which fear of developing muscular body features influence their involvement in training activities (xs2=5.668; df=2; P=0.59). (Table 3). This implies that the fear of developing muscular body features influence female athletes' involvement in training activities irrespective of type or category of college. For example, it is evident from descriptive analysis that the majority of female athletes indicated that the fear of developing muscular body features influences their training to a lesser extent. This finding therefore suggests that games tutors and sports coaches should reassure female athletes while training them that involvement in training activities does not contribute to the development of muscular body features. The finding also indicates that games tutors and sports coaches should also create awareness to the female athletes that they do not have the same hormones (androgens) that men have and hence, involvement in training activities prescribed by coaches cannot make them muscular. The creation of the this awareness will help to change generalized misconceptions held by female athletes that involvement in training activities will make them develop muscular body features. The current findings of this

study are in line with those of who found that girls and women are hesitant about participating in sports for fear of becoming too muscular.

Table 4 below shows findings on the extent to which academic demands and freedom to choose the mode of training affects female athletes' involvement in training activities prescribed by their coaches. It is clear from table 4 that most female athletes (95,42.6%) are less influenced by academic demands, followed by 83(37.6%) , who indicated that they were very much influenced and 44(19.8) not at all. This finding therefore suggests that coaches should structure their training programs and sessions such that they do not tamper with the female athletes academic programs. The finding further suggests that games tutors and sports coaches should bear in mind that beside training the female athletes in various sports activities , female athletes also double as students and thus have other academic obligations. The current findings regarding academic demands are in line with those of who note that student-athletes do face challenges of individual nature including their personal involvement in academic-oriented activities.
The further indicates that a larger proportion of female athletes(105,47.3%) are influenced most by freedom to choose the mode of training, following by 70,(31.5%) who indicated lesser extent and 47(21.2%) not at all. This indicates that female athletes prefer prescribing their own exercises. The finding therefore indicates that those responsible for coaching female athletes should allow them to choose the way they would want to be coached'. The finding further suggests that female athletes should be involved in decision-making regarding their training. The current findings are in agreement with the literature by who argue that female athletes prefer coaching style which includes participation in desion-making.

Conclusions

Female athletes' concern for body shape affects their involvement in training activities. In addition, the concern for body shape affects female athletes' involvement in training activities regardless of whether they are in second year or first year students in teacher training colleges. Further, the fear of developing muscular body features affects to a lesser extent the training of female athletes in teacher training colleges in Visakhapatnam region Academic demands do influences the training of female athletes in the Visakhapatnam region of teacher training colleges. In addition, the decision to choose the mode of training influences training of female athletes in the teacher training colleges in Visakhapatnam region.

Recommendations

In light of the study findings, the following recommendations are suggested:

- The study revealed that there are physical factors that affect the coaching of female athletes. Therefore, there is need for coaches to understand the physical factors influencing female athletes' participation and performance in sports. This could enable them to understand the many factors that influences female athletes' participation in training activities and hence be better equipped to provide them with a satisfying experience that will ensure their long-term participation in training sessions and programmes. The creation of this awareness could be done through the institutions involved in training of coaches and teachers. The institutions involved in in-service training of coaches and teachers should also create awareness on the uniqueness of the female athlete through their training programmes.

- There is need for female athletes to be trained only by coaches who have an understanding of physical factors affecting coaching of female athletes. The coaches who lack insight on these physical factors, or who have never been trained on how to handle female athletes before should never be allowed to coach female athletes. This is because they may have little insight into physical factors that influence the coaching of female athletes there by denying them the satisfaction that sporting experience is supposed to offer.
- The management of teacher training colleges should ensure there is a good balance between academic and training programs in order to enable female athletes to be involved in sports. This will help female athletes participate in training programs without fear that this would interfere with their academic work.

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A Comparative Study On Selected Physical Fitness Components Among Private And Government School Cricket Players In Vizianagaram District

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Abstract
Cricket Demands Varied Physical Fitness components to become successful at the highest level. A fast Bowler may have to Bowl Flat up to 2 hours. A ship fielder may not have to field a single Ball all day and then all of sudden he may not have to explode to proper himself through the air to make a diving catch the batsmen have the problems in taking quick singles, handicapped by bat following arduous fielding sessions. To achieve success in Cricket high degree of special sort of fitness is required. To achieve this purpose three hundred government and private school cricket players were selected as subjects from various his her secondary school in Vizianagaram District. The selected subjects were tested a selected criterion variables such as speed, agility, explosive strength and endurance by using 60 meters, shuttle run, standing broad jump and 1500 Meters run test respectively. The Independent 't' ratio was used to find out the significant differences. If any between government school and private school cricket players on selected criterion variables separately in all the cases 0.05 level of confidence was used to test the significance. **Key words: Speed:** Agility, Explosive Strength, Endurance

Introduction

Cricket is a game which requires an excellent integration of the physical attributes in different actions executed by bats man bowler wicket keeper and fielders strength is require to execute a powerful hit out of the ground or to bowl a fearful bouncer. Speed is require to take a quick single or to stop a ball crossing the boundary line. Agility is require for quick running between the wicket and to stop the ball. Endurance is require to bat for long innings or to bowl long spells.

Purpose of Study:

The purpose of study was to find out the significant differences on selected physical fitness components among private and Government School Cricket Players in Vizianagaram District.

Methodology:

In this study 300 boys cricket players were selected from government and private school cricket players the subject age was ranged between 12 to 14 years selected for this study. **Statistical Technique:** Method collected dates on selected criterion variables were statistically analyzed by using Independent t-ratio to find out the significant difference between government and private school cricket players. In all the cases 0.05 level of confidence was fixed to test the significance, which was considered as an appropriate. **Selection of the variables:** Only the boys were selected for the study and they were ranged between 12 to 14 years.

Table 1.1: The Mean Standard Deviation and t – Value Values on Speed of Government School and Private School of Cricket Players

The mean, standard deviation and 't' ratio values on Speed between Government School Cricket Players and Private School Cricket Players was analysed and prenseted in Table – 1.1

Variables	School	N	Mean	Std. Dev.	t-ratio	p-value
Speed	Government	150	7.71	0.52	1.62^{NS}	0.11
	Private	150	7.62	0.49		

NS: Not Significant

Table – 1.1 showed that the mean values of Government School Cricket Players on Speed (7.71) is slightly higher than the mean value of Private School Cricket Players (7.62). The Std. Dev. Values are 0.52 and 0.49 respectively. The t-ratio is found to be 1.62 and the p-value is 0.11 which is not Significant. Hence the null hypothesis is accepted. The results of study showed that there was no significant difference that exists between government and private school cricket players on speed.

Table 1.2: The Mean Standard Deviation and t-Value Values on Agility Strength of Government School and Private School of Cricket Players

The mean, standard deviation and 't' – value values on agility between government school cricket players and private school cricket players was analysed and presented in Table – 1.2.

Variables	School	N	Mean	Std. Dev.	t-ratio	p-value
Agility	Government	150	17.05	1.49	9.94^{**}	0.00
	Private	150	18.40	0.73		

** Significant at 0.01 level

Table – 1.2 revealed that the mean values of Private School Cricket Players on Agility (18.40) is significantly higher than the mean value of Government School Cricket Players (17.05). The Std. Dev. Values are 0.73 and 1.49 respectively. The t-ratio is found to be 9.94 and the p-value is 0.00 which is Significant at 0.01 level. Hence, the null hypothesis is rejected. The results of study showed that there was a significant difference that exists between government and private school cricket players on Agility.

Table 1.3: The Mean Standard Deviation and t-Value Values on Explosive Strength of Government School and Private School of Cricket Players

The mean, standard deviation and 't' ratio values on Explosive Strength between government school cricket players and private school cricket players was analysed and presented in Table – 1.3.

Variables	School	N	Mean	Std. Dev.	t-ratio	p-value
Explosive Strength	Government	150	172.15	7.00	9.79^{**}	0.00
	Private	150	155.81	19.20		

** Significant at 0.01 level

Table – 1.3 revealed that the mean values of Government school cricket players on Explosive Strength (172.15) is significantly higher than the mean value of Private school cricket players (155.81). the Std. Dev. Values are 7.00 and 19.20 respectively. The t-ratio is found to be 9.79 and the p-value is 0.00 which is Significant at 0.01 level. Hence the null hypothesis is rejected.

The results of study showed that there was a significant difference that exists between government and private school cricket players on Explosive Strength.

Table 1.4: The Mean Standard Deviation and t-Value Values on Endurance of Government School and Private School of Cricket Players

The mean, standard deviation and 't' – value values on Endurance between government school cricket players and private school cricket players was analysed and presented in Table – 1.4.

Variables	School	N	Mean	Std. Dev.	t-ratio	p-value
Endurance	Government	150	7.98	0.50	8.48**	0.00
	Private	150	8.52	0.62		

** Significant at 0.01 level

Table – 1.4 observed that the mean values of Private School Cricket Players on Endurance (8.52) is significantly higher than the mean value of Government School Cricket Players (7.98). The Std. Dev. Values are 0.62 and 0.50 respectively. The t-ratio is found to be 8.48 and the p-value is 0.00 which is Significant at 0.01 level Hence. The null hypothesis is rejected. The results of study showed that there was a significant difference that exists between government and private school cricket players on Endurance.

Conclusion

It was concluded from the study that there was no difference between government schools cricket players and private school cricket players on speed. There was significance between government schools cricket players and private school cricket players on Agility Explosive strength and Endurance.

Recommendations:

- The findings of the study are also useful to study the physical fitness of the students of other districts in Andhra Pradesh.
- It is also recommended that administrators and sports associations to encourage sports activities for students in each district in the Andhra Pradesh.
- It is recommended that Physical Directors. Coaches and Fitness experts can prepare a special physical fitness programme for the development of the particular abilities which are weak in the students.
- It is recommended the cricket players of Vizianagaram District needs a special training programme for improving significant difference between government school cricket players and private school cricket players in agility, Explosive Strength and Endurance. The results of the present study showed that there was no difference between private school cricket players and government school cricket players on speed.

Suggestions for further research:

Based on the result of the study, the following suggestions were given by the investigator for further research. Similar study can be conducted on various level players such as college, university, state, national etc. Similar study may be conducted on other games such as basketball, volleyball, football, hokey etcSimilar study can be conducted on other motor fitness

Professional players may also be tested on the same criterion variables. A detailed study can be conducted on physiological and psychological variables also.

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Analysis Of Cardio Respiratory Endurance Between Rural And Urban Junior College Boys In Different Age Categories

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Abstract:

The purpose of the present study was to analysis of cardio respiratory endurance between rural and urban junior college boys in different age categories. To achieve this purpose of the study three hundred junior college boys of rural and urban areas from Kadapa District, Andhra Pradesh, India were randomly selected as subjects. Among them one hundred and fifty junior boys (seventy five rural boys with age between 15 to 16 years and seventy five rural boys with age between 16 to 17 years) and one hundred and fifty junior boys (seventy five urban boys with age between 15 to 16 years and seventy five urban boys with age between 16 to 17 years). The cardio respiratory endurance was selected as criterion variable. The following group's namely rural junior boys with age category between 15 to 16 years and 16 to 17 years, urban junior boys with age category between 15 to 16 years and 16 to 17 years were selected as independent variables. The data were collected from rural and urban junior boys with different age categories on cardio respiratory endurance were assessed by using standardized test items namely pull ups, and were statistically analyzed by using 2 x 2 factorial ANOVA. Whenever, the obtained 'F' ratio value for interaction effect was found to be significant, the simple effect test was applied as follow up test. **Key words**: cardio respiratory endurance, 2x2 factorial ANOVA, Urban Junior college boys, Rural Junior college boys, Age category

Introduction

Human settlements are categorized as rural or urban areas on the basis of the density of population and human formed structures in a particular area. Urban areas consist of towns and cities while rural areas contain villages and hamlets. Rural areas may develop randomly on the foundation of natural vegetation and fauna available in a region, whereas urban settlements are proper, suitable and planned settlements developed according to a process called urbanization. Several times, rural areas are given special attention by governments and development agencies to turn them into urban areas. Urban areas are defined by their advanced public services, better facilities for education, sports, transport, business, health, social interface and overall improved standards of living. Socio-cultural information is usually based on urban residents. Whereas rural areas depends more on natural assets and events, the urban inhabitants gets the benefits of man's advancements in the fields of science and technology and for their everyday functioning, they do not need to depend upon nature. Residing in places distinguished by size of population can be linked with variations in eating attitudes, availability of sports facilities, accessibility of health services and opportunities for physical fitness activities (Tsimeas et al., 2005).

According to Bucher (1985) Physical fitness is "the ability of an individual to live a full and balanced life. It involves physical, mental, emotional, social and spiritual factors and the capacity for their wholesome expression". Physical fitness refers to practical performance of exercise that calls for the number of experiences, they are the feeling of happiness in the process of correct performance of movement, feeling of "confidence, self satisfaction, surprise and unhappy in the process of confusion and disappointment etc. It is a positive quality, extending on a scale from death to "abundant life". All living individuals have some degree of physical fitness which varies 10 considerably in different people and in the same person at different times. It is not as broad in its meaning as 'total fitness'. It include, adequate degree of health, posture, physique, proper functioning of vital organs, nutrition, and good health habits along with an adequate amount of endurance, strength, stamina and flexibility (Clark and David ,1978) .

Materials And Tools

Collection of Data : To achieve this purpose of the study three hundred junior college boys of rural and urban areas from kadapa district, andhra pradesh, india were randomly selected as subjects. among them one hundred and fifty junior boys (seventy five rural boys with age between 15 to 16 years and seventy five rural boys with age between 16 to 17 years) and one hundred and fifty junior boys (seventy five urban boys with age between 15 to 16 years and seventy five urban boys with age between 16 to 17 years)

TABLE- I - THE MEAN AND STANDARD DEVIATION ON CARDIO RESPIRATORY ENDURANCE OF RURAL AND URBAN JUNIOR BOYS WITH DIFFERENT AGE CATEGORIES

Gender / Area of Games		Age between 15 to 16 Years	Age between 16 to 17 Years
Rural Junior Boys	**Mean**	2061.07	1957.32
	SD	25.00	31.60
Urban Junior Boys	**Mean**	2064.21	1957.33
	SD	22.95	38.76

Results on Cardio respiratory endurance

Table I shows that the mean values on Cardio respiratory endurance of rural boys with age between 15 to 16 years and rural boys with age between 16 to 17 years, urban boys with age between 15 to 16 years and urban boys with age between 16 to 17 years were 2061.07, 1957.32, 2064.21and 1957.33 respectively. The two way factorial ANOVA on Cardio respiratory endurance of rural and urban junior boys with different age categories have been presented in Table I-a

TABLE I-a - TWO WAY FACTORIAL ANOVA ON CARDIO REPIRATORY ENDURANCE OF RURAL AND URBAN JUNIOR BOYS WITH DIFFERENT AGE CATEGORIES

Source of Variance	Sum of Squares	df	Mean Squares	Obtained "F" Ratio
A factor (Areas)	187.2	1	187.23	0.20
B factor (Age)	831817.4	1	831817.36	898.74*

AB factor (interaction) (Gender x Area of Games)	184.1	1	184.08	0.20
Within or Error	273960.24	296	925.54	

*significance at .05 level of confidence with df 1 and 296 was 3.871.

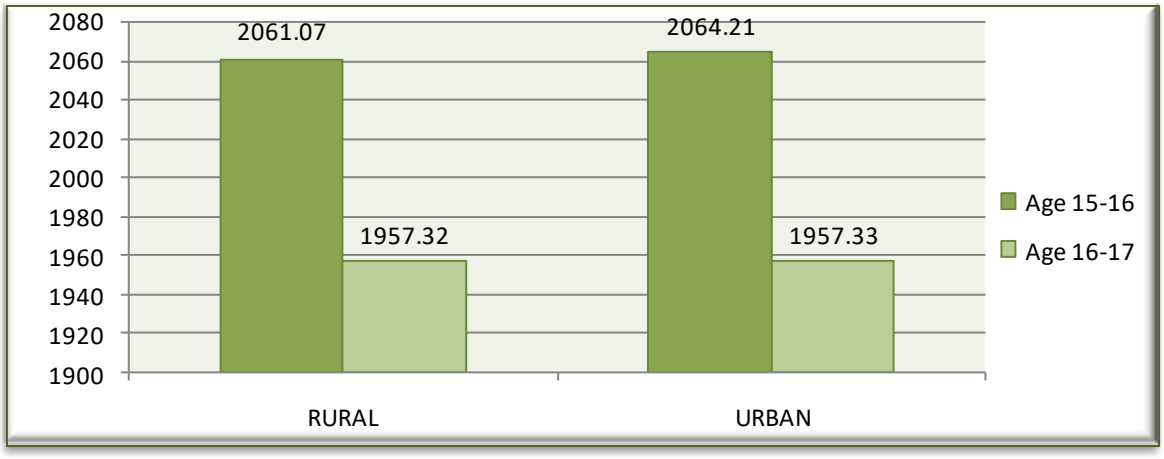
Table I-a shows that the obtained 'F' ratio value on Cardio respiratory endurance was 0.20 for factor-A (Areas – Rural and Urban) irrespective of their age categories which was lesser than the table value of 3.871 with df 1 and 296 required for significance at .05 level of confidence. The results of the study indicated that there was no significant difference between rural and urban area junior boys irrespective of their age categories on Cardio respiratory endurance.

The obtained 'F' ratio value on Cardio respiratory endurance was 898.74 for factor-B (Age – Age between 15 to 16 years and Age between 16 to 17 years) irrespective of their gender which was greater than the table value of 3.871 with df 1 and 296 required for significance at .05 level of confidence. The results of the study indicated that there was a significant difference between 15 to 16 years and 16 to 17 years junior boys irrespective of their areas (rural and urban) on Cardio respiratory endurance.

The obtained 'F' ratio value on Cardio respiratory endurance was 0.20 for interaction [AB factor - (Areas × Age)] which was lesser than the table value of 3.871 with df 1 and 296 required for significance at .05 level of confidence. The results of the study showed that there was no significant difference between rural and urban junior boys with different age categories on Cardio respiratory endurance.

The mean values of between rural and urban junior boys with different age categories on Cardio respiratory endurance are graphically represented in Figure I.

FIGURE-I - THE MEAN VALUES OF RURAL AND URBAN JUNIOR BOYS WITH DIFFERENT AGE CATEGORIES ON CARDIO REPIRATORY ENDURANCE



Conclusions:

- There was no significant difference between rural and urban area junior boys irrespective of their age categories on Cardio respiratory endurance.
- There was a significant difference between 15 to 16 years and 16 to 17 years junior boys irrespective of their areas (rural and urban) on Cardio respiratory endurance.
- There was no significant difference between rural and urban junior boys with different age categories on Cardio respiratory endurance.
- The urban junior college boys had enhanced capacity of cardio respiratory endurance than the rural junior college boys at 15-16 years age categories.
- The urban junior college boys had enhanced capacity of cardio respiratory endurance than the rural junior college boys at 16-17 years age category.

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Some Investigations On Anthropometric And Motor Performance Variables For Enhancement In The Performance Of Shot Put Players

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Abstract:
The purposed manuscript presents an extensive investigation to establish the relation between selected anthropometric and motor performance variables and the performance output of university level shot putters in the state of Haryana, India. The obtained statistical parameters can be subsequently maneuvered in determining the relationship amongthe class of parameters in view to enhance the performance characteristics of university level players in the game of shot put. The proposed study presented may provide accurate criteria in the selection of young potential athletes. **Keywords:** Anthropometric, Motor Performance Variables, correlation coefficcients.

INTRODUCTION

Not long ago, it has been identified that the anthropometric study has a strong impact on many modern industries. A significant role in the domains such as design of apparels in sports industry, ergonomic structures and architectures, in addition to various industrial applications thereby utilizing the statistical techniques about the distribution of body dimensions in the population. Anthropometric measurements have been attracting researchers as well as sports persons since 1860's. By early 1960s, the anthropometric measurements becamepopular in determining the fitness levels of children in the countries like South Africa, U.S.A. & England. Excellent research on anthropometric parameters was reported in, carried on comparative analysis of physical fitness levels in the participant (Canadian and South African) school boys. An exhaustive research involving power parameters was carried out by conducting Eighteen (18) diverse powermeasurement tests to measure anaerobic power of children plus to compute fitness level comparisons among European and North American children. The study of habit based physical activity as well fitness levels (related to health) of fourth graders (children) was conducted on 528 fourth grader(children) of which 274 were boys and 254 were girls belonging to seven schools was presented in the study. Adding further to this a study on effect/effects of frequency (repetition) and duration of physical education programs on the health of Sixth Graders had been presented. A study on physical fitness index often called by authors as (PFI) was conducted among fifty (50) residential (Sainik) schools and forty four (44) Non-residential schools children determining multiple physical anthropometric parameters along with BMI (body mass index). Duncan et. al., measured anthropometric parameters as well as physiological response of junior elite volleyball players, the study was performed on twenty five (25) national level volleyball players with mean age of 17.5 years. In contrastto previous, an extensive study on elite, semi-elite and novice volleyball players depicted that with enhancement in lower body muscular strength, another anthropometric parameter agility considerably improves the playing

performance of junior volleyball players. The study was conducted on one hundred fifty three (153) players consisting of 57 males and 96 females in following classification: junior national, state and novice volleyball players. Diverse anthropometric and physiological behaviors were measured in thirty-four (34) gymnasts under elite and non-elite categories with numbers 15 and 19 respectivel. Gravinaet. al. investigated the difference in anthropometric and physiological parameters of first team and reserve soccer players aged between 10-14 years.

Procedure

The results and findings of this investigationprovidean essential criterion for selecting potential athletes of young age.The proposed investigation was carried on three hundred (300) male shot putters of Indian states Haryana and Delhi. Mostly, the participant athletes had been selected from the list of "participated athletes at all India level inter university athletics championships". The athletes were randomly selected as subjects. Subsequently, another parameter "the age" of the participants waschosen between 18 and 25 years. The available literature in the domain of anthropometric and motor fitness parameters forms the basis of the proposed study.With reference to the objective of the proposed study following anthropometric and motor fitness variables were identified and found:

a) Standing Height
b) Body Weight
c) Arm Length
d) Lower Arm Length
e) Upper Arm Length
f) Leg Length
g) Lower Leg Length

The proposed study was carried out by considering the following motor fitness variables and finding any (association/dissociation)amongst both classes of variables:

a) Speed
b) Strength
c) Endurance
d) Agility
e) Flexibility

Results And Discussion

Table 1clearly indicates that there was significant relationship between shot put performance and the standing height, weight, sitting height, arm length and upper arm length because the calculated values ofr.05 (298) = 0.584,0.646, 0.724, 0.641, 0.487 were greater than the tabulated valuer.05 (298) = 0.113.Whereas there was no significant relationship between shot put performance and Leg length, Upper leg length and Lower arm length because the calculated values ofr.05 (298) = 0.026, 0.014, 0.130 were lower than the tabulated valuer.05 (298) = 0.113.

Table 1. Relationship of Anthropometric Variables to Performance in Shot put.

S.no.	Variables	Correlation coefficient
1	Standing Height	0.584*
2	Weight	0.464*
3	Sitting Height	0.724*
4	Leg Length	0.026
5	Upper Leg Length	0.014

6	Arm Length	0.641*
7	Upper Arm Length	0.487*
8	Lower arm length	0.130

Table 2 reveals that the combined contribution of anthropometric variables were highly related to the shot put performance of university level athletes of Haryana and Delhi states because the calculated value ofr.05 (292) = 0.734 was higher than the tabulated value ofr.05 (292) = 0.112.

Table 2.Combined Contribution of Anthropometric Variables to Performance in Shot Put.

Criterion Variables	**Independent variables**	**Coefficient of multiple correlation**
Shot Put Performance	Standing Height	**0.734***
	Weight	
	Sitting Height	
	Leg Length	
	Upper Leg Length	
	Arm Length	
	Upper Arm Length	
	Lower Arm Length	

Table 3 indicates that there were significant relationships between shot put performance and arm strength abdomen strength, Speed, Endurance, Agility, Flexibility and leg strength because the calculated values of r.05 (298) = 0.414 0.323, -0.175, 0.151, -0.358, 0.236 and 0.547 were greater than the tabulated value of r.05 (298) = 0.113. Combined contribution of motor fitness variables to performance in Shot Put is presented in Table 4

Table3.Relationship of Motor Fitness Variables to Performance in Shot put.

Variables	**Correlation coefficient**
Arm Strength	**0.414***
Abdomen Strength	**0.323***
Leg Strength	**0.547***
Speed	**-0.175***
Endurance	**0.151***
Agility	**-0.358***
Flexibility	**0.236***

Table 4 reveals that the combined contribution of motor fitness variables were highly related to the shot put performance of university level athletes of Haryana and Delhi because the calculated value ofr.05 (292) = 0.635 was higher than the tabulated value ofr.05 (292) = 0.112.

Table 4. Combined Contribution of Motor Fitness Variables to Performance in Shot put.

Criterion Variables	Independent variables	Coefficient of multiple correlation
Shot put performance(c)	Arm Strength	0.635*
	Abdomen Strength	
	Leg Strength	
	Speed	
	Endurance	
	Agility	
	Flexibility	

Conclusion

The result of the study indicated that the performance in shot put is significantly affected by strength and follow the rules of nature in cognizance considerably. Further, to the observation a significant relationship may also be attributed to functions like natural growth of human being as per the principle of growth and development; also motor fitness variables always play a significant role in enhance the performance with constraints that the law of nature to be followed accordingly.

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Effect Of Contrast Training With Core Exercise Program On Muscular Endurance Among Volleyball Men Players

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Abstract
The present study was undertaken to analyze the effect of Contrast training (CTG), core exercise programme (CEPG) and contrast training with core exercise programme group (CCTCEPG) on muscular endurance among volley ball players. The investigator has selected N=48 men inter collegiate level volleyball players at random from in around Guntur district of Andhra Pradesh .Their age ranged from 18-26 years. The subjects chosen for the study were divided into four equal groups n=12 and designated as experimental group 'A' experimental group 'B' experimental group 'C' and control group 'D'. CTG were given to group 'A' CEPG were given to group 'B' CTCEPG were given to group 'C' and the control group 'D' were restricted to participate in any activities. The trainings were given for a period of twelve weeks. The data were collected before and after the training. The obtained data's were analyzed by Analysis of Covariance (ANCOVA). The level of significant was fixed at 0.05 levels. The results of the study showed that CTG, CEPG and CCTCEPG of muscular endurance significantly improved than control group. CCTCEPG show better performance than CTG and CEPG. CEPG show better performance than CTG. **Keywords:** – *Contrast training - Core – Serving ability.*

Introduction:
Physical fitness refers to the capacity of an athlete to meet the varied physical demands of their sports without reducing the athlete to a fatigued state. Physical fitness level predicts the sports performance level of the athletes. Therefore for optimum performance need physical fitness. Physical fitness need in life to enjoy and reach the goals with least fatigue (Rama & Ratnakara 2015). Contrast training refers performing two exercises in succession with vastly different loads. Contrast training mean two different load one heavy and another light explosive type exercises which takes the advantage of the post-activation potentiation (PAP) phenomenon example back squat rest box jump rest back squat rest box jump. Core exercise refers to exercises has effect on trunk and more specifically to the lumbo pelvic region of the body. The core muscles of the body are rectus abdominus, external obliques, internal obliques, transverse abdominis, quadrates lumborum, multifidus and erector spinate (Aditya 2017).

Statement of the Problem:

The purpose of the study was to investigate the "Effect of contrast training, core exercise program. Contrast training with core exercise program on muscular endurance among volleyball men players.

Hypothesis:

It was hypothesis that there will be a significant improvement in muscular endurance after the twelve weeks of training in contrast training group, core exercise programme group, contrast training with core exercise programme group (CTCEPG) as compared with control group.

Methodology:

The purpose of this study was to find out the effect of contrast training group (CTG), core exercise programme group (CEPG) and contrast training with core exercise programme group (CTCEPG) on muscular endurance among volleyball players. To achieve the purpose of study N=48 men inter collegiate volleyball players selected at random from in around Guntur district of Andhra Pradesh. Their age ranged from 18-26 years. The subjects chosen for study was divided into four groups and designated as experimental group 'A' experimental group 'B' experimental group 'C' and control group 'D'. CTG were given to group 'A' CEPG were given to group 'B' CCTCEPG were given to group 'C' and control group D. Each groups consisted of twelve volleyball players. Control group 'D' was restricted to participate in any of the training programme other than their regular activities. Training was given three days in a week for twelve weeks. The subject were tested on muscular endurance at the beginning (Pre-test) and at the end of the experimental period (Post-test). To measure the muscular endurance sit-ups test were used respectively because of their simplicity and availability of necessary facilities, instrument and equipment's. The analysis of data on serving ability data have been examine by ANCOVA in order to determine the differences if any among the group at pre and posttest.

Table – I- Analysis of Covariance for muscular endurance on Pre Test and Post Test Data of Experimental and Control Groups (In Numbers)

Tests	CTG	CEPG	CCTCEPG	CG	Source of variance	Sum of Squares	df	Mean Squares	'F' Ratio
Pre Test Mean	40.50	42.91	41.16	40.25		52.03	3	17.36	1.23
SD	2.64	6.14	1.69	2.92	**B**		44	14.04	
					W	617.833			
Post Test Mean	46.50	52.83	54.74	37.58		2155.83	3	718.61	83.68*
SD	2.61	3.01	0.86	4.20	**B**	377.83	44	8.58	
					W				
Adjusted Post Test Mean	46.78	52.14	54.76	37.97		1915.21	3	638.40	99.38*
					B	276.20	43	6.42	
					W				

Significant level fixed at 0.05. The table value for 0.05 level of significant with 3 & 44 and 3 & 43 degree of freedom are 2.82 and 2.82 respectively.

The above table-I shows that there is a significant difference on muscular endurance among the three groups such as contrast training group (CTG), core exercise programme group (CEPG), constrast training with core exercise programme group (CTCEPG). Since the calculated 'F' value required being significant at 0.05 level for 3, 44 d/f and 3, 43 are 2.82 and 2.82, but the calculated values of muscular endurance post and adjusted posttest 'F' values are 83.68 and 99.38 respectively. Which are higher than the tabulated value. Since the obtained 'F' ratio is found significant.

Table - II
The Scheffes Test for the Mean Differences Between Paired Mean of Groups on Muscular endurance

Mean Value				Mean Difference	C.I
CTG	CEPG	CCTCEPG	CG		
46.78	52.14	-	-	5.36*	0.86
46.78	-	54.76	-	7.98*	
46.78	-	-	37.97	8.83*	
-	52.14	54.76	-	2.62*	
-	52.14	-	37.97	14.17*	
-	-	54.76	37.97	16.79*	

Significant at 0.05 level of confidence

The above table II shows that the adjusted post-test mean differences values between contrast training group (CTG) and control group (CG), core exercise program group (CEPG) and control group (CG) and contrast training with core exercise program group (CTCEPG) and control group (CG) were 8.83, 14.17 and 16.79 respectively on muscular endurance, which were greater than the required confidence interval value 4.46 at 0.05 level of confidence. It was concluded from the above table that the three experimental groups were found to be significant when compared with control group.

The graphical illustration of the pre-test, post-test and adjusted post-test mean values of the experimental groups and control group on muscular endurance were presented in figure 1.

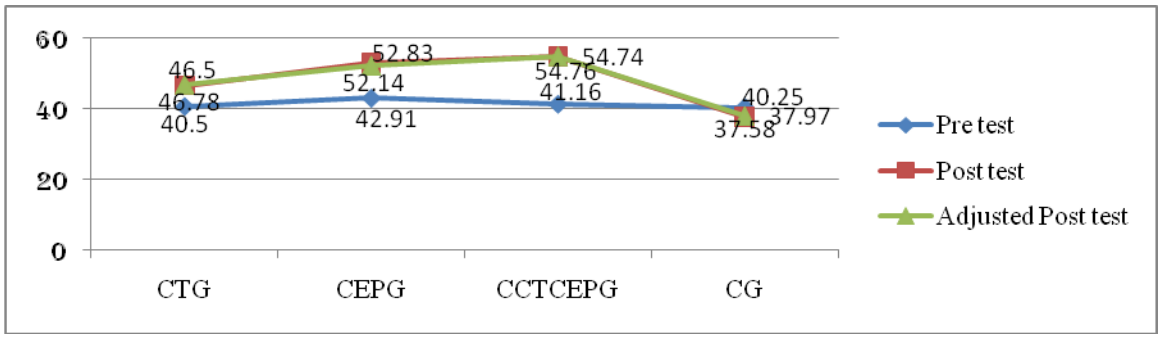

Figure 1: Graphical Illustration Showing the Pre-Test Post-Test and Adjusted Post-Test Mean Values on muscular endurance

Discussion on Hypothesis:

The hypothesis says that there may be significant difference between experimental group and control group on muscular endurance. The result of the study shows that there were significant differences exist between experimental group and control group. Hence the research hypothesis is accepted.

Discussion and Findings: Muscular endurance

The result of the study reveals that after the twelve weeks of contrast training group (CTG), core exercise program group (CEPG), contrast training with core exercise program group (CTCEPG) result in significantly improved serving ability of muscular endurance. The finding of the study are aligned with the following studies *Parasuraman & Mahadevan (2018), Anitha et al., (2018) Kamalakkannan et al., (2011), Kwong-Chung Hung et al., (2018)* as an effective method to improve muscular endurance.

Conclusions:

Muscular endurance was significantly improved by the contrast training group (CTG), core exercise program group (CEPG) and contrast training with core exercise program group (CTCEPG) when compared with control group. Further it show that combined training group CCTCEPG better performance than isolated groups CTG and CEPG.

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Effect of Selected Asanas on lower Back pain - Inter collegiate level cricket players

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Abstract:
The purpose of the study was to find out the effect of selected asana practices on lower back pain of cricketers. To achieve the purpose 30 Cricketers with lower back pain were selected from Dharwad City. Ages of the selected subjects were ranged between 21-28 years. They were divided in to two equal groups based on the pain scores. Pre test and post test were collected for both the control and experimental groups. Pain level was measured by a ten point scale Visual Analog Scale (VAS) as suggested by Huskisson The experimental group was exposed to 10 weeks (4Days per week) of Asana practices where as control group was not exposed to any experimental treatment. The result of the study showed that there was is significant decrease in the back pain due to selected asana practices.

Introduction

Lower back pain is particularly common in younger Cricketers especially bowlers. Previous research has reported that these injuries occur in up to 65% of cricket players. Fast bowlers are at particular risk of lower back pain and injuries compared to spin bowlers, batsmen and wicket keepers. Concomitant hyperextension of lumber spire and rotation of the thoracic spine in fast bowling places a significant amount of stress on the lumber spire. This causes injuries to the bones, joints, ligaments and muscles in and around the lumbar spine with resultant back pain. Pain is gradual in onset and is characteristically described as the 'crescendo – type' of pain, occurring at the end of day's play initially, then earlier the next time around and so on. Typically, it is sore when the player bends backwards especially if standing on one leg.

The reason for such a high incidence of back injury has been attributed to a combination of factors. These include inadequate physical and physiological preparation, relatively reduced bone density following a 'growth spurt', postural defects, biomechanical aspects of the bowling technique, rapid escalation in training frequency, duration of bowling spells in matches, and the repetitive nature of movements.

Batsmen- remaining at the crease for extended periods can cause shortened flexor muscles at the front of the spine, leading to chronic back pain.

Fast Bowler- normally cricketers' feet and ankles are placed under enormous stress while releasing the ball, and exerting enormous body force to control the follow through.
Spin Bowler- stress placed on the wrist, fingers, elbows and shoulders can result in arthritic pain, particularly during cold weather
Wicket Keeper- without the proper conditioning exercises, this player is prone to stretched ligaments that can cause balance instability.
Common Causes of Back Pain
Incorrect posture- Proper Posture to prevent back pain.
Improper movements or bad body mechanics.
Repetitive motion on joints or muscles.
Disc injury can be the cause of prolonged back pain but muscles and ligaments may also be damaged or inflamed. Bulging Discs.
The sacroiliac joint can create pain when it does not sit in its housing correctly
Infections, tumor, cysts and bone spurs.
Muscle strains and muscle imbalances are often identified as the cause of back pain. Pain from an injury can often remain long after the initial action because of the muscle imbalances. The muscles are forced to work in different, unnatural ways as the individual tries to avoid the pain in the problem area. This causes mechanical problems with the skeleton, building pressure at points on the spine-and pain.
Meniscoid occlusion also causes acute lower back pain, when, more mobile regions of the spine become pinched or trapped. What results can be sudden and severe pain. Symptoms include severe lower back pain, also accompanied sometimes by muscle spasms, pain with walking or pain concentrated to a single side of the body.
There are also many non-anatomical causes that can contribute to back pain. These can include, but are not limited to, repressed anger, stress or depression. Even if an anatomical cause is determined for the back pain, if stress or depression is present, it should be treated additionally. Back pain is also frequently experienced with no underlying anatomical problem.
Neck Pain-Caused by injury to the muscles,tendons and ligaments around the neck area. Disc problems are also common.
Shoulder Pain-Shoulder pain is more often related to muscle and ligament damage and disc injury is less common.
Upper Back Pain-Usually related to muscle and ligament imbalance or injury. Poor posture is also a common cause xercises show strengthening and stretches.
Lower Back Pain-Muscle strain or disc injury causes a great majority of low back pain. The lower back is an area that is quite often injured in individuals.
Sacrum Sacroiliac Joint-The Sacrun is commonly aggravated and can cause Sciatica (Painful Back) down the legs.
The goals for treating back pain are:
To quickly achieve maximum reduction in pain intensity
Restore individual's ability to function in everyday activities
Cope with any residual pain (if present)
Purpose of the study
The purpose of the study was to find out the effect of selected asana practices on lower back pain of cricketers.

Methodology

To achieve the purpose 30 Cricketers with lower back pain were selected from Chennai City colleges with advice of medical practitioner. Ages of the selected subjects were ranged between 21-28 years. They were divided in to two equal groups based on the pain scores. Pre test and post test were collected for both the control and experimental groups. Pain level was measured by a ten point scale Visual Analog Scale (VAS) as suggested by Huskisson EC). The experimental group was exposed to 10 weeks (4Days per week)) of Asana practices where as control group was not exposed to any experimental treatment.

The following Asanas were adopted in the study

Padmasasan 2. Bhujangasana 3. Pachimottasana
Gomukasana 5. Virksasana 6. Ustrasana
7. Supta padangusthasana agains wall 8. Bharadwajasana
shalabhasana 10. Shavasana

The collected data were analyzed using dependent test

Results and Discussions

Paired Samples Statistics

Sl.No	Group/Test	mean	N	Std.Dev	Std.Error mean	R	T	df	Sig
Pair 1	CGPRE	5.07	15	.70	.18	.18	1.47	14	.164
	CGPRE	5.20	15	.68	.17				
Pair 2	EGPRE	5.00	15	.76	.19	.66	7.64	14	.000
	EGPOST	3.53	15	.99	.25				

From the table it could be inferred that there was significant difference in the pre test and post test on low back pain, as the obtained probability value was less than the 0.05 among the experimental group. This would clearly indicate that due to the experiment, the subjects in the experimental group decreased their level of low back pain. There is no significant reduction in the back pain among the control group as the obtained probability value was higher than the 0.05

Conclusions:

Within the limitations of this study it was concluded that there was significant decrease in the back pain among inter collegiate level cricket players due to selected asana practices.

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Criterion Performance Physical Fitness Components Relation with Sprinting Performance

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Abstract

The purpose of this study was Criterion Performance Physical Fitness Components Relation with Sprinting Performance. The 150 male Sprinters were selected Inter- University representation in the academic year of 2015-2016, 2016-2017 and 2018-19 in Andhra Pradeshon non-randomly by purposive sample was used. Karl Pearson coefficient of correlation was used to Analysis of the collected data on Criterion Performance Physical Fitness Components wereComplex reaction ability (0.585*), Movement Speed (0.339*), Acceleration ability(0.462*),Locomotor Speed (0.371*),Speed Endurance(0.379*), Agility (0.299*), Coordination (0.573*), Explosive Strength(0.565*), Dynamic Balance(0.364*),Dynamic Flexibility (0.259*) and Strength Endurance (0.289*)coefficient of correlation with Sprinting Performancehad been positively with significant level 0.05.Remaining Performance Physical FitnessComponentsdid not correlate on this current study.**Key words:** Performance Physical Fitness, Components, Sprinters, Athletics.

Introduction

From the earliest time running has been a natural part of man's existence. One of the earliest examples of competitive running can be found in the work of Homer, who tells of races ran in the 12th century BC. Thus, man has been racing on foot for over three thousand years (Blacklock and Kennett, 2000). It was expected that children with a more extended training history would exhibit more pronounced anthropometric, physical fitness and motor coordination profiles matching the specific sport (Blacklock and Kennett, 2000).

In athletics and track and field, sprints (or dashes) are races over short distances. They are among the oldest running competitions. A rapid movement from one place to another place is required in many athletic activities especially in sprint running (kukolj, Ropret, Ungarkovic and Jaric,2001; Pinero et al,2010). Sprinting is an ancient event in athletics starting in the first Greece

Olympic Games and it is a human ability to perform a maximum running velocity (Haneda, Eno moto, Hogo and Fujii,2003). At the professional level, sprinters begin the race by assuming a crouching position in the starting blocks before leaning forward and gradually moving into an upright position as the race progresses and momentum is gained. The set position differs depending on the start. Body alignment is of key importance in producing the optimal amount of force. Ideally the athlete should begin in a four-point stance and push off using both legs for maximum force production. Athletes remain in the same lane on the running track throughout all sprinting events with the sole exception of the 400 m indoors. Races up to 100 m are largely focused upon acceleration to an athlete's maximum speed. All sprints beyond this distance increasingly incorporate an element of endurance (Pinero et al, 2010).

The performance of players is influenced by many factors such as physical, physiological and psychological variables, technique, tactics, physique, body size, body composition and application of biomechanical principles (Ortega et al., 2008). No doubt the performance of player influenced by many factors but still Physical fitness components is the primary factor among these entire factors.

Fitness is a condition in which an individual has sufficient energy to avoid fatigue and enjoy life. It is necessary for elderly people to maintain and improve their physical fitness in order to satisfy healthy, high quality of daily life (Tanaka et al., 2004) [9]. Skill related physical fitness refers to an individual’s athletic ability in sports such as tennis and encompasses skill-related attributes like dynamic balance, power, speed and agility; the health-related aspect is a measure of cardiovascular endurance, muscle strength, endurance and flexibility and body composition (Hopkins & Walker, 1988).The present study therefore aims to study the relationship of criterion performance physical fitness components association withSprintering performance.

Methodology

Purpose of the Study: This study would be decided the Criterion Performance Physical Fitness Components Relation with Sprinting Performance.

Selection of the Subjects:150 male Sprinterswere selected Inter- University representation in the academic year of 2015-2016, 2016-2017 and 2018-19 in Andhra Pradesh State on non-randomly by purposive sample had been used.

Figure-I
Performance Physical Fitness Components

S. No	Performance Physical Fitness Components	Test
1	Complex Reaction Ability	Nelson Reaction Test
2	Movement Speed	20mts Run
3	Acceleration Ability	50mts Run
4	Locomotor Speed	30mts Run
5	Speed Endurance	300mts Run
6	Agility	Shuttle Run
7	Coordination	Baseball Throw
8	Explosive Strength	Standing Broad Jump
9	Dynamic Balance	Balance Test
10	Dynamic Flexibility	Flexibility Test
11	Strength Endurance	Push Ups
12	Simple Reaction Ability	Nelson Reaction Test
13	Endurance	600 Yard Run
14	Static Flexibility	Sit and Reach Test
15	Maximum Strength	1rm Test

Collection of the Data and Tools

The data had been collected by administrating the standard procedures for taking performance physical fitness components as well as Sprinters performance and tools were used stopwatches, push up stands, spirometer and Flexible measuring tape for flexibility. The score had been recorded time in the nearest one tenth of the seconds and nearest centimetres.

Statistical Analysis and Discussions

In order to find out the relationship of criterion performance physical fitness components with Sprinting performance with the Karl Pearson coefficient of correlation had been used and testing the Hypothesis the level of confidence is 0.05.

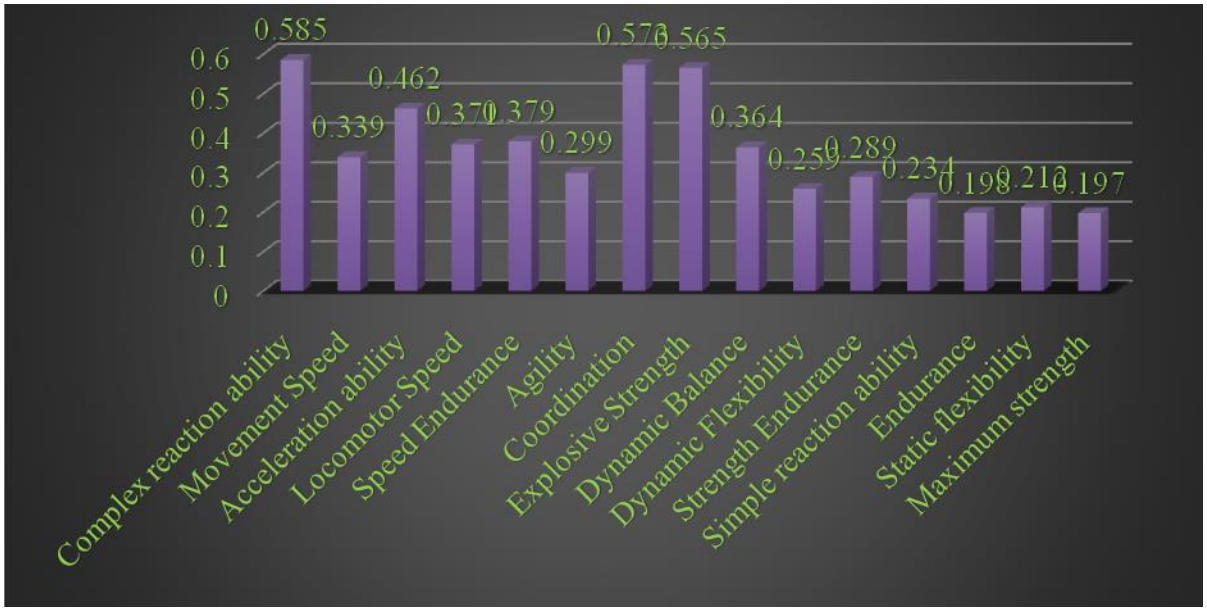
Figure-II:Criterion Performance Physical Fitness Components Association with Sprinting Performance

S. No	Performance Physical Fitness Components	Coefficient of Correlation 'r'
1	Complex reaction ability	0.585*
2	Movement Speed	0.339*
3	Acceleration ability	0.462*
4	Locomotor Speed	0.371*
5	Speed Endurance	0.379*
6	Agility	0.299*
7	Coordination	0.573*
8	Explosive Strength	0.565*
9	Dynamic Balance	0.364*
10	Dynamic Flexibility	0.259*
11	Strength Endurance	0.289*
12	Simple reaction ability	0.234
13	Endurance	0.198
14	Static flexibility	0.212
15	Maximum strength	0.197

N=150, r.05 (150) =0.238, *Significant at 0.05 level.

An analysis of the above table reveals that Sprinters had been significantly related to criterion performance physical fitness components were Complex reaction ability (0.585*), Movement Speed (0.339*), Acceleration ability(0.462*),Locomotor Speed (0.371*),Speed Endurance (0.379*), Agility (0.299*), Coordination (0.573*), Explosive Strength (0.565*), Dynamic Balance(0.364*),Dynamic Flexibility (0.259*) and Strength Endurance (0.289*) as obtained values of correlation were greater than the value of r= 0.238 the correlation to be significant at 0.05 performance physical fitness components were Endurance, Maximum Strength, Static Flexibility, Simple reaction ability and endurance as their correlation values are less than the value of r=0.238 need for significance at 0.05 level of confidence.

Figure-III:**Criterion Performance Physical Fitness Components Relation with Sprinting Performance**



As for the results finally, the study exposes that Sprinting performance would be significantly related tocriterion performance physical fitness componentswere Complex reaction ability (0.585*), Movement Speed (0.339*), Acceleration ability(0.462*),Locomotor Speed (0.371*),Speed Endurance (0.379*), Agility (0.299*), Coordination (0.573*), Explosive Strength (0.565*), Dynamic Balance(0.364*),Dynamic Flexibility (0.259*) and Strength Endurance (0.289*). As per the analysis,suggestion to the coaches, physical directors, physical education teachers, physical instructors to concentrate on the above criterion performance physical fitness components while selecting or screening for Sprinters in a basic level. It would be given effective and good performance in a specific competition.

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Effect Of Pranayama On Physiological Variable Of Women

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Abstract

Pranayama is the perfect control of the life-currents through control of breath, and is the process by which we understand the secret of prana and manipulate it. The Purpose of the study was to find out "**Effect of Pranayama on Physiological Variable of Women".** To achieve this purpose 30 female in the age group ranging from 19 to 23 years studying in Government First Grade College for Women's Vijayapura Karnataka state were selected randomly as subjects. The following Pranayama training were selected for 12 weeks of training for 30 subjects. Criterion variable Physiological Variable was selected measured by using Resting Pulse rate. It was used for pre -test and post –test.The result shows that the 12 weeks of Pranayama training develops Resting Pulse rate Performance.Pranayama Training develops Resting Pulse rate Performance.
Keywords: Pranayama Training, Nadi Sodhana, Shitali Pranayama, Ujjayi Pranayama., Kapalabhati Pranayama and Resting Pulse rate

Introduction

Breathing is part of the autonomic nervous system, which is comprised of the sympathetic and parasympathetic nervous systems. In general, the sympathetic nervous system is responsible for governing our responses to stimuli, deciding whether they are threatening, and tripping the signals that tell the body how to react. This is sometimes described as fight or flight responses. The parasympathetic nervous system helps the body calm back down after the danger or stressor has passed.

One of the things that the sympathetic nervous system effects are the breath. In the presence of real danger, the breath becomes fast and short as your body tries to load itself with oxygen to facilitate its escape. This kind of breathing is also a response to non-life-threatening stressors. It happens in response to panic and then perpetuates the panic.

Methodology

The procedure adopted in the present research work is related to the selection of subjects, selection of variable, Selection of test and statistical technique involved in the study.

Selection of Subjects

The Purpose of the study was to find out "**Effect of Pranayama on Physiological Variable of Women".** To achieve this purpose 30 female in the age group ranging from 19 to 23 years studying in Government First Grade College for Women's Vijayapura Karnataka state were selected randomly as subjects. The following Pranayama training were selected for 12 weeks of training for 30 subjects. Criterion variable Physiological Variable was selected measured by using Resting Pulse rate. It was used for pre -test and post –test.

Selection of variable

Independent Variable

Pranayama Training

Nadi Sodhana.Shitali Pranayama.

Ujjayi Pranayama.Kapalabhati Pranayama.

Dependent Variable

Physiological Variable

Resting Pulse rate

Selection of Test

The test items were selected for this study after thorough review of literature as well as consultation with experts, Physical Education Professionals, and also Research supervisor. The selection tests and the criterion variables are presented in the Following table.

Sl. No	Test Items and tool	Variable	Criterion Measurement
1	Radial pulse rate	Resting Pulse rate	Pulse index and middle fingers together on the opposite wrist, about $^1/_2$ inches on the inside of the joint, in line with the index finger. Once pulse is located count the number of beats felt within a one minute period and recorded.

ANALYSIS OF INTERPRETATION OF DATA

The aim of the research work was find out the "**Effect of Pranayama on Physiological Variable of Women".** For the purpose of the research study 30 women's in the age group of 19 to 23 years belonging to the student of Government First Grade College for Women's of Vijayapura District of Karnataka state were selected as subjects for the present study. The subjects were divided into two groups. Group I treated as Pranayama Training group, Group II considered as control group.

Pre and post test data were gathered on Physical Variable and the same as described in the following table.

Table No. 4.1 Mean, Standard deviation and‘t’ value of Experimental Group and Control Group on Resting Pulse rate.

Variable	Test		Experimental Group	Control Group	‘t’ value
Resting Pulse rate	Pretest	Mean	31.4000	31.4667	2.866
		SD	7.15638	6.31765	
	Post test	Mean	24.1000	32.4333	5.838
		SD	6.30462	6.15704	

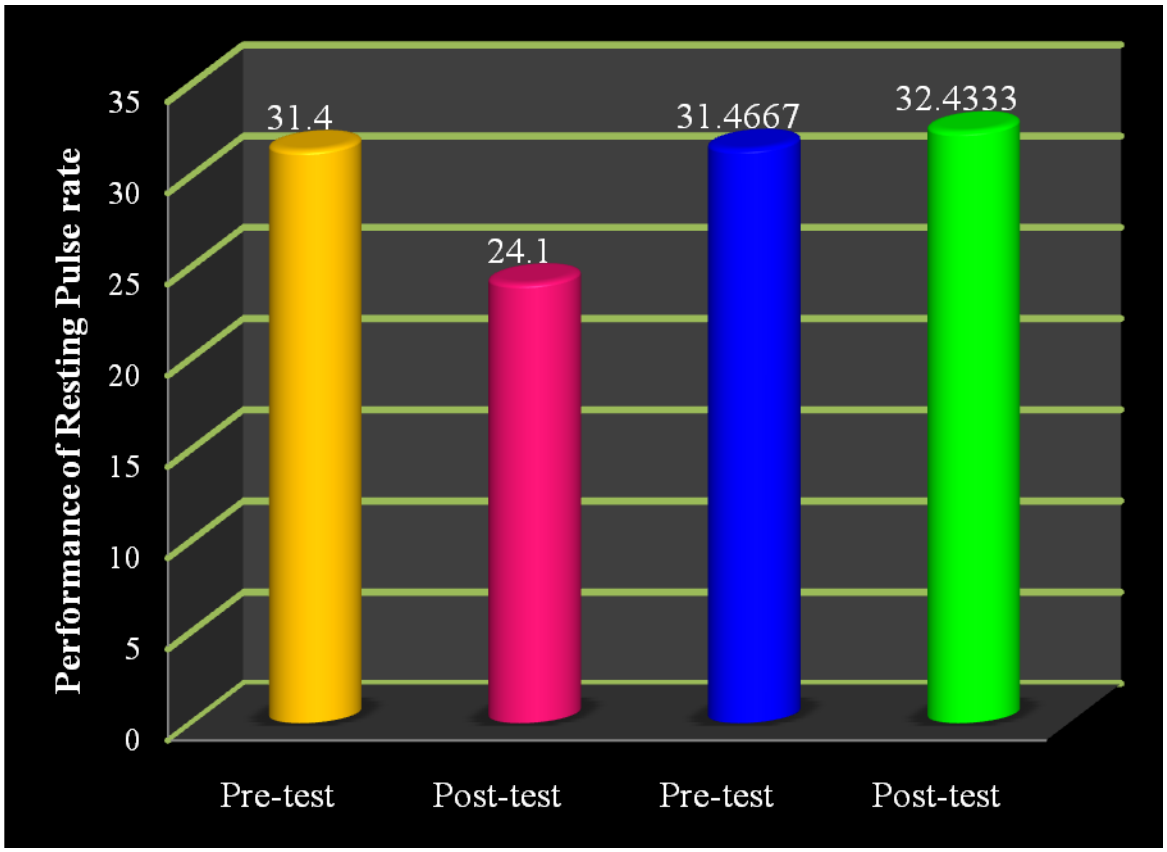
* The level of Significant is 0.05 = table value 4.01.

The pre-test mean values on Resting Pulse rate for the Experimental group and Control group is 31.4000 and 31.4667 respectively. The t value is. 2.866, this reveals that there is no Statistical difference between the Experimental group and Control group on Resting Pulse rate before the Commencement of Pranayama Training. It is inferred that the random Selection of the Subjects for the two groups are Successful.

The post-test Mean values on Resting Pulse rate for the Experimental group and Control group is 24.1000 and 32.4333 respectively. The t value is 5.838 the result of the Study indicates that the calculated values are higher than table value in post –test. The post test resting pulse rate Performance is lower than the pre-test Resting pulse rate Performance. These are significant difference between the Experimental group and the Control group on Resting pulse rate.

The Resting pulse rate Performance has been displayed in figure 4.1 (a).

Figure no 4.1 (a) Showing the Pre- test, Post- test, means of the Experimental and Control groups on Resting pulse rate



The above figure 4.1 (a) indicates that the post test values of Experimental group significantly improved the performance of Resting Pulse rate and also the post -test values of Resting Pulse rate were lower than the pre- test values due to 12 weeks of Pranayama Training. The Control group pre-test and post-test performance Resting Pulse rate shows no improvement.

Summary

The purpose of the study was to investigate the "**Effect of Pranayama on Physiological Variable of Women".** The researcher selected Resting Pulse rate, for Physiological Variable. Twelve weeks of Pranayama Training were given to 30 women's subjects before training the researcher conducted pre-test performance on Physiological Variable. The performance of the pre-test was recorded. After the 12 weeks of Pranayama Training the post –test performance was recorded on Physiological performance. The result of the post-test performance indicates significant improvement.

Conclusion

Twelve weeks of Pranayama Training has shown significant improvement on Resting Pulse rate of subjects.

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Impact Of Asanas On Motor Fitness Component Of School Children

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Abstract
An asana is a body posture, originally a sitting pose for meditation, and later in hatha yoga and modern yoga as exercise, adding reclining, standing, inverted, twisting, and balancing poses to the meditation seats. The Purpose of the study was to find out "Impact of Asanas on Motor Fitness Component of School Children". To achieve this purpose 30 female in the age group ranging from 13 to 16 years studying in Oxford English Medium High School Vijayapura Karnataka state were selected randomly as subjects. The following Asanas training were selected for 8 weeks of training for 30 subjects. Criterion variable Motor Fitness Components was selected measured by using Reaction time. It was used for pre -test and post –test.The result shows that the 8 weeks of Asanas training develops Reaction time Performance.Conclusion: Asanas training develops Reaction time Performance. Keywords: Asanas ,Padmasana, Vajrasana, Makarasana, savasana and Reaction time.

Introduction

Yoga is a complete science of life that originated in India many thousands of years ago, which reached the common man around third century B.C, through Maharishi Patanjali in the form of grant called Yoga sutra where yoga philosophy is described as Astanga yoga. It is the oldest system of personality development in the world encompassing body, mind and spirit. The ancient yogis had a profound understanding of man's essential nature and of what he needs to live in harmony with himself and his environment. They perceived the physical body is a vehicle, with mind as a driver, the soul as man's true identity, and action, emotion and intelligence as the three forces which pulls the body vehicle.Taking into account the inter-relationship between body and mind, they formulated a unique method for maintaining this balance - and that is yoga. Many people are drawn to yoga and they can be kept under three different groups. Some comes to keep their bodies fit and supple - good to look at and to live in. Others come seeking help or relief for a specific complaint, like tension or back-ache and so on. And some others for mental relief and to satisfy their spiritual urge. Whatever our reason, Yoga can be a tool, instrument for us - giving us both what we came for, and more. To understand what yoga is all about we need to experience it for you.

The underlying purpose of the practice of yoga is to reunite the individual self (Jiva) with the absolute or pure consciousness (Brahman) - in fact, the word yoga means literally “Joining ". Union with this unchanging reality liberates the spirit form all all senses of separation, freeing it from the illusion of time, space and causation. The yoga postures or Asanas exercise every part of the body, stretching and toning the muscles and joints, the spine and the entire skeletal system. And they work not only on the body's frame but on the internal organs, glands and nerves as well, keeping all systems in radiant health.

The yogic breathing exercises known as pranayama revitalize the body and help to control the mind, leaving us feeling calm and refreshed and the practice of meditation gives increased clarity, mental power and concentration. In recent years, medical research has begun to pay attention to the effects of yoga. Studies have shown that regular practice of asana as well as pranayama can help diverse ailments as arthritis, arterio-sclerosis, chronic fatigue, diabetes, asthma, varicose veins, cardiac problems (Heart attacks) and menstrual problems. Laboratory tests have also confirmed yogis ability to consciously control autonomic or involuntary functions such as temperature, heart-beat and Blood pressure.

The most important aspect in the practice of yogasana is the relaxation technique (Savasana). This technique has explored the immediate remedy for the psychosomatic disorders which is wide prevalent now-a-days.Today it has been realized that there can no longer be any doubt of yoga's effectiveness as both a curative and preventive medicine. Yoga plays a great role in universal peace. Universal peace can be gained through individual peace. Yoga allows the practicner to glimpse a state of inner peace, which in due course paves way for universal peace. Anyone can practice yoga. There is no need for special equipment or clothes just a small amount of space and a strong desire for a healthier, more fulfilled life.

Methodology

The procedure adopted in the present research work is related to the selection of subjects, selection of variable, Selection of test and statistical technique involved in the study.

Selection of Subjects

The Purpose of the study was to find out the “**Impact of Asanas on Motor Fitness Component of School Children”.** To achieve this purpose 30 Female were selected in the age group ranging from 13 to 16 years studying in Oxford English Medium high school of Vijayapura District of Karnataka state were selected randomly as subjects were divided into two equal groups known as Experimental group and Control group.

Selection of variable

The investigator reviewed through the available relevant related literature and discussed with the experts in the field and also discussed with the research guide before selection of variables for the present research work. The researcher used the availability of technique based on the data researcher done the analysis regarding feasibility; Reliability and the outcome of the results were taken care of before finalizing the variables. The variables selected for the present research work Motor Fitness Component.

Independent Variable

Sitting Asanas - Padmasan, Vajrasan and Vakrasana.
Standing Asanas -Tadasana and Vrikshasana.
Supine Asanas - Shavasana, Naukasana and Halasana.
Proline Asanas - Makarasana, Bhujanagasana and Dhanurasana.

Dependent Variable
Motor Fitness Component
Reaction Time
Selection of Test
The test items were selected for this study after thorough review of literature as well as consultation with experts, Physical Education Professionals, and also Research supervisor. The selection tests and the criterion variables are presented in the Following table.

Sl. No	Test Item and tool	Variable	Criterion Measurement
1	The Nelson hand Reaction test	Reaction Time	When the subject caught the scale, the score was read just above the upper edge of the thumb in centimetres. The score of the subjects was average of ten trails.

ANALYSIS OF INTERPRETATION OF DATA

The aim of the research work was find out the "Impact of Asanas on Motor Fitness Component of School Children". For the purpose of the research study 30 female in the age group of 13 to 16 years belonging to the student of Oxford English Medium high school Vijayapura District of Karnataka state were selected as subjects for the present study. The subjects were divided into two groups. Group I treated as Asanas training group, Group II treated as considered as control group.

Pre and post test data were gathered on Motor Fitness Component and the same as described in the following table.

Table No. 4.1 Mean, Standard deviation and 't' value of Experimental Group and Control Group on Reaction time.

Variable	**Test**		**Experimental Group**	**Control Group**	**'t' value**
Reaction time	Pre-test	Mean	13.8000	11.8000	2.125
		SD	3.09839	2.11119	
	Post test	Mean	20.6000	10.6667	11.424
		SD	2.79796	2.79455	

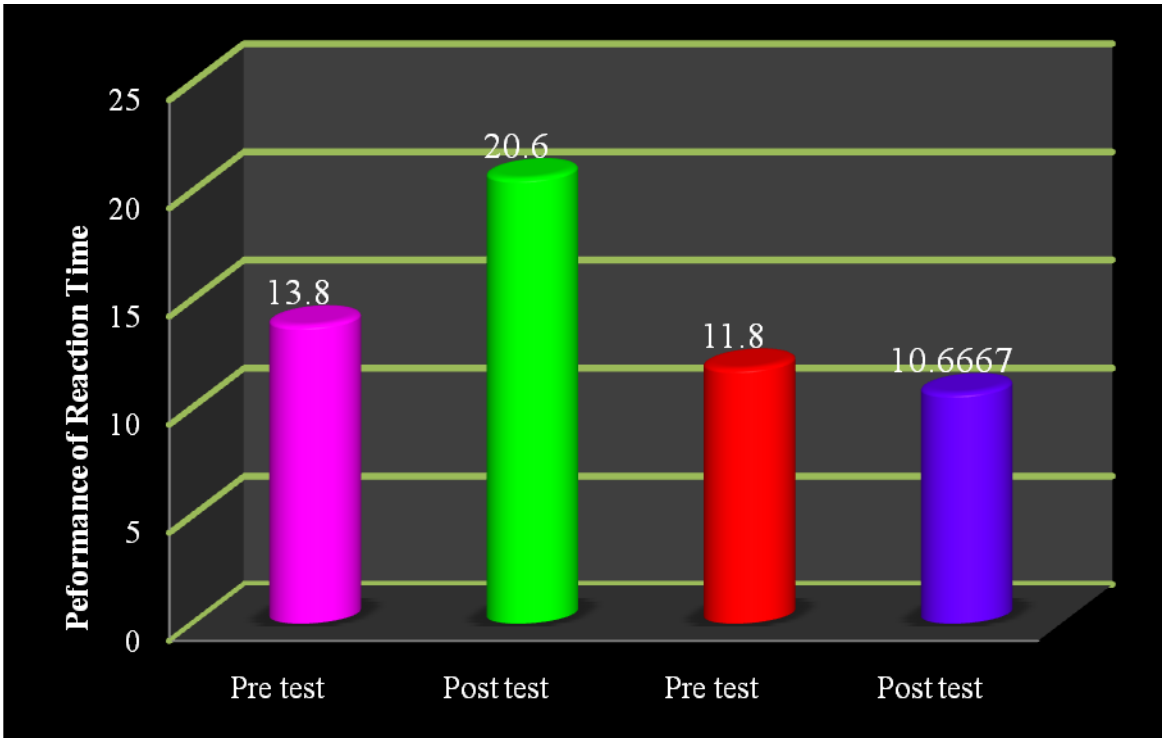
* The level of Significant is 0.05 = table value 4.01.

The pre-test mean values on Reaction time for the Experimental group and Control group is 13.8000 and 11.8000 respectively. The t value is. 2.125, this reveals that there is no Statistical difference between the Experimental group and Control group on Reaction time before the Commencement of Circuit Training. It is inferred that the random Selection of the Subjects for the two groups are Successful.

The post-test Mean values on Reaction time for the Experimental group and Control group is 20.6000 and 10.6667 respectively. The 't' value is 11.424. The result of the Study indicates that the calculated values are higher than table value in post –test. The post test Reaction time Performance is more than the pre test Reaction time Performance. These are significant difference between the Experimental group and the Control group on Reaction time.

The Reaction time Performance has been displayed in figure 4.1 (a).

Figure No 4.1 (a) Showing the Pre-test and Post-test means of the Experimental and Control groups on Reaction time.



The above figure 4.1 (a) indicates that the post test values of Experimental group significantly improved the performance of Reaction time and also the post test values of Reaction time were higher than the pre test values due to 8 weeks of Asanas training. The Control group pre test and post test performance Reaction time shows no improvement.

Summary

The purpose of the study was to investigate the "**Impact of Asanas on Motor Fitness Component of School Children".** The researcher selected Reaction time for Motor Fitness Component. Eight weeks of Asanas training were given to 30 female subjects before training the researcher conducted pre-test performance on Motor Fitness Component. The performance of the pre-test was recorded. After the 8 weeks of Asanas training the post - test performance was recorded on Motor Fitness Component performance. The result of the post test performance indicates significant improvement.

Conclusion

Eight weeks of Asanas training has shown significant improvement on Reaction time of subjects.

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A Study On The Effectiveness Of Whole Body Cryotherapy (Wbc) On The Performance Of Injured Athletes

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Abstract

The present study aims to determine the effectiveness of whole body cryotherapy on the performance of injured athletes.In this study, 50 injured athletes were selected as the subjects of the study. Each study subject received two sessions of whole body cryotherapy. The performance related tests were applied on the subjects in three time periods of pre-test, post-test and follow up(one moth) .The five point measurement scale was used asthe performance rating scaleof injured athletes. The data was analyzed using repeated measure Anova test.The whole body cryotherapy significantly increased the performance of injured athletes ($p < 0.01$).The results demonstrated that there is a significant difference between the pre-test with post-test and follow-upperformance scores as well as post-test and follow upperformance scores among injured athletes.**Key words:** whole body cryotherapy (WBC), injured athletes, athlete's performance

Introduction

Cold therapy is commonly used as a procedure to relieve pain symptoms, particularly in inflammatory diseases, injuries and overuse symptoms. A peculiar form of cold therapy (or stimulation) was proposed 30 years ago for the treatment of rheumatic diseases. The therapy, called whole-body cryotherapy (WBC), consists of exposure to very cold air that is maintained at −110°C to −140°C in special temperature-controlled cryochambers, generally for 2 minutes. (Metzger et al,2000).The athlete stands in a cryogenic sauna/chamber for a short duration of 1.5-3 minutes which lowers the temperature of the athlete's skin surface significantly and stimulates

receptors. (Banfi et al, 2010). This methodology was first avialed in japan in 1978 to cure rheumatoid arthritis. Studies conducted over the last two decades in Europe have established WBC as a powerful technique to reduce inflammation and injuries based on researches. (Giovanni Lombardi et al, 2017). Athletes have been a driving force behind the growth of whole-body cryotherapy. (Banfi et al, 2010). According to the available literature, WBC is not harmful or detrimental in healthy subjects. The treatment does not enhance bone marrow production and could reduce the sport-induced hemolysis. WBC induces oxidative stress, but at a low level. Repeated treatments are apparently not able to induce cumulative effects; on the contrary, adaptive changes on antioxidant status are elicited the adaptation is evident where WBC precedes or accompanies intense training. (Giovanni Lombardi et al, 2017).Since the introduction of cryotherapy, there have been numerous reports of the impact of this method on the ability to exercise (White GE et al, 2013).Nowadays, whole-body cryotherapy is a medical physical treatment widely used in sports medicine and is becoming popular amongst athletes, coaches and clinicians across a variety of sports in order to prevent injury and promote recovery and performance. (James Selfe et al, 2014).

Sport performance is the manner in which sport participation is measured. Sport performance is a complex mixture of biomechanical function, emotional factors, and training techniques. Performance has a popular connotation of representing the pursuit of excellence in an athletic context, where an athlete measures his or her performance as a progression toward excellence or achievement. There is a realization in sport that athletes interested in performance tend to the competitive or elite level; athletes interested in simple participation, for flattened purposes such as fitness or weight control, are most often recreational athletes who do not set specific performance goals. Sport performance is highly dependent on the health- and skill-related components of fitness (power, speed, agility, reaction time, balance, and Body Composition coordination)((NSCA,2017).Sports performance has four major dimensions: skill, strength, endurance, and recovery. High performance in any sport requires a characteristic blend of these dimensions, although individual sports differ widely in that balance. (David J. Handelsman, 2016).The performance of athletes can be diminished due to the injuries as a result of falls, being struck by an object, collisions, and overexertion during unorganized or informal sports activities. The athletes and their coaches desire to reduce the recovery time and therefore enhance the performance of athletes after injuries by different methods and technologies. WBC is relatively common technique in the context of athlete's recovery.

WBC studies have shown its effect on recovery and recovery performance of athletes (Giovanni Lombardi et al, 2017).Eleven endurance athletes were tested twice in a randomized crossover design in which WBC improved acute recovery during high-intensity intermittent exercise in thermoneutral conditions. This could be induced by enhanced oxygenation of the working muscles as well as by reduction of cardiovascular strain and increased work economy at submaximal intensities (Krüger et al., 2015) lowers submaximal heart rate and increases stroke volume (Zalewski et al., 2014), stimulates autonomic nervous parasympathetic activity and increases norepinephrine (Hausswirth et al., 2013). These effects favor post-exercise recovery and induce analgesia (Krüger et al., 2015).WBC-mediated enhancement of muscular recovery depends on the limitation of the exercise-induced inflammatory response.WBC-associated improvements in muscular tiredness, pain, and well-being after strenuous exercise have been reported in the majority of the studies (Giovanni Lombardi et al, 2017).

Unfortunately there are not much researches that have studied the effect of WBC on the athletic performance, therefore the current study seeks to assess the effectiveness of WBC on the athletic performance.

Methodology:

The present study is done with the pre-test, post-test and follow up (1 months) plan. The sample population includes the athletes with sport injuries (Cramp, soreness, sprain, strain, articular damage, dislocation, and bursitis). The study is conducted in Bangalore, Karnataka, India. The fifty available subjects were selected for the test. The inclusion criteria was the athletes with injuries and those employed as professional athletes. The participation in the test was voluntarily, with the subject's consent and the participants could leave the test whenever they wanted.

For the research implementation, 50 subjects were opted. The study group received two sessions of whole body cryotherapy in morning and evening sessions. The performance related tests were applied on the injured athletes prior to first session and post to the second session and also in a follow up period (after one month). The scores were given based on the five point rating scale. The following tools were used to collect the data:

The personal information questionnaire: This questionnaire is made by the researcher and assesses the personal information and the previously mentioned inclusion criteria.

Five point performance rating scale: The scoring system for the ratings is out of 5, with 5 being the highest score as significantly exceeds performance standards followed by exceeds performance standards, archives performance standards, barely archives performance standards and 1 being significantly below performance standards.

The data were analyzed using SPSS-21 software and by the repeated measure Anova test. The dependent variable is WBC and the independent variable includes performance of athlete. The significance level is 0.01.

Findings:

Out of 50 subjects, 29 were male and 21 were female. The mean and standard deviation (SD) of age of subjects in the study group were found to be 26 ± 4.14.

The mean and SD of performance score of injured athletes along with number of subjects is represented in table 1.

Table 1: Mean, standard deviation and number of the participants in three stages of pre-test, post-test and follow up

Variable	Mean	SD	No. of participants
Pre-testperformance	9.50	1.764	50
Post-test performance	21.50	3.052	50
Follow up performance	24.06	2.436	50

The table 2 illustrates the within subject effect for assessment of performance in three measurement levels of pre-test, post-test and follow up.

Table 2:tests of within subject effect for assessment of "performance" in three measurement levels (pre-test, post-test, follow up)

Source of change	Sum of squares	Df	Mean square	F	Sig.	Effect size
Cryotherapy interaction with the group	6042.453	2	372.939	35.163	0.001	0.87
Error	428.213	20	10.606			

From the table 2 and with the emphasis on the value of F obtained from the effect of cryotherapy on the performance with regard to three levels of measurement (pre-test, post-tet, follow up) which is significant at the level of α=0.001, it can be raised that there is a significant difference between performance in the three measurement levels; which can be observed by referring to the means in the descriptive statistics table. Also, the effect size value (0.87) in the last column of the above table, suggests that the rate of effect size of cryotherapy is very high on athlete's performance.

The effect size rate in three levels of measurement is observed in the following figure.

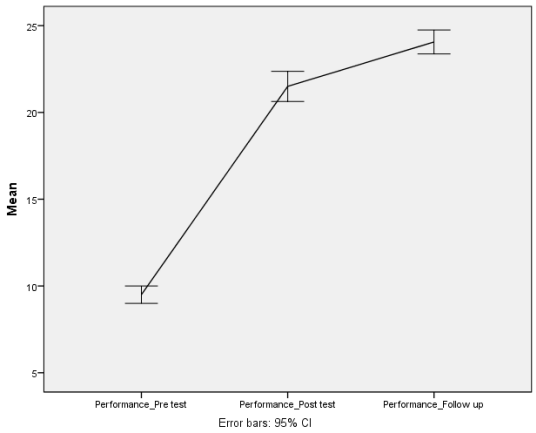

Figure 1: The effect size rate in three levels of measurement

Table 3: Bonferroni Post Hoc test related to the comparison of performance in three level of measurement (pre-test, post-test, follow up)

DifferenceLevel **Level of** **Significance**	**Pre-test**	**Post-test**	**Follow up**
Pre-test		-12	-14.56
Post-test	0.001		-2.56
Follow-up	0.001	0.001	

According to the table 3 and with the emphasis on the obtained values based on the values of means of performances of injured athletes in three levels, it is stated that there is a significant difference at the level of α=0.01 between the pre-test with post-test, pre-test with the follow up and also post-test with the follow up.

Discussion and conclusion

The purpose of this study was to investigate the effectiveness of whole body cryotherapy on the performance of injured athletes. The results from this study demonstrated that there is a significant difference between the post-test, post-test and follow-up scores of performances of athletes in the study group.In other words, whole body cryotherapy results in an increase in the performance of injured athletes.

Although studies that directly examine the effects of whole body cryotherapy on performance of injured athletes were not observed, but several studies have been conducted on its effect on endocrine hormones, recovery and performance of athletes. This will provide the context for further study of the effects of cryotherapy on the injured athletes. In the study by Zimann et al. (2012) the effect of whole body cryotherapy on blood cytokine profile and performance improvement was evident. Blood cytokine is pro-inflammatory factor which increases with excessive exercise and injury and is associated with increased catabolic processes which deteriorates the performance. Therefore, it is reasonable to note that the performance improvement observed in this study is affected by cytokine reduction resulting from whole body cryotherapy. Also Kruger et al (2014) found anincreasein oxygenation of the working muscles, as well as a reduction in cardiovascular strain. Oxygenation of muscles plays a huge role in muscle recovery and therefore performance of the athletes. Thus, the enhancement in performance observed in this study could be due to an increase in the level of muscle oxygenation that occurs as a result of cryotherapy in the body. .In a study byHausswirth et al. (2011) and Wazniak et al. (2013), psychological improvement occurred through reduction of fatigue perception and muscle pain due to whole body cryotherapy. Therefore the improvement in the performance that occurred in this study can be achieved through fatigue and pain reduction. In the final conclusion, it can be said that the above studies indirectly show that the use of cryotherapy can be effective in enhancing the performance. Therefore, the present study directly addressed the effect of whole body cryotherapy on the performance of injured athletes, and it was observed that whole body cryotherapy can improve the performance of injured athletes.Thus, it is recommended that, considering the effect of whole body cryotherapy on the performance of injured athletes, the coaches and elite athletes are more concerned about the role and importance of WBC as a new intervention for recovery of athletes. The performance of athletes comes to the maximum level when an effective recovery method is applied. Thus, according to the findings of this study, it is recommended that sports coaches and elite athletes use a whole body cryotherapy to assist recovery and enhance performance. .In the end, in the scope of research limitations, according to the inclusion criteria of the research other researchers are recommended to carry out the generalization more carefully and use another tools to enhance the results.

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Effect of Circuit Training for development of Endurance among Hockey Players of Odisha State

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Abstract:
The purpose of the present study to find out the effect of Circuit Training for the development of endurance among Hockey Players of Odisha State.The sample for the present study consists of 20 Male Hockey Players of Odisha State out of which 10 are experimental group and 10 are controlled group. Circuit Training were given to experimental group on alternate days i.e. three sessions per week and controlled group were given the general training for six weeks. Pre Test and Post Test were conducted in 12 min Run Cooper Test to measure the Endurance among experimental group and controlled group. This study shows that due to the circuit training there is a improvement of experimental group in endurance and controlled group is decreased in performance of endurance. **Key Words:**Circuit training, Hockey Players, speed, Stride length etc.

Introduction:

Circuit training is a form of body conditioning or resistance training using high-intensity aerobics. It targets strength building or muscular endurance. An exercise "circuit" is one completion of all prescribed exercises in the program. When one circuit is complete, one begins the first exercise again for the next circuit. Traditionally, the time between exercises in circuit training is short, often with rapid movement to the next exercise The program was developed by R.E. Morgan and G.T. Adamson in 1957 at the University of Leeds in England

A circuit should work each section of the body individually. Typical activities include:

Upper-body: Bench dips,Back extensions,Medicine ball chest pass,Bench lift,Inclined press up

Core & trunk: Sit ups (lower abdominal),Stomach crunch (upper abdominal),Back extension chest raise

Lower-body: Squat jumps,Step ups,Shuttle runs,Hopping shuttles,Bench squat

Total-body: Burpees,Treadmills,Skipping

Endurance is a conditional ability. It is primarily determined by energy liberation process.Endurance is directly or indirectly of high importance in all sports. Endurance is the ability to do sports movements, with the desired quality and speed, under conditions of fatigue. Endurance is a very important ability in sports. In sports endurance ensures optimum speed of motor actions. Good endurance also ensures high quality or skill of movement execution which finds expression in accuracy, precision, rhythm, consistency etc. Endurance training results in the improvement of functioning of various organs and systems of the human body. This in turn improves the ability to recover quickly from training and competition load. The importance of endurance for recovery assumes much more relevance during completion i.e. in between heats, rounds, matches on successive days. Endurance performances are of different nature indifferent sports. Endurance activities have been found to be of high value for maintenance of good organic health, for increasing the general resistance against infection and for cure and treatment of various diseases and metabolic disorder.

Previous Studies

Markovic G (2007) published in the British Journal of Sports Medicine has justify the application of Plyometric Training for the purpose of development of vertical jump performance in healthy individuals.

S.Jayaraman (2011) Asian Journal of Physical Education and Computer Science in sports- Vol.5- Effect of Weight Training and Fartlek Training on Selected Physiological Variables among College Men Students:His Studies there is a significant improvement of Physiological variables due to Weight Training.

Al Moslim Hasan (2014) Journal of Physical Education and Sport- Effect of combined Plyometric and Weight Training on speed of male students with different body fat Combined Plyometric and Resistance Training has positive effects on fitness variables such as speed (Ronnestad et al 2008, Rahimi et al 2006, De Villareal et al 2011 etc

Methodology:

The purpose of the present study to find out the effect of Circuit Training Exercises for the development of endurance among Men Hockey Players. The sample for the present study consists of 20 Male Hockey Players which practices at Bhubaneshwar out of which 10 are experimental group and 10 are controlled group. Circuit Training were given to experimental group on alternate days i.e. three sessions per week and controlled group were given the general training for six weeks. Pre Test and Post Test were conducted in 12 Min Cooper Test to measure the endurance among experimental group and controlled group .

Circuit Training Programme of Hockey Players for a week on alternate days

Days	Exercises	Repetitions and Sets
Monday	Circuit Training with Continous Method Pushups, Sit ups, High Knee Action Running, Dumb bell Exercises, Back Arches, Half Squat with Medicine ball, Money Walk, Sit ups, Heel Raising etc	Continous Method 3-4 Sets(No Recovery) Each Exercises 30 Sec. followed by another exercises immediately

Wednesday	Circuit Training with Interval Method Medicine Ball catching and Throwing up and down , Sit ups, Shuttle Runs, Back Press with Weights, Half Squat with Medicine ball, Pushups, Sit ups, Heel Raising, Bicep Cups with weight, Dumbbell Side ward Bend, Lunge	Interval Method 1 Min Sec. Exercises 30 Sec. Rest
Friday	Circuit Training with Continous Method Pushups, Sit ups, High Knee Action Running, Dumb bell Exercises, Situps , Half Squat with Medicine ball, Push ups , Bridge , Heel Raising, Front Press with weight, Dumbell Side ward Bend, Burpee	Continous Method 3-4 Sets(No Recovery) Each Exercises 30 Sec. followed by another exercises immediately

Result and Discussion

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

Table No 1 showing the Paired Samples Statistics of Experimental Group and Control Group of Hockey Players In Pre Test and Post Test in 12 Min Run Cooper Test

12 Min Run Cooper Test		Mean	Std. Deviation	Std. Error Mean	N
Experimental	Pre Test	2360.00	90.468	28.608	10
	Post Test	2440.40	93.223	29.480	10
Control Group	Pre Test	2347.50	74.470	23.550	10
	Post Test	2340.00	76.992	24.347	10

The Experimental Group of 12 Min Run Pre Test is 2360.00 and Controlled Group mean is 2347.40 in Pre Test. The Experimental Group Mean is 2.440.40 in Post Test and Controlled Group mean is 2340.00. Hence there is a improvement in the Experimental Group from Pre Test to Post Test.

Conclusion:

The aim is to build some strength, both in your limbs and also your trunk, which will allow for the maintenance of speed when you are tired and also the power for running at the high pace often involved in races. A large part of the strength required can be attained from circuit training. A range of press ups, abdominal curls, tricep dips, back arches etc will provide a good base of strength and strength endurance. Circuit Training is very essential for development of endurance. Circuit Training is very important for hockey players.

Recommendations:

Similar Studies can be conducted on other sports and Games. The circuit training programme is useful for developing the motor quality of the sports persons.

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Role of Psychological Factors on Athletic Performance

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Introduction

Psychology of sports is a branch of psychology that examines various aspects of sports activities and physical culture. It also studies the psychological aspects of the athlete's personality. It develops diagnostic techniques for selecting person of specific sporting event and effective training methods. Sports psychology examines the athlete's psychic states in various complex situations. It also develops the psychological foundations of sporting skills by teaching optimal locomotor habits and proper control of one's body and by fostering the athlete's willpower and all found development.

Psychological factors play an important role in improving and enriching the performance of sports men. The variables like locus of control, aggression, age, sex, etc., have an indelible impact on the performance of sports activity. The positive self regard, belief and faith in one's capability, the minimum aggressiveness.

Objectives :

To study the impact of locus of control on sports performance of persons.

To study the impact of aggression on sports performance.

Hypothesis :

There is an important of locus of control on sports performance, higher the internal locus of control greater the sports performance.

There is an role of aggression on sports performance.

The sample :

The study is conducted on the sample of 300 sports persons drawn randomly from Gulbarga division. The selected persons have participated at least at intercollegiate level. Attempts are made to categorized the sample in to different equal subgroups for the comparison. The factors like locus of control and aggression and taken into account to assess their role on the sport performance of persons belonging to the two groups of sex and age. The sample distribution is give as under :

Age	Men	Women	Total
15 – 20	75	75	150
21 and above	75	75	150
Total	150	150	300

Tools :

Aggression scale and Locus of control scale (1 & E Scale)

Results and Discussion

Table – 1: Mean SD and t-values of sports performance in aggression (N=300)

Aggression		100 mtrs	200 mtrs	400 mtrs
Low	M	15.89	33.20	63.46
	SD	10.21	2.83	4.80
	N	140	142	142
High	M	13.73	30.82	59.56
	SD	1.09	2.20	3.97
	N	158	158	158
t-value		2.64*	8.144**	7.68**

* Significant at 0.05 level

** Significant at 0.01 level

The mean scores time taken of low aggression group is significantly high.

The t-values are significant.

The performance of high aggression group in all the three events is significantly high.

Table – 2: Mean SD and t-values of sports performance in locus of control (N=300)

Aggression		100 mtrs	200 mtrs	400 mtrs
Low	M	13.63	30.69	59.17
	SD	9.75	2.16	3.77
	N	153	153	153
High	M	15.92	33.26	63.73
	SD	1.006	2.76	4.63
	N	147	147	147
t-value		2.81*	8.96*	9.504*

* Significant at 0.01 level

The mean scores time taken of internal LOC subgroups are lower than that of external loc.

The t-value are significant. The sports performance of internal LOC group is significantly high in all the three events – 100, 200 and 400 mtrs. run.

Conclusion

There is an effect of locus of control of performance of sports event: These having internal locus of control (LOC) have displayed significantly higher performance than their external LOC counterparts. There is a significant influence of aggression on the performance. The persons with lower aggression have displayed significant lower performance than those with higher aggression. The respondents belonging to age groups of 15 – 20 age have displayed better performance in athletic events than the sample group of 21 – 25 age. There is sex difference in sports performance : male players have out scored the female players.

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