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Research Article

Value of physical fitness, health, and wellness in a sport

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ABSTRACT

As we know, a healthy body has healthy brain which ultimately related to the success of individuals in its lifespan. In physical fitness regular and scientifically designed and custom-made fitness program supported by the old and culturally supported fitness program, they altogether play a very important roles. As there is a famous and old phrase, health is wealth which emphasizes the importance of good health for quality of the life. To remain fit throughout life, there is a constant need of awareness of different parameters which support the overall well-being of health. To excel in sports, one must have high level of fitness and endurance because success in sports is ultimately the result of high degree of important role in emotion feelings of individual. Physical fitness and wellness for sport is also supported by good quality of nutrition with proper training. Overall health and fitness play a very important role in all aspect of life whether it is sport, study, carrier, or anything else.

Keywords: Health, Nutrition, Physical fitness

INTRODUCTION

Physical fitness, as we know it today, seems to be relatively modern invention – something that started vaguely in the 70s with jogging and jazzercise. However, physical exercise obviously goes back much further than that, to a time where people would not have thought of it as working out, but rather a way of life. Centuries and millennia ago, they did not have all the machines and weights and gyms that we have today, and yet they were in better shape than we are. To understand why this is, how we got to our modern fitness culture, and what we have lost along the way, it's helpful to take a look at the history of exercise. In the most general terms, a fit person is able to perform tasks with more sustainable energy and for longer periods than an unfit player. However, fitness is more than just the ability to work longer; in fact, it includes a number of components. Regular exercise is one of the best things you can do it for your health. It has many benefits, including improving your overall fitness. There are many different types of exercise; it is important that you pick up the right types for a sport. Most of player benefit from a combination of them.

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Endurance

Aerobic activities increase your breathing and heart rate. They keep your heart, lungs, and circulatory system and improve your overall fitness. As like cycling, walking, running, jogging, and swimming.

Balance exercises can make it easier to walk on uneven surfaces and help prevent falls. To improve your balance, try chi or exercise like standing on one leg.

Strength

Resistance training, exercise makes your muscles stronger. Some examples are power lifting, weightlifting, gym, and using a resistance band.

Flexibility exercises stretch your muscles and can help your body stay limber. Yoga and doing various stretches can make you more flexible.

Fitting regular exercise into your daily schedule may seem difficult at first. But you can start slowly and break your exercise time into chunks. Even doing 10 min at a time is good. You can work your way up to doing the recommended amount of exercise. How much exercise you need depends on your age and health.

Physical fitness refers to being in good physical condition sometimes referred to as being in condition or in shape. The

health-related factors to physical fitness include muscular strength, muscular endurance, cardiovascular endurance, flexibly, and body composition. Muscular strength is the ability of our muscle to exert maximal force in a given motion range. Muscular endurance is the ability of muscle to exert submaximal force throughout a certain range of motion or at a certain point over a specified period of time. Cardiovascular endurance refers to the ability to go on with training of the system over a longer period of the time. The ability of a joint to move through full motion range is called flexibility. Body composition is the ratio of lean mass of body to the fat body mass. The skills related factors to physically fitness include speed, ability, power, coordination, balance, and reaction times.

Physically fitness is when you are using your body. Fitness is anything including being fit. Being physically fit means to have your body in a state of all round wellness. Physically fit is when your body has a low fat percentage, chemical balances are good, and all functions of the body are working well. Fitness in the phrase "physical fitness" is being able to move and deal with weights and stresses such as running, without damage, and with reasonable stamina. It means having muscles in good condition and able to exert force when needed. It means being healthy, supple, and aware. The body adjusts very particularly toward the training stimuli it's needed to cope with. Your body will work best in the specific speed, kind of contraction, muscle group usage, and power source usage it is familiar with in training. To be able to enhance your strength, endurance, and fitness, you need to progressively boost the frequency, intensity, and duration of your workout routines. An east way to excite you're is to test different sports activities.

Since the body will adapt inside a highly specific method to working out it receives, a powerful sports foundation is required before specific training techniques works brilliantly. The specificity principle simply states that, therefore, training must move from highly general training to highly specific training. For instance, if you're a runner, being by helping cover their easy running and general weight training before moving onto explosive training when it comes to plyometrics or sprints from the blocks. By trying to complete explosive, intense training too early, you will risk such training being ineffective and perhaps leading to injuries. The key of specificity also suggests that being better in a particular exercise or skills. Your weight training exercises need to emulate exactly the same actions that you want to perform throughout sports competition.

DISCUSSION

Health, according to the World Health Organization, refers to a state of complete mental, physical, and social well-being and not just in the absence of infirmity or disease. The dimensions of health include emotional, physical, intellectual, spiritual, and social. I think physical health refers to the state body is in regarding its compositions, functions, development, and maintenance. The intellectual dimension is the ability to come up with skills and knowledge essential in enhancing our life. The emotional dimension means one's ability in accepting and coping with their situation, and the feelings of other. Social dimension refers to the ability in building and maintaining relationships that satisfy our need naturally. This is vital because we are social beings. Spiritual dimension refers to our ability to search for the purpose and meaning of life. Factors influencing our health include the economic and social environment, our individual behaviors and characteristics, and the physical environment. The economic factors affect our choices regarding health. The rich can easily access vital services that can help transform health status. Issues explored regarding the physically environment include clean water and air, healthy work environments, good roads, and safe house with favorable neighborhoods. The individual behaviors for instance social networks are associated with good health. The genetic aspect as well as the gender aspect are associated with our making and are essential in determining our health. Accessibility to health services also influences our health in the sense that information and services regarding our health are readily available.

WELLNESS

Wellness is defined as the condition or state of being in good mental and physical health. Every aspect of our wellness is affected by stress. The dimensions of wellness include social, spiritual, emotional, occupational, environmental, physical wellness, and intellectual wellbeing. Social wellness refers to our ability in relating and connecting with the other people in our places. Emotional fulcrum is our ability to understand ourselves and cope with challenges brought by life. Our ability to establish peace with ourselves is categorized as spiritual wellness. Recognizing our own responsibility regarding the quality of air, water, and land is entailed in environmental well-being. Occupational wellness is our ability to get fulfillment from jobs or in the careers we choose. The ability to open our own minds to ideas that are new is inclusive in intellectual wellness. Physical wellness refers to our ability to maintain healthy quality of life that permits us to go on with our daily activities.

Factors influencing wellness include the health habits, family history, environment, access to health services, attitude, and media and technology. Health habits for instance can lead to heart disease. Our daily health choices affect our level of health. The family history plays role in pre-disposition to a wide variety of condition that affects our wellness. Examples of these conditions include heart disease, cancer, stroke, and diabetes. The physical environment refers to the things that we got exposed to in our work places, schools, and the general environment. They include air, radiation, water, sound, crime,

and recreational facilities. Our access to health services for instant vaccination, screening, and early treatment is essential in improving our quality of in life. Our attitude, for instance optimism, affects wellness by interacting with our decision.

SPORTS

The human race is known to have deliberately or accidently invented sports as part of culture rather than nature. It is not really known when humankind started to invent sports. The most famous association and religious sports, the Olympic Games, date as far back as 776BC through it might have been in existence long before then. The early occupation of man seems to be the genesis of all modern sports. The definition of sport usually includes a broad and inclusive spectrum of activities suitable to people of all ages and abilities. By its very nature, sport is more about participation, inclusion, and citizenship. Sport has a unique power to attract, mobilize, and inspire. Its intrinsic values: Teamwork, fairness, discipline, and respect for the opponent and the rules of the games, can be harnessed in the advancement of solidarity, social cohesion, and peaceful coexistence.

The interaction between health wellness is quite essential in our lives because of many benefits that encapsulate. They include reduced risk of premature death, reduced risk of cardiovascular disease, decrease in resting hearth rate, regulation of normal blood pressure, decrease in body fat, increase in high-density lipoprotein and decrease in low-density lipoprotein, and reduced risk of diabetes. Other benefits we gain include joint stability, strengthened bones, increase in muscle mass, increase in resting metabolism, improve core strength, improved balance and coordination, improved body image and self-esteem, reduced depression, and mass management. Weightlifting, power lifting also offers us a way of trimming fat, increases muscle mass, and the boosting immune system. Measures in maintaining our bodies healthy, well, and fit include engagement in aerobic exercise daily. There seems to be a closer relation between wellness and health, as well as the factors that affect components. There is also an enormous value in maintaining fitness in regard to the health status attained.

CONCLUSION

Several factors as explored hear above are important in determining physical fitness, health, and wellness in our lives. There seems to be a closer relation between wellness and health, as well as the factors the components. There is also an enormous value in maintaining physical fitness in regard to the health attained. Hence, the good player having physical fitness, health, and wellness.

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Research Article

A comparative study of anxiety level between interdistrict volleyball and road cycling male players

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ABSTRACT

The purpose of this study was to compare the sports competition anxiety test (SCAT) between interdistrict level volleyball and road cycling male players. For the purpose of the study, 12 players each of volleyball and road cycling (total 24) were selected as subjects for this study. The subject's age ranged between 19 and 25 years. For this study, SCAT (Martin Rainer, 1990 – SCAT) questionnaire was used to measure sports competition anxiety. SCAT questionnaire was distributed between the subjects 60 min before the competition. The hypothesis selected for this study was that there would be no significant difference between volleyball and road cycling players. For analysis of the data measured by mean and "*t*" test was used. The level of significance was set at 0.05. Results indicate that there is no significant difference in the level of anxiety between volleyball male players and road cycling male players of interdistrict competition.

Keywords: Anxiety, Road cycling, Sports competition anxiety test, Volleyball

INTRODUCTION

Sports bring out the best qualities in every individual. Every faculty of the human body, whether physical or mental, is stretched to its limits while playing a competitive game. In today's world, the standard of all games has increased considerably. Elite sportspersons are finding it increasingly difficult to sustain their dominance in their respective sports. The mental state of a sports person plays a key role in his or her performance. Anxiety sets in when an individual begins to doubt his or her capacity to deal with the situation which builds stress. Sports psychology has become an area of deep study and research. The competition, especially at the state, national, and international level, has induced great deal of anxiety-related problems. The game is played on two fields; the playing field and the mental field. Anxiety is not a disease that a sportsperson can get rid of, once, and for all. It has to be used as a booster to improve performance, to achieve sporting glory. It is very important that we understand the circumstances of sports anxiety, and how to decrease the commonality of it.

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There are many possible dangers of sports anxiety; "Given the myriad physical and psychological health consequences on a non-active lifestyle, valid assessment of social anxiety and avoidance in this domain is warranted."

Experts believe and it has been proved that talent and ability can take you only to a certain level in sports. When the players participate in the game and play the game. The needs are expected from them in different situations and the expectation has to be answered by the player about the achievement of goal, skill acquisition, and improvement social interaction. Players consider these expectations as a source of challenge and excitement in the first place. Performing to the best of abilities has become more relevant in today's sports, because of the extensive media exposure, self-confidence, strong resolve, humility to accept defeat, and experience are the best tools to counter the effects of anxiety.

The anxiety has both effects – positive and negative. The success or failure of the player, significantly depends on of the way, how he tackles the anxiety in the particular sports. Those players, who utilize the anxiety in any sports, get success in that sport. Those players, who are utilized by the anxiety in any sports, get failure in that sport. It has to be used as a booster to improve performance, to achieve sporting glory.

Purpose of the Study

The purpose of this study was to compare the level of anxiety between volleyball and road cycling male players of Ahmedabad district, participating in the interdistrict competition.

Selection of Subjects

For this study, 12 volleyball and 12 road cycling male players of Ahmedabad district, participating in the interdistrict competition were selected for this study. The subject age was ranged between 19 and 25 years.

Selection of the Test

The criterion measure for this study will be the scores obtained in the Sports Competition Anxiety Test (SCAT). Questionnaire developed by Rainer Martin.

Data Collection

Rainer Marin's SCAT was selected to study the anxiety at the time of completion in this study. This questionnaire is believed to be reliable and more acceptable to decide the measure of anxiety in sports. The researcher used SCAT test for his study. The researcher read out the required instructions clearly before 60 min of the competition them. Thus, complete information related to the questionnaire to the players. A demonstration regarding the method of answer was provided on practical based on slate to the players of volleyball and road cycling. No fix time limit was given to the subject characters to fill up the questionnaire. However, they head to answer 15 questions in 5 min as per requirement. There were total 15 questions in SCAT in which there five such questions as were kept separate to decide the purpose of questionnaire and it can fulfill the real aim. Such an expectation was kept before the subject, characters that they might fill up the questionnaire with the understanding that they might experience at the time of competition while answering.

Statistical Technique

For the purpose of analysis of data, descriptive statistics and independent "*t*" test were applied to compare the sports competition anxiety between volleyball and road cycling players. The level of significance was set at 0.05.

RESULTS

The scores were obtained using the key as suggested by Rainer Martens. All the individual SCAT score were used to judge the level of anxiety. The comparative results are shown in Table 1.

Table 1 indicates that there was a mean, mean difference, and "*t*" value of SCAT of the volleyball players of Ahmedabad district in interdistrict competition which was 21.15 and SCAT of the road cycling players of Ahmedabad district participating in interdistrict competition was 20.17, where the mean difference of both the groups was 0.98 and "*t*" value was 0.59 which was not significant.

Table 1: Significance difference of mean, mean difference, and "t" value on sports competition anxiety test between volleyball players and road cycling players

Players	Subjects	Mean	Mean difference	"*t*" value
Volleyball	12	21.15	0.98	0.59
Road cycling	12	20.17		

Significant at 0.05 level tabulated "*t*" (0.05) (22) = 2.07.

Finding

The statistical findings of the present study revealed that the mean value of volleyball players (21.15) on sports competition anxiety was higher than road cycling players (20.17), which indicate that volleyball players are more prone to sports competition anxiety in comparison to road cycling players.

DISCUSSION OF FINDING

The results reason behind this state of condition may be the different nature of these sports activities. Volleyball is a team sports activity while road cycling is the individual sports activity. In general, during road cycling competition, number of spectators is less, rather than the number of spectators in a volleyball competition watching these sports activities. Hence, it is concluded that volleyball competition is more effective than road cycling spectator's point of view. These may be some reasons why the volleyball players are more sports competition anxiety prone than the road cycling players.

CONCLUSIONS

Within the limitations of the present study, the following conclusion was drawn – there was a significant difference found on sports competition anxiety between road cycling players and volleyball players. Volleyball players are more prone to sports competition anxiety compared to road cycling players of the Ahmedabad district.

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Research Article

Participation and contribution of Dhanwate National College Nagpur in the parents' university team for inter university competition

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ABSTRACT

Physical education and sports are considered as the most important factors in developing personality. The main purpose of the physical education is the overall development of the individual through physical activity. Keeping this objective in mind and working in the Dhanwate National College, this paper was written to show the contribution of the college in parents' university level for Inter-University team. Dhanwate National College, Nagpur, is affiliated to Rashtrasant Tukadoji Maharaj Nagpur University and is very old and renowned college. Almost all courses in art and commerce are available at this college. This college had all the playgrounds, materials and other facilities needed to play. Therefore, in view of the contribution of the college at the university level while writing this paper, the lists published by the sports directors, office of physical education, and sports departments, Nagpur University in the past 5 years had been reviewed. A survey method was used to collect the data for this study. All data were collected from these lists. It mainly looked at how many male and female players were selected in the varsity team. A total of 3567 players have participated in the Inter-University tournament in 5 years. There were a total of 185 male and female players combined studying in Dhanwate National College in 5 years and the percentage is 5%. Analyzing these numbers, it was found that the ratio of male and female players to the total number of players in university team as well as the annual participation of Dhanwate College for the university Inter-University competition was significant. This means that Dhanwate National College Nagpur's overall outreach to the physical education sector is successful. A survey method was used to collect the figures for this study.

Keywords: Intervarsity, Sports, Competition, College, Players, Ratio

INTRODUCTION

Universities are working to provide higher education not only in the country but also globally. In general, students are eligible for higher education from any university in the world after passing the 10th and + 2 board exams. Students also take admission in the degree course of their choice by passing the 12th examination in our country. The University Grants Commission (UGC) is working to control universities across the country. While there are some institutes like All India Council for Technical Education or Medical Council of India working to regulate graduate courses in professional courses, all these institutions work directly under the Ministry of Human Resources development. The Central Government's UGC and Higher Education Departments of the State Government are working to give affiliation to the universities in the state, set guidelines for integration into the curriculum and provide grants. However, in any state, the institutes required for graduate or post-graduate education are universities or colleges affiliated to universities. This means that if a candidate wants higher education from any branch, it is compulsory to attend any university or affiliated college. Higher education is not just a graduation but also the main goal is to build a fully developed citizenry that is essential for nation building. Therefore, it is the responsibility of the institutions working in the field of education to provide everyone with an opportunity for holistic development while pursuing higher education.

Physical education and sports are very important factors in developing personality. The main purpose of physical education is the overall development of the individual through physical activity. According to the National Education Policy,

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health and physical education are given equal importance in education. Physical education is not limited to personal health, but to society as a whole. Furthermore, if sports played in a systematic way and in a good environment by following the rules helps in the physical, mental, and intellectual development of the person and develops the ability to make quick decisions. Today, great progress has been made in the field of sports. In the medal table of these competitions, the countries which are at the forefront, we often see the progress of the countries in all fields. The sports sector is very important for the nation-building as a whole.

As above-mentioned, there are many institutes working for higher education not only in the state but also all over the country, there are UGCs at the national level to control them and higher education departments at the state level, though not all the educational institutions in the country look the same. This means a lack of facilities in those institutions and a neglect of the management committee. However, the institutes which are well-managed and have the facilities needed for providing a quality education, are doing well. As we have noted above, the overall development of a student in higher education is impossible without physical education and sports. Recognizing its importance, the UGC has also given the responsibility of organizing and planning sports events at the national level to the Association of Indian University (AIU). Through this organization, sports competitions are organized for national and other universities in various states across the country at the national level. Seeing the participation of the participants in the game, it worked to organize some competitions directly at the All-India level and some in the zone first and then at the All-India level. Furthermore, the task of preparing the annual calendar was required for this and all the competitions run accordingly.

Physical education and sports or student welfare and sports departments exist in every university of the country on the same lines as AIU sports program operates nationally. Directors, physical education, and sports are appointed in this department. Through them, physical education and sports activities are regulated in various colleges. Although all of this is happening at the university level, the actual students' relationship with the university department is minimal. Students are completing their higher education by entering college or university. That is, it is the responsibility of the respective colleges or universities to develop the student fully provide them with the facilities they need to play various sports, provide complete information or education on the subject of physical education and sports. For this purpose, according to the direction of the UGC and the Higher Education Department of the State Government, every institution providing higher education has the creation of physical education and sports department and in that department the directors of physical education and sports are appointed as professors of other subjects.

As mentioned above the Department of Physical Education and Sports was appointed in the Department of Education of the College and University and the teachers were appointed in that department. However, any institution that offers a freshman higher education means there are some basic standards of infrastructure before it can be approved to remove a college. It is also mandatory to meet the minimum standard of facilities for physical education and sports. It also includes open spaces for various playgrounds, sports departments, various sports materials, rules of the game and types of sports, organizing sports events, and related subject matter books and periodicals.

A good quality educational institute in which physical education and sports facilities should be facilitated in addition to the above-mentioned education to ensure that the student who is educating the entire development and exits for nation building. Keeping this same principle in mind and having been working in the physical education and sports department of a good college for the past 4 years, I resolved to write a paper on this subject to see if the work being done by my department is worthwhile.

The field of physical education and sports is wide ranging, consisting mainly of updated sports facilities – literature and good sports (outdoor and indoor), regular play practice, proper mentoring, management support, and mentoring and student-oriented factors. However, instead of scaling up such a scale, we decided to look at the number of players selected in the varsity team for the All-India Inter-University Competition, ones who are ranked first in individual sports in the inter-college tournament organized by the university are selected and in the team game 3 days selection trials are organized. Shri Shivaji Education Institute, Amravati is the leading institution of education in Vidarbha and number two in Maharashtra. In keeping with the noble purpose of providing education opportunities to the people of Vidarbha, Dr. Panjabrao Deshmukh founded Shri Shivaji Education Institute on Amravati on July 1, 1932. Shri Shivaji Education institute is run by around 28 colleges including 287 institutions (schools, hostels, etc.). Dhanwate National College, Nagpur, is one of the 287 branches. This college is affiliated to Rashtrasant Tukadoji Maharaj Nagpur University (RTMNU), Nagpur. Dhanwate National College, Nagpur, was established in 1935. Initially, this college was named Vasudev Arts College. However, after being taken over by Shri Shivaji Education Society, it was run as a National College. Dhanwate National College has been functioning in the name since timely donations by Shrimant Dadasaheb Dhanwate. All courses in Arts and Commerce are run at Dhanwate National College. These courses are taught annually more the thousand students in junior college and more than 3000 students in senior college.

One study has concluded that all colleges run by Shri Shivaji Education Institute have good facilities related to the physical

education and sports. Because all the colleges of the institution provide sports facilities, good sports facilities, sports materials for the players, proper guidance, and necessary facilities from the management committee. It also shows that Dhanwate National College, Nagpur, is also not at all lacking in terms of any facilities. National level indoor stadium has been constructed in the college. This stadium has four Badminton with Synthetic surface, Table Tennis Hall, Chess Hall, Fitness Centre with ample furnishings, independent turf wicket cricket ground, basketball cement court with flood light, football, softball, and hockey field with flood light, other playgrounds such as Kho-Kho, Kabaddi, Volleyball, Sepak-takraw, and Ball-Badminton are available.

The college has been conducting summer coaching camps for the last several years. Furthermore, regular training centers are run in football, softball, badminton, table-tennis, chess, and basketball throughout the year. The college runs a gymnastics training center year-long through Shri Shivaji Gymnastics Club. For the past 21 years, Dr. Panjabrao Deshmukh sports festival has been organized every year, while for the past 5 years inter school gymnastics competition has been organized. Along with this, many university competitions are also organized. Throughout the year, players are provided with various sports materials for practice as well as competitions, costumes for playing contests, and shoes for the needy players. At the end of the academic session, players participating in international, Inter-University, national, and state competitions are honored with tracksuits and mementos. Furthermore, giving admission was given priority to the players involved in national and state competition. The overall college atmosphere is nourishing to sports and athletes. Therefore, it is important to see how the players are benefiting from the sports facilities being run by Dhanwate National College, Nagpur, which is affiliated to RTMNU.

Dhanwate National College, Nagpur, from long time had a bright tradition of sports. Each year, Dhanwate National College gets a championship in three to four games and some teams runners up in the university tournament. In the individual competition, many players also hold gold, silver, or bronze medals. Apart from the university competition, Dhanwate National College receives the title in many competitions. Overall, in each academic session, 30–35 players are participating in Inter-University, some players nationally and many players from colleges in state level competition.

Table 1: Details number of players and teams of RTMNU Inter-University competition and Dhanwate College participation

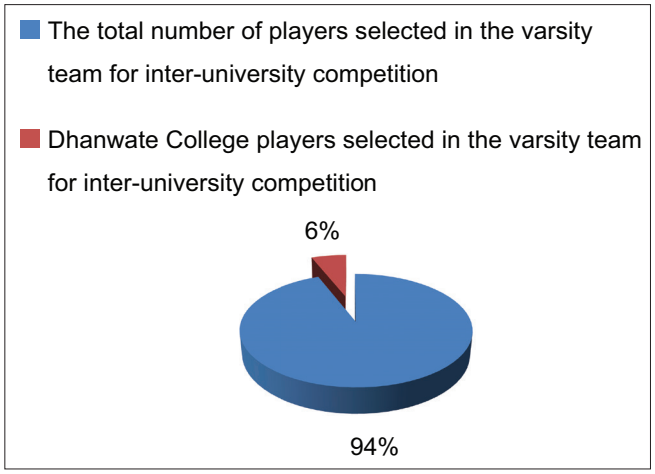
Sr. no.	Academic session	Men/ Women	The total number of players selected in the varsity team for Inter-University competition	Total university team for Inter-University competition	Dhanwate College players selected in the varsity team for Inter-University competition	Number of varsity teams represented by college players
1.	2015–2016	Men	342	34	21	15
2.		Women	294	29	11	7
3.		1+2	636	63	32	22
4.	2016–2017	Men	352	36	21	13
5.		Women	301	31	11	9
6.		4+5	653	67	32	22
7.	2017–2018	Men	359	36	19	11
8.		Women	314	32	11	8
9.		7+8	673	68	30	19
10.	2018–2019	Men	355	35	17	13
11.		Women	331	32	9	8
12.		10+11	686	67	26	21
13.	2019–2020	Men	484	42	42	20
14.		Women	435	39	23	8
15.		13+14	919	81	65	28
16.	Total of men players		1892	183	120	72
17.	Total of women players		1675	163	65	40
18.	Total of men and women		3567	346	185	112
19.	Average		713.4	69.2	37	22.5

RTMNU: Rashtrasant Tukadoji Maharaj Nagpur University

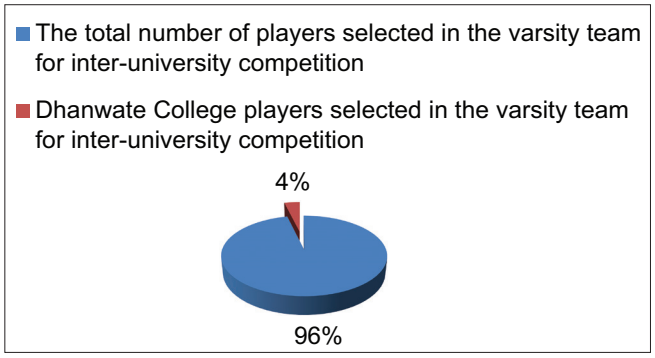
Table 2: RTMNU total players participation in Inter-University competition and Dhanwate College players participation

Sr. no.	University selected players/year	2015–2016	2016–2017	2017–2018	2018–2019	2019–2020	Total players in 5 years
1.	The total number of players selected in the varsity team for Inter-University competition	636	653	673	686	919	3567
2.	Dhanwate College players selected in the varsity team for Inter-University competition	32	32	30	26	65	185

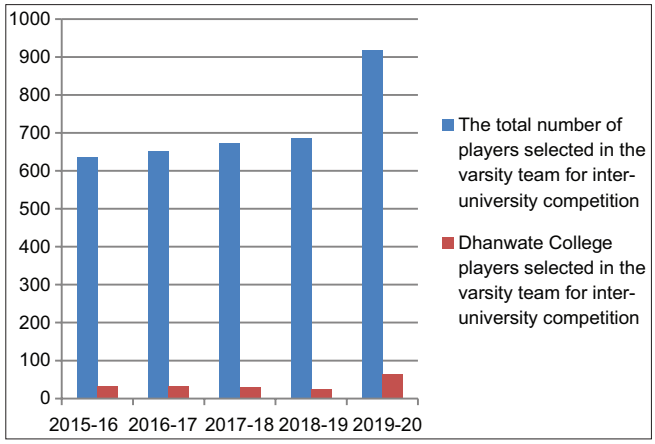
RTMNU: Rashtrasant Tukadoji Maharaj Nagpur University



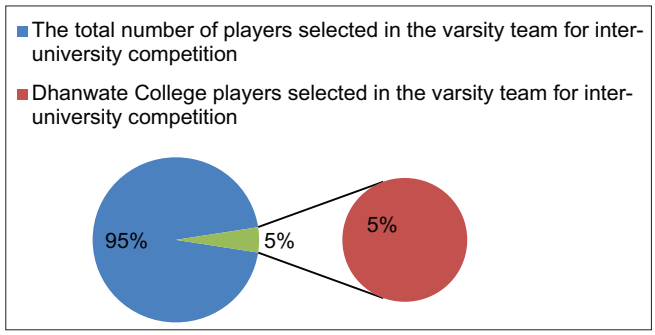
Graph 1: Men's participation %



Graph 2: Women's participation %



Graph 3: Showing yearly participation of university and college



Graph 4: Showing DNC players %

There are about 503 colleges affiliated to RTMNU, while three college and 44 PG departments are run by the university. It is estimated that more than 4 lakh students are studying every year from the university. The university has a separate physical education and sports department. It is the responsibility of organizing all these college tournaments, selecting players, and sending teams for Inter-University competitions. The Department of the University conducts an inter-college competition every year, as mentioned above, the first-ranked players in the individual competition and the first six players in the competition like cross-country are selected in the varsity team to participate in the All-India Inter-University competition. On the other hand, the team is formed by taking 3-day selection trails to select the varsity team after the competition in team sports. Therefore, the total number of players selected in the varsity team during the last five academic sessions was considered while working on this topic.

A survey method was used to collect the data for this study. In compiling the figures, the total number of players selected for the All-India and Zonal tournaments in the past five sessions (2015–2016–2019–2020) was calculated. Selection letters published by the Director of Physical Education, RTMNU

Nagpur were used to collect the information. After compiling all this information, statistics tables of selected players were made. From this, some important conclusions have been drawn from the statistical analysis and graphs.

Dhanwate College was one of 506 colleges in the university. That is, the ratio of the college to the total college was only about 0.20%. Of the total 4 lakh students in all the colleges affiliated to the university, Dhanwate College has 3000 students, which was about 0.75% of the total student strength.

From Table 1, some important facts are coming to the fore that the RTMNU participated in the past 5 years for the Inter-University competition. In the Inter-University competition of the year, the 183 men and 163 women teams participated. Through these teams, a total of 1892 male and 1675 female players have participated in the Inter-University competition. That is, around 713 men and women had participated in the Inter-University competition this year. During the 5 years, 120 male and 65 female players from Dhanwate National College participated in the varsity team for the Inter-University competition. The ratio of these players to the university's total men and women players is 6.00% and 4.00%, respectively. It is shown in Graphs 1 and 2.

Table 2 and Graph 3 show the 3567 players that have participated in the Inter-University tournament in 5 years. This 5-year Inter-University tournament shows the year-to-year number of players who have gone onto play at the university. At the same time, the annual number of college players was also seen. There were a total of 185 male and female players combined studying in Dhanwate National College in 5 years.

Graph 4 shows an annual average of 37 and the proportion of total players is 5.00%. As mentioned above, the ratio of Dhanwate College is only 0.20% as compared to the number of colleges at RTMNU, while the ratio of Dhanwate College to the total student strength of the university is <0.75%.

CONCLUSION

In the preamble, we were the first to note that countries whose universal development has been receiving medals in competitions such as the Olympic Games. Considering the same scenario at the university level, it can be said that the college which has the maximum number of players selected in the Inter-University competition, has the good quality or the college has developed all over. Therefore, the percentage of the players in the varsity team is 5.00%, while the ratio of Dhanwate National College to total number of colleges is one is to 506 that is 0.20%. Moreover, the student population is 0.75%. When analyzing this scale, the proportion of players participating in the Inter-University competition is almost 25 times higher than the number of colleges, while the number of students is almost 7 times higher. From this, it can be said that Dhanwate National College's overall outreach with the physical education sector ensures success.

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Research Article

Comparative study on speed and endurance of rural and urban kabaddi player of Peddapalli district

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ABSTRACT

The purpose of the study was to compare the speed and endurance of the rural and urban secondary school boy's kabaddi players of Peddapalli district. A total of 100 kabaddi players (50 each) of 14–17 years age were randomly selected from different rural and urban schools in Peddapalli district. Selected variables, that is, the speed and endurance were measured using respective techniques and equipment. The between-group differences were taken into assess for study. The analysis of obtained data was made by "*t*" ratio at 0.05 level of significance. On the basis of the results, it was concluded that there were significant differences in speed and endurance. The study revealed that the rural kabaddi players were significantly higher in speed and endurance than the urban kabaddi players of Peddapalli district.

Keywords: Endurance, Physical fitness, Rural, Speed, Urban and kabaddi players

INTRODUCTION

Sedentary lifestyle is the most important problem for individual health growth. Low level of physical activity and sedentary lifestyle among students develops some diseases such as cardiorespiratory disease, obesity, high blood pressure, and diabetes. Many efforts are accomplished to emphasis on physical fitness, importance, physical activity, and health index. There are many researches about this subject; hence, there is increased prevalence of sedentary lifestyle in the population. Regular physical activity is an effective function of physiological system, body weight preservation, and reduces risk of disease and overall better quality of life.

All the activities of life are done with help of body. Nature has created humans to perform various activities efficiently. Today, modernization has made human life easier, as most of the work is performed by the machines. The sedentary lifestyle of man has reduced the efficiency of humans. The less working capacity of humans has caused many problems such as weakness, illness, and chronic diseases. In the past, our ancestors were quite healthy and fit. The big reason was that they had to perform a lot of hard physical activity, such as running, walking, and jumping.

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Statement of the Problem

The problem is entitled as "comparative study of speed and endurance variable between rural and urban male secondary school boys kabaddi players of Peddapalli district."

Objectives of the Study

The following objectives were formulated:

1. To compare the speed between rural and urban male boys kabaddi players of Peddapalli district.
2. To compare the endurance between rural and urban male boys kabaddi players of Peddapalli district.

METHODOLGY

For the purpose of this study, 50 boys students were studding in rural secondary school and 50 boys students were studying in urban secondary school were selected randomly as subject from Peddapalli district of Telangana state. The age group was between 14 and 17 years. The study was delimited to the male students only. Speed was measured by 50 Yard run in seconds,

Table 1: Comparison of speed (50 m dash) among rural and urban secondary school (boys) kabaddi players

Group	*n*	Mean	SD	"*t*" ratio
Rural secondary school boys	50	6.97	0.39	1.33
Urban secondary school boys	50	6.94	0.58	

Significance at 0.05 level, "*t*"=1.96

and endurance was measured by Cooper test (12 min run/walk) in covered distance in meters. To find out the comparison of speed and endurance status of rural and urban secondary school boys of Peddapalli district for analysis of data, "*t*" test was applied.

RESULTS

The speed and endurance among rural and urban kabaddi players were concluded using "*t*" test for the testing the hypothesis. The level of significance was at 0.05 levels.

Table 1 explains about the comparison between rural and urban secondary school boys kabaddi players of Peddapalli district on speed. The mean score 6.97 of the speed of rural kabaddi players is higher than the mean score of urban kabaddi players which shows the non-significant difference between the mean score of both groups. Here, the table value (1.33) is leisure than the calculated value (1.96). Hence, it can be concluded that rural kabaddi players were better in speed than urban kabaddi players in Peddapalli district.

Table 2 states the comparison between rural and urban secondary school boys kabaddi players of Peddapalli district on endurance. The mean score 6.49 of the endurance of kabaddi rural players was higher than the mean score 6.05 of the urban kabaddi players of Peddapalli district. This shows the significant difference between the mean score of both the groups. Here, the table value (4.51) is greater than the calculated value (1.96). The magnitude of mean difference being higher in kabaddi rural players of Peddapalli district.

Table 2: Comparison of endurance (12 min walk/run) among rural and urban secondary school (boys) kabaddi players

Group	*n*	Mean	SD	"*t*" ratio
Rural secondary school boys	50	6.49	0.64	4.51
Urban secondary school boys	50	6.05	0.26	

Significance at 0.05 level, "*t*"=1.96

Hence, it can be concluded that the rural kabaddi players were better in endurance than the urban kabaddi players in Peddapalli district.

CONCLUSION OF THE STUDY

On the basis of the finding of the present study, the following conclusion has been drawn:

The above analysis shows that there was a significant difference in the selected physical variables such as speed and endurance among kabaddi players of Peddapalli district. Rural kabaddi players were better in speed than the urban kabaddi players of Peddapalli district and rural kabaddi players were better in endurance than the urban kabaddi players of Peddapalli district.

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Research Article

A relative study of vital capacity and breath holding capacity among kabaddi and volleyball players of ZPHS (Boys) Manthani of Peddapalli district

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ABSTRACT

The purpose of the present study was to compare the physiological fitness components such as vital capacity and breath holding capacity among school kabaddi and volleyball players. A total of 40 school boys were selected as the subjects of this study. Among them, 20 kabaddi and 20 volleyball boys players from ZPHS (boys) Manthani, Peddapalli district, were selected randomly. The age group of the students was from 14 to 17 years. The data were collected on selected criterion variables and they were statistically analyzed using "*t*" ratio at 0.05 level of significance. Vital capacity was measured by vital graph peak flow monitor (Liter/min) and breath holding capacity was measured by manual nose clip method (count in seconds). There was a significant difference in vital capacity and breath holding capacity among kabaddi and volley players. Kabaddi players were having good vital capacity and breath holding capacity than volleyball players. Result shows that there was a significant difference in the selected physiological variables such as vital capacity and breath holding capacity between kabaddi and volley players.

Keywords: Endurance, Physical fitness, Rural, Speed, Urban and kabaddi players

INTRODUCTION

Kabaddi is a complete collecting sporting modality, characterized by the great amount and variety in its movement, ball manipulations, and interaction with other athletes. Looking for a better dynamic and objectivity, kabaddi passed through several evolutionary processes that, consequently, started to demand from the athlete's larger physiological adaptations and other characteristics. The evolution of the performance implicates the reorganization and denomination of the individual level of the components of the sporting performance or a conditioning situation.

It is essential that the entire variable related to the athlete's performance be evaluated. Even with that importance, it is still noticed a lake of studies that use evolution and analysis with direct measures seeking to determine the maximum an aerobic potency, the anaerobic threshold, and the lactate threshold, in athletes of the feminine kabaddi. Vital capacity is the maximum of air a person can expel from the lungs after a maximum inhalation. It is equal to the sum of aspiratory reserve volume, tidal volume, and expiratory reserve volume. Person's vital capacity can be measured by vital graph peak flow monitor. Aerobic exercises causes to increase the intake amount of oxygen in to body, to provide heart to consume much oxygen and increases condition level of heart as well as lungs. An aerobic means lake of oxygen muscles work with needed to oxygen. This case also activates the sugar consuming enzymes. In this activation, more energy is consumed than the body may produce with metabolizing oxygen.

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Statement of the Problem

The problem is entitled as "A relative study of vital capacity and breath holding time among kabaddi and volley ball players of ZPHS (boys) Manthani of Peddapalli district."

Objective of the Study

The main objective of the study is to study the vital capacity and breath holding capacity among kabaddi and volleyball players of ZPHS (boys) Manthani of Peddapalli district.

Table 1: Mean, standard deviation, and "*t*" value of vital capacity among kabaddi and volleyball players of Zilla Parishad High School (boys) Manthani of Peddapalli district

Variable	Game	*n*	Mean	SD	*t*-value
Vital capacity	Kabaddi	20	3.96	0.46	3.18
	Volleyball	20	3.62	0.50	

Significant at 0.05 level

Table 2: Mean, standard division, and "*t*" value of breath holding capacity among kabaddi and volleyball players of Zilla Parishad High School (boys) Manthani of Peddapalli district

Variable	Game	*n*	Mean	SD	*t*-value
Breath holding capacity	Kabaddi	20	71.24	7.87	5.96*
	Volleyball	20	60.06	6.93	

Significant at 0.05 level

METHOLOGY

For the present study, descriptive comparative method was used to compare vital capacity and breath holding capacity among kabaddi and volleyball players of Zilla Parishad High School (boys), Manthani. For the purpose of this study, 20 boys kabaddi students and 20 volleyball students studying in Zilla Parishad High School (boys), Manthani, were selected as subjects from Peddapalli district. The students had participated at district level competition and the age group of the students was between 14 and 17 years. The study was delimited to the male students only. Vital capacity was measured by vital graph peak flow monitor (L/min) and breath holding capacity was measured by manual nose clip method (count in seconds). Among group differences were assessed using "*t*" test. The level of 0.05 was considered statistically significant.

RESULTS

Table 1 depicts the mean value, standard deviation, and "*t*" value of vital capacity. There was a significant difference in vital capacity among kabaddi and volleyball players. Kabaddi players have good vital capacity than volleyball players.

Table 2 shows the calculated $t = 5.96$ which is significant at 0.05 level since this value is higher than the table value. Kabaddi players were found significant than volleyball players.

CONCLUSION

The above result shows that there was a significant difference in the selected physiological variables such as vital capacity and breath holding capacity between kabaddi and volleyball players of Zilla Parishad High School (boys) Manthani of Peddapalli district. There was a significant difference in vital capacity and breath holding capacity between kabaddi and volley players of Zilla Parishad High School (boys) Manthani of Peddapalli district. Kabaddi players were having good vital capacity and breath holding capacity than volleyball players.

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Research Article

Association of height, agility, and sports anxiety with playing ability of state level basketball players

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ABSTRACT

The purpose of this study was to find out the association of anthropometric, physical, psychological, and parameters with playing ability of state level basketball players to achieve these purpose 100 basketball players, who represented their state in interstate basketball tournaments the age group of 18–25 years. Scientific appraisal, evaluation, and prediction of basketball performance from selected anthropometric, physical fitness, and psychological variables are present in the literature. These studies involved in finding out relationship of with playing ability from isolated anthropometric measurements or physical fitness variables or psychological variables. The main objective of this research is appraisal of selected variables as pre-requisites for basketball performance taking to consideration of combination of anthropometric, physical fitness, and psychological variables. In doing so, the investigator would assess the present status of basketball players' anthropometric, physical fitness, and psychological variables along with their playing ability. Further, the investigator would associate every variable selected with basketball playing ability. The subjects selected for pilot study phase were five state level basketball players. The subjects were drawn from state level basketball players who were represented the state in interstate competitions, the evaluation of the playing ability was subjectively measured only with the help of three experts.

Keywords: Anthropometric, Basketball players, Physical, Psychological and parameters

INTRODUCTION

"Evaluation and measurement are universal practices. They reflect man's ever-present curiosity about his environment and his concern about himself" (Lawrence and Fox, 1954). The process of evaluation in education is a never-ending cycle. In the light of results from judgments made with reference to the individual to be educated and the means of educating him, goals are appraised and restated and procedures are replanned, and the cycle is repeated. Measurement and evaluation of performance are essential to determine how well the formulated objectives have been met, how efficient the process has been, and how good the product is. The results indicate the direction and the rate of change in performance. "In athletics and physical education, as in education and in life, the teacher and coach are constantly evaluating and measuring" (Meissner and Meyers, 1940). The most valid form of evaluation is the use of well-established criteria as a basis for comparisons based on association of selected parameters with playing ability.

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Sports are an enjoyable means of increasing physical fitness and relieving tension. It takes skills to be good; furthermore, it takes skill to have a good since. One tends to participate in those activities in which he possesses some skill and enjoys those activities in which his skill is better than average. Skill tests and learning are very closely related to neuromuscular coordination. Fundamental skills are universal in nature and common to all races, where as their adaptation into games. The fundamental skills are frequently measured in physical tests such as a dash, a throw for distance, a jump, and the like. Skill tests are usually conducted to test the ability of the students in the skill of sports and major games.

ANTHROPOMETRIC MEASUREMENTS

Anthropometric measurement is defined as set of non-invasive, quantitative techniques for determining an individual's body fat composition by measuring, recording, and analyzing specific

dimensions of the body, such as height and weight; skin-fold thickness; and bodily circumference at the waist, hip, and chest. Physical educators have long realized that the performance of men and women is greatly influenced by such factors of age, height, arm length, leg length, and body structure.

Objectives of the Subject

- Scientific appraisal, evaluation and prediction of basketball performance from selected anthropometric, physical fitness, and psychological variables are present in the literature.
- These studies involved in finding out relationship of with playing ability from isolated anthropometric measurements or physical fitness variables or psychological variables.
- The main objective of this research is appraisal of selected variables as pre-requisites for basketball performance taking to consideration of combination of anthropometric, physical fitness, and psychological variables.
- In doing so, the investigator would assess the present status of basketball players' anthropometric, physical fitness, and psychological variables along with their playing ability.
- Further, the investigator would associate every variable selected with basketball playing ability.

STATEMENT OF THE PROBLEM

The purpose of the study is to make an appraisal of selected anthropometric, physical fitness, and psychological variables and playing ability of state level basketball players and to find out the relationship between playing ability and selected anthropometric, physical fitness and psychological variables of state level basketball players.

SIGNIFICANCE OF THE STUDY

In the recent years, physical educators, coaches' sports experts, and even most of the players have realized the importance of playing ability. The significance of the study is based on the fact that performance in basketball measured through playing ability can be found association from selected anthropometric, physical, and psychological variables.

1. This study will help to evaluate selected anthropometric, physical fitness, and psychological levels of state level basketball players and compare the abilities and capacities of the players by themselves and by coaches and physical educators.
2. The result and findings of this study would provide criteria for selecting potential basketball players.
3. This study might be utilized as a screening instrument in analyzing and classifying the basketball players.
4. The outcome of the results shall be helpful to basketball coaches and physical educationists to concentrate at the selected variables of this study, which might be having high correlation with playing ability to design the training program.
5. The result of the study would be making it clear whether the selected independent variables are directly or indirectly related to the criterion variables.
6. The result and findings of this study may guide basketball players on their playing ability.
7. This study will help the budding researchers to take up similar studies in other areas and disciplines.

DELIMITATIONS

- This study was conducted in two phases, namely, pilot study in which the investigator ascertained the reliability of subjects, instruments used, and tests to be administered and final phase of measuring selected anthropometric, physical fitness, psychological variables, and playing ability of the basketball players.
- The subjects selected for pilot study phase was five state level basketball players.
- The age group of the subjects selected was ranking from 18 to 25 years.
- The subjects were drawn from state level basketball players who were represented the state in interstate competitions.
- The evaluation of the playing ability was subjectively measured only with the help of three experts.

Limitations

- The environmental factor for the study could not be controlled as subjects for the study were the state level basketball players and they differed in their routine habits etcetera.
- The subjects were undergoing different types of physical activities and the effect of these activities could not be controlled.
- The diet and experience of the subjects were not considered in this study.

METHODOLOGY

In this chapter, the selection of subjects, research design of the study, selection of subjects, orientation of subjects, selection of variables, reliability of instruments, competency of tester, reliability of data, test retest administration, subjective assessment of playing ability, and the statistical procedure used have been explained.

SELECTION OF SUBJECTS

The generalizability of research results is the selection of sample which will provide the research data. A sample is a small proportion of a population selected for observation and analysis. A sample reflects the characteristics which define the population from which it is selected. The purpose of this study was to find out the association of anthropometric, physical, psychological, and parameters with playing ability of state level basketball players to achieve these purpose 100 basketball

players, who represented their state in interstate basketball tournaments the age group of 18–25 years.

SELECTION OF VARIABLES

Based on the available scientific literatures pertaining to finding out relationships of selected variables with playing ability in consultation with experts, the following criterion variables were selected for this study to find association with basketball playing ability of the subjects.

Physical Fitness Variables

1. Height
2. Agility.

Psychological Variables

Sports anxiety.

CRITERION MEASURES

- Anthropometric variable, height was measured through stadiometer and the scores recorded in centimeters.
- Agility was measured through shuttle run and the scores recorded in 1/10th of a second.
- Psychological variable, sports competition anxiety was measured through Speilperger's anxiety test.

Subject Reliability

The subjects selected for this study were state level basketball players played at state level competitions. The players had adequate experience in playing the game. They were well trained in all skills and participated a number of tournaments. They involved in this study impartially and they were considered reliable for the purposes of this study.

Collection of Data

The data for the criterion variables were collected by administering the appropriate standard tests. The procedure for administering the test is explained below. Before administering the test, the purpose and procedure were explained to the subjects in details.

ADMINISTRATION OF TESTS

Height

Objective

To measure height.

Apparatus used

Stadiometer and anthropometric rod.

Test Description

Height will be measured by anthropometric rod. The subject stand erect bare footed on a plane horizontal surface against a wall with her heels, back of the shoulder and head touching the wall and stretch the body. Stretched upwards as much as possible without her heel leaving the ground. Then, anthropometric rod is kept in front of the subject and the crossbar of the anthropometry is adjusted so that the lower edge touches the highest point of the subject's head. Height will be recorded in centimeters.

Agility (Shuttle Run Test)

Objective

To measure the agility of the performer in running and changing direction.

Apparatus used

Stopwatch, measuring tape, two blocks of wood.

Procedure

Two parallel lines were marked 10 m apart as starting line and end line.

Two blocks were placed behind the end line at the time of start. The performer on the signal go, ran to the blocks, picked up one returned to the starting line, and placed the block behind the line. He repeated the same process with second block.

Scoring

The score for each performer was the time required to complete 60 m and recorded to nearest one-tenth of a second.

Statistical Techniques

The primary purpose of this study was to find out the association between selected anthropometric, physical fitness, and psychological variables with playing ability of state level basketball players and to arrive meaningful findings, the following statistics tools were computed.

RESULTS AND DISCUSSION

The analysis of data collected from the samples under study. The purpose of the study was to find out the association of selected anthropometric, physical, and psychological variables with playing ability of basketball players. To achieve the purpose of the study, the investigator selected hundred basketball players, who represented Andhra state in interstate basketball tournaments and the age group of the subjects was 18–25 years. All the subjects had participated in the state level competitions and represented their states. The researcher reviewed number of books, journals, research articles, and coaching manuals and found that playing ability of a basketball player may have association with selected anthropometric, physical fitness, and psychological variables. Based on these observations, the investigator selected the following variables for this study.

Anthropometric Variables
Height.

Physical Fitness Variables
Agility.

Psychological Variables
Sports anxiety.

- Anthropometric variable, height was measured through stadiometer and the scores recorded in centimeters.
- Agility was measured through shuttle run and the scores recorded in 1/10th of a second.
- Psychological variable, sports competition anxiety was measured through Speilperger's anxiety test.

COMPUTATION OF ASSOCIATION ON ANTHROPOMETRIC VARIABLES WITH PLAYING ABILITY

Descriptive Analysis
The association of anthropometric variables with playing ability of basketball players was statistically computed. In descriptive statistics, the number of subjects tested, mean and standard deviation of the motor fitness parameters are presented in Table 1.

Table 1 shows that the obtained mean value of the playing ability of the basketball players was 78.13 with standard deviation ± 4.83. The mean value on height was 64.37 with standard deviation ± 3.97. The mean value on leg length was 75.39 with standard deviation ± 4.57. The mean value of arm length was 101.99 with standard deviation ± 3.75.

Analysis of Coefficient of Correlation
The obtained values were subjected to statistical treatment to find out the association between anthropometric variables with the playing ability of the subjects. The results are presented in Table 2.

Table 1: Descriptive statistics on anthropometric variables selected for this study

Variables	Mean	SD	*n*
Height	170.45	6.097	100

Table 2: Correlation of coefficient between motor fitness parameters and playing ability of the subjects

S. No.	Variables	Correlation coefficient	Level of sig.
	Playing ability versus		
1	Height	0.693*	<0.05

Required table r value (1.99)0.05=0.197, *Significant at 0.05 level

COMPUTATION OF ASSOCIATION ON PHYSICAL FITNESS VARIABLES WITH PLAYING ABILITY

Descriptive Analysis
The association between the selected physical fitness variables with playing ability of basketball players was statistically computed. In the descriptive statistics, the number of subjects tested, mean and standard deviation of the physical fitness variables are presented in Table 3.

Table 3 shows that the obtained mean value on the mean value on agility was 11.107 with standard deviation ± 0.432.

Analysis of Coefficient of Correlation
The obtained values were subjected to statistical treatment to find out the association of each physical fitness variable with the playing ability of the subjects. The results are presented in Table 4.

The results presented in Table 4 proved that there were a playing ability and agility (r = −0.224) as the obtained "r" values were greater than the required "r" value of 0.197 to be significant at 0.05 level.

COMPUTATION OF RELATIONSHIP ON PSYCHOLOGICAL PARAMETERS WITH PLAYING ABILITY

Descriptive Analysis
The association of psychological variables with playing ability of basketball players was statistically computed. In descriptive statistics, the number of subjects tested, mean and standard deviation of the physiological parameters are presented in Table 5.

Table 3: Descriptive statistics on physical fitness variables selected for this study

Variables	Mean	SD	*n*
Agility	11.1078	0.43275	100

Table 4: Correlation of coefficient between physical fitness variables and playing ability of the subjects

S. No.	Variables	Correlation coefficient	Level of sig.
	Playing ability versus		
1	Agility	−0.224	<0.05

Required table r value (1.99)0.05=0.197, *significant at 0.05 level

Table 5: Descriptive statistics on psychological parameters selected for this study

Variables	Mean	SD	*n*
Anxiety	54.17	4.288	100

Table 6: Correlation of coefficient between psychological variables and playing ability of the subjects

S. No.	Variables	Correlation coefficient	Level of Sig.
	Playing ability versus		
1	Anxiety	0.071	NS

Required table r value (1.99)0.05= 0.197, *significant at 0.05 level

Table 5 shows that the obtained mean value on anxiety was 54.17 with standard deviation + 4.831.

Analysis of Coefficient of Correlation

The obtained values were subjected to statistical treatment to find out the association of each psychological variable with the playing ability of the subjects. The results are presented in Table 6.

The results presented in Table 6 proved that there was a significant association between playing ability and anxiety (r = 0.71) as the obtained "r" values were lesser than the required "r" value of 0.197 to be significant at 0.05 level.

DISCUSSION ON FINDINGS

In this study, relationship between selected anthropometric, physical fitness, and psychological variables with playing ability were found from 100 basketball players with the help of selected predictor variables such as height, agility, and anxiety. The basketball playing ability was determined through subjective rating by three experts and was used as the criterion variable. The backward multiple regression method was used to determine the association between anthropometric, physical fitness, and psychological variables and playing ability of basketball players.

Physical fitness and psychological variables with playing ability and backward multiple regression were analyzed for each category of variables, namely, parameters associated with playing ability from selected anthropometric variables, associated with playing ability from selected physical fitness variables and psychological variables, and associated with playing ability from selected anthropometric variables were studied.

DISCUSSION ON HYPOTHESIS

For the purpose of this study, the following hypotheses were formulated.

- It was hypothesized that the anthropometric variable height would be significantly associated with playing ability of state level basketball players and basketball playing ability can be successfully predicted by selected anthropometric variables.
- It was hypothesized that the physical fitness variables, agility would be significantly associated with playing ability of state level basketball players and basketball playing ability can be successfully predicted by selected physical fitness variables.
- It was hypothesized that the psychological variables, sports anxiety of control would be significantly associated with playing ability of state level basketball players and basketball playing ability can be successfully predicted by selected psychological variables.

CONCLUSIONS

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

1. It was concluded that selected anthropometric variable, height was significantly associated with playing ability of basketball players.
2. It was concluded that physical fitness variables, agility was significantly associated with playing ability of basketball players.
3. It was concluded that psychological variables, sports anxiety of control was significantly associated with playing ability of basketball players.

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Research Article

Effects of psychoregulative program, autogenic training, and yoga training on aggression and achievement motivation of intercollegiate level kabaddi players

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ABSTRACT

The purpose of the study, random group design was employed. The randomly selected 60 kabaddi players were divided into three groups, consisting of 20 kabaddi players in each group. Group I was placed in experimental Group I which practiced psychoregulative program of yogasanas and Group II, in experimental Group II, which practiced psychoregulative program autogenic training for 12 weeks. The third group was as control group, which did not participate in any of the psychoregulative programs. Before the experimental treatments, all the subjects were tested of anxiety and self-confidence which formed pre-test scores. After the experimental treatment, the subjects were once again tested on their aggression and achievement motivation. The difference between the pre- and post-test scores was the effect of psychoregulative programs, yoga practices, and autogenic training. The differences in means were tested statistically using ANCOVA. Where significant F value was obtained, the results were further subjected to statistical treatment, *post hoc* analysis, using Scheffe's *post hoc* test, in all cases, 0.05 level.

Keywords: Aggression and achievement motivation

INTRODUCTION

The type of individual's physical structure is an essential factor in his motor performance. Evidence of this is common place, observe the well proportionate physique of boxers and gymnasts, supper structure of volleyball competition, the solidness of top fight football players, the wariness of champion distance runners, and massive builds of great shot putter and discus throwers. Thus, the physical structure of an individual plays a dominant role I high level sports competitions. Life will not be a life without physical activities. Through physical activities alone people were able to survive in earth. The story of evolution throws some light on the nature and type of activities which are an essential part of modern physical activities which are to be fit for day-to-day existence and to meet the occasional emergencies that arise. Whatever may the emergency that trusts itself on individuals, the human beings have to readjust and carry on. An ideal man should be strong, healthy, broadminded, and active. Mujumdar (1950) opines that "Activity is life while stagnation is death."

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Objectives of the Study

a. The aim of this study was to find out the effect of psychoregulative programs that would benefit kabaddi players.
b. In doing so, the study would find out the effect of psychoregulative programs, namely, yogic practices and autogenic training that would influence selected psychological variables of kabaddi players.
c. The study further determines the effect of psychoregulative programs, namely, yogic practices and autogenic training on psychological variables, temperament, anxiety, aggression, achievement motivation, self-confidence, and stress.

STATEMENT OF THE PROBLEM

The purpose of the study was to investigate and compare the effects of psychoregulative program on autogenic training

and yoga training, on selected aggression and achievement motivation of intercollegiate level kabaddi players.

Hypotheses

On the basis of conclusion drawn through critical and allied literatures related to the study, the investigator has framed the following hypotheses:

- It was hypothesized that there would be a significant difference in the selected aggression and achievement motivation of kabaddi players due to influence of 12 weeks of autogenic training compared to control group.
- It was hypothesized that there would be a significant difference in the aggression and achievement motivation and to finally improve the performance levels of college level kabaddi players due to influence of 12 weeks of yoga training compared to control group.
- It was hypothesized that there would be a significant difference between autogenic training and yoga training on aggression and achievement motivation.

DELIMITATIONS

1. The study was delimited to 60 male kabaddi players participated at intercollegiate level tournaments from different colleges of Andhra Pradesh in the age ranging from 19 to 25 years.
2. The study was delimited to 12 weeks training of autogenic technique and yoga training on aggression and achievement motivation only.
3. The study was further delimited to the assessment of aggression and achievement motivation variables using standard tests.

Limitations

1. The reliability of data collected was dependent largely on the interest and cooperation extended by the subject. This has been recognized as one of the limitations of the study.
2. The researcher adopted no motivational technique and this may also be considered as a limitation.
3. The economic backgrounds of the subjects were considered in this study, which is taken as limitation.
4. The personality differences among the subjects were not considered for this study which was also one of the limitations of the study.

METHODOLOGY

In this selection of subjects, selection of variable, selection of questionnaires, experimental design, reliability of data, intervention training techniques administration of questionnaires, collection data, and statistical technique used have been explained.

SELECTION OF SUBJECTS

Sixty male kabaddi players studying in different colleges in Andhra Pradesh, who represented their colleges in intercollegiate level competitions in Kabaddi, were randomly selected for this study. The subjects were in the age group ranging from 19 to 25 years. All the subjects were well versed in their skills and performance of the game hockey.

SELECTION OF VARIALBES

The research scholar reviewed the available scientific literature to related psychoregulative programs, autogenic training, and yoga training on selected aggression and achievement motivation from various journals and websites. Based on the recommendations of the studies reviewed, the following variables were selected.

Dependent Variables Selected

1. Aggression
2. Achievement motivation.

Independent Variables

1. Autogenic training for 12 weeks
2. Yoga training for 12 weeks.

EXPERIMENTAL DESIGN

For the purpose of the study, random group design was employed. The randomly selected 60 kabaddi players were divided into three groups, consisting of 20 kabaddi players in each group. Group I was placed in experimental Group I which practiced psychoregulative program of yogasanas and Group II, in experimental Group II, which practiced psychoregulative program autogenic training for 12 weeks. The third group was as control group, which did not participate in any of the psychoregulative programs.

Before the experimental treatments, all the subjects were tested of the aggression and achievement motivation which formed pre-test scores. After the experimental treatment, the subjects were once again tested on aggression and achievement motivation. The difference between the pre- and post-test scores was the effect of psychoregulative programs, yoga practices, and autogenic training. The differences in means were tested statistically using ANCOVA. Where significant F value was obtained, the results were further subjected to statistical treatment, *post hoc* analysis, using Scheffe's *post hoc* test, in all cases, 0.05 level.

Criterion Measures

The following criterion measures were adopted to measure the test.

1. To find out the effect of psychoregulative programs on aggression, authored by Dr. Guru Pyari Mathur (Raebareli) and Dr. Raj Kumari Bhatnagar (Agra) and issued by Rakhi Prakashan, was used.
2. To find out the effect of psychoregulative programs on achievement motivation scale developed by Kamlesh (1990) was used to measure achievement motivation.

Autogenic Training

Johannes Schultz (1932) autogenic training was adopted for the study. The subjects were taught and given practical session for the duration of 15–20 min, thrice a week for the period of 6 weeks.

Autogenic training is composed of three component parts. The first and most important component is the six initial steps designed to suggest to the mind a feeling of warmth in the body and heaviness in the limbs. These six self-statement steps are as follows:

1. Heaviness in the arms and legs (beginning with dominant arm or leg).
2. Warmth in the arms and legs (again beginning with dominant arm or leg).
3. Warmth in the chest and perception of reduced heart rate.
4. Calm and relaxed breathing.
5. Warmth in the solar plexus area.
6. Sensation of coolness on the forehead.

YOGA TRAINING

Before starting to practice asanas, ensure that you have prepared well and followed all the instructions discussed earlier. Non-adherence to the instructions will interfere will realization of actual benefits of each posture. Correct and regular practice of asanas contribute to staidness and lightness of limbs, produce mental equilibrium, prevent fickleness of mind, facilities health and wellness management, improve physical fitness by developing various motor abilities (strength, endurance, agility, balance, and coordination), and provide gentle massage to the internal organs, glands muscles.

The training program was scheduled for one session in the morning and another session in the evening for 5 days (Monday to Friday) a week and the same was continued for 8 weeks.

*5 min – warming up and stretching *50 min – Asanas *5 min – relaxation.

ADMINISTRATION OF QUESTIONNAIRE

In this, the purpose, administration, and scoring made on the respective questionnaires have been explained.

Aggression

Aggression of the college men players under study was measured through aggression scale test developed by Guru Pyari Mathur and Raj Kumari Bhatnagar (2004).

Description of the Questionnaire

The aggression scale questionnaire consists of 55 statements. The subjects have to answer the statement in the graded manner, namely, strongly agree, agree undecided, disagree, and strongly disagree. The level changes from extremely uncharacteristic to extremely characteristics. The respondents were made to mark "√" against the box provided for this purpose. This represents the appropriate characteristics suited to their attitude.

Scoring

This inventory was scored with the help of the scoring key given below. The range of score was from 275 to 55. The higher the score is the more aggressive the player [Table 1].

Achievement Motivation

Sports achievement motivation questionnaire developed by Dr. M. L. Kamlesh (1993) was administered to assess the achievement motivation of the subjects.

The questionnaire consists of 20 statements with response from the subject "Yes" or "No." Based on the response of the subject, their achievement motivation was measured using the key of the score of the author.

Scoring

Total score was the number of correct responses of the subject and it was the achievement motivation of the subject.

RESULTS AND DISCUSSION

Results on Aggression

The statistical analysis comparing the initial and final means of aggression due to 12 weeks psycho regulative programs, namely, yogic practices and autogenic training among college kabaddi players is presented in Table 2.

As shown in Table 2, the obtained pre-test mean on aggression on yogic practices group was 172.2, autogenic training group was 175.55, and control group was 173.4. The obtained pre-test F value was 0.32 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 mean on aggression on yogic practices group was 169.05, autogenic training group was 169.6, and control group was 174.2. The obtained post-test F value was 1.00 and the required table F value was 3.16, which proved

Table 1: Scoring pattern of aggression questionnaire

S. No.	Response	Score of positive statements	Negative statements
1.	Strongly agree	5	1
2.	Agree	4	2
3.	Undecided	3	3
4.	Disagree	2	4
5.	Strongly disagree	1	5

that there was no 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 30.89 was greater than the required value of 3.16, and hence, it was accepted that there were 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 are presented in Table 3.

The *post hoc* analysis of obtained ordered adjusted means proved that there were significant differences existed between yogic practices group and control group (MD: −6.60). There was a significant difference between autogenic training group and control group (MD: −4.03). There was a significant difference between treatment groups, namely, yogic practices group and autogenic training group (MD: −2.56). The ordered adjusted means were presented through bar diagram for better understanding of the results of this study, as shown in Figure 1.

DISCUSSION ON FINDINGS ON AGGRESSION

To find out the comparative effect of psychoregulative programs, namely, yogic practices and autogenic training on aggression, the obtained pre- and post-test means were subjected to ANCOVA and *post hoc* analysis through Scheffe's confidence interval test.

The effect of yogic practices and autogenic training on aggression is presented in Table 1. The analysis of covariance proved that there was a significant difference between the experimental group and control group as the obtained F value 30.89 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 2 proved that there was a significant difference between yogic practices group and control group (MD: −6.60) and

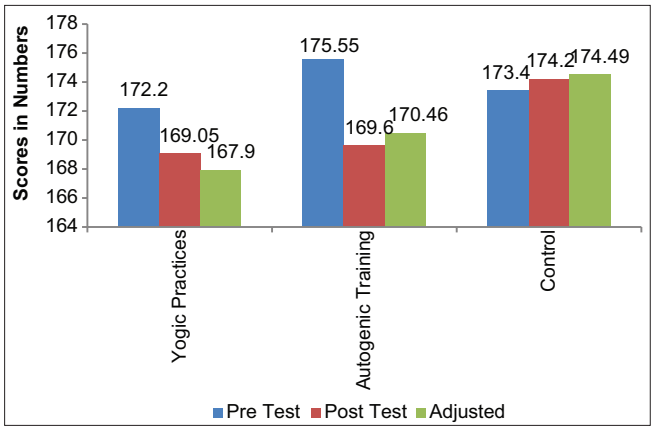

Figure 1: Bar diagram showing pre-test, post-test, and ordered adjusted means on aggression

Table 2: ANCOVA results on effect of yogic practices and autogenic training compared with controls on aggression among college kabaddi players

	Yogic practices	Autogenic training	Control group	Source of variance	Sum of squares	df	Mean squares	Obtained F
Pre-test mean	172.2	175.55	173.4	Between	115.23	2	57.62	0.32
				Within	10,142.95	57	177.95	
Post-test mean	169.05	169.6	174.2	Between	319.90	2	159.95	1.00
				Within	9156.95	57	160.65	
Adjusted post-test mean	167.90	170.46	174.49	Between	441.13	2	220.57	30.89*
				Within	399.82	56	7.14	
Mean diff	−3.15	−5.95	0.80					

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

Table 3: Multiple comparisons of paired adjusted means and Scheffe's confidence interval test results on aggression

Means				Required CI
Yogic practices group	Autogenic training group	Control group	Mean difference	
167.90	170.46		−2.56*	2.12
167.90		174.49	−6.60*	2.12
	170.46	174.49	−4.03*	2.12

*Significant

autogenic training group and control group (MD: −4.03). Comparing between the treatment groups, it was found that there was a significant difference between yogic practices and autogenic training group among college kabaddi players. Thus, it was found that yogic practices was significantly better than autogenic training and control group in regulating aggression of the college kabaddi players.

RESULTS ON ACHIEVEMENT MOTIVATION

The statistical analysis comparing the initial and final means of achievement motivation due to 12 weeks psychoregulative programs, namely, yogic practices and autogenic training among college kabaddi players is presented in Table 4.

As shown in Table 4, the obtained pre-test mean on achievement motivation on yogic practices group was 23.1, autogenic training group was 23.1, and control group was 22.4. The obtained pre-test F value was 0.12 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 mean on achievement motivation on yogic practices group was 26.6, autogenic training group was 25.5, and control group was 22.8. The obtained post-test F value was 3.33 and the required table F value was 3.16, which proved that there was a significant difference among post-test scores of the subjects. Since significant differences were recorded, the results were subjected to *post hoc* analysis using Scheffe's confidence interval test. The results are presented in Table 5.

The *post hoc* analysis of obtained ordered adjusted means proved that there were significant differences existed between yogic practices group and control group (MD: 2.07). There was a significant difference between autogenic training group and control group (MD: 3.17). There was a significant difference between treatment groups, namely, yogic practices group and autogenic training group (MD: −1.10).

The ordered adjusted means were presented through bar diagram for better understanding of the results of this study, as shown in Figure 2.

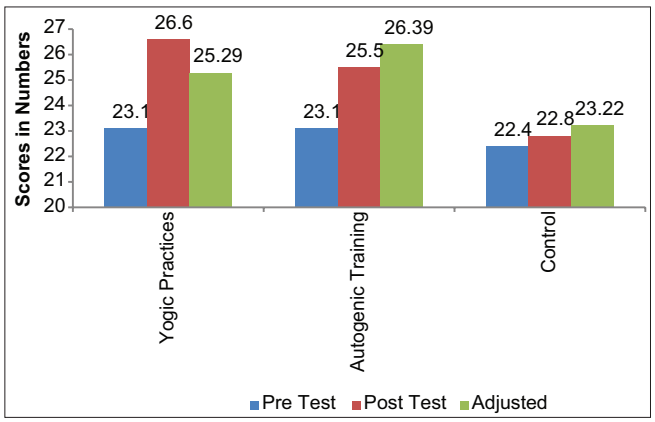

Figure 2: Bar diagram showing pre-test, post-test, and ordered adjusted means on achievement motivation

Table 4: ANCOVA results on effect of yogic practices and autogenic training compared with controls on achievement motivation among college kabaddi players

	Yogic practices	Autogenic training	Control group	Source of variance	Sum of squares	df	Mean squares	Obtained F
Pre-test mean	23.1	23.1	22.4	Between	6.53	2	3.27	0.12
				Within	1556.40	57	27.31	
Post-test mean	26.6	25.5	22.8	Between	152.93	2	76.47	3.33*
				Within	1307.00	57	22.93	
Adjusted post-test mean	25.29	26.39	23.22	Between	103.41	2	51.71	51.76*
				Within	55.95	56	1.00	
Mean diff.	3.50	2.40	0.40					

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

Table 5: Multiple comparisons of paired adjusted means and Scheffe's confidence interval test results on achievement motivation

Means				Required CI
Yogic practices group	Autogenic training group	Control group	Mean difference	
25.29	26.39		−1.10*	0.79
25.29		23.22	2.07*	0.79
	26.39	23.22	3.17*	0.79

*Significant

DISCUSSION ON FINDINGS ON ACHIEVEMENT MOTIVATION

To find out the comparative effect of psychoregulative programs, namely, yogic practices and autogenic training on achievement motivation, the obtained pre- and post-test means were subjected to ANCOVA and *post hoc* analysis through Scheffe's confidence interval test.

The effect of yogic practices and autogenic training on achievement motivation is presented in Table 4. The analysis of covariance proved that there was a significant difference between the experimental group and control group as the obtained F value 51.76 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 5 proved that there was a significant difference between yogic practices group and control group (MD: 2.07) and autogenic training group and control group (MD: 3.17). Comparing between the treatment groups, it was found that there was a significant difference between yogic practices and autogenic training group among college kabaddi players. Thus, it was found that autogenic training was significantly better than yogic practices and control group in improving achievement motivation of the college kabaddi players.

CONCLUSIONS

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

1. It was concluded that 12 weeks psychoregulative program, yogic practices, and autogenic training significantly altered aggression of kabaddi players, compared to control group. It was also found that autogenic training was better than yogic practices in altering aggression of kabaddi players.
2. It was concluded that 12 weeks psychoregulative program, yogic practices, and autogenic training significantly altered achievement motivation of kabaddi players, compared to control group. It was also found that autogenic training was better than yogic practices in altering achievement motivation of kabaddi players.

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Research Article

Determination of athletic ability on speed and resting pulse rate of school boys

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ABSTRACT

A repeated measure research design was used with athletic ability as the criterion variable speed and resting pulse rate. The selected 100 school boys who have participated at interschool athletic meets were measured of their speed and resting pulse rate. To determination of athletic ability of the subjects, the norm prescribed by the sports authority of Andhra Pradesh was used and the scores of the selected tests were converted into standard scores. The obtained data were analyzed using Pearson correlation coefficient to find out the relationship between athletic ability and selected criterion variables. Multiple regression analysis used to predict the athletic ability of the school boys from selected anthropometric, physical fitness, and physiological variables. In all cases, 0.05 level was fixed.

Keywords: Speed and resting pulse rate

INTRODUCTION

The course of the past 20 years an increasing amount of attention has been devoted to the field of athletics. Whether it is at a collegiate or professional level, organizations have been faced with public pressure to be successful. As a result, athletic directors and general managers have been faced with the question of how to improve their teams' success. One obvious way of doing this is to select qualified personnel for the tasks at hand. The method by which athletes are selected for a team can have a significant impact on that team's success. In the past, decisions have been made based largely on judgments of an individual's physical characteristics with little attention given to the psychological factors that contribute to athletic success. Coaches are experts in identifying the physical characteristics needed for success in their field; however, they lack the skills necessary to assess the psychological factors that have been proven to have a significant impact on athletic performance.

Objectives of the Study

a. The objectives of this study would determine the athletic ability of the school boys through selected anthropometric, physical fitness, and physiological variables.

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b. In doing so, this investigation would make a present state of school boys' anthropometric levels, height, hand span, arm girth and arm length, physical fitness variables, hand grip strength, speed, leg strength and endurance and physiological variables, vital capacity, resting pulse rate, mean arterial blood pressure, and breath holding time.
c. Thus, the study would determine an equation based on which athletic ability of school boys can be determined.

Statement of the Problem

The purpose of this study was to determination of athletic ability on speed and resting pulse rate of school boys.

Delimitations

The study was delimited in the following ways:

1. This study was confined only 100 to school boys in Andhra Pradesh.
2. The subjects selected were in the age group between 13 and 14 years.
3. Variables selected for this study was speed and resting pulse rate.

Limitations

This study is limited in the following aspects and these limitations have to be taken into considerations.

1. The students were from different social, economic, and cultural status which was taken as a limitation for this study.
2. Heredity and environmental factors which contribute to performance have not been controlled.
3. No effect would be made either to control or to assess the quality of the food ingested, lifestyle, and effect of metabolic functions as these are recognized as a limitations for this study.
4. No other motivational technique was followed to assess selected physical, physiological, and performance variables.

SELECTION OF VARIABLES

Dependent Variable

Athletic ability of school boys.

Independent Variables

1. Speed
2. Resting pulse rate.

Table 1: The variables, tests/tools, and the measured units

S. No.	Variables	Test/tools administered	Unit of measurement
1	Speed	50 m run	Seconds
2	Resting pulse rate	Manual	Beats/min

Table 2: The reliability coefficient of the subjects in anthropometric, physical, and physiological variables by test and retest method

S. No.	Test items	Coefficient of correlation
1	Speed	0.86*
2	Resting pulse rate	0.82*

Table value *r*=(0.05) (2.7)=0.735. *Significant at 0.05 level

Table 3: Descriptive statistics on selected physical fitness variables of the subjects

S. No.	Variables	*n*	Mean±SD	Range
1	Speed (s)	100	8.93±0.40	8.17–9.09

RESEARCH DESIGN

A repeated measure research design was used with athletic ability as the criterion variable speed and resting pulse rate. The selected 100 school boys who have participated at interschool athletic meets were measured of their speed and resting pulse rate. To determination of athletic ability of the subjects, the norm prescribed by the sports authority of Andhra Pradesh was used and the scores of the selected tests were converted into standard scores. The obtained data were analyzed using Pearson correlation coefficient to find out the relationship between athletic ability and selected criterion variables. Multiple regression analysis used to predict the athletic ability of the school boys from selected anthropometric, physical fitness, and physiological variables. In all cases, 0.05 level was fixed.

Table 1 shows the variables selected, the tests and tools used for measurement and the unit of measurement.

The intraclass correlation coefficient obtained by test, retest method is presented in Table 2.

Table 3 shows the mean values, standard deviation, and the range for selected physical fitness variables of the subjects. The mean of the speed was 8.93 with standard deviation of ± 0.40.

The correlation coefficient between athletic ability and the selected physical fitness variables was computed through Pearson correlation coefficient and the results are presented in Table 4.

The results presented in Table 4 showed that there was no significant relationship between speed and athletic ability. A 0.076 as the obtained "*r*" values was greater than the required table "*r*" value to be significant at 0.05 level.

Table 5 shows the descriptive statistics on selected physiological variables of the subjects.

Table 5 shows the physiological variables of the subjects. The mean of the resting pulse rate was 76.20 with standard deviation of ± 2.83.

Table 4: Results on correlation coefficient between athletic ability and selected physical fitness variables of school boys

S. No.	Athletic ability versus anthropometric variables	*n*	Mean	Obtained "*r*"	Significance
1	Speed (s)	100	8.93	0.076	NS

Required table "*r*" value to be significant at 0.05 level with df (1.99)=0.164. NS: Not significant, Sig: Significant at 0.05 levels

Table 5: Descriptive statistics on selected physiological variables of the subjects

S. No.	Variables	*n*	Mean±SD	Range
1	Resting pulse rate (in beats/min)	100c	76.20±2.83	71–81

Table 6: Results on correlation coefficient between athletic ability and selected physiological variables of school boys

S. No.	Athletic ability versus anthropometric variables	*n*	Mean	Obtained "*r*"	Significance
1	Resting pulse rate (in beats/min)	100	76.20	0.191	Sig.

Required table "*r*" value to be significant at 0.05 level with df (1.99)=0.164. NS: Not significant, Sig: Significant at 0.05 level

The correlation coefficient between athletic ability and the selected physiological variables was computed through Pearson correlation coefficient and the results are presented in Table 6.

The results presented in Table 6 showed that there was a significant relationship between athletic ability and resting pulse rate (*r*: 0.191) and athletic ability as the obtained "r" values were greater than the required table "*r*" value to be significant at 0.05 level.

CONCLUSIONS

Within the limitation and delimitation of the present research study, it was concluded that:

1. It was concluded that athletic ability of school boys was significantly related with physiological variables, resting pulse rate.
2. The athletic ability could be best predicted from following variables, namely, resting pulse rate.
3. It was concluded that speed was not good predictors of athletic ability of school boys. For the above factors, null hypothesis was accepted.

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Research Article

Task and ego orientation and coping skills among college athletes

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ABSTRACT

The objective of the present study is to investigate the relationship between task and ego orientation and coping skills among college athletes. The sample of the present study comprised 80 (male = 40 and female = 40) college level athletes who represented various national level competitions, age ranging between 18 and 25 years (mean age = 21.5 years). Task and Ego Orientation in Sport Questionnaire (Duda and Nicholls, 1992) and Athletic Coping skills Inventory-28 (Smith *et al*., 1995) were administered to measure the task and ego orientation and coping skills of athletes. The hypothesis of the present study was that task and ego orientation would be significantly correlated with the coping skills of the college athletes. The result showed that task orientation and ego orientation was positively related to coping with adversity, coachability, concentration, confidence, goal setting, peaking under pressure, and negatively related to freedom from worry.

Keywords: College athletes, Coping skills, Task and ego orientation

INTRODUCTION

Coping refers to conscious and effortful cognitions and behaviors used by the athletes to manage the perceived demands of a situation. Lazarus and Folkman, 1984, have defined coping as a dynamic process of cognitive and behavioral attempts to deal with internal or external demands which are experienced as taxing or exceeding the individual's resources. Thus, coping can be viewed as an active response comprising both cognitive and behavioral efforts to deal with stress. Weinberg and Gould, 2007, have noted that psychological skills (e.g., mental preparation, mental skills, and use of routines) are important to effectively cope with psychological (e.g., anxiety, loss of concentration, and lack of confidence) and non-psychological (e.g., poor housing and injury) stressors. However, a variable that has been found to affect the perception of stress, which influences the coping strategies, is the achievement goal of the athlete (Pensgaard and Roberts, 2003). Indeed, achievement goal orientation theory has been one of the key motivational theories that have been successfully employed in both education and sport to explain behavior (Nicholls, 1984).

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Achievement goal theory assumes that the individual is an intentional, goal-directed organism that strives to demonstrate ability or competence in an achievement setting (Kristiansen *et al*., 2007). There are two specific achievement goals identified by achievement goal theorists such as Nicholls, 1984, namely, task and ego goal orientation. According to Pensgaard and Roberts, 2003, when an athlete is task oriented or generally associated with desirable or adaptive achievement behavior, his or her primary goal is to demonstrate mastery of the task in hand. That individual's perceptions of ability would be typically self-referenced; that is, there would be an interest in learning and self-development, and their focus would on improving and working hard or putting forth maximum effort to the task with little or no concern for the outcome. The previous studies within sport contexts have found that task orientation is a positive predictor of pro-social behaviors (Kavussanu, 2006). For example, Malete's, 2006, research found that task orientation and perceived sport ability were important predictors of Botswana youth participation in sports, while Papaionnou, Bebetsos, Theodorakis, Christodoulidis, and Kouli, 2006, identified that task orientation, intrinsic motivation, and perceived athletic competence predicted sports and exercise participation 7–14 months later.

With specific regard to competitiveness, Pensgaard and Roberts, 2003, found that when an athlete is ego oriented, he/

she adopts a normative conception of ability and is interested in demonstrating the superiority of his or her ability to others, leading them to conclude that winning and beating others are the major focus of an ego-oriented athlete. In a study by Sit and Lidner, 2004, the researchers have reported that high ego-oriented youths are likely to be motivated by status only and as such, they reasoned that high ego-oriented youths employed other referenced perception of ability, as they desire to outperform others in the comparison process so as to demonstrate their superior ability and attain social standing or mutual recognition.

PURPOSE OF THE STUDY

The present study aims to investigate the relationship between task and ego orientation and coping skills of college athletes.

Hypothesis

Task and ego orientation would be significantly positively related to coping skills of college athletes.

METHODOLOGY

The Respondents

The sample of the present study comprised 80 (male = 40, female = 40) college athletes from different colleges in Odisha. All the athletes had participated in different national and state level competitions and have more than 5 years of experience in athletics. The age of the subject ranged between 17 and 20 years (mean age = 18.5 years). The variables that are selected for the study are task and ego orientation, and coping skill inventory (coping with adversity, peaking under pressure, goal setting and mental preparation, concentration; freedom from worry, confidence and achievement motivation, and coachability).

INSTRUMENTS

The following instruments were used for collecting the data from the sample.

TASK AND EGO ORIENTATION IN SPORT QUESTIONNAIRE (TEOSQ)

Task and ego goal orientations were measured using the task and ego orientation questionnaire, TEOSQ (Duda, 1992). This measure is a modified version of goal orientation scale that was developed for the classroom (Nicholls, 1989). The TEOSQ is a 13-item questionnaire, with 7 items, that is, items nos. 2, 5, 7, 8, 11, 12, 13 measuring task orientation and 6 items, that is, items nos. 1, 3, 4, 6, 9, 10 measuring ego orientation. When completing the task and ego orientation questionnaire participants are requested to think of when they felt most successful in sport and then indicate their agreement with items reflecting task- and ego-oriented criteria. Examples of task-oriented items included, "I work really hard" and "I do my very best," whereas on the ego orientation subscale, there are items such as, "The others can't do as well as me" and "I'm the best." The responses scale has a Likert format ranging from 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, to 5 = Strongly agree.

The TEOSQ has been shown to be reliable and valid instrument for measuring goal orientations (Duda, 1992). Duda has reported that Cronbach's alpha coefficient has ranged between 0.81 and 0.86 for the task-oriented subscale and between 0.79 and 0.90 for the ego-oriented subscale. Test-retest reliability over a 3-week period has been reported at = 0.68 for the task-oriented subscale and at = 0.75 for the ego-oriented subscale. Furthermore, these subscales have been shown to be independent constructs based on their reported correlation ($r = 0.03$) (Duda, 1989). Factorial and convergent validity have been shown for this measure as well.

ATHLETIC COPING SKILLS INVENTORY (ACSI-28)

The ACSI-28 (Smith *et al*., 1995) was used to assess the psychological coping skills for each athlete. The ACSI-28 is a self-report questionnaire developed using exploratory and confirmatory factor analysis. The instrument consisted of a 28-item scale measuring seven classes of sport-specific psychological coping skills including coping with adversity, peaking under pressure, goal setting and mental preparation, concentration; freedom from worry, confidence and achievement motivation, and coachability. Individuals were asked to respond to each statement by indicating how often they experienced different situations using a 4-point scale (e.g., I put a lot of pressure on myself by worrying about how I will perform," 0 = almost never to 3 = almost always). Each subscale consisted of four items that were averaged to provide a subscale range of 0–3. In addition, the scales were then summed to yield a personal coping resource score. The subscales were found to be internally consistent with alpha levels ranging from 0.62 to 0.78 and a total (personal coping resources) scale alpha of 0.86 as reported in Smith *et al*., 1995.

Procedure

The instruments used in this present study were compiled and printed out in English. The respondents filled up the questionnaire individually in the presence of the researcher in their off practice hours.

Analysis and Results

In this study, data were analyzed using Statistical Package for the Social Sciences program software version 20.0. Descriptive

statistics were used to find out the mean and SD scores of college athletes on TEOSQ and athletic coping skill inventory. The Pearson product moment correlation was used to analyze the relationship between the achievement goal orientations and the mental coping skills score in athletes.

Table 1 shows the mean and SD of task-oriented and ego-oriented athletes on task and ego orientation and athletic coping skills (coping with adversity, coachability, concentration, confidence and achievement, goal setting and mental preparation, peaking under pressure, and freedom from worry). Athletes were classified as task oriented (n = 46) and ego oriented (n = 34) based on their scores obtained in the TEOSQ scale. From the table, it is seen that the mean and SD score on coping with adversity (m = 10.35, SD = 2.36), coachability (m = 10.54, SD = 2.21), concentration (m = 9.24, SD = 2.96), confidence and achievement (m = 9.24, SD = 2.55), goal setting and mental preparation (m = 9.57, SD = 3.02), peaking under pressure (m = 9.96, SD = 2.99), and freedom from worry (m = 7.76, SD = 1.96), respectively. For ego-oriented athletes, the mean and SD score on coping with adversity (m = 9.50, SD = 3.33), coachability (m = 9.32, SD = 2.85), concentration (m = 9.12, SD = 3.32), confidence and achievement (m = 9.12, SD = 3.32), goal setting and mental preparation (m = 9.26, SD = 3.30), peaking under pressure (m = 9.65, SD = 3.23), and freedom from worry (m = 7.85, SD = 1.88), respectively.

Table 2 shows the relationship between task orientation and coping skills among college athletes. From the table, it is showed that there were significant positive relationships between task orientation and the subscales of coping with adversity, coachability, concentration, confidence, goal setting and mental preparedness, and peaking under pressure. However, task orientation is negatively related to freedom from worry. These findings suggest that task-oriented athletes indicated that they are confident in their ability through consistently working hard during practices and competitions, they are able to cope with adversity by remaining positive and enthusiastic even when things are not going as planned. These findings are in accord with studies, for example, Theodosiou and Papaioannou, 2006; Papaionnou *et al*., 2006; and Sit and Lidner, 2004 which have also shown that task-oriented individuals are intrinsically motivated, focus on self-referenced criteria such as personal improvement and learning to determine their competence.

On the other hand, ego orientation is significantly correlated with coping skills. It is seen from Table 2 that ego orientation is significantly correlated with coping with adversity, coachability, concentration, confidence, goal setting, peaking under pressure, and freedom from worry. These findings indicate that ego-oriented athletes mentally prepare themselves by setting goal before the competition, perform well during competitions as they feel challenged rather than threatened by pressure situation, and are confident as they consistently give their best during practice sessions or in a competitive environment. This is in line with studies, for example, Theodosiou and Papaioannou, 2006, and Papaionnou *et al*. However, ego orientation is significantly negatively related to freedom from worry.

DISCUSSION

The objective of the present study is to examine the relationship between achievement goal orientations and athletes coping skills. From the result, it is showed that there are significant positive relationships between certain coping skills and achievement goal orientations. Regarding the relationship between task orientation and coping skills, it is found that task orientation is significantly positively related to coping with adversity, coachability, concentration, confidence, goal setting, and peaking under pressure. This means the task-oriented athletes indicated that they have confidence in their ability through consistently working hard during practices and competitions, and set and work toward specific performance goals for themselves, and

Table 1: Descriptive statistics for task and ego orientation and athletic coping skills among college athletes

Variables	Task-oriented athletes	Ego-oriented athletes
	Mean±SD	Mean±SD
Coping with adversity	10.35±2.36	9.50±3.33
Coachability	10.54±2.21	9.32±2.85
Concentration	9.24±2.96	9.12±3.32
Confidence and achievement	10.15±2.55	9.35±3.10
Goal setting and mental preparation	9.57±3.02	9.26±3.30
Peaking under pressure	9.96±2.99	9.65±3.23
Freedom from worry	7.76±1.96	7.85±1.88

Table 2: Correlation matrix on task and ego orientation and athletic coping skills among college athletes

Athletic coping skills	Task orientation	Ego orientation
Coping with adversity	0.37*	0.36*
Coachability	0.33*	0.37*
Concentration	0.38**	0.40*
Confidence and achievement	0.41**	0.35*
Goal setting and mental preparation	0.40**	0.39*
Peaking under pressure	0.28*	0.37*
Freedom from worry	−0.21	−0.32*

*P<0.05, **P<0.01

they are able to cope with adversity by remaining positive and enthusiastic even when things are not going as planned. These findings are in accordance with the past studies, for example, Theodosiou and Papaioannou, 2006; Papaionnou *et al*., 2006; and Sit and Lidner, 2004 which have also shown that task-oriented individuals are intrinsically motivated, focus on self-referenced criteria such as personal improvement and learning to determine their competence. However, task orientation is negatively related to freedom from worry.

Regarding the relationship between ego orientation and coping skills, the result showed that ego orientation is significantly related to coping with adversity, coachability, concentration, confidence, goal setting, peaking under pressure, and negatively related to freedom from pressure. As compared to task-oriented athletes, the ego-oriented athletes are also mentally prepare themselves by setting game plans for competitions, perform well during competitions as they feel challenged rather than threatened by pressure situation, and are confident as they consistently give their best during practice sessions or in a competitive environment. This is in line with studies, for example, Theodosiou and Papaioannou, 2006, and Papaionnou *et al*.

CONCLUSION

The present investigation aimed to study the relationship between task and ego orientation and coping skills of college athletes. From the result, it is concluded that both task and ego orientation were positively significantly related to coping with adversity, coachability, concentration, confidence, goal setting, peaking under pressure, and negatively related to freedom from worry.

Limitations

The present study is limited by its sample size. Therefore, it would be desirable for future research to consider larger sample sizes with a more diverse ethnic and gender mix of athletes for better research results.

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Research Article

Study of aerobic and anaerobic capacity among cricket and basketball players

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ABSTRACT

The aim of the study was comparison of aerobic and anaerobic capacity between cricket and basketball players. For that 15 male players of cricket and basketball, each from Amravati district who participated in junior age groups (14–17 years) of state level competitions was selected randomly as the subjects of this study. Cooper's 12 min run-walk test was administered and recorded the distance covered in miles and the aerobic capacity of the players was determined using the equation, VO2 max = 35.9712 (distance in miles for 12 min run-walk)-11.2878, and expressed in ml/kg/min. To determine the anaerobic capacity, Sargent jump-Lewis nomogram was employed and anaerobic power was expressed in kg/m/s. The main objective of the study was to find out the significance level of aerobic and anaerobic capacity of cricket and basketball players.

INTRODUCTION

Organisms carry different capacity level, depend on their anatomical, anthropometrical, physiological, and different training loads and systems. However, the athlete is to be conditioned to adopt to work at given intensity for prolonged time which is known as aerobic training and he is also required to be conditioned to do explosive work of high intensity in short duration of time which is known as anaerobic training.

Aerobic capacity is the ability to mobilize energy for continuous performance of specific movement for prolonged time, that is, capacity for prolonged physiological functioning under continuous supply of required oxygen completely available under conditions and the glucose molecule is completely broken down to CO_2 and H_2O, and energy is made available as needed. To enable a person to continue an activity for prolonged period, continuous flow of oxygen has to be ensured to the working muscles for liberation of energy. The aerobic capacity of a person can be measured by the maximum amount of oxygen consumed by the working muscles in 1 min (VO_2 max).

The aerobic capacity (VO_2 max) of a person depends on the factors as follows: Amount of oxygen which can be extracted by the blood from the atmosphere, amount of oxygen that can be transported from the lungs to the working muscles, amount of oxygen taken up by the muscle cells from the blood, and amount of oxygen of glycogen stores in the muscles and liver.

Anaerobic capacity is the ability to mobilize energy during activities of intense nature, that is, executing intensive work with explosive action in short duration of time, such as kicking the cricket faster and for explosive take-off in jumps, and maximum rate for about 2–3 min under water swimming. It is the ability to perform at maximal capacity for short periods of time and to minimize the amount of lactic acid production in the working muscles at a level of insufficient oxygen availability.

The games of cricket and basketball players carry the similar type of activities in nature of work out. Cricket and basketball are also highly coordinated games on the basis of techniques, tactics, and nature of skills. Both the games require high motor quality of performance. Cricket and basketball players frequently perform different rapid and sudden movements as quick development of force, sprinting, jumping, changing direction, high-power shooting, different body impacts, etc. Therefore, the players require high-intensity anaerobic capacity to perform various burst actions in actual situations. On the other hand, cricket and basketball games are played for a long duration of 90 min and 70 min or more, respectively. Therefore,

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Table 1: Mean and standard deviation of cricket group and basketball group

Variables	Groups	*n*	Mean±SD
Aerobic capacity (ml/kg/min	Cricket	15	41.66±7.99
	Basketball	15	41.50±9.11
Anaerobic capacity	Cricket	15	100.20±8.65
	Basketball	15	93.93±9.18

Table 2: Significant difference of mean in aerobic capacity between the cricket and basketball players

Variable	Group mean		Mean diff.	SE	*t*
	Cricket	Basketball			
Aerobic capacity	41.66	41.50	0.16	3.13	0.050[@]

[@]Not significant at 0.05 level of confidence t.os (28)=2.048

both games need high efficient aerobic capacity to tolerate the tempo of the games.

Objective

The objective of the study was to compare the aerobic and anaerobic capacity among the junior age group of cricket and basketball players.

METHODOLOGY

The subjects for this study were selected randomly among the male cricket and basketball players those who participated in the junior age groups of state level between 14 and 17 years of age. Each cricket and basketball group consisted of 15 players. Independent "t" test was applied with regard to cricket and basketball groups, and the random group design was employed in this study. The level of significant was set 0.05 level of confidence.

Findings

The findings pertaining cricket and basketball groups mean and standard deviations were computed by the descriptive analysis and presented in Table 1.

Table 1 reveals the mean and standard deviation of aerobic capacity for cricket group 41.66 ± 7.99 and basketball group 41.50 ± 9.11, and anaerobic capacity for cricket group 100.20 ± 8.65 and basketball group 93.93 ±9.18.

To observe the difference between cricket and basketball groups, the independent *t*-test was employed and presented in Tables 2 and 3.

It is evident from Table 2 that there was no significant difference between the means of cricket and basketball players on the scores of aerobic capacity since the obtained value of "*t*" (0.05) was less than the tabulated value of "*t*" (2.048) which was required to be significant at 0.05 level of confidence with 28° of freedom.

Table 3: Significant difference of mean in anaerobic capacity between the cricket and basketball players

Variable	Group mean		Mean diff.	SE	*t*
	Cricket	Basketball			
Anaerobic capacity	100.20	93.93	6.27	5.83	1.075[@]

[@]Not significant at 0.05 level of confidence t.os (28)=2.048

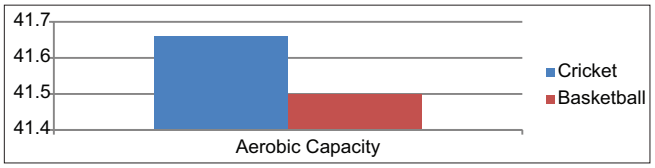

Figure 1: Graphical representation of aerobic capacity

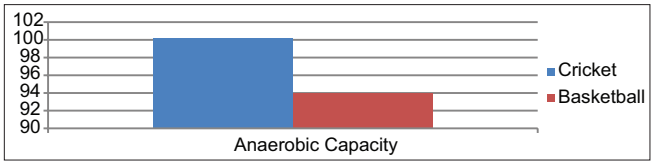

Figure 2: Graphical representation of anaerobic capacity

It is evident from Table 3 that there was no significant difference between the means of cricket and basketball players on the scores of anaerobic capacity since the obtained value of "*t*" (1.075) was less than the tabulated value of "*t*" (2.048) which was required to be significant at 0.05 level of confidence with 28° of freedom. The graphical representation of mean difference is shown in Figures 1 and 2.

DISCUSSION AND CONCLUSION

In the light of the findings, no significant difference was found between the junior age group cricket and basketball players on the variables of aerobic and anaerobic capacity. This insignificant difference might be attributed to the fact that the nature of the games (cricket and basketball) demand more or less equal amount of physical and physiological effort. The tempo of the games is more or less similar and that might be the basis of transfer of training of both the games. Thus, it was concluded that there was no significant difference in aerobic and anaerobic capacity in between junior cricket and basketball players.

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Research Article

An assessment of energy intake and energy expenditure of male football players during pre-competition period

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ABSTRACT

Football is the most popular ball game played between two teams. The game play includes different variations in intensity such as bouts of high-intensity activities being interspersed with low-intensity activities. During a pre-competition training camp the players undertakes individual and team sessions encompassing technical training, skill practice, and tactical training with high match frequency. The body needs energy to do any physical activity. These energy demands depend on the nature and duration of that specific physical activity. The optimum performance in game should be achieved by adequate energy balance, which obtained when energy intake is equal to energy expenditure. The objective of the study was to determine the energy intake and energy expenditure of male football player during pre-competition period. For this purpose, primary data had been collected. To access dietary intake, 24 h dietary recall method was used for consecutive 3 days. Resting metabolic rate (RMR) **of s**ubjects was assessed by BioScan 920-2 analyzer. The thermic effect of food is the energy expenditure in excess of basal metabolic rate after a meal. It is calculated as 10% of the RMR. The result of the study revealed that dietary intake of football players was inadequate to meet their energy demands.

Keywords: Dietary intake, Energy expenditure, Football, Resting metabolic rate, Thermic effect of food

INTRODUCTION

Football is a game in which two opposing teams attempt to score points by moving an inflated oval or round ball into a goal. Football is characterized by variations in intensity such as Short sprints that are interspersed with periods of jogging, walking, moderate-paced running, and standing. From the nutritional point of view meeting, energy needs are the first priority for athletes. Optimum game performance is promoted by adequate energy intake. Energy balance occurs when energy intake equals energy expenditure. During the typical training week, players undertake individual and team, including endurance, speed and strength conditioning, skill practice, tactical, and match play.[1] The nature, volume, and intensity of the training program vary according to the time of the season, the caliber of player, and the player's position and individual goals. For professional players, camps may involve a schedule of 2-a-day practice. During the competitive season, the week may also include one or two matches. The review will cover the players' needs to energy and carbohydrate to fuel, recover, and optimize the adaptations from these sessions. Ideas for future research macronutrient composition of energy intake might be manipulated to further enhance training for adaptations. Energy needs, the total energy expenditure and requirements of each football player are unique, arising from the contribution of basal metabolic rate, thermic effect of food (TEF), thermic effect of activity, and in some cases, growth.[2] For many athletes, and in particular, the professional players undertaking multiple training sessions in a day or more than one match in a week, the energy cost of training/games is substantial. Meeting energy needs is the first priority of athletes for attaining optimum performance. Whether it is assessed in absolute terms or in comparison to estimates of energy requirement, the energy intake and expenditure of football players are interest for several reasons.[3] In the scientific literature, there are several reports of energy expenditure of particular groups of football players, derived from techniques such as doubly labeled water and indirect calorimetry. However, the expense and complex technology

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involved in these techniques confine them to the realms of research. Estimate and use the energy cost of daily activities is a practical and easy accessible method to assess the total daily energy expenditure of an athlete.[4] One of the available prediction equations, at the simplest level, a general activity factor is applied to the whole day to represent the athlete's typical exercise level. While this "factorial method" can provide a general estimation of a football player's energy requirements, there are chances of error. An alternative field method used in previous studies is the "energy availability model" in which the amount of energy available to the body to undertake its physiological processes is considered.[5] Energy availability is calculated as total energy intake minus the energy cost of the daily exercise program. We can assess the energy expenditure of an individual by estimating the resting metabolic rate (RMR), expenditure during work, and TEF. RMR is the minimum amount of calories needed to sustain the vital function of the body when at rest. Several previous research studies were reported that the nutritional intake of soccer players was not optimal and that this intake was poorer among the adult players.[6] The mean daily energy intake of professional adolescent soccer players was founded lower than the energy expenditure during a competitive week. The difference between the above two components was greatest on match and heavy training days. These deficits have a negative impact on the performance and physical development of adolescent soccer players.[7] Energy balance and appropriate macronutrient intake are essential for maintaining the demands of training, performance, and recovery. In a previous study, an energy deficit of average −356 ± 668 kcal/day was observed in football players over a period of 7 days.[8,9] Magnitudes of these deficits were the greatest deficits among training days.

Objective of the Study

Meeting energy needs is the first priority of athletes for attaining optimum performance. Whether it is assessed in absolute terms or in comparison to estimates of energy requirements, the assessment of energy intake and energy expenditure of football players is very important. Keeping in mind of the above, the present study is undertaken with the following objectives:

- To determine energy intake of football players during the pre-competition period.
- To determine energy expenditure of football players during the pre-competition period.
- To compare the energy intake with energy expenditure.

Procedure

Twenty-two players who were attending the inter-university camp held Punjabi University, Patiala were selected as subjects by simple random sampling. The age of the subjects was ranged between 18 and 25 years. Primary data had been collected for the variables such as: Height, weight, body mass index (BMI), RMR, Energy intake, and Energy expenditure. Body weight of subjects had been taken with portable weighing machine and height measured with stadiometer. With the help of height and weight, the BMI of each subject was calculated. Twenty-four hours of dietary recall method was used for consecutive 3 days to determine the energy intake. A software named Dietcal.5[10] was used to determine the intake of macronutrients (carbohydrates, fats, and protein) and total energy intake by football players.

The sum of three factors determines total daily energy expenditure:

- RMR
- TEF
- Energy expenditure during physical activity.

RMR of subjects was determined by BioScan 920-2 analyzer. The TEF is the energy expenditure in excess of BMR (basal metabolic rate) after a meal. For practical purposes, it is calculated as 10% of the RMR. Energy expenditure in physical activity is the expenditure of planned physical activity. To calculate energy expenditure during physical activity, all physical activities performed by players were recorded, and then the rate of expenditure in particular activity was multiply by the duration of activity and total body weight of the subject in kg.[11,12] With regard to the purpose of the study mean, standard deviation, and paired *t*-test was used to analyze the energy intake and expenditure of football players.

RESULTS

The main aim of the study was to find out the difference between energy intake and energy expenditure. Thus, the data were collected as per the design of the study given in the procedure which was further subjected to statistical analysis.

Table 1 revealed that the mean age of football players who participated in the study was 19 ± 1.86 (years), weight (kg) 65.45 ± 8.16, height (cm) 174.09 + 5.80, and BMI (kg/m^2) was 21.54 ± 2.39.

Table 1: Descriptive statistics of age, height, and weight of male football player

Variables	Mean±SD
Age (years)	19.95±1.86
Height (cm)	174.09±5.80
Weight (kg)	65.45±8.16
BMI (kg/m^2)	21.54±2.39

BMI: Body mass index

It was observed from Table 2 that the mean value of energy intake was 3052.52 ± 321.657. Carbohydrate means intake was 394.080 ± 73.27, protein 128.169 ± 3.572, and fat 107.057 ± 11.034.

Table 3 represents the components that contribute to calculating total energy expenditure. The mean value of RMR was 1969.09 ± 131.1, and TEF was found to be 196.9091 ± 13.11001 kcal. The energy expenditure during physical activity was calculated as 1335.64 ± 9.62 kcal.

Table 4 represents the mean energy intake of the players, which is 3052.52 kcal, and the mean energy expenditure of football players was 3501.54 kcal. There was a significant difference between energy intake and energy expenditure ($P < 0.05$).

DISCUSSION

The main finding of the present study was that the average energy intake and energy expenditure of players who were attending the inter-university camp held in Punjabi University, Patiala, were 3052.52 kcal and 3501.54 kcal, respectively. The recommended mean energy intake for male football players with an average weight of 65 kg is 4500 kcal.[13] The dietary intake of football players was inadequate to meet their energy demands. The energy deficits present among players may be followed by a decrease in performance.[14] The percentage contribution of different macronutrients in total energy intake is also not appropriate. The present study revealed that 51.64% of energy is being derived from carbohydrates in sampled subjects where recommended dietary allowance (RDA) is a minimum of 60%. Hence, it is observed that the carbohydrate intake of football players is not sufficient according to recommended intake suggest by expert committees. Carbohydrate is the fuel of choice for high-intensity aerobic exercise. The mean protein intake was 16.79% in sampled subjects, and RDA is 15% of total energy. The mean fat intake of football players of the present study was 31% in football players, where the RDA is 25% of energy.

Table 2: Descriptive statistics of energy, carbohydrate, protein, and fat intake of male football players

Parameters	Mean±SD	Percentage
Energy	3052.5±321.65 (kcal)	
Carbohydrate	394.08±73.27 (g)	51.64
Protein	128.16±3.572 (g)	16.79
Fat	107.05±11.03 (g)	31.56

Table 3: Descriptive statistics of parameters included in calculating energy expenditure of male football players

Variables	Mean±SD
Age (years)	19.95±1.86
Height (cm)	174.09±5.80
Weight (kg)	65.45±8.16
BMI (kg/m^2)	21.54±2.39

BMI: Body mass index

Table 4: Difference between energy intake and energy expenditure of male football players

Variables	Mean±SD	t-value (paired)
Energy intake	3052.52 (kcal)±321.657	26.63*
Energy expenditure	3501.54 (kcal)±330.393	

CONCLUSION

Players need better nutritional attention to attain the best results in sports. The daily energy intake should be planned and maintained according to daily energy expenditure. Nutritional practices and requirements vary according to different periods and levels of training. The more strenuous the activity, the longer it is performed, the higher is the energy cost. Hence, the daily needs of energy for the training sessions are an important point to consider while planning the diet for players. Football players should adjust their energy intake to match their training load. For this purpose, nutritional education workshops and sessions related to sports nutrition are necessary to improve the nutritional knowledge in players.

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Research Article

Effect of yogasanas on selected motor components of Andhra university handball players

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ABSTRACT

The purpose of the present study was to investigate the effect of Yogasanas on Selected Motor Components of University Handball players. To achieve the purpose of the study, 30 men players were selected from different colleges under Andhra University, Visakhapatnam, in the year of 2018–2019. The subjects age ranges from 18 to 24 years. The selected players were divided into two equal groups consists of 15 players, namely, experimental (Group 1) and control group (Group 2). The Group 1 underwent 8 weeks of Yogasanas training and Group 2 did not participate in any special training apart from their regular sports and game practices. The subjects were tested on selected criterion variables such as muscular strength and balance. The pre-test was taken before the program and post-test was measured immediately after the 8-week Yogasanas training. Statistical technique "*t*" ratio was used to analyze the means of pre- and post-test data of Group 1 and Group 2. The results of the present study have revealed that there was a significant difference among the Group 1 and Group 2 on selected variables.

Keywords: Balance, Handball and university players, Muscular strength, Yogasanas

INTRODUCTION

Regular physical activity is one of the bases of a healthy lifestyle. It creates and maintains general well-being, physical and mental health, as well as promoting human performance in all areas of life. Like a sport is not a purely physiological phenomenon but a complex interplay of the mind and body. It is now becoming more and more competitive and has also become a career with an emphasis on monetary gains and the desire to win at any cost. Therefore, it is important to find solutions to the changing sports scene today. A sports person needs several motor qualities basically speed, strength, agility, balance, coordination, and endurance, etc., to achieve these in professional sports. The daily life of sportspersons calls for discipline in training, a balanced diet, a balanced lifestyle, and an inner focus and determination. Yoga is a holistic system teaching skills which many sportspersons seek as control over mind and body, good breathing habits, relaxation under pressure, highly developed concentration skills, and the ability to focus on the present scenario.

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Yoga Benefits as an Exercise

Near-perfect fitness routine, hatha yoga provides the means for people of any age not only to get and stay in shape but also to develop balance, coordination, and a sense of centeredness. It renews, invigorates, and heals the body – stretching and toning the muscles, joints, and spine and directing blood and oxygen to the internal organs (including the glands and nerves). Yoga is distinctly different from other kinds of exercise. It generates motion without causing strain and imbalances in the body. When practiced correctly, hatha yoga has no such negative effects on either the inner or outer body. When done with dedication and purpose, hatha yoga can be a quite demanding, yet an immensely rewarding type of exercise. While not inherently aerobic, it involves almost every muscle in the body and challenges the body to work in a different and often more passive way. Since the limbs function as free weights, resistance is created by moving the body's center of gravity. This strengthening gives way to endurance as poses are held for longer periods of time. Unlike conventional forms of exercise, such as weight training, walking, biking or hiking, and hatha yoga stresses the quality of movement over quantity. A consistent hatha yoga practice can quiet the mind and refresh the body, bringing health, relaxation, and happiness. Yoga postures are the physical positions that coordinate breath

with movement and withholding the position to stretch and strengthen different parts of the body.

Asana practice is the ideal complement to other forms of exercise, especially running, cycling and strength training, as the postures systematically work all the major muscle groups, including the back, neck, and shoulders, deep abdominal, hip and buttocks muscles and even ankles, feet, wrists, and hands. By their very nature, asanas affect major and minor muscle groups and organs as they simultaneously import strength, increase muscular strength and bring nourishment to internal organs. Although most poses are not aerobic in nature, they do, in fact, send oxygen to the cells in the body by way of conscious deep breathing and sustained stretching and contraction of different muscle groups. Whatever sport you choose to practice, yoga can enhance and complement your ability. Most sports build muscular strength and stamina, often in specific areas of the body.

Improved Strength Routine and consistent practice of the various yoga asanas have helped me build strength and improve lean muscle mass. Most notably, with respect to several muscle groups under-utilized in my chosen athletic disciplines of swimming, cycling, and running. These gains have enhanced core body stability and significantly impeded overuse injury by strengthening the supportive but otherwise under-developed muscles surrounding the more utilized muscles, creating a more balanced and optimally functional overall strength. Balance As a swimmer, I have always been rather flexible. But my balance is historically horrible. However, through a consistent yoga practice, my coordination and balance have improved immensely. Why is this important? Better balance and coordination means enhanced control over how I move my body, which in turn leads to better technique and form – the brass ring every athlete spends a career refining, whether your focus is a swim stroke, golf swing, running stride, and jump shot or wrestling move. Muscular strength Yoga invariably improves joint and muscular muscular strength.

Yoga can help to check any imbalance in muscular development and will enable both your body and your mind to function more efficiently. If your body is flexible and supple, you will be less prone to sports injuries, as your joints will be kept lubricated. Skiing demands mental alertness as well as good balance. Yoga asanas strengthen your muscles, release physical tension and improve your concentration and poise. Yoga makes your limbs balanced, strong and relaxed. Golfers may be prone to one-sided or uneven muscle development. Yoga asanas can strengthen weak areas and ease muscular tension. The standing poses to improve balance and muscle Muscular strength. Gentle stretching exercises also ease stiffness in the legs and shoulders. Yoga asanas will also improve muscular strength. Racket sports often involve intense physical effort. Yoga practice can help players to relax and replenish their energy after strenuous games. It also promotes calm, clear thinking, even in situations that call for fast reactions. Finally, Yoga is more than just stretching and relaxation. Daily yoga practice includes a comprehensive system that builds strength, balance in the body, and mind.

METHODOLOGY

For the purpose of the study was to find out the effect of Yogasanas on muscular strength and balance among collegiate men Handball players. To achieve this purpose of study, 30 men players were selected randomly. The age of the subjects ranges from 18 to 24 years. The selected subjects divided into two equal groups, such as experimental (Group 1) and control group (Group 2). The experimental group underwent Yogasanas training for alternate days in the morning 6 am–7 am for total of 8 weeks. Group 2 acted as a control group that did not participate in any special training apart from their regular sports and games practice. The following variables were selected as criterion variables (a) muscular strength – it was measured by a sit-up test, and (b) balance – it was measured by Stork stand Test. The data were collected at before and immediately after the training program for the selected variables. The "t" test was used to analyze the significant differences, if any in between the groups, respectively. In all the cases, 0.05 or 95% level was used to test this significance.

Selected Yogasanas

(1) Surya namskar, (2) Navasana, (3) Bakasanachauranga, (4) Plank Pose, (5) Eagle Pose, (6) Sirsasana, (7) Dandasana, (8) Mayurasana, (9) Tree Pose, (10) Natarajasana, (11) Virabhadrasana.

Sit-ups Test

It was used to assess muscular strength. The score of the test is the number of correctly executed sit-ups performed by the subjects in 60 s [Table 1].

Stork Stand Test

It was used to measure both static balance. The score of the test is greater number of seconds counted between the time the heel is raised, and the balance is lost on three trails with the preferred foot. Only the highest score is recorded.

Statistical Procedure

The following statistical technique "*t*" ratio was calculated to find out the significance of the difference between the mean of the pre- and post-test of the experimental group.

Table 1: Selection of variables

S. No.	Variables	Test	Scoring system
1	Muscular	Sit-ups test	Repetitions in 60 s
2	Balance	Stroke stand test	Seconds

Table 2: Analysis of "*t*" ratio for the pre- and post-tests of the experimental and control group on muscular strength and balance

Variables	*n*	Groups	Means		Means difference	SD		Df	"*t*"
			Pre	Post		Pre	Post		
Muscular strength	15	Experimental	21.48	24.67	3.19	1.68	1.41	14	8.57*
		Control	20.89	21.30	0.49	0.98	0.68	14	1.87
Balance		Experimental	23.87	25.23	--	5.72	5.52	14	4.98*
		Group	23.49	23.60	0.15	5.23	5.09	14	1.09

Significance 0.05 level of confidence (df of 14 is 2.14)

Analysis of the Data

The significance of the difference among the means of the experimental group was found out by pre- and post-test. The date were analyzed and the dependent *t*-test was used with 0.05 levels of confidence.

Muscular Strength

The Table 2 shows that the mean values of pre- and post-test of the experimental group on muscular strength were 21.48 and 24.67, respectively, and SD of pre- and post-test of experimental group 1.68 and 1.41, respectively. The obtained "*t*" ratio was 8.57* since the obtained calculated value was greater than the table value of 2.14 for significance at 0.05 level with 14° of freedom; it was found to be statistically significant. Moreover, in the case of control group pre- and post-test mean values on muscular strength was 20.89 and 21.30, respectively, and SD of pre- and post-test of control group 0.98 and 0.68, respectively. The obtained calculated value was 1.87, since the obtained calculated value was less than the table value of 2.14 for significance at 0.05 level with 14° of freedom; it was found to be statistically insignificant. The result of the study showed that there was a significant difference between both groups in muscular strength. It may be concluded from the result of the study that the experimental group improved in muscular strength due to 8 weeks of Yogasanas training.

Balance

The mean values of pre- and post-test of the experimental group on balance were 23.87 and 25.23, respectively, and SD of pre- and post-test of experimental group 5.72 and 5.52, respectively. The obtained "*t*" ratio was 4.98* since the obtained calculated value was greater than the table value of 2.14 for significance at 0.05 level with 14° of freedom; it was found to be statistically significant. Moreover, in the case of control group pre- and post-test mean values on balance was 23.49 and 23.60, respectively, and SD of pre- and post-test of control group 5.23 and 5.09, respectively. The obtained calculated value was 1.09, since the obtained calculated value was less than the table value of 2.14 for significance at 0.05 level with 14° of freedom; it was found to be statistically insignificant. The result of the study showed that there was a significant difference between both groups in balance. It may be concluded from the result of the study that the experimental group improved in muscular strength due to 6 weeks of Yogasanas program [Figure 1].

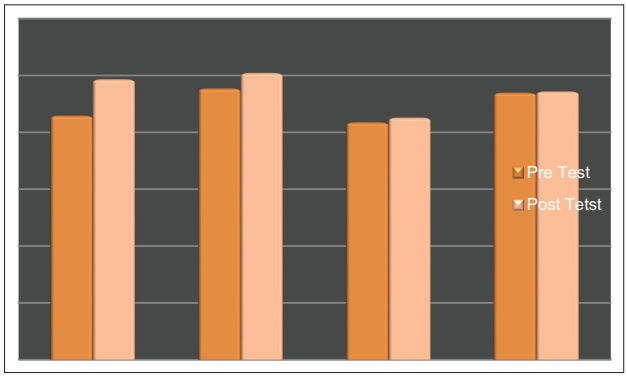

Figure 1: A graphical representation shows the mean and SD of muscular strength and balance among the experimental group and control group

Findings

To find out the significant mean difference between pre- and post-test results for the experimental and control group *t*-test was administered. SPSS package version 21 was used for this study. The result of the study indicates that the experimental group, namely, Group 1 had significantly improved in the selected dependent variables, namely, muscular strength and balance, when compared the means to the control group, namely, Group 2. It is also found that the improvement caused by Yogasanas training when compared with the control group.

CONCLUSION

Finally, I concluded that on the basis of results, there was a significant difference between experimental and control groups on selected variables like muscular strength and balance after the scheduled training program and improvement in favor of experimental group due to 8 weeks of Yogasanas training.

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Research Article

Lockdown at home during coronavirus: Physical exercise changes in students and teachers in Spanish high school

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ABSTRACT

The arrival of coronavirus produced a lot of changes in some societies. One of them was that people stayed confine at home during some weeks and months. This situation changed a lot of life's routines. Physical activity was one of them. This article presents a confine changes in the physical exercise in Spanish high school students and teachers. Study recovers the information after 1 month lockdown. We could find that some routines were changed as the frequency, the length, the kind of practice activities, the person with whom did exercise, etc. Students and teachers adapted their physical activities to this circumstance. Between the research data, we emphasize that people followed doing physical exercise (more frequency but fewer length), especially physical condition activities, alone and with their families. We differentiated students and teachers results.

INTRODUCTION

With the coronavirus crisis, some governments decide to confine people for preventing infections. This confinement could have effects about the people, especially in the younger and elder people.

In Spain, On March 13, the Spanish Government decided to declare the alert state. With this status all the people had to stay at home. Only was allowed the fundamental activities: Military activities, health workers, supermarkets workers, pharmacies, and so on. Schools were closed and all the students had to stay at home. It was a new situation never produced before and opened a lot of possibilities about to study of physical exercise.

It could have an effect about mental and physical health. Nieman (1998) recommended that physical activities are very important to reduce the illness and the mental health.

Obesity higher is problem and it has a big relation with physical activities. If people reduce caloric expenditure of the work and they increase diet calories, their height will be increased. It is a phenomenon more usual in young and adult people (Prentice and Jebb, 1995; Bouchar and Blair, 1999).

Marcos Becerro and Galiano (2003) studied the effects of the deficiency physical activities and the cardiovascular system. It is an important risk factor.

Barcelona Global Heath Institute (ISGlobal)[1] report explains that physical activity was reduced 38% during one confine week. And April 18, Spanish people walked 90% less in comparison to January 13. They used electronics device for studying these movements.

For knowing the effects from the confine on high school students and teacher, we chose a high school in Spain for testing the opinion to the students and teachers about their physical activity during the confine.

With this study, we can offer to the students and teachers' physical activities for keeping your physical condition and their mental health.

Statement of the Problem

The aim of the study is to know the physical exercise practice before the confine and during the confine. With it, we can adapt

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1 López Tovar, A. LaVanguardia Newspaper. Found April 25th, 2020.

the lessons to the students and we can offer activity/activities to teachers and students in this period.

RESEARCH METHODOLOGY

For doing the research, we chose a sample and did a form with different questions about the physical exercise before lockdown and during it.

We had to distinguish physical activity of physical exercise. The physical activities are all the everyday activities that they need a movement of physical action. For example, walking to the school, climbing the stairs, going to work with bicycle purpose of them are not to do exercise.

With physical exercise, we want to refer us to voluntary activities for maintaining or improving physical condition or get fit, for example, walking on mountain, running around the town, fitness activities. Furthermore, we have included sports.

Study sample was Maestrat High School students and teachers. This school is located in Sant Mateu, Castellon (Spain). They found 414 students and 60 teachers. They were divided in:

- Secondary Obligatory students: 323 students
- A level: 71 students
- A professional training studies: 20 students.

We created a form with *Google forms application*. Questions in the form were divided in three sections:

Questions and possibilities from the 1st section questionnaire:

1. Which is your group? Teacher, student, family, other
2. Which is your course? 1st, 2nd, 3rd, and 4th of Obligatory secondary School, 1st, 2nd of high school and formative studies.

In the 2nd section of the form, we ask about the physical activity and sport before the confine. Questions from the 2nd section questionnaire are:

1. How many weekly days do you practice Physical Exercise or Sport? Any days; 1 or 2 days; 3 or 4 days; more than 5 days.
2. How many weekly hours do you practice Physical Exercise or Sport? Any hour; between 1 and 3 weekly hours; between 4 and 6 h; between 7 and 9 hours; more than 10 h.
3. What kind of exercise do you do before the confine? Physical condition activities; gymnastics activities; corporal expression or dance; individual sport; team sport; relaxation activities, motor games, other skills; and any exercise.
4. Do you play a federate sport? Yes, or not.
5. Before the confine, I did physical exercise alone; with my family, with my friends; I did not play physical exercise.
6. Which is the reason for you doing physical exercise? For improving health; for body beauty; for occupying free time; for doing social relationships; for developing the social prestige; and for living of it in the future.

In the 3rd section, we asked questions about physical exercise during the confine.

We repeated the questions 2.1; 2.2; 2.3; 2.5; and 2.6 and we also others as:

- During the confine: I increased the days of physical exercise; I reduced the days of physical exercise; and I kept the days of physical exercise.
- During the confine: I increased the hours of physical exercise; I reduced the hours of physical exercise; I kept the hours of physical exercise.

Finally, we asked with an open question which are the major changes in their life about the physical exercise.

Form was sent on April 6, coinciding with World Physical Activity Day. It was the 24 day of the confine and. We finished data collect on April 13 (31 days after at the begin of the confine). In this time, the people were confined yet. All the students and teachers were free to participate in the study.

We have to explain that the study did not consider 2 h of Physical Education lessons that the Secondary Obligatory Studies and 1st of High School do in the school year.

RESULTS AND DISCUSSION

Information about the Students

The sample was 414 students. On April 13, we obtained 244 complete forms. After this day, we received more forms, but they were not considerate in the study. Students participation was 58 % of students sample [Figure 1].

Students' participation of 3rd and 4th of secondary obligatory studies, 1st high school, and professional training studies were satisfactory because we obtained a participation more than 60%. We stand out from the low participation of the students of 2nd secondary obligatory studies.

Related to the frequency of the physical exercise, we stand out that the students did more exercise during the confine. Furthermore, we found students that before the confine did not physical exercise (16.5%), and with the confine, they began to do physical exercise. Hence, with confine 9.9% of students did not physical exercise [Figure 2].

We can take some possibilities? About this result: (1) Some students considered that with the physical education lessons, in high school, were sufficient; (2) students lifestyle, with a

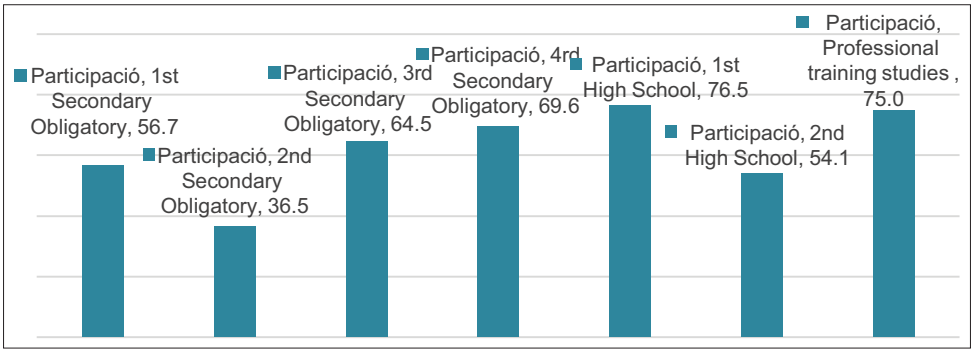

Figure 1: Response divided by class

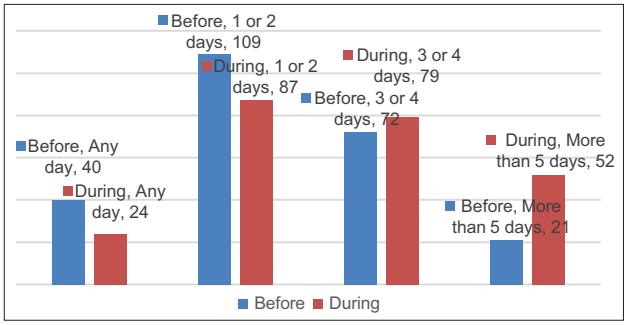

Figure 2: Physical Exercise frequency (weekly)

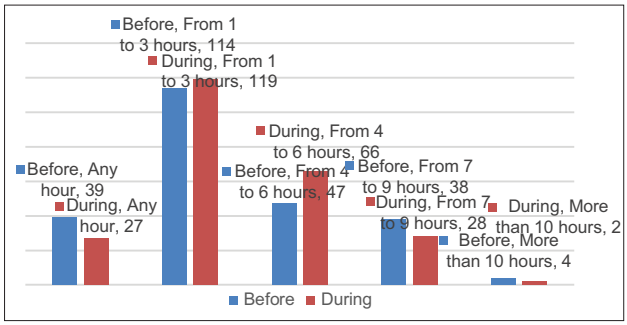

Figure 3: Weekly hours of physical exercise

lot of extra school activities as music, English lessons, etc., difficult their physical activities because they had not more time to practice them; (3) during the confine they were bored and decided to do physical exercise; and (4) during confine they changed the physical education lessons for physical exercise at home.

Findings of the study revealed that without to count the hours of physical education in the high school, students increased their voluntary physical activity during the confine (16.1% not did exercise before and 11.15% not did exercise during the confine).

Data revealed that the most popular option about practice hours was to do from 1 to 3 h of exercise. Mostly, students did between 1 and 6 h weekly. Furthermore, we want to stand out that before the confine we found 42 students (17.35%) that they did more than 7 h of physical exercise, and during the confine, this number fall down to 30 students (12.39%). Reasons for falling down this number can be: (1) Home space is limited; and (2) at home is not usually to have physical exercise tools, etc. [Figure 3].

Related with student's perception about the physical exercise frequency during the confine was that it grew it though the results are very similar. About 40.1% of the students believe that it grew, and 34.3% reduced it. We found this evidence in the previous figure, and we confirmed it with the student's perception [Figure 4].

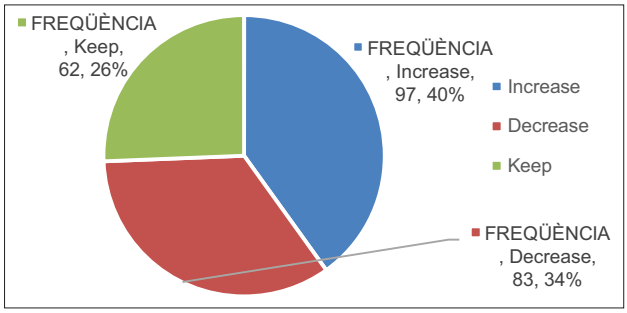

Figure 4: Students perception about the physical exercise frequency during confine

Related with the student's perception about the duration of physical exercise during the confine, they said that it fell. We can explain it because some students (27.75%) compete in different sports. In our case, a lot of students are training football. Usually, this practice needs two or more training sessions (between 60 and 120 min). Besides, it has the competition and a previous warm-up (between 80 and 120 min more or less) [Figure 5].

Other question about the evolution of the physical exercise was: "with whom do exercise?" In this case, students could select one or more options.

Usually, students did physical activities alone (40.9%) and with friends (37.6%), but when the confine arrived, it changed.

Hence, students continued to do activities alone (59.2%) but they changed the activities with your friends for activities with their families (from 9.7% before to 28.1% during confine).

Data revealed that activities with friends fell down from 37.6% to 2.7%. It was a good option for doing exercise, but with the confine, it was very difficult to find your friends because all people have to stay at home.

If we compared before the confine and during it, the family was the biggest option changed. It is a very important thing because the family used the confine for doing physical exercise together. This fact could help to improve family relation.

We also stand out the high number of students that they did alone exercise before the confine (88.2%) and during the confine (90.1%). We must to remember that students could choose more than one option in the form [Figure 6].

Related with the kind of exercise, data revealed that about 54.4% of students chose more than one question. It means they did more than one activity.

Findings of the study revealed that before the confine, physical condition activities were the most popular practice between students (27.2%). It was represented by all the motor practices with fitness relation as body-building, CrossFit, etc. It was followed to individual sport with 21% (running was incorporated it this option even it did not be a competitive practice) and team sports (20.1%).

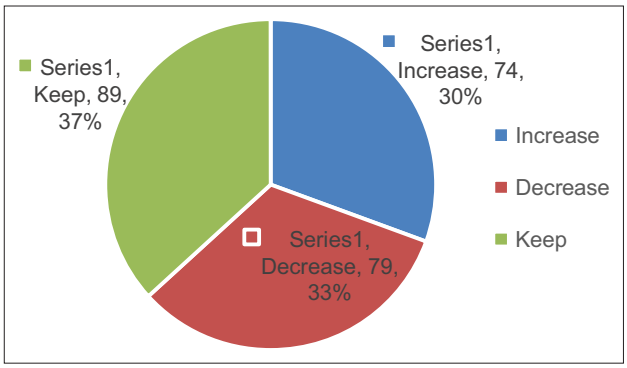

Figure 5: Students perception about the duration of the physical exercise during confine

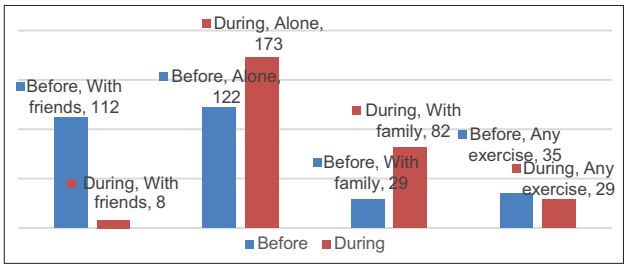

Figure 6: With whom did exercise

With the confine, the most important evolution has been that individual and team sports fell down. Team sports decreased from 20.1% to 8.5%, and individual sports decreased from 21% to 11%. It was normally because the space at home is limited. They were changed for physical condition activities. It changed from 27.2% to 45.6%. Motives of this evolution could be: (1) From the Physical education department, during the 1st and 2nd trimester of the school year, we worked a lot this kind of activities; (2) it was not necessary big equipment for doing them; (3) did not need a big space; and (4) students could find a lot of activities in the internet; etc.

Finally, we want to consider that physical education teachers did, at the begin confine, a lot of virtual suggestions of these topics using, for example, YouTube, Moodle, and others softwares. Spanish government decided to confine people, and education system was not prepared for it [Figure 7].

We want to emphasize the growth of the relaxation techniques as yoga, tai-chi, etc. They changed from 3.3% to 7.1% with confine.

Finally, we asked about the main motivation for doing physical exercise. In this case, the health (29%) and the body image (26%) were the most important between the students. After these, we found the free time occupation (20%) [Figure 8].

Teachers Information

The study sample was 60 teachers and 35 teachers answered the form (58.3%).

Data revealed that there were a low number of teachers did not do physical exercise before (8.57%) and during the confine (5.71%) [Figure 9].

About 54.4% of the teacher's respondent that they increased the frequency of physical exercise during the confine and in 29% decreased activity. More available free time and to need to get fit was the most important elements for increasing their physical exercise. Space limitation was the more difficult element for decreasing the movement [Figure 10].

Related with the physical exercise length during the confine, we found that it is lower than before the confine (43%) though some teachers respondent higher than before (31%) [Figure 11].

We could find an evolution about "With whom teachers did physical exercise?" In this case, we could find, before confine at home, that teachers did physical exercise alone (52.3%) and with friends (27.3%). When confine arrived, it changed.

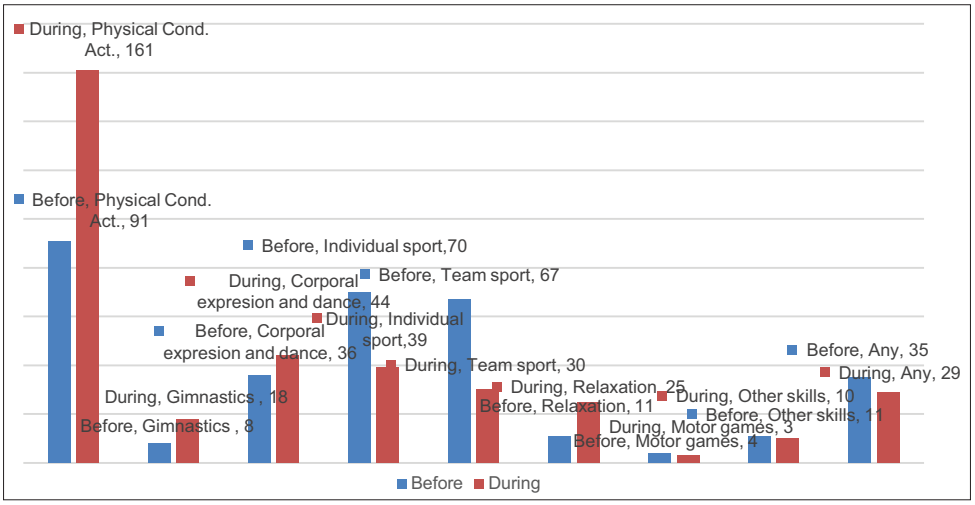

Figure 7: Physical activities developed

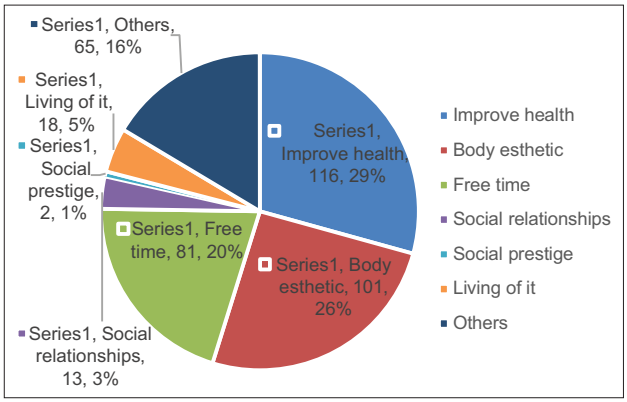

Figure 8: Main motivation for doing physical exercise

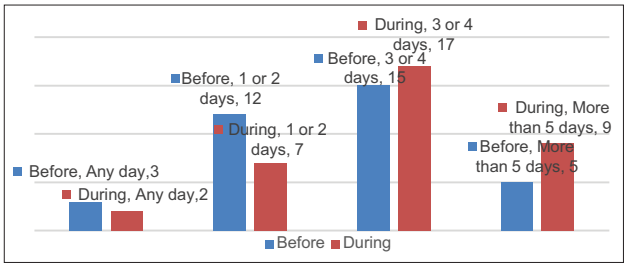

Figure 9: Physical exercise frequency (weekly)

Hence, the most popular option was alone (60%), but family was the second option with 35.6%. We did not find any teacher that during the confine did exercise with friends. Before this situation, this option was very important.

Most teachers did exercise alone (52.3%) before the confine. This option was increased to 60% during confine. It is similar to the family option that it changed from 14.3% to 45.7% [Figure 12].

Related with kind physical activities practiced for teachers, data revealed that before locked out, 60% did one activitiy, and

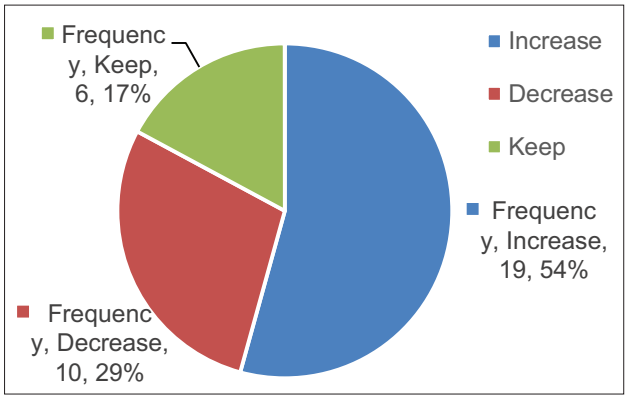

Figure 10: Teachers perception about frequency of the physical exercise during the confine

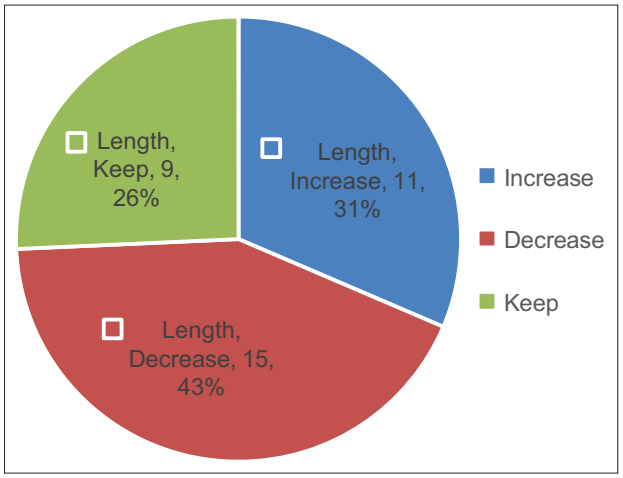

Figure 11: Teachers perception about length of the physical exercise during the confine

28.55% did more than one activity. But during confine, 51.42% did one activity and 42.85% more than one. We must consider that teachers could choose more than one question, and the

results meant that teachers researched different activities for occupying their free time at home.

The findings of the study revealed that individual sport (35.71%) and physical condition activities (33%) were the most develop before confine. However, it changed with the people locked down. In this case, physical condition activities were practiced a lot (31.4%). After we found relaxation activities (25.5%) and individual sport, corporal expression and dance with 17.6%. Hence, confine produced an important effect on physical activities that teachers practice at home and physical condition activities were always higher [Figure 13].

Main teacher's motivation to do physical exercise was to get healthy (45%) and to improve body aesthetics (23%). This question was not asked with people lockdown situation [Figure 14].

Comparing students and teachers' data, physical exercise evolution is very similar in the two groups. During confine, more students and teachers did the physical exercise in comparison with before confine.

Furthermore, we found that students and teachers increased the number of days that they did physical exercise though it was more important in the teacher. However, teachers and students decreased the length of these activities. More available time was the reason for doing more daily physical exercise. Furthermore, lower physical exercise length was normally because their possibilities at home are more limited.

It is very important that students considered the physical activities as an alternative to occupy free time, and it helped to improve health. Furthermore, to do physical exercise alone was the most popular option between teachers and students before and during confine. The second option more popular was with friends in two groups. However, when confine arrived, it changed and alone and with family were the options more important between students and teachers. More time at home opened the possibility to do physical activities with the family. Maybe, doing activities with family will improve the relationship between them although we have to study this fact in the future. Physical activities with friends fall down with confine.

Related with kind physical activities developed, before people were lockdown, sports were the most popular option between the students and teachers although students practiced more team sports and teachers more individual sport. In the case of the teachers, sport had not regulations for federation. That is, teachers practiced running, go cycling, swimming, etc., but they did not compete in these modalities. Physical condition activities also were important before the confine.

However, when confine arrived, physical condition activities were the most important. Sports fall down in students and teachers. Furthermore, we must consider the relaxation techniques as yoga, tai-chi, etc., increased its practice, between students and teachers, in this period.

Some people explained that one of the most important changes was that before confine, they did physical activities in nature, but with block out, it has been impossible.

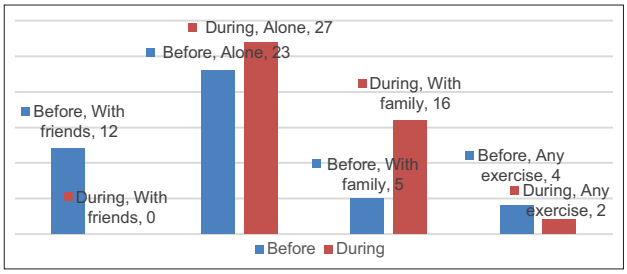

Figure 12: With whom did teachers physical exercise?

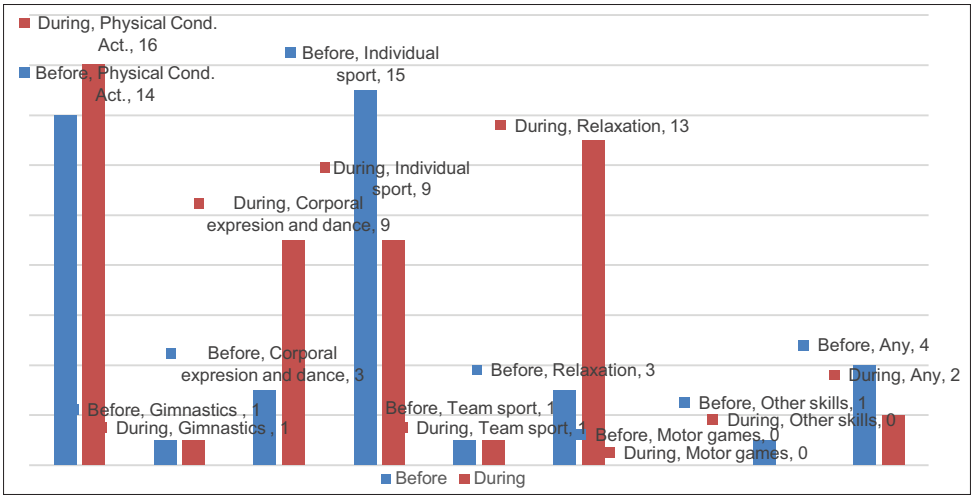

Figure 13: Physical activities developed

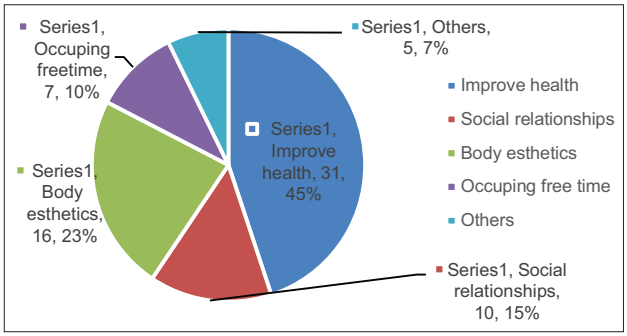

Figure 14: Teacher reasons to did physical exercise

Recommendations

The following are recommended:

(1) For improving the study, we have to compare with other similar students and teachers around other places; (2) although physical exercise is good for health, it has to be practice with a frequency, duration, and intensity. In this case, we could not know this intensity, and so, we do not know the positive effects for people health; (3) each day people go to work or to buy, for example, walking, running, cycling. With confine people had to reduce these physical activities. We think physical activities at home will not improve the people physical condition. They only will be to maintain this physical condition level. For we find it out, we had had to examine the people physical condition with some tests before that people were locked out and after it for taking a right conclusion about the confine effects in the people. (4) We need to take a body perimeter marks, height and weight for comparing this evolution in the time; (5) From physical education department we have to offer to the student and other teachers different activities for keeping the interest in the movement and in the physical exercise; (6) using technologies for teaching and sharing information about physical activities and exercise. Now, we can find a lot of platforms, software, and applications for doing exercise and exchanging information: YouTube, WhatsApp, Facebook, meet and hangout of Google, zoom, etc., are tools that we used in the lockdown period to offer an alternative to the students. Ortí (2019) explains some technologies for using in physical education lessons; (7) offer physical activities to the students for doing with friends; (8) future form must have a question about if people live in a flat, detached house, cottage, terraced house, etc., other about gender. With this information we could compare girls and boys and the evolution of their physical activities before and during confine; and (9) distribute data in school course; Finally, in our research, we did not consider hours to students who did physical education lessons at high school. It is a research limitation.

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Research Article

A study of the effects of daily physical activity on memory and attention volume in college students

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ABSTRACT

This study evaluated the relationship between daily physical activity (DPA) and memory capacity, as well as the association between daily activity and attention capacity in college students in Taiwan. Participants (mean age = 20.79) wore wearable trackers for 106 days to collect DPA. These data were analyzed in association with their memory and attention capacities, as assessed using the spatial span test (SST) and the trail making test (TMT). The study showed significant negative correlations between memory capacity, time spent on the attention test, calories burnt, and very active time duration (VATD) on the day before testing ($r = -0.272$, $r = -0.176$, $r = 0.289$, and $r = 0.254$, resp.) and during the week before testing ($r = -0.364$, $r = -0.395$, $r = 0.268$, and $r = 0.241$, res.). The calories burnt and the VATD per day thresholds, which at best discriminated between normal-to-good and low attention capacity, were ≥2283 calories/day, ≥20 min/day of very high activity (VHA) on the day before testing, or ≥13,640 calories/week, ≥76 min/week of VHA during the week before testing. Findings indicated the short-term effects that VATD and calories burnt on the day before or during the week before testing significantly and negatively associated with memory and attention capacities of college students.

Keywords: Memory capacity, Physical activity, Spatial span test

INTRODUCTION

Many studies have demonstrated that daily activity affects the physical and mental health of humans.[1-6] Therefore, from kindergarten to universities worldwide, physical education study or fitness events are held to improve student health and increase their learning efficiency. However, the search for strategies to improve health and increase study or work efficiency is laden with difficulties; there is a need to examine several, possibly interacting factors such as sex, age, environment, and living conditions, as well as examine historical data and investigate useful technologies.

Today, as the quality of life has improved, people increasingly pay more attention to their personal health and personal development to enhance their life and improve their efficiency in terms of learning and work.[7] In conjunction, the development of mobile devices has also affected the lives of human beings. For example, special high-tech wearable equipment with sensors that can accurately collect information about human daily activity has increased in popularity and is now used widely. This has created an opportunity to study human activity more easily and accurately. The development of mobile technologies that utilize the internet has brought people closer together; the world is narrowing, and almost everywhere is now in communication range through a mobile phone or a smartwatch. Consequently, people have become more sedentary,[8] due to objective and subjective reasons. In light of the above-mentioned trends and observations, we explored the relationship between daily activity and memory capability, as well as daily activity and attention capacity, in college students using wrist-worn trackers.

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METHODS

The study involved 39 participants who were first-year college students in Taiwan (15 females, mean age 20.79 years, SD 1.03), each of whom voluntarily signed an agreement to join the study. The participants wore wrist-worn trackers over a period of 106 days (from March 10, 2020, to June 23, 2020)

to collect daily activity data under free-living conditions. The trackers collected data and synchronized to the Cloud through a Bluetooth 4.0 connection to a computer or mobile phone. Daily activity data of all participants were collected automatically from the Cloud and stored in an Impala data system, and our assessment tool was developed using Java programming language and an application programming interface. We performed spatial span test (SST) and trail making test (TMT), twice per participant, to examine participants' memory capacity and attention capacity; these test batteries were repeated 14 times during the study period. The results of the tests were divided into two levels: Low values (<25th percentile) and normal-to-high values (≥25th percentile). This study was approved by the Institutional Review Board (IRB) with IRB number TH-IRB-0015-0016.

The wrist-worn tracker used in this study was the Fitbit Charge HR™ device manufactured by Fitbit Inc. This device can track daily personal activity and measures variables such as heart rate, calories burnt, steps taken, distance traveled, floors climbed, physical active minutes, exercise, and sleep characteristics. It has PurePulse LED lights that reflect onto the skin to detect capillary expansion based on blood volume change to measure heart rate.[9,10] Activities were divided into the following levels according to the physical activity level (PAL): Sedentary activity (1.0≤PAL<1.4), light activity (1.4≤PAL<1.6), fair activity (1.6≤PAL<1.9), and high activity (1.9≤PAL<2.5).[11] Moderate-to-vigorous physical activity (MVPA) consisted of fair and high activities. The rate of calories burnt at rest just to maintain vital body functions such as breathing, heartbeat, and brain activity was calculated as the basal metabolic rate. The daily physical data collected were adjusted by gender, age, height, and weight.[11,12] Therefore, we did not need to adjust data on an individual basis in this study.

The attention capacity of the participants was evaluated using the TMT, which is one of the most popular neuropsychological tests. It can measure executive functions, such as visual search speed, scanning, mental flexibility, and speed of processing.[13-16] TMTs have been developed for use with computers and tablets, which have the advantages of simplicity, accuracy, and random transformation of positional repeatability measurement.[17,18] A computerized version of TMT was also built for this study using Java programming language to automatically collect results with high accuracy time [Figure 1].

The TMT consists of two parts. TMT-A requires participants to click sequentially connecting 25 consecutive digits from 1 to 25 (1, 2,…, 25) displayed at random positions on the interface. TMT-B requires testers to click sequentially connecting alternate values between 13 numbers and 12 alphabet letters (A, B,…, L) (e.g., 1, A, 2, B, 3, and C), which are also displayed at random positions on the interface. The test result was recorded as the time required to complete

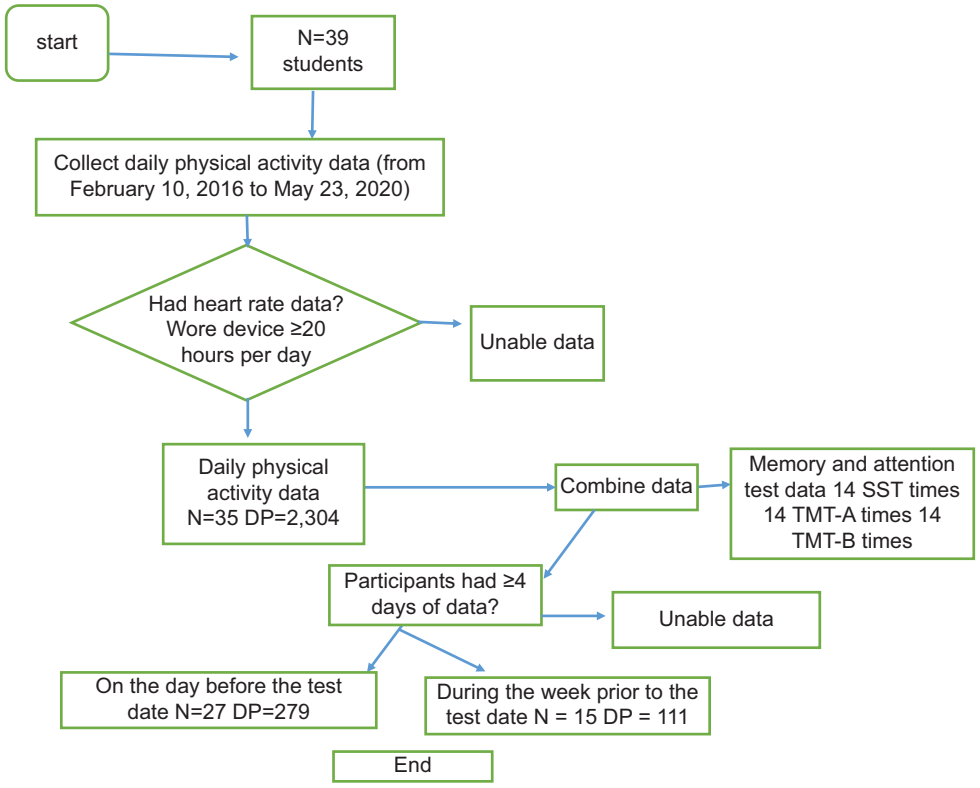

Figure 1: Study sample flowchart. DP: Day-participant; SST: Spatial span test; TMT: Trail making test

the test,[13] this time spent on the attention test (TSAT) representing attention capacity; that is, the longer the time taken, the lower the attention capacity.[19] The SST was a computerized version provided by Cambridge Brain Sciences (http://www.cambridgebrainsciences. com). It consists of squares that light up on the interface, which is used to assess memory capacity. A participant sees squares lighting up and clicks the sequence in the same order. If the participants respond incorrectly, the previous level is presented. The test is terminated when the participant responds incorrectly 3 consecutive times. The memory capacity of the participant was calculated as the maximum number of squares to which the participant responded correctly.[20,21] According to the recommendations of the manufacturer, the trackers used in this study should be recharged after several days and taken off while bathing or swimming, so the raw data need filtering before analysis. This study was based on heart rate data collected every 5 s by the trackers, and the filter conditions were as follows: (1) Data were excluded if heart rate data at the same time were lacking; (2) if data had not been collected for at least 20 h/day, the participant was excluded – 14 memory and attention test data were continuously combined with daily activity data on the day before the test date and data collected during the week before the test date; (3) after combining the data, participants for whom fewer than 4 days of data were obtained were excluded from the study. Finally, this study included two data groups for analysis: Data obtained on the day before the test date (n =27; 279 DPs) and data obtained during the week before the test date (n =15; 125 DPs). This study focuses only on short-term physical activities associated with attention and memory capacity of college students. We tried to determine which activity precisely 1 day before the test date will immediately associate with memory and attention capacity. Therefore, we analyzed the physical activities 1 day before the test date. Nevertheless, there could be a chance that participants altered their behaviors in the day immediately before the test date. Hence, we also analyzed physical activities for 1 week before the test date to eliminate this factor.

Statistical Analysis

The memory and attention test data (14 measurements – once per week) were combined with the daily physical activity (DPA) data obtained on the day before the test date and during the week before the test date; so the final data were measured repeatedly, but the number of measurements for each participant was different. Therefore, the PROC MIXED model (SAS 9.4 program) was applied in this study to analyze the correlations of DPA with memory and attention capacities.[22-26] This model is recommended for repeated measures and missing data.[27] The mixed model used the maximum likelihood (ML), DDFM = KR, and the TYPE = UN specifies a general variance-covariance matrix. The correlation coeffcient was estimated by VCORR, and the bootstrap method was used to estimate 95% confidence intervals (CIs). This study also employed IBM SPSS Statistics Version 22 program to analyze quartile and descriptive statistics, in addition to the linear trend test. The receiver operating characteristic was used to calculate the optimal cut-off points for calories burnt and the very active time duration (VATD) based on optimizing the difference between sensitivity and specificity.

RESULTS AND DISCUSSION

There were 33 participants in our study initially; however, during the period of the study, six more participants joined, and one participant dropped out. After the data were filtered, there remained 35 participants (89.74%) who wore a tracker for ≥20 h/day, which therefore accounted for 2304 day-participants (DPs). These data continuously combined 14 memory and attention tests on the day before the test date, and every participant had data for more than or equal to 4 days. The final data consisted of 27 (16 male, and 69.23%) participants (279 DPs). The daily activity data were combined with data obtained from fourteen memory and attention tests during the week before the test date (who had at least 7 days' data), and every participant had more than or equal to 4 days of data. The results represented 15 (10 male, and 38.46%) participants in total (111 DPs). Table 1 shows the means (SDs) of DPA, memory capacity, and attention capacity on the day before the test date and during the week before the test date. A mixed-model analysis showed a significant negative correlation between memory capacity and calories burnt on the day before the test date and during the week before the test date (r = −0272 [95% CI: −0.342, −0.160], r = −0364 [95% CI: −0.476, −0.179], resp.). The analysis results also showed a significant negative correlation between memory capacity and the VATD on the day before the test date and during the week before the test date (r = −0176 [95% CI: −0.270, −0.079], r = −0395 [95% CI: −0.524, −0.237], resp.) [Table 2]. Regarding attention capacity, the analysis results showed a significant positive correlation between the TSAT and calories burnt (meaning that there existed a negative correlation between attention capacity and calories burnt) on the day before the test date and during the week before the test date (r = 0289 [95% CI: 0.207, 0.366], r = 0268 [95% CI: 0.095, 0.361], resp.). The study results also demonstrated a significant positive correlation between the TSAT and the VATD (meaning that there was a negative correlation between the VATD and attention capacity) on the day before the test date and during the week before the test date (r = 0254 [95% CI: 0.164, 0.351], r = 0241 [95% CI: 0.091, 0.405], resp.).

In addition, MVPA on the day before the test date positively associated with the TSAT (and negatively associated with attention capacity), with r = 0198 (95% CI: 0.090, 0.305) [Table 2]. Quartile analysis of physical activity also confirmed that a linear association existed between memory

Table 1: Descriptive statistics of DPA, memory capacity, and attention capacity

	Measure	One the day before the test date *n*=27 (male=16) DPs=279 Mean (SD)	During the week before the test date *n*=15 (male=10) DPs=111 Mean (SD)
Daily physical activity			
Calories	Calories	2347.27 (490.97)	16,435.97 (2920.77)
Steps	Steps	9084.68 (3467.87)	63,828.14 (21,894.72)
Distance	Km	6.36 (02.45)	44.47 (15.54)
Floors	Floors	21.74 (13.96)	136.54 (68.24)
Elevation	Miles	65.74 (42.52)	412.97 (207.80)
Sedentary time duration	Minutes	795.42 (186.21)	5336.23 (759.71)
LATD	Minutes	168.80 (87.41)	1337.76 (411.19)
FATD	Minutes	22.25 (20.05)	176.52 (137.58)
VATD	Minutes	24.08 (22.75)	138.18 (109.42)
Memory and attention tests			
SST	Capability	7.04 (00.84)	7.05 (00.83)
TMT-A	Minutes	45.00 (10.58)	43.18 (11.03)
TMT-B	Minutes	56.59 (16.25)	53.13 (16.55)

DPs: Day-participants, LATD: Lightlyactivetimeduration, FATD: Fairlyactivetimeduration, VATD: Veryactivetimeduration, SST: Spatialspantest, TMT: Trail making test

capacity and the TSAT and calories burnt, the VATD on the day before the test date (P for trend < 0.05) [Figure 2]. A linear association also existed between memory capacity and the TSAT and calories burnt, the VATD during the week before the test date (P for trend < 0.05) [Figure 3]. The previous studies have indicated that daily MVPA positively affects the memory[28-30] and attention capacities of humans.[31-34] For example, higher academic performance is strongly and consistently related to a greater sedentary duration.[35,36] Physical activity during the school day improves attention to tasks among elementary students.[37,38] However, our study indicated that vigorous activity negatively associated with memory and attention capacities.[39] Galioto *et al*. studied 122 adults from the Longitudinal Assessment of Bariatric Surgery-2 parent project and identified weak correlations of self-reported aerobic physical activity with lower attention capacity ($r = -021$, $P = 004$) and execution capacity ($r = -027$, $P < 001$), and both self-reported aerobic physical activity and objectively determined MVPA min/week were negatively correlated with memory capacity ($r = -020$, $P = 004$; $r = -046$; $P = 002$, resp.).[40] Indeed, our study of college students also showed that both the VATD on the day before the test date and the VATD during the week before the test date was negatively correlated with memory capacity (r = −0176 [95% CI: −0.270, −0.079], $r = -0395$ [95% CI: −0.524, −0.237], resp.), and both the VATD on the day before the test date and the VATD during the week prior to the test date were positively correlated with the TSAT (and negatively correlated with attention capacity) ($r = 0254$ [95% CI: 0.164, 0.351], $r = 0241$ [95% CI: 0.091, 0.405], resp.). A study of 74 children (mean age = 8.6 years, SD = 0.58, 46% girls) from 7 schools in East Central Illinois, US, from October 2013 to 2014 indicated no significant associations between MVPA and inhibition, working memory, or academic achievement.[41] Another study of 80 typically developing children (aged 8–12 years, 44 girls) in The Netherlands also demonstrated no significant associations between MVPA and visual memory span or TMT.[42] A study of the Healthy Lifestyle in Europe by Nutrition in Adolescence from 2006 to 2007 indicated that adolescents' attention capacity test performances were significantly and positively associated with a longer time spent performing moderate activity or MVPA under free-living conditions ($P < 005$). Promoting MVPA may have a beneficial effect on attention capacity. That study used the d2 test of attention to assess attention capacity before the participants (273 adolescents, aged 12.5–17.5 years) being monitored in terms of daily activity under free-living conditions using GT1M devices for 7 days, 8 h/day.[43] However, our study assessed 39 students (mean age 20.79 years, SD = 1.03, 38.46% female) over a period of 106 days and filtered subjects for whom data were available ≥20 h/day under free-living conditions for analysis; the participants were tested 14 times during this period, and every participant included in the final analysis had more than or equal to 4 days' worth of data. Our results showed that students' memory and attention capacities were significantly and negatively associated with a longer VATD and higher.

Table 2: Correlation coefficients between DPA and the SST and TSAT

Daily physical activity	On the day before the test date *n*=279, r (95% CI)*				During the week before the test date *n*=111, r (95% CI)*			
	SST	TMT-A	TMT-B	Mean of TMT	SST	TMT-A	TMT-B	Mean of TMT
Calories	–0.272 (–0.342, –0.160)	0.226 (0.136, 0.310)	0.288 (0.205, 0.358)	0.289 (0.207, 0.366)	–0.364 (–0.476, –0.179)	0.220 (0.038, 0.300)	0.270 (0.095, 0.373)	0.268 (0.095, 0.361)
Steps	−0.025 (−0.134, 0.078)	0.032 (−0.092, 0.155)	0.068 (−0.035, 0.170)	0.059 (−0.054, 0.168)	−0.041 (−0.226, 0.141)	−0.131 (−0.309, 0.041)	0.011 (−0.179, 0.210)	−0.050 (−0.239, 0.150)
Distance	−0.031 (−0.136, 0.077)	0.015 (−0.104, 0.137)	0.045 (−0.059, 0.151)	0.037 (−0.075, 0.149)	−0.098 (−0.252, 0.085)	−0.159 (−0.317,−0.011)	−0.040 (−0.205, 0.149)	−0.096 (−0.269, 0.077)
Floors	0.005 (−0.116, 0.113)	−0.082 (−0.186, 0.008)	−0.024 (−0.100, 0.056)	−0.051 (−0.130, 0.026)	0.111 (−0.033, 0.274)	−0.190 (−0.341,−0.053)	−0.049 (−0.189, 0.103)	−0.115 (−0.259, 0.028)
Elevation	0.005 (−0.117, 0.113)	−0.082 (−0.186, 0.009)	−0.024 (−0.100, 0.056)	−0.051 (−0.130, 0.026)	0.111 (−0.033, 0.274)	−0.190 (−0.341,−0.053)	−0.049 (−0.189, 0.102)	−0.115 (−0.259, 0.028)
Sedentary TD	0.046 (−0.061,0 .150)	−0.038 (−0.137, 0.058)	−0.042 (−0.129, 0.043)	−0.044 (−0.135, 0.040)	−0.071 (−0.241, 0.094)	−0.078 (−0.222, 0.098)	−0.100 (−0.282, 0.051)	−0.098 (−0.265, 0.061)
LATD	−0.077 (−0.167, 0.019)	−0.073 (−0.161, 0.027)	−0.070 (−0.147, 0.014)	−0.077 (−0.154, 0.010)	−0.152 (−0.313, 0.041)	−0.208 (−0.369,−0.035)	−0.151 (−0.314, 0.052)	−0.190 (−0.359, 0.004)
FATD	0.062 (−0.059, 0.180)	0.059 (−0.059, 0.172)	0.051 (−0.079, 0.183)	0.059 (−0.068, 0.184)	0.092 (−0.044, 0.245)	−0.036 (−0.220, 0.142)	0.043 (−0.181, 0.298)	0.012 (−0.207, 0.252)
VATD	−0.176 (−0.270,−0.079)	0.222 (0.124, 0.327)	0.237 (0.146, 0.332)	0.254 (0.164, 0.351)	−0.395 (−0.524,−0.237)	0.188 (0.062, 0.332)	0.244 (0.081, 0.415)	0.241 (0.091, 0.405)
MVPA	−0.079 (−0.188, 0.031)	0.178 (0.069, 0.286)	0.183 (0.075, 0.290)	0.198 (0.075, 0.290)	−0.161 (−0.321, 0.020)	0.080 (−0.066, 0.231)	0.166 (−0.024, 0.381)	0.144 (−0.038, 0.343)

*95%CI: 95% Boot strap confident interval, SST: Spatial span test, TMT: Trail making test, Mean of TMT: Mean of TMT-A and TMT-B, LATD: Lightly active time duration, FATD: Fairly active time duration, VATD: Very active time duration, MVPA: Moderate-to-vigorous physical activity

CONCLUSIONS

Our exploratory study assessed the relationships between daily activity and memory capacity and daily activity and the TSAT. Higher calories burnt or a greater VATD on the day before and during the week before a certain day is associated with a lower memory capacity and a lower attention capacity on that day. In addition, it was also found in this study that the calories burnt and the VATD on the day before (≥2283 calories, ≥20 min, resp.) and the calories burnt and the VATD during the week before (≥13,640 calories, ≥76 min, resp.) a certain day was associated with a poorer attention capacity. Our results were obtained from an exploratory study and not a random control trial, and hence, no comparisons were made between two independent groups. As the study was performed in a free-living environment, it was influenced by external factors and personal physiological characteristics of the participants. The findings have little supporting evidence, and few studies have been performed that produced the same results. Further studies will be designed as random control trials to compare two groups and control external impacting factors in a free-living environment.

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Research Article

A comparative study on physical fitness between the rural and urban kabaddi players

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ABSTRACT

Physical fitness is a state of being that reflects a person's ability to perform specific exercises or functions and is related to present and future health outcomes. It is a general condition of health and well-being and, all the more explicitly, the capacity to perform parts of sports, inhabitant particles, and every day exercises. Physical fitness is commonly accomplished through legitimate nourishment, moderate-enthusiastic physical exercise, and adequate rest. Successful living relies on the physical, mental, emotional, social, and otherworldly segments of fitness. The term physical fitness implies more than strong quality and stamina; it infers effective execution in exercise or work and a sensible method for aptitude in the exhibition of chose physical exercises. It is a proportion of the body's capacity to work productively and successfully in work and recreation exercises, to be healthy, to oppose hypokinetic diseases, and to meet crisis circumstances. Physical fitness and great health have all the earmarks of being practically synonymous, however, they are not actually so, a man who is healthy may not be physically fit. The measure of required physical fitness contrasts starting with one occupation then onto the next. Physical movement has significant ramifications for the health and well-being everything being equal. Simple life has contrarily impacted the development and support of physical fitness. Despite the fact that the impacts of physical movement on health and wellness are well-settled, fusing stationary practices in the everyday lives of populaces from high and medium salary nations are ending up progressively normal. Notwithstanding different elements, the region of living arrangement can impact the physical action level and stationary practices.

Keywords: Division, Kabaddi players, Physical fitness, Urban and rural

INTRODUCTION

The most recent couple of decades, the Indian culture has been seeing quick change in the environmental, social, and monetary fields of life under the effect of globalization. It has prompted cultural assimilation and winding down of customary institutional arrangements and social standards. Attending to these changes, the life errands are being revamped by the presentation of different efficient devices, home apparatuses, entertainment gadgets, and correspondence instruments (for example, PC, versatile, videogames, iPod, iPad, TV, and Internet). Taken together, they will in general rearrange the example of time use and engagement with physical exercise.

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Physical action and physical fitness these two are firmly related with one another, in spite of the fact that not so much, dictated by physical movement designs over late weeks or months. A genetic commitment for fitness is significant yet presumably represents less of the variety saw in fitness than is because of environmental components, mainly physical movement. Fitness implies numerous things – strength, vigor, capacity for work, vitality, and so forth, fitness is a wide term to be seen and to comprehend it in wide point of view. Fitness by and large suggests. Soundness and status forever, and its capacities. There are numerous unique sorts of fitness for specific practices (sport, exercise, and play) which resulting in physical fitness alluding to its particular nature and life circumstances. Physical fitness is the ability to meet effectively the present and potential physical difficulties of life.

Physical fitness is the body's capacity to work extensively and splendidly in the everyday life to be healthy for the betterment of one's life and others. Life is valuable and ought to be given

the tonic of fitness. To be physically fit, one ought to perform every day exercises and take appropriate diet. Physical fitness is a physiological condition of well-being that gives the establishment to the undertakings of day-by-day living, the degree for the security against endless disease and a reason for support in sport. In essence, physical fitness depicts a lot of credits identifying with how well one performs physical action.

Taking part in sport and physical exercises, including physical fitness exercises, assumes a critical job in advancing health and wellness among children and teenagers. Not exclusively does such movement helps improve the physical fitness and health of children and youth, yet in addition, it is an indispensable technique for stemming youth heftiness – a basic health need for our country.

Exercise tests us from multiple points of view, our aptitudes, our hearts, and our capacity to skip back after misfortunes. This is the internal magnificence of sports and competition, and it can work well for all of us as grown-up athletes. Physical exercise, in formal feeling of the term, may allude to the physical action that is arranged, organized, and monotonous real movement done to improve or keep up at least one of the parts of physical fitness, oxygen consuming limit, strong quality, solid perseverance, adaptability, and body composition.

METHODOLOGY

With the end goal of the investigation, one hundred players (50 from urban zone and 50 from rural region) from the game of kabaddi have been chosen on purposively and haphazardly premise, who has won award/position in interzonal and took an interest in state level games. Every one of the subjects was routinely rehearsing and contending in their individual sports competition. Health and physical education is characterized as the procedure by which people and gatherings of individuals figure out how to carry on in a way helpful for the advancement, support, or rebuilding of health. It is a proceeding with procedure of illuminating individuals how to accomplish and keep up great health, of rousing them to do as such, and of advancing environmental and lifestyle changes to encourage their target. The examination researcher gathered through all the logical writing relating to kabaddi from books, magazines, diaries, and periodicals accessible in the different libraries and web surfing/destinations. Just speed, explosive power of arms, and agility were utilized to gauge the physical fitness parts. The mean was processed for examination of players. To evaluate the hugeness of contrasts between the means, if there should be an occurrence of noteworthy, "t-values"' test was connected. The level of centrality was 0.05.

Selection of Variables

Out of the three test things, the accompanying four were chosen for this investigation:

1. 30 m run dash test – to gauge speed capacity.
2. Medication ball test – to gauge explosive power of arms.
3. Crisscross run test – to gauge agility.

Statistical Techniques

Mean and standard deviation were determined so as to contemplate the physical fitness parts of the rural and urban players. The mean was registered for examination of players of various areas. To survey the centrality of contrasts between the means, if there should arise an occurrence of huge "*t*-values" test was connected. The level of noteworthiness was 0.05.

RESULTS AND DISCUSSION

The scholar analyzed the physical fitness parts among rural and urban players. The consequences of the investigation by and large uncovered that there were distinction in the majority of the physical fitness parts, for example, speed, explosive power of arm, and agility among rural and urban players [Table 1].

The discoveries of the examination in connection to speed demonstrated that the rural players would be wise to speed in contrast with the urban players. This might be ascribed to the way that speed assumes a significant job in the presentation of rural and urban players. The discoveries of the examination uncovered that fundamentally higher quality was found in the rural players than the urban players. The discoveries of the examination in connection to agility demonstrated that the urban players would be advised to agility in contrast with the rural players. This might be ascribed to the way that agility assumes a significant job in the presentation of rural and urban players.

CONCLUSION

Physical fitness incorporates more than solid quality. He further articulates that physical fitness infers soundness of the body organs, for example, heart and lungs, a human instrument that performs proficiently under exercise or work conditions, and sensible proportion of execution in chose physical exercises. Physical fitness incorporates those characteristics which will allow a person to perform life exercises including speed, quality, readiness, power, and perseverance and to take part in different sorts of physical exercises expected of cutting edge living including sports and athletics, and to have the option to keep up ideal measure of fitness for the individual include. The present examination gives a snap of rising situation of relaxation time exercises in various segments of students. It shows the continuation of impact of customary gender jobs, narrowing of rural-urban gap, and a few ramifications for relaxation time use among Indian school students for their health and well-being.

Table 1: Comparison of physical fitness segments between the rural and urban players

S. No.	Variable	*n*	Game	Mean	SD	SED	*t*
1	Speed	100	Urban	5.84	0.62	0.61	2.85
			Rural	5.32	0.41		
2	Explosive power of arm	100	Urban	5.21	1.57	1.54	0.67
			Rural	5.02	0.98		
3	Agility	100	Urban	16.74	1.05	1.58	3.28
			Rural	16.02	0.60		

Significant at 0.05 levels

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Research Article

An analysis of the socioeconomic status of kabaddi players in Dakshina Kannada and Udupi district

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ABSTRACT

The purpose of the study was to analyze the socioeconomic status (SES) of kabaddi players of Udupi and Dakshina Kannada district. A total of 50 players have been chosen as subjects, players who represented state, national, intercollegiate, interuniversity level, and open tournaments. The selected subject's age ranges between 18 and 35 years. To understand the SES of the kabaddi player, researcher used standard SES scale constructed by Rajbir Singh, Radhey Shyam, and Sathish Kumar. The respondent was allocated according to their scores to different SES groups. They were analyzed by calculating the percentage and then the attempt was presented through tables and figures. The study concludes that most of kabaddi players of Dakshina Kannada and Udupi have middle SES.

Keywords: Dakshina Kannada, Kabaddi, Socioeconomic status, Udupi

INTRODUCTION

There are various psychological factors such as socioeconomic status (SES) attitudes, motives, spectators, self-concept, motivation, and adjustment, which influence the participation and performance of sportsmen in games and sports. It has been recognized that socioeconomic factors play a key role in performance in sports and important ingredient in a democratic society. The home environment of the influences motivates him to succeed in sports and the degree to which success in this endeavor leads to inner satisfaction. Man is usually influenced by some component of the social clime. When engaging in physical activities. Every individual who competes in sport competition is not involved in physical intersection only but sport participation is a form of social Interaction also. Sport is a social phenomenon of great magnitude. People participate in sports for different benefits. Sports are as old as human society and it has achieved a universal following in the modern times. It has become an integral part of education process and social activities. Millions of sports fans participate in different events round the year. Many of them participate in sports for fun, adventure, health, physical fitness, and financial benefits, linked with a degree of excellence in sports (UGC Report, 1989).

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Origin of Kabaddi

Kabaddi's origins can be traced back to prehistoric times. In India, kabaddi was conceived mainly as a manner of developing young men's physical strength and speed. Kabaddi was performed during its founding to increase self-defense abilities and create rapid response to assaults. It also sharpened the individuals' counterattack reflexes, which performed mostly in groups or teams. There is also place for kabaddi in Hindu mythology. The dramatized version of the great Indian epic, the Mahabharata, has created an analogy of the scene in which the son Abhimanyu of the warrior Arjuna faces a difficult moment when he is trapped in the Chakravyuha set by his war enemies.

History of Kabaddi in India

Kabaddi is basically an Indian game that commands enormous popularity both in India and its hinterland. Kabaddi is common in various names in India. The game is called Chedugudu or Hu-Tu-Tu in the southern areas of India. It is nicely called Hadudu (for males) and Kit-Kit (for females) in East India. The game is known in South India as kabaddi. The fundamental abilities one has to gain to play kabaddi are breath control, raid, dodging, and hand and feet motion. The player must gain

authority and learn both offensive and defensive abilities to excel in the game, combining rugby and wrestling features.

In contemporary times, in 1918, kabaddi was provided a game's domestic status in India. Maharashtra's state is accredited to upgrade the game to a national platform. Consequently, the same year was developed the normal set of laws and regulations for the match. However, only after a few years, in 1923, the rules and regulations were introduced to print. In the same year, Baroda hosted an All India Tournament for Kabaddi, where players followed the rules and regulations developed for the game strictly. The game has come a long way since. Its popularity has risen and several tournaments have been organized across the nation at domestic level. The game was launched at the Indian Olympic Games in Calcutta in 1938, which brought it global recognition.

The popularity of kabaddi has increased over the passing years, from being a popular game in the rural India to a sport recognized at the national level. A number of championships, both at the national and international level, have been organized for kabaddi, wherein the Indian National Kabaddi team has delivered remarkable performances. The introduction of Federation Cup Kabaddi matches in India in 1981 is a milestone in the history of kabaddi in India. India touched another milestone in 2004, when India hosted the first ever Kabaddi World Cup, in Mumbai. The country won the World Cup, as well. India has produced a number of talented kabaddi players, so far, who have earned international recognition and brought laurels to the country.

SES

Technically, "socioeconomic status is the level indicative of both the social and economic achievement of an individual or a group." Herbert Sorenson (1954).

Socioeconomic factor assumes a continuous ranking of society from high to low on the basis of occupation, income, education, wealth, life, and cultural way of life. Socioeconomic factor emphasizes the economic condition of society and their behaviors in life. An individual socioeconomic factor may influence his opportunity for participation, his desire to excel in his choice of activity, and his success.

Socioeconomic factor refers to social and economic standing. A person who has high standing in the community and good quality and ample propositions is said to have good socioeconomic factor while a poorly educated laborer of small income who lives in a small town has low economic factor. These are the extremes and between these most people can be classified. Hence, is not bestowed on a person but achieved by him. In the attempt to achieve, this man enters competition of various forms in life some achieve but fail to achieve.

An individual's socioeconomic factor may influence, his opportunity for participation, his/her desire to excel in his choice of activity, and his success. It is widely believed that only performance count in sports. Most people see sports as open to everyone, and they see success in sports as the result of individual abilities and hard work, not money and privilege. However, when they are formally organized sports depend on material resources. More than even before it now takes money to play certain sports and obtain the coaching necessary to develop sports skills.

Statement of the Problem

This study will investigate the SES of the Dakshina Kannada and Udupi kabaddi players.

Delimitation of the Study

1. The study was delimited to the players who have participated in Kabaddi Association recognized tournaments in Dakshina Kannada and Udupi district only.
2. The study was delimited to the men kabaddi players only.
3. The study was delimited those who have participated in tournaments from the past 5 years.

Limitation of the Study

1. Daily routine, subject diet, player's leisure time, and lifestyle cannot be regulated by the investigator.
2. The answers from the subjects are treated as correct and authentic.
3. Although socioeconomic factor will be evaluated during this research, it is not possible to control the associated player variables during the evaluation test period.

Hypotheses

H_1: It was hypothesized that kabaddi players of Dakshina Kannada and Udupi have middle SES.

H_2: It was hypothesized that in middle SES, most players have lower SES.

Definition of the Terms

Kabaddi

"Kabaddi is a Contact Team Sport. Played between two teams of seven players, the objective of the game is for a single player on offence, referred to as a "Raider," to run into the opposing team's half of a court, tag out as many of their defenders as possible, and return to their own half of the court, all without being tackled by the defenders, and in a single breath" (Wikipedia).

Socioeconomic Status

"Socioeconomic status is the social standing or class of an individual or group. It is often measured as a combination of education, income, and occupation" (American Psychological Association).

METHODOLOGY

This chapter describes this study's approach. This chapter encompasses selection of subjects, selection of test for collecting data, and analyzing of data. The research procedure has been systematically presented in this chapter under the following headings.

Research Method

Selecting suitable research methods become inevitable for undertaking any research. Depending on the objectives of the study, the descriptive survey method was selected in this study.

Selection of the Subject

For this study, a total of 50 kabaddi players have been chosen as subjects. Players who represented and participated in state level, national level, intercollegiate, interuniversity, and open tournaments selected as subjects for this study.

Subjects have been randomly chosen. The chosen subject's age ranges between 18 and 35 years and the study constrained to Dakshina Kannada and Udupi district only.

Used Tools

To understand the SES of the kabaddi player, researcher used standard SES scale constructed by Rajbir Singh, Radhey Shyam, and Sathish Kumar.

Administration of Questionnaire

The subjects will consult personally by the investigator. The scholar has met different clubs and educational institutions, which is frequently participate in kabaddi tournaments. Necessary instruction was given to the subjects before the administration of the questionnaire which includes the purpose of the study and the procedure for answering the questions. The scholar motivated the players to respond truly.

Analysis of Data

The respondents were allocated according to their scores to different SES groups. They were analyzed by calculating the percentage and then the attempt was presented in suitable tables and figures.

ANALYSIS AND INTERPRETATION OF DATA

This chapter will give the information of overall study. This chapter deals with the analysis and interpretation of information gathered through questionnaire from subjects. Using percentage measures the gathered information coded and tabulated. The data have been analyzed and interpreted accordance to the research goal. This chapter includes following tables and figures.

Table 1 shows distribution of raw score and percentage of the SES of Dakshina Kannada and Udupi district kabaddi players. The research find 2% of players under low SES, 72% of players in middle SES, and 26% of players in higher SES. The result revels that most of the kabaddi players of Dakshina Kannada and Udupi district have middle SES. The hypothesis of the study stated that kabaddi players of Dakshina Kannada and Udupi have middle SES. The result of the present study is in favor of the hypothesis; hence, the hypothesis is accepted.

Figure 1 shows percentage of various level of SES of kabaddi players. High percentage of players is from middle SES. Middle SES again divided into three categories it is explained in Table 2.

Table 2 shows the percentage of middle level of the SES of kabaddi players. About 25% of players have lower SES, 50% of players have average SES, and 25% of players have upper SES. It reveals that most of the players are in average SES among middle SES.

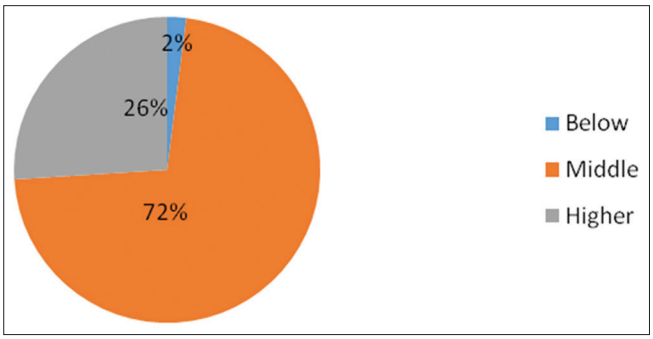

Figure 1: Graphical presentation of the level of socioeconomic status of Dakshina Kannada and Udupi district kabaddi players

Table 1: The following table represented the level of socioeconomic status of kabaddi players in Dakshina Kannada and Udupi district

Level	Raw score	Percentage
Low SES	1	2
Middle SES	36	72
Higher SES	13	26

SES: Socioeconomic status

Table 2: The following table represented the middle level of the socioeconomic status of Dakshina Kannada and Udupi district kabaddi players

Level	Raw score	Percentage
Lower SES	9	25
Average SES	18	50
Upper SES	9	25

SES: Socioeconomic status

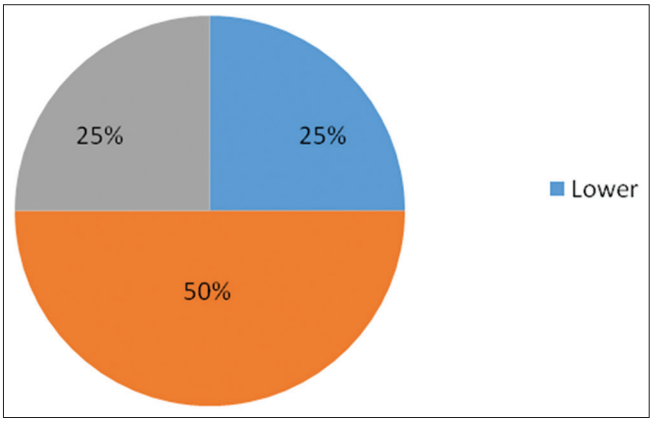

Figure 2: Graphical presentation of the middle socioeconomic status of Dakshina Kannada and Udupi district kabaddi players

Figure 2 is graphical presentation of middle SES. About 50% of Dakshina Kannada and Udupi players having average SES. The formulated hypothesis is that in middle SES, most of the players have lower SES. The result of the study shows average SES hence formulated hypothesis is rejected.

SUMMARY, CONCLUSION, AND RECOMMENDATION

In this present study, research tries to analysis the SES of kabaddi players in coastal region. For data collection, 50 kabaddi layers randomly selected from various colleges, sports clubs of Dakshina Kannada and Udupi district. Socioeconomic factor assumes a continuous ranking of society from high to low on the basis of occupation, income, education, wealth, life, and cultural way of life. Socioeconomic factor emphasizes the economic condition of society and their behaviors in life. An individual socioeconomic factor may influence his opportunity for participation, his desire to excel in his choice of activity, and his success.

Socioeconomic factor refers to social and economic standing. A person who has high standing in the community and good quality and ample propositions is said to have good socioeconomic factor while a poorly educated laborer of small income who lives in a small town has low economic factor. These are the extremes and between these most people can be classified. Hence, is not bestowed on a person but achieved by him. In the attempt to achieve, this man enters competition of various forms in life some achieve but fail to achieve.

An individual's socioeconomic factor may influence, his opportunity for participation, his/her desire to excel in his choice of activity, and his success. It is widely believed that only performance count in sports. Most people see sports as open to everyone, and they see success in sports as the result of individual abilities and hard work, not money and privilege. However, when they are formally organized sports depend on material resources. More than even before it now takes money to play certain sports and obtain the coaching necessary to develop sports skills.

Despite this study's restriction, the findings provide a helpful insight into kabaddi players SES. In the current research, the following conclusions were taken.

1. The passion toward kabaddi in Dakshina Kannada and Udupi is also influenced players SES.
2. The study concludes that most of the kabaddi players of Dakshina Kannada and Udupi district have middle SES.
3. It reveals that most of the players are in average SES among middle SES.
4. In both districts, kabaddi players are getting financial encouragement by educational institutions and sports clubs.
5. Number of open tournaments was organized by kabaddi clubs and association every week, it will increase the socioeconomic status of the players.
6. The hypothesis of the study stated that kabaddi players of Dakshina Kannada and Udupi have middle SES. The outcome of the study is favor of the hypothesis hence it accepts the hypothesis.

The investigator's experience during this study period as well as the findings of this study would result in the following recommendations:

1. A similar study could be done in different games and sports.
2. A similar study could be done with subjects belonging to different age groups.
3. A comparable research between the players of two distinct games could be explored.
4. Team, individual, and other games and sports could conduct a comparative research.

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Research Article

Effect of asanas and forward lunges exercise on *Aramandi* (latterly toe opened half squat) among Bharatanatyam dancers

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ABSTRACT

Flexibility influences the grace of Bharatanatyam dancers. Additional conditioning exercise may promote the mobility of the joints which promote superior theater demand. Therefore, the present study intended to assess the effect of selected asanas and lunges exercise on flexibility among Bharatanatyam dancers. To achieve the purpose of 100 (n = 100, age = 22–25 years), first and final year students were purposively selected from the Department of Dance, Ramanathan academy of fine arts, University of Jaffna, Sri Lanka. They were classified into Group I ([training group [TG]] [n = 50], practice selected asana and lunges exercise, 45–60 min/day/3 days/week over the period of 12 weeks), Group II (n = 50) acted as a control. Data were collected on flexibility by groin flexibility test before and after the intervention program. Collected data were statistically analyzed using an independent "t" test. The results reveal that selected asanas and lunges training positively influence flexibility (t = 31.45*). From the results, it was concluded that strengthening the gluteal region and stretching groin area of the hip my leads to strong lower body strength with respect to Aramandi (half squat) in Bharatanatyam dancers. Moreover, it was recommended that inclusion of yoga and additional conditioning exercise can be incorporate within the regular dance training without spoiling the esthetic gracefulness.

Keywords: Asana, Bharatanatyam, Flexibility, Lunges

INTRODUCTION

Dance has an important role in developing and maintaining a good physique. It is a graceful art which supports that the people involves mentally and physically as a low impact physical activity. A good dancer must have great neuromuscular coordination, muscle strength, endurance, and flexibility. Many of the critical dance movements stress the joint leads to injuries and performance decrements. Due to neurological protections against injury of the neurotendinous spindle reflex, the dancers are very hard to stretch the fullest length of the muscle without proper conditioning. Hence, training to avoid injuries is one of the main aspects of dancing.

"Flexibility or limberness refers to the range of movement in a joint or series of joints, and length in muscles that cross the joints to induce a bending movement or motion. Flexibility varies between individuals, particularly in terms of differences in muscle length of the multi-joint muscles" (Wikipedia, 2020).

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Stretching is a form of physical exercise, in which a specific muscle or tendon is deliberately flexed or stretched to improve the muscle's felt elasticity and achieve comfortable muscle tone**.** Origin of passive muscle tension (during asana) is actually stretch the myofibrils, not extracellular space. However, the result will increase muscle control, flexibility, and range of motion. The stretching also occurs in large protein within the myofibrils of skeletal muscles named titin (Jen Hsin *et al*., 2011). And during, the stretchantagonist muscle reaches the limit of its normal range of motion (Tsatsouline, 2001)

Asanas means a posture or stance which have three classes, namely, cultural, meditative, and relaxation asana. Asana has a certain special pattern of posture that stabilized the mind and body. Flexibility can be defined as the ability to execute movement with greater amplitude or range. Yoga differs from another type of physical exercise training as it

requires multistructural involvement that performs the difficult movement to the body in various ways (Gulati and Sharma, 2011; Kaminoff and Matthews, 2007).

Dance has a huge potential for both young and old in contributing to healthier lifestyles. It is an art form which can truly engage people both mentally and physically and is particularly appealing to girls and those who are ignored competitive sports. Dance has cultural, esthetic, artistic, and moral constraints and range from functional movement to virtuoso techniques. It is involving the body, emotion, and mind; it is both a physical activity and a means of expression and communication.

Bharatanatyam very popular dance form in South India and Sri Lanka and the oldest of all classical dance forms. The general etymology of Bharatanatyam is BHAva (expression) + RAga(music) + TAla(rhythm) + NATYAM(dance). The variety and style of the dance and musical accompaniment provide the people with tastes and performing them.

Flexibility is essential for Bharatanatyam dancers. Hence, the unfounded truth of fitness components mainly reflects the Bharatanatyam performance as well as professional dance carrier. Moreover, the myth of the dancers would be, "Physical exercises indirectly diminish esthetic appearance of the dancers," and most of the Bharatanatyam dancers are practice dance as a cultural form and do not need additional fitness. This may hush the theatre performance and leads to bungling, fatigue, and injuries. Hence, to enhance and maintain, the extreme theater demand Bharatanatyam dancers need additional fitness training.

Lunges exercise refers to any position of the human body where one leg is positioned forward with knee bent and foot flat on the ground, while the other legs are positioned behind. Lunges are a good exercise for strengthening, sculpting, and building several muscles/muscle groups, including the quadriceps (or thighs), the gluteus maximus (or buttocks), as well as the hamstrings. The lunge is a basic movement that is fairly simple to do for beginner athletes (Wikipedia, 2020).

The own body forward lunge is a kind of exercise that simultaneously tune the muscles which crossing the hip, knee, and ankle joint for prolonged physical activity. It is generally used for rehabilitation, injury prevention, and improving human performance. The lunges exercise is an effective functional exercise, it trains the movement primarily in the anteroposterior plane. The dancers relatively weak hip extensors compared to their knee extensors. Therefore, forward lunges exercise is a good remedy for improving the strength of the hip extensors and flexibility of the hip flexors. Here, the lunges exercise fulfill the philosophy of "strengthen what you stretch."

Objectives

Aramandi is an integral body posture in Bharatanatyam. It is the starting position of Bharatanatyam which is also known as the half-sitting posture. In this posture, the performer must sit-half and the knees must be bent laterally making an angle. In Bharatanatyam dance, *Aramandi* (half squat) is the fundamental and foremost physical movement. Continually being in half squatting position is a tuff task for dancers, and lack of lower body strength and flexibility leads to poor theatre performance. At present, most of the dancers performing biomechanically wrong *Aramandi* (half squat). In the coronal plane view, the knee falls bit anterior, this may lead to poor performance and injury. The tightness of the medial rotators, groin area, and weakness of the lateral rotators is the reason for this issue. Therefore, the present study intended to assess the effect of selected asana and lunges exercise on hip flexibility among university-level female dancers.

METHODOLOGY

To achieve, the purpose of 100 (n = 100, age = 22–25 years), first and final year students were purposively selected from the Department of Dance, Ramanathan academy of fine arts, University of Jaffna, Sri Lanka. They were classified into Group I ([training group [TG] [n = 50], practice selected asana and lunges exercise, 45–60 min/day/3 days/week over 12 weeks), Group II (n = 50) acted as a control. Data were collected on flexibility by groin flexibility test before and after the intervention program. Collected data were statistically analyzed using an independent sample "t" test.

Training Protocol

- The training session starts with 15 min warm-up
- The main session lunges exercise for 10 m X2 rep X 3 set
- Every 2 weeks repetition increases by one and every 4 weeks sets increases by one
- The recovery between repetition 30 sec and set recovery was 3 min.

The Following Asanas had been Practice after the Main Session

Virabhadrasana, BaddhaKoṇāsana, UpavisthaKonasana, ArdhaMatsyendrasana, eka pada rajakapotasana (Pigeon Pose).

RESULTS

Table 1: "*t*" value for groin flexibility test between experiment and control group

Pre- and post-test	Group	Mean	SD	SE	"*t*"
Pre-test	Experiment group	7.97	0.89	0.12	0.77
	Control group	8.11	0.94	0.13	
Post-test	Experiment group	3.83	0.74	0.10	31.45*
	Control group	8.34	0.69	0.09	

*Significant at .05 level of confidence. with df (1, 98) is 1.99

The result of the study shows that the experimental group (mean 7.97) and control group (mean 8.11) had been no significant difference in groin flexibility (0.77). However, after the intervention program, the post-test mean shows a significant difference (31.45*) between the experiment (mean 3.83) and control group (mean 8.34).

DISCUSSION

Many dance movements produce strenuous and unnatural stress on the joints, muscles, and tendons, and it is easy to affect them if the body is not properly conditioned. Some dancers more suitable for extensive training than others, and in the western countries, many elite dancers are undergoing advance medical screening to identify biomechanical deformity and weakness, such as a weak or curved spine and bowlegs that would spoil the dancing performance. However, promoting body balance through yoga and corrective exercise is another option to enhance dancing performance.

The present study included physical exercise as well as yoga asana to promote performance. Hence, the study incorporated lunges exercise which is a very powerful multi-joint exercise that strengthens the hip flexors and core region of the hips. The exercise forcefully loads the rear leg's hip flexors through the eccentric loading pace. Moreover, gluteal group of muscles is stretch in the front leg (flying leg). This is a powerful multi-joint exercise that a dancer can perform within their theater settings rather than hitting the gym or outdoor conditioning. Strengthening the hip flexors may lead to stability and balance of the hip flexors, which support the hip and knee joints to stay longer time in *Aramandi* (half squat) position. In Bharatanatyam dance, Aramandi is fundamental and improper movement may lead to injuries and spoils gracefulness of the dancing.

Yogic exercise builds the human body more powerful and flexible. In modern civilization, the asana is generally practiced in the form of exercise. The practice of asana promotes functional fitness, which means performing daily tasks with effectively and efficiently. With the help of yogic exercises, the body's flexibility or elasticity improves and makes the body more active and suppler. Increasing the practice polishes the body to become more elastic and flexible. In another study, the core training and asanas are a huge potential to develop abs strength and hip flexibility to girls' students was recorded (Sabaananth, 2010). The tightness of the hip flexor and medial rotator muscles (antagonist of *Aramandi* movement) is the main reason for poor *Aramandi* in Bharatanatyam. The lunges exercise potentially influences in stretching hip flexors by moving the rear leg bit backward. Another previous study conducted among college athletes for about 10 weeks of a yoga session in a similar setting. The results suggest that both flexibility and balance improved among the participant (Polsgrove *et al*., 2016). This evidence also supports to present research findings that the yoga can indeed enhance the flexibility of the dancers alongside with lunges exercise.

CONCLUSION

From the results, it was concluded that yoga type of stretching with conditioning exercise positively influences on hip flexibility with respect to *Aramandi* in Bharatanatyam dancers.

Recommendation

Based on the review literature of the present and previous study, it was recommended that the inclusion of yoga and additional conditioning exercise can be incorporate within the dance pedagogy of training without spoiling the esthetic gracefulness.

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Research Article

Effect of different dance training on cardiorespiratory endurance among girls

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ABSTRACT

Regular dance practice may help to make the lungs stronger and more efficient. This can increase the expansion of breath in more air with increased number of capillaries around the alveoli enabling to absorb oxygen in the blood quicker. The purpose of this study was to find out the effect of 12 weeks of different dance training on cardiorespiratory endurance among post-pubescent girls. To achieve the purpose, 90 women dancers, aged 17–18 years, were selected from Jaffna, Sri Lanka and divided in to aerobic dance (AD) (n = 30), Bharatanatyam dance (n = 30), and Kandyan dance (KD) (n = 30) groups. All the experimental groups underwent respective dance training for 60 ± 15 min/day/3 days/week over 12 weeks. Cardiorespiratory endurance was assessed by the Harvard step test before and after the intervention program. The data were analyzed with the analysis of covariance. In all the cases, 0.05 level of confidence was fixed to test the significance. When the obtained "F" ratio was significant, Scheffe's *post hoc* test was used to find out the paired mean difference. The results of the study showed that aerobic, Bharatanatyam, and KD training significantly (P = 0.05) influence the cardiorespiratory endurance. However, aerobic dance training shows better improvement than Bharatanatyam and KD. From the result, it was concluded that aerobic, Bharatanatyam, and KD training positively influence on cardiac function in respect of cardiorespiratory endurance.

Keywords: Aerobic, Bharatanatyam, Cardiorespiratory endurance, Kandyan dance

INTRODUCTION

Dance involves the body, emotion, and mind. It is both a physical activity and a means of expression and communication. Dance and health programs form part of a growing field of arts work delivers health and well-being outcomes for people. It is an art form that generally refers to the movement of the body, usually rhythmic and music, used as a form of expression, social interaction, or presented in a spiritual or performance setting.

Long-term exercise can help to make the muscles that expand the lungs stronger and more efficient. This can increase the amount of expansion of chest to breathe in more air with each breath and increase the number of capillaries around the alveoli, or air sacs, enabling to absorb oxygen in the blood quicker. This results in being able to exercise at a higher intensity for a longer period of time.

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Aerobic Dance

In the early 70's, Jacki Sorenson developed a fitness program now known as aerobic dance, which was designed to improve cardiovascular endurance.[1] It involves choreographed routines made up of various dance steps and other movements, including walking, running, and skipping. It also involves muscle conditioning exercises for the abdominal, legs, and arms.[2] Aerobic dance is appropriate for the general public since skill and technique are not emphasized.[3]

Bharatanatyam

Very popular dance form in South India and oldest of all classical dance forms. The general etymology of Bharatanatyam is BHAva (expression) + RAga (music) + TAla(rhythm) + NATYAM (dance). The variety and style of the dance and musical accompaniment provide the people with tastes and performing them.

Kandyan Dance (KD)

Is a dance form that originated in the area called Kandy of the Central hills region in Sri Lanka. But today, it has been

widespread in other parts of the country. The dance waned in popularity as the support for the dancers from the Kandyan kings ended during the British period. It has now been revived and adapted for the stage and is Sri Lanka's primary cultural export.

Beginning with the first breath and ending with the last, humans move, and from the expressive urges of that movement, dance is born. If life is a movement, then the art of that movement is dance. To know, dance is to do it: To step glide, turn, dip, reach, shake, bend, and leap to the rhythmic flow of one's inner impulses, it is in feeling one's energy bristle with life that the nature of this expressive art is revealed.

The physiological response to dance is dependent on the intensity, duration, and frequency of the exercise as well as the environmental conditions. During dance practice, requirements for oxygen and substrate in skeletal muscle are increased, as are the removal of metabolites and carbon dioxide. Chemical, mechanical, and thermal stimuli affect alterations in metabolic, cardiovascular, and ventilatory function to meet these increased demands. Hence, the purpose of this study was to find out the effect of 12 weeks dance training on cardiorespiratory endurance among post-pubescent girls.

Objective of the Study

Dance has huge potential to influence the health in variety of ways. Many dance styles are in practice in different regions. Cardiac health is more important to prevent hypokinetic disease as well as sporting performance. The majority of the dance styles are aerobic in nature which strengthens circulatory and respiratory systems. Moreover, the nature and style of the dance is a non-impactful low-intensity activity which mainly uses aerobic respiration. Aerobic exercise is one of the powerful tools to handle cardiorespiratory health. Therefore, the objective of the research was to find out the comparative effects of aerobic, Bharatanatyam, and KD practice on cardiorespiratory endurance.

METHODOLOGY

To achieve, the purpose 90 women dancers were selected from Jaffna, Sri Lanka, and their age was ranged between 17 and 18 years. They were classified into aerobic dance ([AD] [n = 30, practice aerobic dance 60 ± 15 min/day/3 days/week over the period of 12 weeks]), Bharatanatyam dancers ([BD] [n = 30, practice Bharatanatyam 60 ± 15 min/day for 3 days/week over the period of 12 weeks]), and Kandyan dancers ([KD] [n = 30, from Sri lanka, practice KD 60 ± 15 min/day/3 days/week over the period of 12 weeks]). Cardiorespiratory endurance was assessed for all the selected subjects by Harvard step test before and after the intervention program, and collected data were subjected to statistical treatment using analysis of covariance. In all the cases, 0.05 level of confidence was fixed to test the significance. When the obtained "F" ratio was significant, Scheffe's *post hoc* test was used to find out the paired mean difference.

RESULTS

From the table, it was clear that there was a significant difference between aerobic dance, Bharatanatyam dance, and KD groups on cardiorespiratory endurance. The result of *post hoc* test showed that there was a significant difference between aerobic and Bharatanatyam, aerobic and KD groups on cardiorespiratory endurance. However, between Bharatanatyam dance and KD, insignificant difference was observed on cardiorespiratory endurance [Tables 1 and 2].

DISCUSSION

Dance is an art form that generally refers to the movement of the body, usually rhythmic and music, used as a form of expression, social interaction, or presented in a spiritual or performance setting. Although dance is an artistic expression through the use of the body, and also a long process of physical, intellectual, and psychological preparation. Dance training, rehearsal, and performance do not elicit significant stimulus to result in increased Aerobic fitness levels. Therefore, dancers often demonstrate low levels of aerobic fitness, even though a strong aerobic foundation is necessary to meet the required workload.

It may indicate the associated dance training outcomes that could be affected by such difference in duration, intensity, and frequency of dance they undergone. Regular dance training essential for maintain and developing the dancer's technique and coordination. The energetic demands during

Table 1: ANCOVA for cardiorespiratory endurance

	AD	BD	KD	SV	SS	df	MS	"F"
Pre-test mean	46.22	45.01	44.11	B	67.49	2	33.74	10.26*
SD	2.07	1.63	1.70	W	286.13	87	3.28	
Post-test mean	54.96	50.48	49.71	B	481.43	2	240.72	25.57*
SD	2.29	4.00	2.62	W	818.99	87	9.41	
Adjusted	55.08	50.46	49.60	B	429.75	2	214,87	22.66*
Post-test mean				W	815.39	87	9.48	

TV: 0.05 df 2 and 86, 87 =3.10

Table 2: Mean difference between experimental groups

AD	BD	KD	MD	CI
55.08	50.46		4.62*	1.87
55.08		49.60	5.48*	
	50.46	49.60	0.86	

these training sessions stand in rather sharp contrast to those which can exist during stage performance. The result also shows that the aerobic dancers have better VO_2 max compare to Bharatanatyam and KD. Therefore, intensity, duration, and movement patterns of the dance influence on aerobic power such as VO_2 max, cardiorespiratory endurance so on.

The literature indicates that changes in cardiorespiratory endurance and VO_2 max are directly related to the subject's initial fitness level and the frequency, intensity, and duration of the training program. Some aerobic type of activities have a close association with cardiorespiratory endurance.[4] It has been shown that arm work performed above the head produces a higher cardiorespiratory endurance than the work performed bellow head level, due to an increased sympathetic tone.[5] In general, dance students demonstrate lower maximal oxygen up-take (~VO_2max) values compared with other athletes.[6] Within the dance world, however, modern dancers have shown higher ~VO_2max values than ballet.[7]

Through physical exercise, often beginning in childhood and continuing until retirement. Fitness programs, supplementary to traditional dance classes, have only recently been considered as a part of this process, most athletes where aerobic fitness and performance levels increase in parallel during their careers, dancers develop these two parameters independently. It may be suggested that moderate-intensity aerobic-type exercise supports the dancers to enrich their theater performance as well as quality of life.

Keenness to follow principles associated with sport training that improve real opportunity to extend the dancer's career by simply applying sports science principles to dance training and performance. An awareness of these factors will assist dancers and their teachers to improve training techniques, to employ effective injury prevention strategies, and to improve better physical conditioning. However, any change in the traditional training regimes must be approached cautiously to ensure that the esthetic content of the dance is not affected by new training techniques. Since physiological aspects of performing dance have been viewed primarily in the context of aerobic, Bharatanatyam, and KD.

Physical inactivity and low cardiorespiratory fitness are recognized as important causes of morbidity and mortality.[8,9] It is generally accepted that people with higher levels of physical activity tend to have higher levels of fitness and that physical activity can improve cardiorespiratory fitness.[10] Nourrey *et al*. showed in a prospective study that aerobic exercise improves pulmonary function and alters exercise breathing pattern in children.[11] Clark found that cardiorespiratory fitness significantly improved, and breathlessness decreased over a wide range of physical work corresponding to activities of daily living.[12] In the present investigation, the aerobic dancing group has higher cardiorespiratory endurance than Bharatanatyam and kandyan dancing group.

CONCLUSION

The aerobic, Bharatanatyam, and KD have to undergo special periodized fitness training to improve cardiorespiratory endurance level for achieve height of their professional dance career as well as better theater performance.

IMPLICATION

Scientific forms of research will be conducted to assess the physiological demands of various dance and dancers.

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Research Article

Sports plan policies and organization

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As well as imagination and organized planning of years have invariably been the plinth and foundation of success of countries such as the USA, USSR, the UK, and others. While it would be neither feasible nor possible to graft wholesale the sports systems of other nations howsoever successful on ours, it would be appreciated that they do provide some clear guidelines for endeavor and success in the field of sports. Systems of sports promotion and organization in these countries which have advanced the farthest in sports vary a great deal depending on the pattern of society they live in. However, the principle of catching "em young" is common to all. Neither it is necessary to tarry long on this universally accepted principle. Mass participation and a streamlined organization are the broad pattern of sports in socialist countries. Excellence in sports in achieved largely through the various sports association and social groups in other where not only fun by fame and fortune supply the motive force for escalating success.

INDIAN SPORTS PLAN

The All India Council of Sports has prepared a Draft National Sports Policy. The aim and objectives of the new sports policy are three-fold. The first is to inculcate sports and health consciousness among the masses for regular participation in games and sports. And top make the nation healthy and strong. The second is to improve the country's standards in sports and games so that the nation secures its rightful place in international competitions. And third, it recognizes the need to provide all the necessary facilities and infrastructure essential for the promotion of better standards so performance in sports and games. The idea underlying the new draft policy is the recognition of the right of every citizen to participate in the enjoy games, sports, and recreational activities.

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The salient points of the draft policy may be summarized as follows: Sports and physical education must be made a compulsory subject in all schools and colleges. Sports must also become a compulsory feature of recreation in all factories and industries.

Rural Sports Canters

The District Sports Councils should set up a network of rural sports canters. The Panchayati Raj department should help the District Councils in assessing the requirements of these centers.

Sports Clubs

The formation of large number of sports clubs should be encouraged. These will serve urban youth. Regular competitions should be arranged between such clubs within the same city and between the clubs in the various cities.

Sports Festivals

Sports festivals should be held at district headquarters once a year and in the state capital at regular intervals. These will help promote sports consciousness.

Indigenous and Traditional Sports

Emphasis should be given to indigenous, traditional, and rural sports such as kho-kho, kabaddi, wrestling, and the like. Yogic exercises should also be propagated and widely practices and included in the schools syllabus as part of physical education.

National Physical Fitness Programme

This program which at present has an annual participation of about 25 lakh people must be reoriented and implemented more meaningfully all over the country as a continuous program. Audio visual publicity and propagation through mass media would help in not only follow-up and feedback but in its further popularization.

Media Play an Important Role

Mass media, such as AIR, print media, and electronic media, must be effectively involved in promoting sports and health

consciousness and inculcating the habit of physical exercises as a way of life. They must also consider devoting more time to games and sports TV and AIR may develop a policy for popularization of games and sports. The firms division can help in these programmers by developing films libraries and in promoting the distribution of films on physical education, sports, and games.

Agencies Play a Role

A board base for sports can be established in the country by securing the assistance of private sports promoting agencies.

Sporting Talent

This should be the responsibility of the States Sports Councils, the District Sports Councils, and the Schools' Games Federation. At the national level, NIS, Patiala, should work in collaboration with the National Sports Federations in coordinating the developing this program. District and State Sports Councils should be set up wherever they do now exist. They should undertake functions like organizing sports festivals at all levels starting with villages, districts, and the state level. The All India Council of Sports should be vested with more powers to make its role much more effective as a coordinating and supervising body for the promotion of sports in the country.

National Games

The Indian Olympic Association should hold national games once in every 2 year, that is, 6 months before the Olympics and 6 months before the Asian Games. The minimum facilities for the various sports and games should be provided at the village, and district, state, and national levels. These should include laying tracks for athletics and playfields for basketball, football, kho-kho, kabaddi, wrestling, or any other games popularly in the area the village and taluka levels. More facilities with large sized stadia must be set up both at the state and national levels.

Similar facilities must be made available at schools and colleges which should have separate cricket, hockey, and football fields and courts for basketball, volleyball, and other games along with swimming pools and gymnasia for multipurpose activities. These facilities must be enlarged at the university level.

Preparations for International Competitions

The various agencies should devote more resources primarily on games and sports at which India has a reasonably good chance of doing well with emphasis on hockey and athletics. Adequate training must be imparted at the various coaching institutes and camps much in advance of the competitions.

Sports for Women

The National Sports Festival of Women which should be preceded by state level and district level festivals for women to be arranged by the State Sports Councils and the District Sports Councils, respectively, should continue to be held regularly and should include more and more games and sports.

Special Programs for Tribal Areas

Disciplines which are more popular and in which the tribal belts have a long-standing tradition such as hockey, track, and field events may be assigned to tribal areas special programs for these areas should be planned by the concerned States' Sports Councils.

Separate Ministry/Department of Sports

It is necessary to set up a separate department of sports and physical education, both at the central and the states.

Implementation of the Policy

The central and the state government must draws up annual and five-year plans to implement in stage the suggestions made in the policy. They must also be asked to present the annual reports reviewing the implementation of the policy.

Review of National Policy

The national policy on sports may be reviewed by the government after every 5 years in consolation with the all India Council of Sports.

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Research Article

Analysis of selected psychological variable among higher secondary level kho-kho, kabaddi, and volleyball players

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ABSTRACT

The present article chronicles the various studies is a comparative analysis of selected psychological variables of higher secondary level the kho-kho, kabaddi, and volleyball players. The purpose of the study was to make a comparative analysis of cognitive anxiety, somatic anxiety, and self-confidence among, higher secondary level kho-kho, kabaddi, and volley ball players. To facilitate the study, 45 subjects each in kho-kho, kabaddi, and volleyball players from the affiliated higher secondary of Kashmir were selected as subjects at randomly. One-way analysis of variance was used to find out the difference between psychological variables. In case of significance of mean difference was observed on the criterion measure, to find out which pair of group is higher among the others, as a *post hoc*, the Scheffe's test was applied test at 0.05 level of significant which was adopted by SPSS 17 version.

Keywords: Cognitive anxiety, Self-confidence, Somatic anxiety

INTRODUCTION

As we know that competition is a social process that takes place when prizes are given to people on the basis the comparison of their performance with the performance of others participating in the same event (Coakley, 1994). The mind is sports science last frontier, all other systems have been used extensively to improve the athletics' performances. Kinesiology, the science of human movement, has been used extensively to improve the players' movements. Even the athlete's blood has been sampled and his/her biorhythms chartered (Straub, 1980). He further explained that only the mind seems to have been neglected when considering the general input of an athlete. However, he defined sports psychology as the science of psychology applied to athletes and the athletic situation. It is the science that explains why we do what we do in the sports area. Singer (1980) asserted that psychology is and always has been an integral part of sports. In this part of the world, this realization is very recent and not even involved in the training of the athletes most times. According to Ikulayo (1990), sports psychology is said to be a branch of sports science involving the science of psychology applied to sportsmen/women in athletic situations. She further said, it can also be defined as an attempt to study individuals in sports situations to analyses, explain, describe, modify, alter, or predict behavior through various psychological means.

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MATERIALS AND METHODS

The prospective cross study was carried out and 45 subjects in each kho-kho, kabaddi, and volleyball players from the affiliated higher secondary of Kashmir were selected as subjects of age group 16–18 years were taken randomly. Illusion of self-evolution questionnaire was used to measure cognitive anxiety, somatic anxiety, and self-confidence developed by Martens Burton Veale Bumped Smith, 1983.

RESULTS AND DISCUSSION

The data were collected from the subjects which were treated statically, one-way analysis of variance was used to find out the difference between three psychological variables among affiliated higher secondary level men kho-kho, kabaddi, and volleyball players.

Table 1 shows, the mean difference values between kho-kho and kabaddi players (0.04) reveal that there was insignificant difference on cognitive anxiety, which was lesser than the confidence interval value (1.23), whereas the mean difference between kho-kho and volleyball players (1.14) and kabaddi and volleyball players (1.27) reveals that there was a significant difference on cognitive anxiety, which was greater than the confidence interval value (3.00). In cognitive anxiety, volleyball players have highest score followed by kabaddi and kho-kho players.

The mean values of cognitive anxiety among higher secondary level kho-kho, kabaddi, and volleyball players are graphically in Figure 1.

DISCUSSION OF FINDINGS ON COGNITIVE ANXIETY

The result shows that there was a significant difference exists among higher secondary level kho-kho, kabaddi, and volleyball players. The volleyball players possess more cognitive anxiety than kabaddi and kho-kho players. The *post hoc* analysis proved that the difference between kho-kho and kabaddi players was significant.

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

Table 2 shows, the mean difference values between kho-kho and kabaddi players (−1.98) reveal that there was insignificant difference on somatic anxiety, which was lesser than the confidence interval value (1.38), whereas the mean difference between kho-kho and volleyball players (3.37) and kabaddi and volleyball players (5.35) reveals that there was a significant difference on cognitive anxiety, which was greater than the confidence interval value (3.00). In somatic anxiety, kabaddi players have highest score followed by kho-kho and volleyball players.

The mean values of somatic anxiety among higher secondary level kho-kho, kabaddi, and volleyball players are graphically in Figure 2.

DISCUSSION ON FINDINGS OF SOMATIC ANXIETY

Table 2 shows that there was a significant mean difference among kho-kho, kabaddi, and volleyball players. The kabaddi players possess more somatic anxiety than kho-kho and volleyball players. The *post hoc* analysis proved that the difference between kho-kho players and volleyball players was significant.

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

Table 1: Scheffe's post hoc test of cognitive anxiety higher secondary level kho-kho, kabaddi, and volleyball player

Kho-kho players	Kabaddi players	Volleyball players	Mean difference	CI value
22.22	22.26	-	0.04	1.23
22.22	-	22.28	0.06	1.14
-	22.26	22.28	0.02	1.27

*P<0.05 confidence interval value (0.05) = 1.23, 1.14, 1.27

Table 2: Scheffe's post hoc test of somatic anxiety among higher secondary level kho-kho, kabaddi, and volleyball player

Kho-kho players	Kabaddi players	Volleyball players	Mean difference	CI value
25.64	27.62	-	−1.98	1.38
25.64	-	22.27	3.37	1.06
-	27.62	22.27	5.35	1.29

*P<0.05 confidence interval value (0.05) = 1.38, 1.06, 1.29

Table 3: Scheffe's post hoc test of self-confidence among higher secondary level kho-kho, kabaddi, and volleyball player

Kho-kho players	Kabaddi players	Volleyball players	Mean difference	CI value
29.27	29.78	-	4.05	1.23
29.27	-	22.29	6.98	1.13
-	29.78	22.29	7.47	1.27

*P<0.05 confidence interval value (0.05) = 1.23, 1.13, 1.27

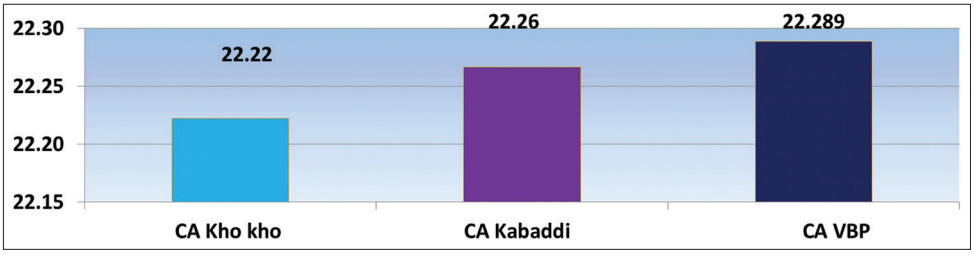

Figure 1: The mean value of cognitive anxiety among higher secondary level kho-kho, kabaddi, and volleyball players

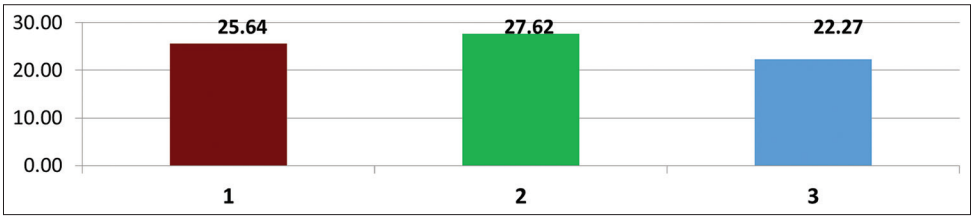

Figure 2: The mean value of somatic anxiety among higher secondary level kho-kho, kabaddi, and volleyball players

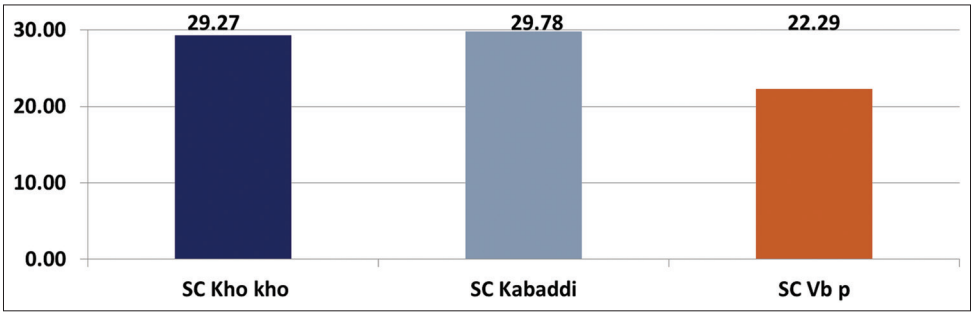

Figure 3: The mean value of self confidence among higher secondary level kho-kho, kabaddi, and volleyball players

Table 3 shows, the mean difference values between kho-kho and kabaddi players (4.05) reveal that there was a significant difference on self-confidence, which was greater than the confidence interval value (1.23), whereas the mean difference between kho-kho and volleyball players (6.98) and kabaddi and volleyball players (7.47) reveals that there was a significant difference on cognitive anxiety, which was greater than the confidence interval value (1.27). In somatic anxiety, kabaddi players have highest score followed by kho-kho and volleyball players.

The mean values of self-confidence among higher secondary level kho-kho, kabaddi, and volleyball players are graphically in Figure 3.

DISCUSSION ON FINDINGS OF SELF-CONFIDENCE

Table 3 shows that there was a significant mean difference among kho-kho, kabaddi, and volleyball players. The kabaddi players possess more self-confidence than kho-kho and volleyball players. The *post hoc* analysis proved that the difference between kho-kho players and volleyball players was significant.

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

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

1. The first hypothesis stated that there would be significant difference in cognitive anxiety among higher secondary level kho-kho, kabaddi, and volleyball players. The results presented in Table 1 proved that there was a significant difference between kho-kho players and kabaddi players and kabaddi and volleyball players in cognitive anxiety. Hence, the formulated hypothesis was accepted and the null hypothesis was rejected at 0.05 level of significance.
2. The second hypothesis stated that there would be significant difference in somatic anxiety among higher secondary level kho-kho, kabaddi, and volleyball players. The results presented in Table 2 proved that there was a significant difference between kho-kho players and kabaddi players and kabaddi and volleyball players in somatic anxiety. Hence, the formulated hypothesis was accepted and the null hypothesis was rejected at 0.05 level of significance.
3. The third hypothesis stated that there would be significant difference in self-confidence among higher secondary level kho-kho, kabaddi, and volleyball players. The results presented in Table 3 proved that there was a significant difference between kho-kho players and kabaddi players and kabaddi and volleyball players in self-confidence. Hence, the hypothesis was accepted.

CONCLUSION

1 In the present study, we concluded that there was a significant difference in cognitive anxiety among higher secondary level kho-kho, kabaddi, and volleyball players. It was concluded that volleyball players possess more cognitive anxiety than kabaddi and kho-kho players.

2 In the present study, we concluded that there was a significant difference in somatic anxiety among higher secondary level kho-kho, kabaddi, and volleyball players.

It was concluded that kabaddi players possess more somatic anxiety than kho-kho and volleyball players.

3 In the present study, we concluded that there was a significant difference in self-confidence among higher secondary level kho-kho, kabaddi, and volleyball players. It was concluded that kabaddi players possess more self-confidence than kho-kho and volleyball players.

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Research Article

Games to remove ball: Games to increase the social skills of intellectual disabilities children in SDLB

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ABSTRACT

This study aim was to develop a game to allow the social skills improvement of mild retarded children in SDLB. The research method used was research and development with eight steps of development procedures. The procedure development came to a large scale trial. With small-scale trial ten students as subjects were contacted, and large-scale trials using 30 students. The results showed that after going through literature studies, expert validation, small-scale trials, and large-scale trials, the resulting ball transfer game for children with mild mental retardation. The game of moving the ball is a game that consists of two types of sub-games in it. The first game is the game of throwing and catching by calling the name when he will catch the ball. The second game is a game of forming a line of lines holding each other than walking in the direction specified. Effectiveness test is still needed to determine the effectiveness of the game to improve social skills of mild retarded children.

Keywords: Mild retardation, Social skills

INTRODUCTION

Children with intellectual disabilities are children who have below average ability levels. Children with intellectual disabilities also have limitations in academic abilities but can still be given the opportunity to work to meet their needs.[1] Children are considered to be mentally retarded if they meet two criteria, namely, retardation or lack of behavior adaptation, and lack of adaptation to their environment measured by the child age. These backwardness includes communication, self-help, life skills, maintaining health, personal safety, functional academics, filling in leisure, and work time.[2]

Developmental retardation is grouped into four groups, namely: "Mild mental retardation: IQ = 50–55 to 70, moderate mental retardation: IQ = 35–40 to 50–55, severe mental retardation: IQ = 20–25 to 35–40, and profound mental retardation: IQ = less than or = 20–25.[3] The number of mentally retarded children is estimated to be 2.5–3% of the general population. If seen from its characteristics, approximately 85% of children are considered mentally retarded from the existing mental retardation population. Children with intellectual retardation can be taught academically approximately until Grades 4, 5, and 6. Children with intellectual retardation can be children, who have confidence, are independent, communicate, and interact socially well when the social environment provides support. Children with intellectual disabilities are estimated at 10% of the total mental retardation population. Severe retarded children are estimated at 3–4% of the existing mental retardation population. In the mental retardation group is very heavy the estimated number is only 1–2% of the existing mental retardation population.[4]

Children with mental retardation are referred to as debil or mentally retarded who are able to educate. In this group, mentally retarded children can still receive education as normal children but with mild levels and enough time-consuming. Children with mental retardation have an intelligence level between 50 and 80. With this intelligence level, mild mentally retarded children can do activities with the intelligence level of normal children aged 12 years.[5] Amild mental retardation is a child whose intelligence and social adaptation are hampered but this child still has the ability to develop in the areas of academic learning, social adjustment, and ability to work.[6]

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A common problem faced by retarded children is the problem of social adaptation. This arises because children have difficulty in establishing interpersonal relationships with others. To be able to establish relationships with other people well, it requires the ability to communicate and relate to others verbally or nonverbally in the current situation and conditions. These abilities are social skills. Social skills are tools that make it possible to communicate, learn, ask questions, ask for help, get their needs met in an appropriate way, get along with others, find friends, and establish healthy relationships, protect themselves, and generally be able to interact with others encountered in life.[7] Social skills are the ability of a person to adjust to get along with other people. A child who has a good relationship with another person indicates that the child can interact happily.[8]

The function of social skills is as a means to obtain good relationships in interacting with others. For example, saving the environment, helping others, working together, making decisions, communicating, entrepreneurship, and participating.[9] The difference between children who have good social skills and not is that children who have good social skills will be able to interact positively with other children even with adults. Whereas in children who do not have good social skills will have behaviors such as leaving the classroom during lessons, not following orders, forgetting, not respecting others, and disturbing others.[10]

Some characteristics of social skills are: (1) Interpersonal behavior is related to behavior that involves the skills used to carry out social interactions. This behavior is called friendship skills, for example, introducing yourself, offering help, and giving or receiving praise. (2) Behavior related to oneself in social situations, for example, skills to deal with stress, understand other people's feelings, and control emotions. (3) Behavior related to academic success, that is, behavior or social skills that can support learning achievement in school, for example, listening to the teacher explain the lesson, do good school work, do what the teacher asks, and all behaviors that follow class rules. (4) Behavior related to peer acceptance, such as greeting, giving and asking for information, getting friends involved in an activity, and being able to appropriately capture the emotions of others. (5) Communication skills are one of the skills needed to establish good social relationships. These communication skills include being a responsive listener, maintaining attention in the conversation, and giving feedback to the interlocutor.[11]

The levels in SLB include SDLB, SMPLB, and SMLB which are grouped into groups according to special needs children (ABK). The groups are divided into four groups: Group A for blind children, Group B for children with hearing impairment, Group C for children with intellectual disabilities, and Group D for children with disabilities. From these four groups, one of them is Group C for mentally retarded children. The institutional goals of the SLB/C Basic Education Program include: (1) Providing cognitive, psychomotor, and affective abilities that enable students in accordance with their abilities to enter higher education; (2) giving stock knowledge of skills that support/enable independent students; and (3) develop students' emotions and socialization and adaptability so that children are able to work together with their environment.[12]

The role of Physical Education And Sport is taught in schools very important, namely, providing opportunities for students to be directly involved in various learning experiences through selected physical, sports, and health activities carried out systematically. Therefore, Physical Education program must be highly considered so that the physical development of students can be helped properly. This is because children spend a lot of time in school which makes the physical education program at school potentially important to develop physical activity and freshness of children.[13]

The game is one of the scopes of material that must be given in Physical Education and Sport. Through games, social skills can also be developed because playing has benefits to help the process of developing physical aspects, gross motor and fine motor aspects, social aspects, emotional, and personality aspects. In addition, it is also for the development of aspects of cognition, sharpening sensing acumen, sports and dancing skills, therapeutic media, and intervention media.[14] To improve the skills of mentally retarded children is to use play models or games that are made in accordance with the level of growth and development of children with mental retardation. Through play, mild retarded children are expected to be able to develop both their physical and social aspects because one of the benefits of playing is for the development of their social aspects. To improve the social skills of mild mentally retarded children can be done by developing cooperative games. In cooperative play activities, mild retardation children are involved in play activities with normal children in games that are not competitive. In this cooperative play activity a division of tasks or division of roles is carried out, both normal children and mild mental retardation children to achieve one goal, namely, children's social skills. The game of moving the ball is a game designed to improve the social skills of children with intellectual disabilities because this game includes several components of social skills in it that must be done by children. In cooperative play activities, mild retardation children are involved in play activities with normal children in games that are not competitive. In this cooperative play activity a division of tasks or division of roles is carried out, both normal children and mild mental retardation children to achieve one goal, namely, children's social skills. The game of moving the ball is a game designed to improve the social skills of children with intellectual disabilities because this game includes several components of social skills in it

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METHODS

Research Procedure

Research design was research and development. The steps taken in this research and development included: (1) A preliminary study, (2) research planning, (3) initial product development, (4) limited field testing, (5) revision of the field test results is limited, (6) wider field test, (7) wider revision of field test results, and (8) manufacture of final products. From these steps were grouped into three stages of study, namely: (a) Preliminary studies, (b) development, and (c) field testing.

1. Preliminary studies, including:
    a. Literature study was relevant theories and research results.
    b. Field studies were conducted by surveys. It consisted to examine the research subjects character, and to see the possibilities if research products were applied.
2. Development, including:
    a. Objective analysis was to formulate the objectives to be achieved.
    b. Capability analysis is estimating the funds, energy, and time needed.
    c. Design development includes (a) making product designs, (b) determining the research facilities and infrastructure to be used, (c) determine the stages of conducting product trials in the field.
    d. Expert validation was to evaluate the product by involving adaptive physical education experts and material experts.
3. Field testing, including:
    a. Small group field test was the initial field test involving 1 SLB.
    b. Large group field test was a field test with a greater number of subjects than small group trials involving 3 SLBs.

Data Sources and Research Subjects

Data source

The data were generated qualitative and quantitative form. Qualitative data were obtained from the results of a preliminary survey in SLB on teachers to determine conditions in the field from the learning process of Physical Education and Sport. Qualitative data were obtained from the results of expert assessments of the initial draft, during small group trials, and large group trials.

Research subject

Subjects were students in SLB, namely, 1 SLB for small group trials totaling ten students, and three SLB for large group trials totaling 30 students. Small group trial subjects used students from SLB 2 Bantul. While the large group trial subjects used students from three SLBs, namely, SLB 1 Yogyakarta, SLB 2 Yogyakarta, and SLB Yogyakarta Guidance.

Data Collection Techniques and Instruments

Data collection techniques used observation sheets. The observation sheet used is a sheet to assess the product that was developed and filled with a value scale. The value scale used in the indigo scale instrument consists of four (4) scales, namely, scale 1, scale 2, scale 3, and scale 4. The method used was a check mark (V) in the value scale column 1, 2, 3, or 4 according to the experts and practitioners of SDLB teaching staff. The meanings of values 1, 2, 3, and 4 are shown the Table 1.

Validity and Reliability Test

To prove the level of validity of the game model, in this study using content validity. The opinion of experts and practitioners who have competencies according to research integrity. To prove the validity in this study using the content validity ratio (CVR) and content validity index (CVI) analysis. The validity assessment results showed valid if the calculation results get a value >0.5. Meanwhile, to prove the level of reliability of the game activity model in this study, the Alpha Cronbach

Table 1: Rating scale of game activity models to improve social skills mild developmental children in SDLB

Scoring scale	Information
1	Very inappropriate/very poor/very inappropriate/very unclear/very poorly developed
2	Not suitable/not good/not quite right/not clear/less developed
3	Appropriate/good/precise/clear/develop
4	Very appropriate/very good/very precise/very clear/highly developed

test was used. To measure reliability with the Alpha Cronbach statistical test, the construct or variable is declared reliable if it gives a value >0.60.

RESEARCH RESULT

Product Design Planning

Aspects developed based on the needs analysis, literature review and relevant research produced three aspects, namely, game design, and game implementation. The game design aspects developed are game objectives, game materials, game equipment, and component evaluations developed in the game. While the implementation aspect of the game is directed at the game that is mixed in the game of moving the ball, the steps were the following:

Moving Ball Games

Game description

The game of moving the ball is designed to provide opportunities for mild retarded children to develop habits of obeying authority and obeying class rules. In the implementation of this game, it combines the elements of locomotor, non-locomotor, and manipulative basic mobility along with some commands and treatment to carry out activities accompanied by several components of social skills developed. This game consists of two types of sub-games in it. The first game is a throwing and catching game by calling the name that will catch the ball. The second game is a game of forming a line of lines holding each other than walking in the direction specified.

The purpose of the game

The aim of the game is to develop a social skills component:

- Receive authority
- Greet other people
- Relationship with others
- Organized play
- Play relax.

Field, equipment, and supplies

Field

The shape and size of the field are shown in Figure 1.

The size of each part in the game is 10 m.

Tools used

The tools used in this game were the following:

a. Rubber ball with a diameter of 25 cm [Figures 2-4]. The picture of the ball can be seen as below:
b. Basket to place the ball.
c. Rectangular shape fabric with a diameter of 2 × 2 m
d. Sinpai.

Figure 1: Playing field

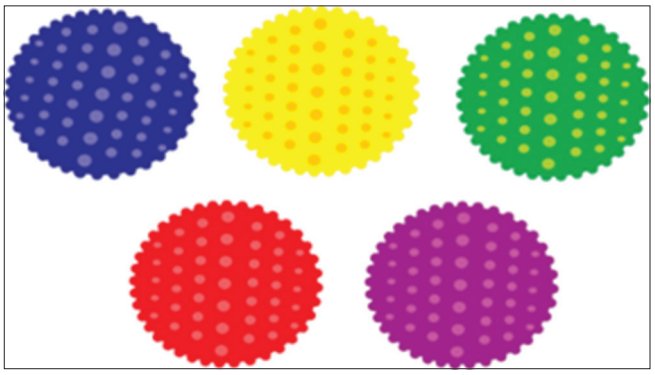

Figure 2: Rubber balls

Figure 3: Basket

Figure 4: Sinpai

Game guide

- Before carrying out the game the teacher leads the warming up first.
- After warming up, students are divided into two groups with each group of five children, as shown in Figure 5:

1. The teacher gave an explanation of the game to be done.
2. After the teacher explained the game how I twill be done, each group was given the task to discuss determining the position of each child in the game. The position of the child was one child as a pitcher, three children as catcher of the ball, and one child as taker of the ball behind the catcher for 5 min.
3. After the discussion, the teacher gave a whistle signal so that students occupy the place that has been marked with a synpai according to their respective duties as throwers and catchers of the ball.
4. After the students occupy the prepared Sinpai. The teacher again blew the whistle to signal the start of the catching throw game.
5. The game of catching the ball is done with:
    a. Students who were tasked with taking the ball immediately pick up the ball and throw it to a friend in charge of catching the ball.
    b. Students who are tasked with catching the ball stand near the basket of three pieces and are tasked with catching the ball and putting it into the basket.
    c. The number of balls is nine that consists of three different colors and is put in three different baskets. Each basket contains three balls of the same color.
    d. The condition for throwing is to call one of his friends' names who will be asked to catch the ball.
    e. Students who catch the ball immediately put the ball in a basket nearby.
    f. The game was played until the balls that have been prepared are all thrown and put into the basket that has been provided.
    g. Students who were behind the ball catcher are tasked with taking the ball if students who catch the ball cannot catch the ball.

1. After all baskets were filled with the same colored balls, immediately proceed to the game of moving the ball using cloth to the next basket.
2. The game to transfer the ball using cloth to the basket is then done with:
    a. All students after throwing the catch which was originally tasked to catch the ball changed the task to hold the cloth that will be used to move the ball.
    b. After the cloth is held, students who originally threw the ball immediately took one ball to be placed on the fabric. After the ball is placed on the fabric, students who hold the cloth together work together to move the ball to the next basket by walking.
    c. If on the way, the ball falls from the fabric, then the starting position starts again from the point where it started. Fabric is held at each end and the fabric is always stretched tight.
    d. The game is played until all the balls are moved to the next basket.
3. The group that succeeds in moving the ball to the basket using cloth first is the winning group.
4. The game is repeated again after the game is finished. Before the second game is done, students are given the task to return the balls that have been put into the final basket to the first basket to be thrown again.

The overall picture of student activity is in Figure 6:

Evaluation

1. Students follow friend requests
2. Students ask other students to be involved in a game
3. Learners know and follow class rules
4. Learners give simple directions to friends
5. Learners offer help to friends.

Expert Validation

Before products arrive at the final product preparation stage, draft game models will be assessed by experts first. Validation is done by involving two material experts and 2

Figure 5: Students' row position before playing games

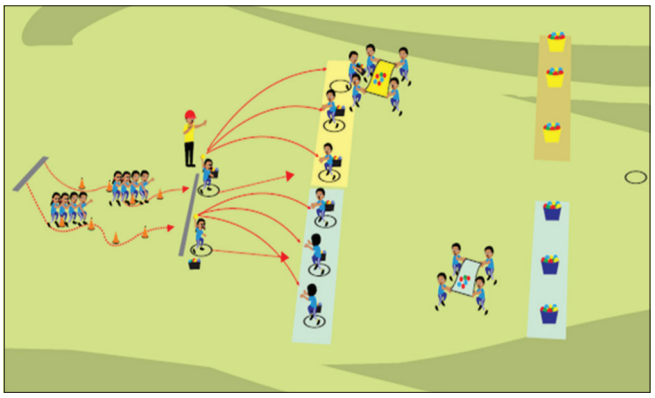

Figure 6: Ball moving games

SLB practitioners/teachers. Material expert validation was carried out by Prof. Dr. Siswantoyo, M. Kes., AIFO and adaptive physical education experts by Dr. Sumaryanti, M. Kes. Validation was done by showing the initial draft of the product accompanied by an assessment sheet of the game. The product evaluation sheet used a Likert scale sheet with a scale of 1–4. From the results of the initial draft assessment of the game product still needs to be revised. Material experts still want to add and subtract the initial concept of the game and then revise the game. In addition, experts and practitioners also provide an assessment of the game with a value ranged of 1–4 [Table 2].

For the results of the CVI are as follows:

Table 2: Results of calculation of CVR from experts and practitioners

No.	Rated aspect	CVR	Criteria
1	The accuracy of choosing a game model for students.	0.500	Valid
2	The instructions for implementing the game are clear.	1.000	Valid
3	Suitability of tools and facilities used.	0.500	Valid
4	Ease of game models for students to play.	1.000	Valid
5	The suitability of the game model with the characteristics of students.	0.500	Valid
6	The game encourages the development of physical aspects of students.	1.000	Valid
7	The game encourages the development of cognitive aspects of students.	1.000	Valid
8	The game encourages the development of psychomotor aspects of students which include locomotor, non-locomotor and manipulative student movements	0.500	Valid
9	The game encourages the development of affective aspects of students.	0.500	Valid
10	The game encourages students' competitive abilities.	1.000	Valid
11	The game model can be played by male and female students.	0.500	Valid
12	The game model can stimulate students to actively move	0.500	Valid
13	The game model can improve students' social skills.	1.000	Valid
14	The game model is safe for students to do.	1.000	Valid
	Average	0.750	Valid

CVR: Content validity ratio

Table 3 shows that the calculation of CVR and CVI of the ball transfer game model is valid and then small group trials and large group trials are conducted.

Small Trial

A small group trial of the ball moving game model was carried out at SLB 2 Bantul Yogyakarta with a total of ten students. There are three practitioners involved in a small group trial that will give an assessment of the game model and the same three people who are in charge of the validation stage of the initial product draft. In the small-scale trial phase there are only two entries from practitioners, namely, song lyrics are difficult to sing so there is no need to sing during the game, the purpose of the game is clarified and there is no need to use many commands in the game. The results of the assessment of experts and practitioners are as follows:

Table 4 shows that the results of testing small groups of game models moving the ball have reached 3.8 with the criteria good. This means that the game activity model can be followed up by large group trials.

Large Group Trial

Schools, places to carry out large group trials include SLB 1 Yogyakarta, SLB 2 Yogyakarta, and SLB Pembina Yogyakarta. In large group trials, researchers still use the same 2 experts in small group trials. In addition to experts, researchers also involved three practitioners, namely, teachers in each SLB. The results of the feasibility test in a large group trial are as follows:

From Table 5, it is known that the results of trials of large groups of moving ball games have reached 3.8 or with good

Table 3: Product CVI test results/initial draft of moving ball game activity model

No	Game name	CVI	Criteria
1	Move the ball game	0.750	Valid

CVI: Content validity index

Table 4: Results of tests for the exercise model of moving ball games in small groups

No	Game name	SLB test place
		SLB 2 bantul
1	Move the ball game	3.8

Table 5: Results of game model execution tests in large group trials

No	Game name	SLB test place		
		SLB 1 Yogyakarta	SLB 2 Yogyakarta	SLB Pembina Yogyakarta
1	Move the ball game	3.8	3.8	3.8

criteria. The results achieved in large group trials with the same criteria as in small group trials.

DISCUSSION

Social skills in children can be stimulated if the child can do direct activities that allow children to use every component of social skills. Activities undertaken by children must be liked and make children participate or be actively involved in these activities. One form of activity that can be used in stimulating children's social skills is play.

Play is one of the activities that can be chosen to be applied to mentally retarded children. Play is very important for children's development, because playing can contribute to cognitive, physical, social, social, and well-being.[15] Another opinion states that play has a relationship with cognitive development and social skills needed in the learning process of children such as playing fosters memory, self-regulation, communicates verbally, and recognizes symbols.[16] Other opinions also suggest that playing provides benefits in developing mental, physical, and social skills.[17]

Moving the ball game is a game to improve the social skills of mentally retarded children in SDLB because in this game contains elements of social skills components performed by children. Components of social skills performed in the game of moving the ball are accepting authority which includes obeying the teacher's orders, following the requests of friends and knowing and following the rules of the class, greeting others which include: Staring at others when called, answering when called names, and smiling when meeting friends, relationships with others include: Working together when asked, social interaction with friends, helping teachers when asked, and helping friends when asked, organized play which includes: Obeying the rules when playing.

Children with intellectual disabilities are children who have intellectual abilities below average characterized by limited intelligence and incompetence in social interactions.[18] Social abilities can be improved through cooperative play characterized by cooperation or division of tasks and division of roles between children involved in play to achieve a certain goal. Games can cooperatively develop children's abilities in socializing without leaving the child's world, namely, the world of play. The play function can support motor development, language, social, emotion, intelligence, and creativity and can be used as therapy. If children are given cooperative play regularly, they will be able to develop the child's social abilities.[19]

Social skills in the definition of social validity are children's behavior in certain situations that reflect a child's attitude toward peer and adult acceptance, academic competence, self-concept, and psychological adjustment. Social skills are shared and carried out in five domains, namely, approaches to learning, restraint/self-control, interpersonal skills, externalizing behavior problems, and internalizing behavior problems.[20]

In general, the strategy in developing social skills is to incorporate elements of the social skills component into the game being developed. Children's social skills can be taught through peer mediated intervention which is a teaching strategy where normal peers teach social skills to their peers, namely, children with special needs, reinforcement from the teacher to embrace all parties to jointly form and improve children's social skills.[21]

In teaching social skills to children it needs to be adjusted to their characteristics, needs, and conditions. Besides that individuals who experience physical and psychological barriers have four areas of social skills that need to be taught, namely, the ability to communicate, foster friendships, abilities in difficult situations, and ability to solve problems.[22]

CONCLUSION

Moving the ball game is a game designed to improve the social skills of mild retarded children in SDLB because this game contains elements of social skills components in it. To be able to improve social skills, the basic principle that must be done is to include components of social skills in it so that when playing games children do social skills components unconsciously.

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Research Article

Comparison of speed among bowlers and batsman of Osmania University, Hyderabad, in cricket

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ABSTRACT

The purpose of the present study was to find out the speed among bowlers and batsman of Osmania University cricketers in India. The sample for the present study consists of 20 male bowlers and 20 male batsmen of Osmania University cricket team. To assess the speed, the 50 m run test was conducted among bowlers and batsman. It was found that bowlers are having good speed compare to compare to the batsman. Hence, it is also concluded that bowlers required more speed compared to batsman. It is recommended the speed training must be given to bowlers and batsman in cricket.

Keywords: Batsman, Bowlers, Cricket

INTRODUCTION

Cricket is a bat-and-ball game played between two teams of 11 players each on a field at the center of which is a rectangular 22-yard long pitch. The game is played by 120 million players in many countries, making it the world's second most popular sport. Each team takes its turn to bat, attempting to score runs, while the other team fields. Each turn is known as an innings. The bowler delivers the ball to the batsman who attempts to hit the ball with his bat away from the fielders so he can run to the other end of the pitch and score a run. Each batsman continues batting until he is out. The batting team continues batting until 10 batsmen are out, or a specified number of over's of six balls have been bowled, at which point the teams switch roles and the fielding team comes into bat.

From a T20 game that is played for 3 h to an international test match that stretches to 5 days, the game of cricket requires a high level of fitness for a professional player to perform effectively. Every cricketer needs to undergo a specific proper strength, speed, and conditioning program. For example, a batsman may damage his tennis elbow if he pulls a shot too quickly or twists his arm suddenly. Similarly, a bowler may risk ligament tear or ankle damage if he twists his leg. A strength conditioning program helps the body to adapt quickly to sudden movements in the sport and reduces chances of bodily damage.

In addition to the high level of skill required to play cricket, a successful player needs good balance and core strength, speed for running between the wickets and in the field, and fast bowlers particularly need very good speed and power. Polls, we have run on this site about the fitness requirements for cricket, have determined balance, coordination, and speed to be most important.

Motor Components Required for Cricketers

1. Speed/quickness, balance, and coordination
2. Motivation and self-confidence, skill, and technique
3. Strength and power, reaction time
4. Analytic and tactical ability, flexibility, and agility.

Sangwan and Tejpal (2018) investigated the reaction time among bowlers, batsman, and wicket keepers in cricket who participated at interuniversity and national level in Haryana state. For accomplish the study, 20 male batsmen, 20 male bowlers, and 20 male wicket keepers were randomly selected as sample. The age of all samples was ranged 18–28 years. Male sportspersons who participate at interuniversity level and national level were randomly selected as samples. To accomplish the study, reaction time test was used in the study. All samples were selected from the Haryana state. The obtained data were analyzed by applying one-way analysis

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Table 1: Mean values and independent samples test of 50 m run between bowlers and batsmen in cricket

Variables	Group	Mean	SD	*t*	*P* value
50 m run	Bowlers	7.11	0.262	4.58	0.000
	Batsman	7.60	0.408		

*Significant at 0.05 level

of variance. The level of significance was set at 0.05. A significant difference was found between bowlers, batsman, and wicket keepers in their reaction time. Wicket keepers are having more reaction time in compression of bowlers and batsman.

METHODOLOGY

The sample for the present study consists of 20 male bowlers and 20 male batsmen those who have attended the OU Cricket Coaching Camp for the year 2018–2019 between the age group of 19–22 years. To assess the speed, the 50 m run was conducted among bowlers and batsman.

RESULTS

This study shows that bowlers are having better speed compare to the batsman in 50 m run.

In Table 1, the mean values of 50 m run of bowlers are 7.11 and batsman are 7.60. The average mean of bowlers in 50 m run is lesser than the batsman.

In cricket, bowlers require speed to do fast bowling. It was found that bowlers are having good speed compare to compare to the batsman. Hence, it is also concluded that speed of running is very important bowling for bowlers.

CONCLUSION

1. It is concluded that bowlers are having better speed than batsman.
2. Conditioning exercises play a major role for improvement of speed among cricketers.
3. Sprint training is not all about running fast. It is important to have a good fitness base to build speed on and to have the capacity to train regularly.

Recommendations

1. Similar studies can be conducted on other events and among females.
2. This study also helps the physical educators and coaches to improve their training regime to excel in cricketers.

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Research Article

Comparison of aerobic fitness among football players and hockey players of Kurnool district

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ABSTRACT

The objective of the study is to determine the comparison of aerobic fitness among football players and hockey players of Kurnool District. The sample for the present study consists of 20 male football Players and 20 Hockey Players of Kurnool District. To assess the aerobic fitness, the cooper test 12 Min Run is conducted among football and Hockey Players. This study shows that due to the football players are having more aerobic fitness than hockey players.

Keywords: Aerobic fitness, Cooper test, Football players, Hockey players

INTRODUCTION

Physical fitness is one of the most important and key aspects in the field of physical education. However, physical fitness is not the same with health; it plays an essential role in all aspects of health because they are very much related fitness. Good health provides a solid foundation on which fitness rests and at the same time fitness provides one of the important keys to health and living one's life to the fullest. Fitness is not a state for the young; it is reality for all ages.

Association football, more commonly known as football or soccer, is a team sport played between two teams of 11 players with a spherical ball. It is played by 250 million players in over 200 countries and dependencies, making it the world's most popular sport. The game is played on a rectangular field with a goal at each end. The object of the game is to score by getting the ball into the opposing goal. Players are not allowed to touch the ball with their hands or arms while it is in play, unless they are goalkeepers.

Field hockey is played on gravel, natural grass, or sand-based or water-based artificial turf, with a small, hard ball approximately 73 mm (2.9) in diameter. The game is popular among both males and females in many parts of the world, particularly in Europe, Asia, Australia, New Zealand, South Africa, and Argentina. In most countries, the game is played between single-sex sides, although they can be mixed-sex.

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Purpose of Research

The purpose of the present study was to compare the aerobic fitness among football players and hockey players of Kurnool district.

Scope of Research

The scope of the research is to identify the aerobic fitness among football players and hockey players of Kurnool district.

Reviews

Sharanappa (2018) studied the aerobic fitness among male hockey players and male football players of Gulbarga University, India. Thirty male hockey players and 30 male football players from various Colleges of Gulbarga University, India, were used as samples in this study. Data were collected separately from the football players and from the hockey players. The subjects were made to run 12 min Run Cooper test for endurance under the supervision of Technical officials of Athletics. From the results of this study, it was shown that football players have good aerobic fitness compare to hockey players. In this study, it was concluded that male football players have good aerobic fitness compare to male hockey players because the duration of match for the football players is 90 min while that of hockey players is 70 min.

Table 1: Mean values of cooper test between football and hockey players

S. No	Subject	n	Mean	SD	Paired t	df	*P* value	Inference
1	Hockey players	20	1761.00	89.380	20.60	38	0.000	Sig.
2	Football players	20	1869.00	385.435				

Singh (2015) in this study compares the aerobic and anaerobic capacity between male hockey and football players of Haryana and the concluded that there was no significant difference between the male football and hockey players in aerobic and anaerobic capacity.

Population and Sample Group

Sample of the study

For the present study, 20 male football players and 20 male hockey players have taken for the study between the age group of 17 and 20 years.

S. No	Name of the District	Sample	Total number of subjects
1	Kurnool	Football players: 20 Hockey players: 20	40

METHODOLOGY

The purpose of the present study was to compare the aerobic fitness among football players and hockey players of Kurnool district.

Cooper Test

Cooper 12-min run test

The cooper 12 min run is the run to test the aerobic capacity the participants will run as much distance as they can run in 12 min.

- Purpose: To determine the aerobic fitness.
- Equipment Required: 400 M track, marker cones, recording sheets, and stop watch.
- Procedure: Place markers at set intervals around the track to aid in measuring the completed distance. Participants run for 12 min, and the total distance covered is recorded.

Data Collection

The 12 min run test is conducted among male football and hockey players.

RESULTS

The mean values of hockey players are 1761.00 and foot players are 1869.00. The foot players are having better mean values compare to hockey players [Table 1].

CONCLUSIONS

From the finding in this study, it was discovered that football players have good aerobic fitness compare to hockey players. Therefore, it is concluded that male football players have good endurance compare to male hockey players.

Research Recommendations

This type of study is useful to coaches to give proper coaching for the development of motor qualities for improvement of performance in football and hockey.

Recommendations for Further Research

It is recommended that similar studies can be conducted on other sports and games and also female foot ballers and hockey players.

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Research Article

Effect of plyometric exercises for development of speed among football players of Nizamabad district in Telangana

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ABSTRACT

The objective of the study is to determine the effect of plyometric exercises for the development of Speed among Football Players of Nizamabad District between the age group of 21 and 24 years. The sample for the present study consists of 20 male Football Players, out of which ten are experimental group and ten are controlled group. Plyometric exercises training were given to the experimental group along with general football training and control group has doing general weight training for 6 weeks. To assess the Speed 50 M Run were used in the pre-test and post-test of the study. This study shows that the experiment group increases the speed compare to the control group. It is concluded that due to plyometric exercises there is an improvement of speed among football players.

Keywords: Football players, Plyometric exercises, Speed

INTRODUCTION

Plyometrics, also known as "jump training" or "plyos," are exercises based around having muscles exert maximum force in short intervals of time, with the goal of increasing both speed and power. This training focuses on learning to move from a muscle extension to a contraction in a rapid or "explosive" manner, for example, with specialized repeated jumping.

Prof. Rajesh Kumar (2020) studied about the effect of Plyometric and Circuit Training on selected Physical Variables among Sprinters of Hyderabad District of Telangana State. To achieve this purpose, 45 Sprinters in the age group of 16–20 years those who have participated in the Hyderabad Open Sprints Athletics Championships at Gachibowli Stadium, Hyderabad for the year 2019 taken as subjects.

Purpose of Research

The purpose of the research is to determine the effect of plyometric exercises for the development of speed among football players of Nizamabad District between the age group of 21 and 24 years.

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Population and Sample Group

Sample of the study

For the present study, 20 male football players have taken for the study between the age group of 21 and 24 years of Nizamabad District.

S. No.	Name of the district	Sample	Total number of subjects
1	Nizamabad	Football Players Exp. Group-10 5 Forward + 5 Defenders Foot Ball Players control group-10 5 Forward + 5 Defenders	20

METHODOLOGY

Plyometric exercises such as hopping, bounding, depth jumps, tuck jumps, and Pushups were given to experimental group on alternate days, i.e., three sessions per week and controlled group were given the general training for 6 weeks. Pre-test and post-test were conducted in 50 M Run among experimental

group and controlled group of football players of Nizamabad District.

EXPERIMENTAL GROUP: 1: PLYOMETRIC TRAINING [TABLE 1]

Table 1: Test description of week 1 and week 6 training intensity up to 70–100%

Day	Name of the exercises	Repetitions and sets
Monday	Hopping, bounding, squat jumps and jumps	20 M × 3 reps × 3 sets
Wednesday	Depth jumps, box jumps, hurdle jumps	12 Jumps × 3 reps × 3 sets
Friday	Standing broad jumps, squat jumps, Alternate leg boundings	12 Jumps × 3 reps × 3 sets 30 M × 3 reps × 3 sets

RESULTS AND DISCUSSION

The independent samples *t*-test statistics is applied for the study. The comparison was made among experimental group and control group in pre-test and post-test mean.

In Table 2, the mean values of experimental group of football players in pre-test are 7.41 and control group football players are 7.54. Due to plyometric training, the experimental group has decreased that the mean values in post-test are 7.13 and due to general training the control group has increased the mean values to 7.63. The results of the study show that experimental group of football has increased in the performance 50 M Run.

Table 2: The mean values and independent samples test of 50 M test between experimental and control groups of football players

Variables	Group	Pre-test Mean±SD	Post-test Mean±SD	t	*P* value
50 M Run test	Experimental	7.41±0.294	7.13±0.262	4.58	0.000
	Control	7.54±0.376	7.63±0.408		

*Significant at 0.05 level

CONCLUSION

It is concluded that due to plyometric training there will be improvement in speed among football players. In this study due to the plyometrics exercises there is an improvement in speed among football players.

Recommendations

It is recommended that similar studies can be conducted on other events in other events and also female football players. This type of study is useful to coaches to give proper coaching for development of motor qualities for improvement of performance in weight lifting.

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Research Article

Effect of weight training exercises for development of explosive leg power among volley ball players of JNTU, Hyderabad

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ABSTRACT

The purpose of the present study is to find out the effect of weight training exercises on the development of explosive leg power of Volley Ball Players of JNTU, Hyderabad. The sample for the present study consists of 20 Male Volley Ball Players of JNTU, Hyderabad, out of which ten are experimental group and ten are controlled group. Weight training exercises such as Front Press, Back Press, Bench Press, Half Squats, and Hack Squats were given to experimental group on alternate days, i.e., three sessions per week and controlled group were given the general training for 6 weeks. Pre-test and post-test were conducted in Standing Broad Jump to measure the Explosive leg Power among experimental group and controlled group. This study shows that due to the weight training exercises there is an improvement of experimental group in the Explosive leg Power and controlled group is decreased in performance of explosive leg power. It is concluded that due to weight training exercises there will be improvement in explosive leg power among Volley ball Players.

Keywords: Bench press, Explosive leg power, Half squats, Weight training exercises

INTRODUCTION

Weight training is a common type of strength training for developing the strength and size of skeletal muscles. It uses the weight force of gravity (in the form of weighted bars, dumbbells, or weight stacks) to oppose the force generated by muscle through concentric or eccentric. Weight training uses a variety of specialized equipment to target specific muscle groups and types of movement. Weight training is a type of strength training that uses weights rather than elastic, eccentric training, or muscular resistance to increase strength. Endurance training is associated with aerobic exercise while flexibility training is associated with stretching exercise such as yoga or pilates. Weight training is often used as a synonym for strength training, but is actually a specific type within the more inclusive category. Contrary to popular belief, weight training can be beneficial for both men and women. Effective weight training develops lean muscle, increasing your resting metabolic rate, and helping your body burn fat.

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Raj (2017) has studied designed to investigate the effect of plyometric training on selected physical and physiological variables among college volleyball players. To achieve the purpose of the study 30 inter-collegiate male Volleyball players were selected from affiliated colleges of Bharathiar University, Coimbatore. The subjects were randomly assigned to two equal groups ($n = 15$). Group I underwent plyometric training (PTG) and Group – II was acted as control group (CG). The plyometric training was given to the experimental group for 3 days per week (Monday, Wednesday, and Friday) for the period of 12 weeks. The control group was not given any sort of training except their routine work. A pilot study was conducted to assess the initial capacity of the subjects to fix the load. The physical parameters of speed (50 mts dash), leg explosive power (vertical jump), and physiological parameters (Breath Holding Time, Resting Heart Rate) before and after training period. The data collected from the subjects were statistically analyzed with *t*-test to find out significant improvement if any at 0.05 level of confidence. The result of the speed, leg explosive power, and Breath Holding

Time, Resting Heart Rate speculated significant improvement due to influence of plyometric training with the limitations of (diet, climate, and life style) status and previous training. The result of the present study coincide findings of the investigation done by different experts in the field of sports sciences. Plyometric training group significantly improved speed, leg explosive power and Breath Holding Time, and Resting Heart Rate college male Volleyball players.

METHODS

The sample for the present study consists of 20 Male Volley Ball Players of JNTU, Hyderabad, out of which ten are experimental group and ten are controlled group. Weight Training Exercises such as Front Press, Back Press, Bench Press, Half Squats, and Hack Squats were given to experimental group on alternate days, i.e., three sessions per week and controlled group were given the general training for 6 weeks. Pre-test and post-test were conducted in Standing Broad Jump to measure the Explosive leg Power among experimental group and controlled group .This study shows that due to the weight training exercises there is an improvement of experimental group in the Explosive Power and controlled group is decreased in performance of speed.

The following are the weight training exercises that were given 3 times a week for 6 weeks to the experimental group of Volley ball Players.

- Biceps Curls – 9. Good Morning.
- Triceps Curls – 10. Side Wards Bend
- Bench Press – 11. Heel Raising with Weights
- Back Press – 12. Leg Press
- Bent Over Rowing – 13. Push Ups
- Up right Rowing – 14. Sit Ups
- Wrist Curls – 15. Hack Squat
- Half Squats – 16. Dumbbell Exercises.

RESULTS

These results of the study show that due to the weight training there is an improvement of experimental group in explosive leg power and controlled group is decreased the performance of explosive leg power [Table 1].

The experimental group of Standing Broad Jump Test is 2.37 in pre-test and Controlled Group mean is 2.34 in pre-test. The experimental group mean is 2.65 in post-test and controlled group mean is 2.31, the experimental group mean in post-test in Standing Broad Jump is increased to 2.37 due to weight training and due the general training the control group is decreased by 2.31.

Table 1: Mean values of standing broad jump test between experimental and control groups of volley ball players

Variables	Group	Pre test Mean	Post test Mean	*t*	*P* value
Standing Broad jump	Experimental	2.37	2.65	1.58	0.000
	Control	2.34	2.31		

CONCLUSION

It is concluded that due to the weight training there is an increase of explosive power among the volley ball players. Several exercises in speed training involve the addition of weighted resistance or speed enhancers to force fast twitch muscles into overdrive, past the normal point of exertion that normal exercises cause. Weight training is important for Volley ball Players to develop the Leg explosive. Hence, it is recommended to include the Weight Training Programmed for Volley ball Players.

Recommendations

Similar studies can be conducted on Women Volley Ball Players and other sports and games. The coaches can prepare the program for the development of speed and other motor qualities in Volley ball Players.

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Research Article

Selected anthropometric measurements association with performance of badminton ball players

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ABSTRACT

The purpose of this study was relationship among anthropometric measurements and Badminton player's performance. The 82 male Badminton players were selected from National level representation in Andhra Pradesh on non-randomly by purposive sample was used. Karl Pearson coefficient of correlation was used to analysis of the collected data on anthropometric measurements are Height (0.585*), Sitting Height (0.259*), Weight (0.364*), Palm Span (0.239*), upper Arm Length (0.462*), Forearm length (0.299*), Hand Length (0.379*), upper Leg Length (0.627*), lower leg length (0.389*) Chest Circumference (0.397*), Wrist Circumference (0.473*), Thigh Circumference (0.313*), Calf Circumference (0.271*), Shoulder Diameter (0.573*), Upper Arm Diameter (0.251*), and BMI (0.271*), coefficient of correlation with Badminton players performance had been positively with significant level 0.05. Remaining anthropometric measurements not correlated on this current study.

Keywords: Anthropometric, Badminton, Measurements, Performance

INTRODUCTION

In badminton, anthropometry and motor performance ability of players seem to be the most vital determinants of success Anthropometric measurements have the potential to quantify the relationship between bone mass, body structure, physical characteristics, and individual players' sporting abilities thereby providing the basis for evaluating sport performance. Anthropometric measurements are often used to classify players according to their respective age or level of performance. Hei Ght is an advantage in executing attacking strokes in badminton.

How man varies in physique has been an important topic in the course on human population biology. Over the years, the relationship between physique and sports performance has been substantially studied and well established and generally accepted by researchers and practitioners in this field. The measurement of body composition of athletes was of interest since the early 1940s when Welham and Behnke first measured the body composition of All-American collegiate football players and demonstrated that these players are overweight by normal height and weight standards but not obese (Welham and Behnke 1942). Anthropometric profiles of elite athletes provide insight into the requirements for competing at top level in particular sports. The previous reports have shown that body structure and morphological characteristics are important determinants of performance in many sports and certain physical impressions such as body composition (body fat, body mass, and muscle mass) and physique (somatotype) can significantly influence athletic performance (Carter, 1984). Consequently, the central question in this paper is to what extent young children participating in a specific sport already exhibit a specific anthropometric, physical fitness and motor coordination profile in line with the requirements of that particular sport. This is a relevant question from the perspective of health-enhancing physical activity, as well as from the viewpoint of talent identification. A match between the sport-specific characteristics and the individual anthropometric, physical fitness, and motor profile of a child is more than likely an efficient protection from early drop-out from sports participation because the child will experience early success in this sport. Children experiencing early success in a particular

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sport, not necessarily at a (high) competitive level, might increase their chances for sustained sports participation and an active lifestyle later on. With respect to talent identification, children with a profile that matches the requirements of a specific sport from a young age on will more likely continue training and by consequence have better chances on an optimal talent development pathway. Anthropometric means the scientific study of the measurements and proportion of the human body parts either living or non-living. Anthropometric measurements as an effective role with best performance badminton players may to give as best as possible top form. The present study is anthropometric measurements with relation to badminton player's performance. Its leads to may won the match.

METHODOLOGY

Purpose of the Study

This study would be decided to the anthropometric measurement's relation with badminton player's performance.

Table 1: Selected of the anthropometric measurements

Anthropometric measurements	Equipment	Criterion measures
Weight	Weighing machine	Kilograms
Height	Stadiometer	Centimeter
Sitting height	Anthropometer rod	Centimeter
Hand length	Anthropometer rod	Centimeter
Upper arm length	Anthropometer rod	Centimeter
Fore arm length	Anthropometer rod	Centimeter
Hand breadth	Anthropometer rod	Centimeter
Upper leg length	Anthropometer rod	Centimeter
Lower leg length	Anthropometer rod	Centimeter
Foot length	Flexible tape	Centimeter
Foot breath	Flexible tape	Centimeter
Chest circumference	Flexible tape	Centimeter
Upper arm circumference	Flexible tape	Centimeter
Fore arm circumference	Flexible tape	Centimeter
Wrist circumference	Flexible tape	Centimeter
Thigh circumference	Flexible tape	Centimeter
Calf circumference	Flexible tape	Centimeter
Ankle circumference	Flexible tape	Centimeter
Upper arm diameter	Flexible tape	Centimeter
Elbow diameter	Sliding caliper	Centimeter
Shoulder diameter	Flexible tape	Centimeter
Hip diameter	Flexible tape	Centimeter
Ankle diameter	Sliding caliper	Centimeter
BMI	Calculation	Percentages

BMI: Body mass index

Selection of the Subjects

The 82 male badminton players were selected from National level representation in Andhra Pradesh on non-randomly by purposive sample was used.

Collection of the Data and Tools

The data had been collected by administrating the standard procedures for taking anthropometric measurements as well as badminton player's performance and tools had been used weighing machine for Weight, Stadiometer for Height and Flexible measuring tape for Lengths, Diameters, and Circumference measurements. The score is recorded weights in kegs and remaining the nearest one tenth of the centimeters [Table 1].

Statistical Analysis and Discussion

To find out the relationship of anthropometric measurements with badminton performance with the Karl Pearson coefficient of correlation is used and testing the hypothesis the level of confidence is 0.05.

Table 2: Anthropometric measurements association with badminton playing performance

Anthropometric measurements	Coefficient of correlation "*r*"
Weight	0.364*
Height	0.585*
Sitting height	0.259*
Hand length	0.379*
Upper arm length	0.627*
Fore arm length	0.299*
Palm span	0.239*
Upper leg length	0.462*
Lower leg length	0.389*
Foot length	0.197
Foot breath	0.189
Chest circumference	0.397*
Upper arm circumference	0.201
Fore arm circumference	0.213
Wrist circumference	0.473*
Thigh circumference	0.313*
Calf circumference	0.271*
Ankle circumference	0.179
Upper arm diameter	0.251*
Elbow diameter	0.203
Shoulder diameter	0.573*
Hip diameter	0.117
Ankle diameter	0113
BMI	0.271*

n=82, r=0.05 (82)=0.217, *Significant at 0.05 level

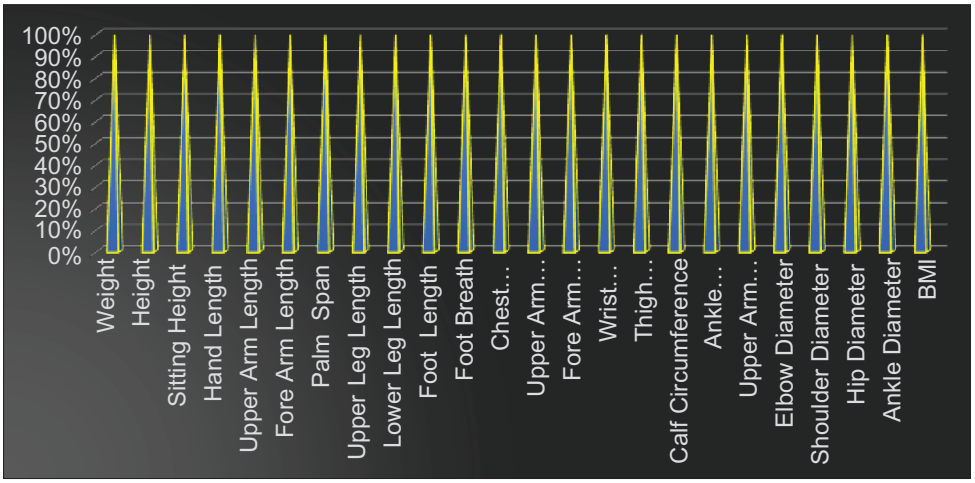

Figure 1: Anthropometric measurements and badminton players performance

An analysis of Table 2 indicates that badminton performance is significantly related to measurements Height (0.585*), Sitting Height (0.259*), Weight (0.364*), Palm Span (0.239*), upper Arm Length (0.462*),Forearm length (0.299*), Hand Length (0.379*), upper Leg Length (0.627*), lower leg length (0.389*), Chest Circumference (0.397*), Wrist Circumference (0.473*), Thigh Circumference (0.313*), Calf Circumference (0.271*), Shoulder Diameter (0.573*), Upper Arm Diameter (0.251*), and BMI (0.271*) as obtained values of correlation were greater than the value of $r = 0.217$ the correlation to be significant at 0.05 level of confidence. The remaining anthropometric measurements as their correlation values are less than the value of $r = 0.217$ need for significance at 0.05 level of confidence [Figure 1].

As for the results finally, the study reveals that badminton performance ability is significantly related to measurements that are Height (0.585*), Sitting Height (0.259*), Weight (0.364*), Palm Span (0.239*), upper Arm Length (0.462*), Forearm length (0.299*), Hand Length (0.379*), upper Leg Length (0.627*), lower leg length (0.389*), Chest Circumference (0.397*), Wrist Circumference (0.473*), Thigh Circumference (0.313*), Calf Circumference (0.271*), Shoulder Diameter (0.573*), Upper Arm Diameter (0.251*), and BMI (0.271*). As per the analysis, my suggestion to the coaches, physical directors, physical education teachers, and physical instructors to concentrate on the above anthropometric measurements while selecting or screening for badminton players in a basic level. It may give effective and good performance in a specific competition.

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Research Article

Effect of aerobic training on psychological variables of degree college students

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ABSTRACT

Introduction: Aerobic exercise provides cardiovascular conditioning. The term aerobic actually means "with oxygen," which means that breathing controls the amount of oxygen that can make it to the muscles to help them burn fuel and move. Aerobic exercise (also known as cardio) is physical exercise of low to high intensity that depends primarily on the aerobic energy-generating process. "Aerobic" means "relating to, involving, or requiring free oxygen" and refers to the use of oxygen to adequately meet energy demands during exercise through aerobic metabolism. In general, light- to moderate-intensity activities that are sufficiently supported by aerobic metabolism can be performed for extended periods of time. What is generally called aerobic exercise might be better termed "solely aerobic," because it is designed to be low-intensity enough so that all carbohydrates are aerobically turned into energy. **Methodology:** The purpose of the study was to find out "Effect of Aerobic Training on Psychological Variables of Degree College students." To achieve this purpose, 40 males in the age group ranging from 22 to 23 years studying in degree college of affiliated Osmania University Hyderabad were selected randomly as subjects. The following aerobic training were selected for 12 weeks of training for 40 subjects. Criterion variable and psychological variable were selected measured using stress. It was used for pre-test and post-test. **Results:** The result shows that the 12 weeks of aerobic training develop stress performance. **Conclusion:** Aerobic training develops stress performance.

Keywords: Aerobic training, Grape wine step, Jumping jock and stress, Knee lift, V step

INTRODUCTION

Aerobic exercise is any physical activity that makes sweats, causes to breathe harder, and gets heart beating faster than at rest. It strengthens heart and lungs and trains cardiovascular system to manage and deliver oxygen more quickly and efficiently throughout body. Aerobic exercise uses large muscle groups, is rhythmic in nature, and can be maintained continuously for at least 10 min. Before going into the benefits of aerobic exercise, let's break down some key terms we just mentioned. Cardiovascular system is made up of heart and blood vessels, for example, arteries, veins, and capillaries that transport blood throughout the body.

Aerobic exercise is physical exercise of relatively low intensity that depends primarily on the aerobic energy-generating process. Aerobic literally means "living in air" and refers to the use of oxygen to adequately meet energy demands during exercise through aerobic metabolism. In general, light-to-moderate intensity activities that are sufficiently supported by aerobic metabolism can be performed for extended periods of time. Aerobic literally means oxygen referring to the consumption of oxygen by the metabolic system. It involves a little warm up activity at the start and another minimum 20 min of exercise. Aerobic exercises are vital in weight loss activities. Aerobic exercise is the cardiovascular activity that involves prolonged activity of large muscles without stopping. Aerobic exercises burn fat and keep metabolism rate high even after the activity is over. Just after 15 min of the exercise glycogen burns off producing glucose, which then uses oxygen to generate energy by burning fat. Although very latter research has been conducted to establish its effectiveness, there is a growing belief that cretin type of music tends to stimulate a person to a higher performance level. This seems to be consistent with the observation that rock music and marching music tend to elicit movement on the part of any listeners.

Singher (1972) stated that the exercise records seem to be widely used in schools as a means of stimulating students to

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keep up with the pace and perhaps perform a maximum of activity with a minimum of conscious pairs.

Weinberg and Gould (1995) stated that the aerobic exercise is a physical activity that increases the activity of pulmonary and cardiovascular systems. During aerobic exercise, the body uses and transports oxygen to the working muscles to maintain the activity.

Objective of the Study

The objective of the study was to find out the "Effect of Aerobic Training on Psychological Variables of Degree College students."

METHODOLOGY

Selection of Variables

Aerobics training

- Grape wine step
- V step
- Knee lift
- Jumping jock
- March forward and backward
- Step at sideway
- Forward step touch
- Step touch backward
- Grape wine pivot.

Dependent Variable

Psychological

- Stress.

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.

S. No.	Test item and tool	Variable	Criterion measurement
1	Questionnaire developed by Akthar	Stress	Using positive and negative worded items related questionnaire and the subject's responses.

Statistical Techniques

The pre-test and post-test random group design was used as experimental design in which 40 males were selected as subjects; the selected subjects were divided into two groups of 20 subjects each. Standard devotion was used to find out significant mean difference in pre-test and post-test scores of different groups with respect to each parameter. Standard devotion was used to find out significant mean, "*t*" value difference of two groups with respect to each parameter. The statistical analysis was carried out with help of the software package of social science 15.0 versions for SPSS packages.

Results of the Study

The aim of the research work was find out the "Effect of Aerobic Training on Psychological Variables of Degree College Students." For the purpose of the research study, 40 males in the age group of 20–23 years belonging to the student of College of Physical Education, Osmania University, Hyderabad state, were selected as subjects for the present study. The subjects were divided into two groups. Group I treated as aerobic training and Group II treated as control group.

Aerobic group underwent aerobic training for 12 weeks. The duration of the training session allowed to the experimental groups 12 weeks. The control group did not participate in the training program other than their routine work.

Pre-test and post-test data were gathered on psychological variable and the same as described in the following Table 1.

The pre-test mean values on stress for the experimental group and control group are 13.7333 and 14.4000, respectively. $t = 0.72$, this reveals that there is no statistical difference between the experimental group and control group on stress before the commencement of aerobic training. It is inferred that the random selection of the subjects for the two groups are successful.

The post-test mean values on stress for the experimental group and control group are 6.3333 and 14.5667, respectively. $t = 5.545$, the result of the study indicates that the calculated values are higher than table value in post-test. The post-test resting stress performance is lower than the pre-test stress performance. These are significant differences between the experimental group and the control group on stress.

The stress performance is displayed in Figure 1.

Figure 1 indicates that the post-test values of the experimental group significantly improved the performance of stress and

Table 1: The pre-test and post-test for stress performance

Variable	Test		Experimental group	Control group	"*t*" value
Stress	Pre-test	Mean	13.7333	14.4000	0.72
		SD	2.53164	3.95317	
	Post-test	Mean	6.3333	14.5667	5.545
		SD	8.04870	12.26906	

*The level of significant is 0.05=table value 2.045

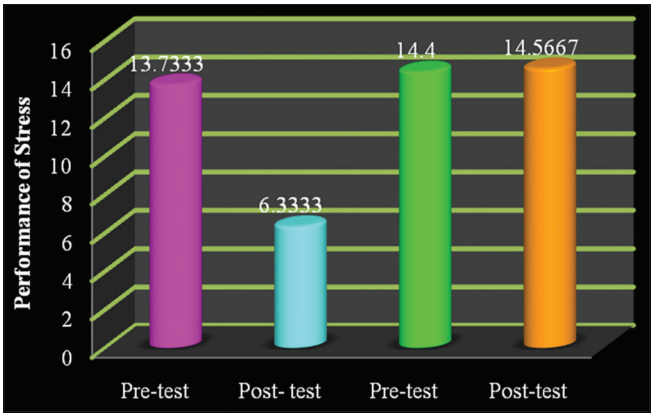

Figure 1: The pre-test, post-test, and means of the experimental and control groups on stress

also the post-test values of stress rate were lower than the pre-test values due to 12 weeks of aerobic training. The control group pre-test and post-test performance stress shows no improvement.

SUMMARY

The purpose of the study was to investigate the "Effect of Aerobic Training on Psychological Variables of College Students." The researcher selected stress, for psychological variable.

Twelve weeks of aerobic training were given to 40 male subjects before training the researcher conducted pre-test performance on psychological variable. The performance of the pre-test was recorded. After the 12 weeks of aerobic training, the post-test performance was recorded on psychological performance. The result of the post-test performance indicates significant improvement.

Discussion of Findings

The result of the study it was finding that the aerobic training is significantly improving the psychological variables, namely, stress one of the studies also supported by Bass (2002) "Effect of Aerobic Training on Psychological Variables of Degree College Students." He found that there was a significant decrease in stress. This intern sports the present study result.

CONCLUSION

From the finding of the study, it was concluded that the 12 weeks of aerobic training were significant improve the psychological variable on stress of the subjects.

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Research Article

Effect of hill running and circuit training for development of aerobic fitness among women volleyball players of K.V.R. Govt. College for Women, Kurnool, AP

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ABSTRACT

The purpose of the study is to find the Aerobic Fitness among Women Volleyball Players of KVR Govt. College for Women. The women volleyball players are between the age group 19 and 22 years. The sample for the study consists of 30 women volleyball players of KVR Govt. College for Women, Kurnool. The sample is divided into the three equivalent groups of ten members each as two experimental groups, that is, Circuit training group (n = 10), hill running training group (n = 10), and a control group (n= 10). Circuit training group and hill running training group given training alternate day for 6 weeks and control group will be given general training. The 12 min cooper test run were conducted pre- and post-test to determine the aerobic fitness. In 12 min run cooper test, the hill running group has performed better than circuit training group and control group and improved in Aerobic fitness.

Keywords: Aerobic fitness, Circuit training, Hill running

INTRODUCTION

Sprinting up a hill works your entire lower body. The incline forces your legs to work harder than they do to simply run. Hill Sprints help improve conditioning, because continuously climbing the hill requires a great deal of energy and endurance.

Circuit training is developed by the Scientist Morgan R.E. and Adamson G.T. at University of Leeds in the year 1957. This is resistance to develop the motor abilities such as strength, speed, and endurance. Circuit training is an exercise "circuit" which consists of prescribed exercises which includes for the upper body, lower back, abdomen, and lower body. It can be done with own body weight and using the resistance exercises such as Barbells and Medicine Balls.

Dr. Pradeep Kumar Lenka (2019) studied that the Effect of Resistance Training and Circuit Training on selected Physical and Physiological Variables Among College Male Boxing Players Thirty male Boxers were selected from Jivan Jyoti Trust Education Society who have represented an inter collegiate tournament. It has proved that resistance training and circuit training are helpful for development of physical and physiological variables among boxers.

Pradeep *et al*. (2016) studied to find out effect of circuit resistance training on the upper limb muscle strength in volleyball attacker players. To study effect of circuit resistance training on strength of triceps, deltoid, shoulder internal rotator muscles and on workout volume in volleyball attacker players exclusion criteria. Consent was taken from respective subjects to conduct the study. Respective protocol was followed for Group A (Controlled Group) and Gr values of subjects were assessed using 10 RM and Push up test. Paired t-test and unpaired t after 5-weeks of training period, the B group showed more improvement in Strength of Triceps ($P < 0.050$) considered significant, deltoid ($P < 0.040$) considered significant, shoulder internal push up performance ($P < 0.050$) considered significant, and deltoid ($P < 0.040$) considered significant, shoulder internal rotators.

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Table 1: Comparison of statistical results among all groups of Volleyball Players in 12 min run, that is, cooper test

Name of the group	Statistical tool	Cooper 12 min run		M.I
		Pre-test	Post-test	
Hill Running group	Mean	1891.83	2178.5	11.98
	SD	100.85	107.28	
Circuit training group	Mean	1865.00	2018.3	6.48
	SD	88.94	78.44	
Control group	Mean	1848.33	1793.33	−2.34
	SD	883.86	86.07	

METHODOLOGY

The sample for the study consists of 30 women volleyball players of KVR Govt. College for Women, Kurnool. The sample is divided into the three equivalent groups of ten members each as two experimental groups, that is, circuit training group (n = 10), hill running training group (n = 10), and a control group (n= 10). Circuit training group and hill running training group given training alternate day for 6 weeks and control group will be given general training. The 12 min cooper test run was conducted pre- and post-test to determine the aerobic fitness.

RESULTS AND DISCUSSION

It shows the pre-test mean 12 min run cooper test of hill running group is 1891.83, circuit training 1865.00, and control group is 1848.33 and post-test mean 12 min run test of hill running training group is 2178.50, circuit training 2018.30 and control group is 1793.33.

In 12 min run cooper test, there is a significant difference between the hill running training group than circuit training group and control group.

Recommendations

Volleyball is an aerobic activity with addition an aerobic demands in activity. The aerobic fitness plays an important role to play the sport efficiently for longer period. The aerobic, or lower intensity training, will help build the volleyball player for a long match. When training to improve the aerobic system, using intervals to improve the anaerobic threshold is helpful. The following suggestions are made for the benefit of players, coach's academicians, and sports scientists. The researcher makes a suggestion on the part of the coach to use the above said development of circuit and hill running training programs for volleyball players.

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Online Webinars

PROMOTED BY: INTERNATIONAL FEDERATION OF PHYSICAL EDUCATION, FITNESS AND SPORTS SCIENCE ASSOCIATION

1) International webinar on Physical Education organized by ELMS Sports, Reliance Foundation and International Federation of Physical Education, Fitness and Sports Science Association on 5th July 2020.
2) International webinar on Role of Sports Psychology on Performance of Players in challenging Environment and International Federation of Physical Education, Fitness and Sports Science Association on 12th July 2020.
3) International webinar on Latest Trends in Physical Education Organized by Bharatiya Vidyalaya, Amravathi and International Federation of Physical Education, Fitness and Sports Science Association on 15th July 2020.
4) International webinar on Trends and issues in Physical Education Organized by College of Human Kinetics, Polytechnic University of Philippines and International Federation of Physical Education, Fitness and Sports Science Association on 18th July 2020.
5) International webinar on Latest Trends in Sports Coaching Organized by Sports Science Faculty, Yogyakarta State University, Indonesia and International Federation of Physical Education, Fitness and Sports Science Association on 19th July 2020.
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7) International webinar on physical, psychological and spiritual discipline -A Key Well Being in New Normal organized by lingaraj college and International Federation of Physical Education, Fitness and Sports Science Association on 25th July 2020.
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9) International webinar on latest trends in Athletics organized by Indian Federation of Computer Science in Sports and International Federation of Physical Education, Fitness and Sports Science Association on 2nd August 2020.