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Review Article

Change through sport as public diplomacy

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ABSTRACT

The development of major international sporting competitions has drawn the interest of billions of people worldwide, with sports playing a major role in public policy and diplomacy. Sports diplomacy has the potential to sway minds and hearts, for good or ill. International policy professionals need to start treating it as a serious area of public diplomacy, not an afterthought or a curiosity. Professionals working in public and private sectors should have a basic understanding of the ways sports diplomacy is already used and consider ways to integrate it into their own work. Sports diplomacy can help states refocus energy on soft power initiatives. Think tanks, development organizations, and other private initiatives can support the government's efforts and adapt sports diplomacy to their own areas of expertise.

Keywords: Examples of sport diplomacy, foreign policies, international relations, politics, sport diplomacy

INTRODUCTION

Sport for development and peace uses sport as a policy tool to tackle issues such as poverty, gender equality, and climate change. Increased development will lead to increased peace. The first and possibly best example of sport diplomacy is the Olympic Games. Since their inception in the times of Ancient Greece, the Olympic Games have had the tradition of the Olympic Truce. The Olympic Truce is to ensure the safe travel

of athletes and spectators to the Games during times of war. The Olympic Games allow people to put aside their differences and come together in the spirit of international cooperation. Sports unite people. At the Olympic Games and other international competitions, we bring people together and create a space for international cooperation, showing the world that we can all get along.

PUBLIC DIPLOMACY

Public diplomacy is not an entirely new term nor practice, but it is only in the last decade that the conditions have been ideal for its (re)emergence. Today, most advanced diplomatic

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services – from the Chinese to the Australians – are investing in public diplomacy, and think tanks are also springing up.^[29] Its popularity relates to its adaptability. Gareth Evans, well ahead of his time, defined public diplomacy as “an exercise in persuasion and influence that extends beyond traditional diplomacy by leveraging a much larger cast of players both inside and outside government.”^[30] For Evans and many others, the scope and means of public diplomacy are limitless and the cast of players diverse. For example, Canada identifies artists, teachers, students, travelers, researchers, experts, and young people as public diplomats, alongside their more recognizable traditional diplomatic brethren. In the context of sports diplomacy, this push toward public diplomacy is important: it created fertile conditions for such hybrid forms of diplomacy to emerge.

There are two or three ways that sports can be used for public diplomacy. The first one is in hosting a sports mega-event like the Olympics or the FIFA World Cup. However, these can also include more regional events such as the Pan American Games, the Commonwealth Games, or the Asian Games. The hosting of a major sports event with global appeal is one major way states attempt to showcase themselves, increase their international prestige, and accrue soft power. Another way is for states who do not host sports mega events to use elite sports success to raise their profile. An obvious example would be East Germany (before reunification in 1990) and how success on the sporting field aided East Germany’s recognition as a separate state from West Germany in the 70s. Its athletes were called “diplomats in track suits,” as they were seen as excellent ambassadors on running tracks around the world. Cuba does this too. Although perhaps best known for exporting doctors as a form of soft power, it has also showcased boxing and baseball stars.

Finally, states can combine these two methods: achieving elite sports success and hosting a major sporting event. However, there is little research that underpins the notion that being a top-performing country correlates with added international prestige or diplomatic power. This has typically been something that advanced capitalist states have done, but increasingly emerging states are looking for success on the podium when they host events.

STRATEGIC PRIORITY

To help deliver these goals, the strategy is organized around four areas:

1. Empower international community with sport to represent globally
2. Build linkages with neighbors
3. Maximize trade, tourism, and investment opportunities
4. Strengthen communities in the world with sport.

EXAMPLES OF SPORTS DIPLOMACY

A good example of sport diplomacy in action is how Samantha Power, former US ambassador to the United Nations, on many of her overseas trips used sport to break down barriers and connect with women and girls around the world. This is a form of sport diplomacy, building stronger connections and a global community through sport. Sport diplomacy is a growing trend for increasing international cooperation. It can be used to increase peace around the world.

Another concrete example of sport diplomacy can be seen on the Korean peninsula. During the 2018 Winter Olympics, we saw a joint North and South Korea delegation. They also announced that they intended on launching a joint bid for the 2032 Olympics. Sports are bringing these two countries together. A lot more needs to be done outside of the field of play, but sport can help bridge the divide. A lot of consideration needs to be taken before awarding the Olympic Games to a country that has such poor human rights record as North Korea. However, these small steps can lead to something much bigger. The closer the ties between these two countries, the more work can be done to improve the lives of people living in North Korea. By uniting these countries and bringing them closer together, South Korea can help influence positive change to make the lives better for those that live in North Korea.

The best example of this is, of course, the 1971 case of Ping-Pong Diplomacy, however, a more recent example involves the cricket – diplomacy between Pakistan and India. 40 In March 2011, Pakistani Prime Minister Gilani accepted an invitation from his Indian counterpart, Manmohan Singh, to attend the Cricket World Cup semi-final match between the South Asian rivals. After, years of acrimony, suspicions and duplicity brought on by the 2008 Mumbai Terrorists attacks the occasion was “an attempt to use sport to create a feel-good atmosphere between the two countries at a time when the atmosphere of suspicion and hostility toward Pakistan in India is very strong.” Tapping into the “Mohali Spirit” – the special atmosphere – gave bilateral ties a firm push between the two nations and paid dividends. The Singh–Gilani talks are to be followed by a meeting of foreign secretaries by mid-2011 and commerce secretaries even sooner. The India–Pakistan episode of cricket-diplomacy suggests that sports diplomacy has strong potential. Individuals are excited about its prospects. FIFA President Joseph “Sepp” M. Blatter, outlining his future vision for sport, argues that: “FIFA is no longer merely an institution that runs our sport. It has now taken on a social, cultural, political, and sporting dimension in the struggle to educate children and defeat poverty. At the same time, it has also become a powerful economic phenomenon.

RECOMMENDATIONS

1. The Governments should be increasing or creating lasting dialogue and cultural understanding
2. Facilitating transfer of knowledge between the grassroots sport sector and relevant actors (including other grassroots sport organizations, states, NGOs, civil society, or even individuals)
3. Contributing to society and individual development in the health, educational, and sport or social fields”
4. Foreign policymakers and thinkers should use sport as a policy tool to increase international presence, and social and economic ties, using sport as the vessel for peace and development around the world
5. International sports organizations as diplomatic actors and forums should be organized annually to make it more effectively
6. Governments and their representatives have attempted to use sport to secure recognition – both formal and informal – and to signal rehabilitation or “arrival” as legitimate and/ or developed countries in international society
7. The IOC and all International Sports federations should encourage the Club level sports diplomacy too
8. International symposium on “Sports Diplomacy, and International Sports Law” must be organized at the national and international levels in the states.

CONCLUSION

Sports diplomacy does have a bright future. Sport can transcend borders and security rivalries and break the ice over nuclear standoffs. Through sport, an opportunity can present itself to translate dangerous relations into acceptable, friendly, and competitive rivalry. The “low” political agenda – campaigns for sustainable development, worldwide literacy, or human security, with further research, respect, and practice sports diplomacy – may indeed move mountains.

CONFLICT OF INTEREST

The authors declare that they do not have any conflict of interest.

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Research Article

Impact of loneliness on elderly well-being among the community-dwelling elderly

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ABSTRACT

The research was conducted to explore the connection between loneliness and elderly well-being and to gauge the nature and extent of loneliness and well-being among elderly residing in district Faisalabad. It was the correlation study, in which cross-sectional research design was used. The total sample size was 150. Multistage sampling technique was used. Interview schedule and two scales were used as instruments to gauge loneliness and well-being among elderly. The main assumption of the study was that there will be significant difference exists among loneliness and elderly well-being. The major findings of the study are as following: majority of the respondents were feeling lower level of loneliness and almost one-third exhibited high level of loneliness. Slightly more than half of the respondents reported high level of well-being. The result shows majority of respondents were living with family. Person Product Moment Correlation was used to discover correlation. The main findings showed that there is negative significant correlation between loneliness and elderly well-being. It was reported that there existed a significant difference between loneliness and elderly well-being, with family system. It indicted that member of joint family system has better well-being than the members of nuclear family system, whereas no significant difference existed among the relationship of loneliness and well-being, with gender. In upcoming studies, the different awareness program should be launched in order to aware the young generation about the psychological and sociological aspect of old adults as they live successful aging.

Keywords: Elderly well-being, Family structure, Gender of elderly, Loneliness

INTRODUCTION

It is ordinary that people search for happiness and social relations during their normal life including in their old age, yet according to Savikko (2008) loneliness runs with a significant number of people from early age till the finish of their lives. Loneliness refers to how individuals evaluate their level and quality of social contact and engagement (Cornman *et al.*, 2003). Loneliness has a significance prevalence among elderly and it may be a causative factor that are associated with disturbance of physical and mental health (Taube *et al.*,

2013). Previous studies indicated that loneliness is significant with the low quality of life and increasing tendency toward the mental health problems (Cornwell and Waite, 2009). Moreover, loneliness has been categorized as a major predictor of decreased wellbeing (VanderWeele *et al.*, 2012).

According to the WHO, there is no fixed criterion yet in routine 60+ individuals categorized in older adult's category (Alpass and Neville, 2003). Aging is a biological and chronological process that effects complete body structure and increased vulnerability to chronic diseases (World Health Organization, 2014).

Well-being is fundamentally, linked with health, life satisfaction, and quality of life. With advancing age, well-

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being is fundamentally relevant to both health and quality of life (Green, 2014; Steptoe *et al.*, 2014). Well-being is a broader spectrum phenomenon that includes happiness, prosperity, and purposeful life (Bowling and Dieppe, 2005; Steptoe *et al.*, 2014). For the successful aging, it is very compulsory to manage the adverse effects of loneliness and its associated factors. Most of the previous literature on social isolation and loneliness revolves around cross-sectional studies rather longitudinal studies. In addition, with advancing age, the burden of disease added up, along with a decrease in physical and mental well-being (Chatterji *et al.*, 2014).

It has been recommended that the link between living alone and psychological well-being may be more prevalent among Chinese, where collective culture plays a role in family togetherness and dependence of family member among themselves. Therefore, residing in loneliness conditions may have strong negative impact on well-being of Asian elderly. In Singapore, this rapid growth of older adults, changing family patterns due to nuclearization has increased the percentage of elderly residing alone from 15,000 to 22,000 between 2000 and 2005 (Department of Statistics, Singapore Census of the Nation, 2006).

In today's world of work, elders are facing problems such as depression, feeling of neglect, loneliness, and isolation. Due to rapid increase in nuclear families and global trend of employment opportunities, elders are compelled to live alone. Rook mentioned loneliness is an emotional state that arose when an individual feels rejected by others and lacks partners for social activities. It has possibility of occurring loneliness in all age groups, but this problem is mostly relevant to elders. There is direct relationship between age and loneliness (Gul, 2015).

Lack of interaction and communication gap with friends and family triggers loneliness among older adults. Various factors such as variation in living style, demographic variables, social support, and change in personality features may contribute to increasing occurrence of loneliness at community level (Gierveld, 2008).

In developing and under developing nations, the elderly population will rise because of decrease in fruitfulness and change in future that procured exceptional consideration of regimen. These expansions in much older populace willpower go to rise to a mass rate that will end up noticeably 2000 million by 2050. The maturing populace in creating nations included 8% that will rise to 28% by 2055 (Nizamuddin and Masood, 2010).

Social support and family interaction can increase and boost the dignity of the older adults and such support has a protective role in the maintenance of mental health. Most of the family

members in Pakistan have been noticed while threaten and beating their parents. Majority of these family members have found to be the sons. In psychological abuse of the elderly, the most common is the verbal abuse. Moreover, in case of health care, we have very few Non-Governmental Organizations serving elderly population. Health care of the elderly is not regarded as a distinct specialty, but they are having only fragmented provision of care and lack comprehensive care and treatment (Dildar and Sharjeela, 2012).

Objectives of the Study

- To study the nature and extent of loneliness and well-being of respondents
- To investigate relationship among loneliness and elderly well-being.

Hypotheses

- There would be significant relationship between loneliness and well-being among elderly
- There would be significant difference between male and female on loneliness and well-being
- There would be significant difference between joint family system and nuclear family system on loneliness and elderly well-being.

MATERIALS AND METHODS

In the present cross-sectional study, quantitative research method was used. In this study comparison also has done on different important demographics variables. Multistage sampling method is used. Faisalabad is divided into four Tehsil. At the first stage, we selected one Tehsil of Faisalabad out of four Tehsils (Chak Jhumra, Jaranwala, Samundri, and Tandlianwala) of District Faisalabad randomly. There were 57 union councils (17 urban and 40 rural) in the sampled Jaranwala Tehsil and at the next stage out of 57 Union Councils, 11 union councils were selected by applying the systematic random sampling and every 5th union council will be taken from the list of union councils. Then, one village/town will be selected from each union council through simple random sampling. At the last stage, the researcher is approached to target population (60+ elderly men and women) by applying convenient sampling technique.

Three tools of data collection have been used, i.e. Interview schedule, Loneliness scale, and old people quality of life (OPQOL) well-being scale.

Interview Schedule

Interview schedule was prepared with the help of review of literature. The main demographic is gender (male and female), community (urban and rural), educational status (literate and illiterate), working status (working and non-working), economics status (middle and lower), family structure (nuclear

and joint), partner living status (alive and dead), physical disease (yes/no), satisfaction with family behavior (yes/no), involvement in politics (yes/no), involvement in literal activities (yes/no), and final demographic variable involvement in spiritual activities (yes and no).

Scale for Loneliness

The scale makes a differentiation between social and emotional loneliness. The loneliness scale consists of 15 items. For loneliness scale, the value of first quartile is 27. The second quartile scale is 31 and third quartile value is 48. The participants who scored below the first quartile, i.e. <27, experience no loneliness. These participants who scored above 27 and till 31 they experience moderate loneliness. These participants who score are more than 31 experience high level of loneliness.

OPQOL and Well-being

The OPQOL and well-being briefed is used for quality of life and well-being. It was developed by Bowling and Dieppe in 2013. The old people quality of life briefed questionnaire has 13 items.

Statistical Analysis

SPSS version-23 was used for statistical study. After that, descriptive statistical wasere calculated. Later on, correlation and t-test were used for relationship and for compression of means between two groups, respectively.

RESULTS

The Table 1 shows the descriptive statistics of all demographic variables used in the present study.

The results given in Table 1 indicate that total participants of the present study were 150. This further divided in two categories

Table 1: Descriptive statistics of demographics variable (n=150)

Variables	n (%)
Gender	
Male	93 (62)
Female	57 (38)
Community	
Rural	86 (57.3)
Urban	64 (42.7)
Family structure	
Nuclear	70 (46.7)
Joint	80 (53.3)
Working status	
Working	68 (45.3)
Not working	82 (54.7)

on the bases of their sex. Total 62% (93) of male participated in this study, while 38% (57) female took participate in this study. The second most important demographic variable was community. The resident of the two-community participated in this study; 57.3% (86) of participants were belonging to rural community, while 42.7% (64) of participants were from urban community. Family structure also taken in two consideration there are two groups were taken in family structure, first group known as nuclear family structure and second group is called joint family structure, 46.7% (70) belong to nuclear family structure and 53.3% (80) members were belonged to combine or joint family structure.

The next demographic variable is working status. Two groups were taken in this study 45.3% (68) members belong to working status while 54.7% (82) of participants were unemployed.

This Table 2 indicates that in low level of well-being 15% (23) participants, while in moderate level well-being, there are 29% (43) participants, while in high level of well-being, there are 56% (84) of participants.

The Table 3 reveals the prevalence of loneliness, 52% (79) participants reported low level of loneliness, 15% (21) participants experience moderate level of loneliness, and 33% (50) experienced high level of loneliness. The first hypothesis of the present study was that there would be significant relationship between loneliness and well-being among elderly. Pearson’s product moment correlation was used to check this hypothesis.

The above Table 4 shows the results of correlation analysis. The table also shows that there is negative significant correlation between loneliness and elderly well-being. It means that if loneliness of the participant increasing the elderly well-

Table 2: Prevalence of well-being among elderly (n=150)

Variables	n (%)
Well-being	
Lower level	23 (15)
Moderate level	43 (29)
High level	84 (56)

Table 3: Prevalence of loneliness among elderly (n=150)

Variables	n (%)
Loneliness	
Lower level	79 (52)
Moderate level	21 (15)
High level	50 (33)

being will be decreasing and is the same way if loneliness is decreasing elderly well-being is increasing.

The next hypothesis of the present study was that there would be significant difference between male and female on loneliness and well-being. To check this hypothesis, independent sample *t*-test was used.

Table 5 shows that there is no significant difference exists between male and female on loneliness which means that present population the score of both gender and same on scale on loneliness. Moreover, the same table shows that the score of males and the score of female or same on elderly wellbeing scale. Which mean that there is no significant difference exists between male and female on elderly wellbeing and loneliness.

The next hypothesis of the present study was that there would be significant difference between joint family structure and nuclear family structure on loneliness and elderly well-being.

The Table 6 indicates that there is a significant difference exists among nuclear family structure and joint family structure on loneliness. The result shows that participants of nuclear family structure experience more loneliness as compared of joint family structure. The next findings of above table indicate that there is significance difference exists between nuclear family structure and joint family structure on wellbeing. Further, the members of joint family system have better well-being then the members of nuclear family system.

DISCUSSION

The first assumption of this research was that there will be major relationship exist among loneliness and well-being. Pearson Product Moment Correlation analysis was used to check this hypothesis. The result showed that loneliness has a negative significant correlation with well-being. This result is

Table 4: Summary of inter-correlation between loneliness and elderly wellbeing

Variables	1	2
Loneliness	-	-0.705**
Well-being	21 (15)	

***P*<0.001

consistent with those of Ain (2002) Stepteo *et al.* (2003), and Berkman (1995) Pelletier (2004).

The next hypothesis of this study was that there will be significant difference exist between male and female on loneliness and wellbeing. The result of study expressed no significant difference exists in gender on loneliness. The result also showed that there is no significant difference exist between male and female on wellbeing. The outcome is similar with other study as well like Ryan and Deci (2001) Argly (2001) Gasper (2007) Walter and Cattan (2005).

But in previous studies, a significant difference was noted between loneliness and gender of elderly. In view of Hojat, women possess lower level of self-esteem which confers association between loneliness and lower self-esteem. It means lower self-esteem is in parallel relation to promote the loneliness. Therefore, Hojat note a difference in prevalence of loneliness and wellbeing gender wise. Moreover, men have more stronger social support networks than women (Chalise, 2010; and Hojat, 1982). Keeping in view these two aspects i.e. self-esteem and social support network, in our Pakistani society elderly female level of respect and self-esteem enhanced in later life. As she become head of family and took part in decision making and become more privileged. In case of second aspect, the social support network of female elderly does not change. She remained within household setting from birth to death and their social support network becomes stronger in later life in comparison with the western society. The elderly women have more association with their grandsons and granddaughter in Asian society.

The next hypothesis of this research was that there would be significant difference exists between joint family system and nuclear family system on loneliness, and wellbeing. The result showed that there is significant difference exist between nuclear family structure and joint family structure on loneliness, and wellbeing. Mason findings also approved this study phenomenon that joint family system provides more social support to adults of geriatric rather than nuclear family system. When elders receive more social support from their children then they feel lower level of loneliness. Elders living in joint family system receive more attention, care and social support from their children as compared to living alone (Berkman and Glass, 2000). Member of nuclear structure experience more loneliness and member of joint family system experience more

Variable	Male		Female		T	P	95% CI		Cohen's D	
	MSD		M	SD			LL	UL		
Loneliness	35.3	8.7	36.4	12.1	-0.595	0.552	-4.3	2.3	0.40	
Well-being	31.3	7.9	33.0	6.9	-1.3	0.178	-4.2	0.79	0.22	

M: Mean, SD: Standard deviation, T: *t*-test value, P: Significant value, LL: Lower limit, UL: Upper limit

Variable	Joint	Nuclear		T		P		95%CI	Cohen's D
	MSD			M		SD		LL	UL
Loneliness	27.3	4.1	43.1	7.6	-15.4	0.000	-17.9	-13.8	2.58
Well-being	37.3	4.1	27.2	6.8	10.7	0.000	8.2	11.9	1.79

M: Mean, SD: Standard deviation, T: *t*-test value, P: Significant value, LL: Lower limit, UL: Upper limit

wellbeing as compared to member of nuclear family system. The result is similar with other study as well like Cattan (2005) Pitkala (2011) Roberts (2008).

Limitation of the Study

1. The data was collected only from Faisalabad (rural and urban areas) of city of Punjab. So, the result of this study may only be reliable in the context of Faisalabad
2. Loneliness is a common problem of a large portion of sample, but sample size was too short due to time constraints

Implication of the Study

1. Present study will help to understand the present condition of elderly
2. The result of present study will create awareness for elderly wellbeing
3. This study will open new window of knowledge for future research
4. This study highlights that community centers should be established to deal the challenge and succeeding effects of loneliness among elderly, and it will enhance their level of well-being to live successful elderly life.

CONCLUSION

Study has gained the perception that family structure and social interaction has a positive impact on the wellbeing of elderly. As finding revealed that majority of people residing within joint family system, predicted higher level of well-being rather in nuclear family system and there is no likely difference found between gender and loneliness and wellbeing. Whereas loneliness has inverse relationship with well-being. Therefore, awareness raising programs should be launched focusing on the needs and care of elderly, to strengthen our value system that focus on the elevated status of elderly in our culture. Moreover, community centers should be established where elders' people engage in group activities so that they can remain active. With these intervention strategies the level of wellbeing of elderly will be enhanced to live successful elderly life.

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Research Article

The Combined Effect of Yoga and Endurance Exercise on Passing Skill among Football Players

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ABSTRACT

The purpose of the study was to find out the combined effect of yoga and endurance exercises on performance-related parameters among inter-collegiate football players. To achieve the purpose of the study, forty-five ($n = 45$) men inter-collegiate football players studying in various engineering colleges in Rayalaseema Region, affiliated to Jawaharlal Nehru Technological University Anantapur, Andhra Pradesh state, India, during the academic year 2019–2020 were selected randomly as subjects and their ages ranged between 18 and 21 years. The subjects were randomly divided into three groups of 15 each, namely yoga training ($n = 15$), endurance exercise ($n = 15$), and combined yoga and endurance exercise ($n = 15$), respectively. The training period was limited to 6 weeks. The criterion variable selected for this study was football passing skill. The selected parameter was assessed using the selected testing protocol prior to and immediately after the training period. The analysis of covariance was used to analyze the significant differences, if any, among the groups. Since three groups were compared, whenever the obtained “F” ratio for adjusted post-test was found to be significant, Scheffe’s test was used to find out the paired mean differences, if any. The 0.05 level of confidence was fixed as the level of significance to test the “F” ratio obtained by the analysis of covariance, which was considered appropriate.

Keywords: “F” ratio, Endurance exercise, Engineering students, Passing, Rayalaseema Region, Yoga Training

INTRODUCTION

Yoga is an excellent method of enhancing the performance of sports participants. A salient feature of yoga is the combination of both physical conditioning and focused concentration. One of the most essential elements for athletic performance is balance. Physical fitness is a must for any good performance in sports. Different sports require different types of fitness emphasizing a particular fitness factor. However, a general level of physical fitness is necessary for every sportsman. The law of use and disuse suggests that if you want to be fit, you must exercise. The routine of exercise differs from individual to individual according to purpose.

Sportsmen also select different routines of participation. This can be attained excellently by indulging in a yogic routine. Yogic exercises deal with the vital organs of the body on which

health depends. The precursor of physical fitness lies in the efficient working of the vital organs of the body and yoga aims at it. The various selected asanas giving different movements to the spine, controlled respiration, relaxation technique, and concentration practice as a whole form an excellent routine to taking care of the health of the vital organs of the body.

Endurance exercise is the act of exercising to increase stamina and endurance. The term “Endurance exercise” generally refers to training the aerobic system as opposed to anaerobic. The need for endurance in sports is often predicated as the need for cardiovascular and simple muscular endurance, but the issue of endurance is far more complex. It can be shown that endurance in sport is closely tied to the execution of skill and technique. A well-conditioned athlete can be defined as, the athlete who executes his or her technique consistently and effectively with the least effort (Yessis, 2008).

The increased ability to perform is mainly accomplished through an increase in maximal oxygen uptake (Vo_{2max}) and an increased ability of skeletal muscle to generate energy

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via oxidative metabolism without improvements in muscle strength. Strength training, which represents the other extreme of physical activity, encompasses short-duration activity at high or maximal exercise intensities, increases the capacity to perform high-intensity, high resistance exercise of a single or relatively few repetitions such as olympic weightlifting, powerlifting, and throwing events in track and field. Improved strength-related performance is accomplished through neuromuscular learning and increased fiber-recruitment synchronicity, muscle cell hypertrophy, and, possibly, hyperplasia without changes in Vo_{2max} or in the capacity to generate ATP via oxidative metabolism (Fletcher *et al*, 2001).

MATERIALS AND TOOLS

Collection of Data

To achieve the purpose of the study, forty-five ($n = 45$) men inter-collegiate football players studying in various engineering colleges in Rayalaseema Region, affiliated to Jawaharlal Nehru Technological University Anantapur, Andhra Pradesh state, India, during the academic year 2019–2020 were selected randomly as subjects and their ages ranged between 18 and 21 years. The subjects were randomly divided into three groups of 15 each, namely yoga training ($n = 15$), endurance exercise ($n = 15$), and combined yoga and endurance exercise ($n = 15$), respectively.

RESULTS

The analysis of covariance on passing of the pre-, post-, and adjusted test scores of yoga training, endurance exercise, and combined yoga and endurance exercise group has been analyzed and presented in Table 1.

The above table shows that the pre-test mean and standard deviation values on passing of experimental groups “A,” “B,”

and “C” were 8.27, 8.20, and 8.07 and ± 0.80 , ± 0.68 , and ± 0.80 , respectively. The obtained “F” ratio of 0.27 for pre-test scores was lesser than the table value of 3.22 for degrees of freedom 2 and 42 required for significance at 0.05 level of confidence on passing.

The post-test mean and standard deviation values on passing of experimental groups “A,” “B,” and “C” group were 9.27, 9.73, and 9.93 and ± 0.80 , ± 0.46 , and ± 0.26 respectively. The obtained ‘F’ ratio of 5.76 for post-test scores was greater than the table value of 3.22 for degrees of freedom 2 and 42 required for significance at 0.05 level of confidence on passing.

The adjusted post-test means on passing of experimental groups “A,” “B,” and “C” group were 9.22, 9.72, and 9.99, respectively. The obtained “F” ratio of 12.96 for adjusted post-test mean was greater than the table value of 3.23 for degrees of freedom 2 and 41 required for significance at 0.05 level of confidence on passing. The results of the study indicated that there was a significant difference between the adjusted post-test means of yoga training, endurance exercise, and combined yoga and endurance exercise group on passing.

Since three groups were compared, whenever the obtained “F” ratio for adjusted post-test was found to be significant, Scheffe’s test was used to find out the paired mean difference and it is presented in Table 2.

The above table shows that the mean difference values of experimental group “A” and experimental group “B,” experimental group “A” and experimental group “C” group were 0.50 and 0.76, respectively, which were greater than the confidence interval value of 0.39 on passing at 0.05 level of confidence. The results of the study showed that there was a significant difference between experimental group “A” and experimental group “B” and experimental group “A” and

Table 1: Analysis of covariance of the data on passing of pre, post, and adjusted scores of experimental groups(In seconds)

Test	Yoga Training Group (Group-I) Expt. Group “A”	Endurance exercise group (Group-II) Expt. Group “B”	Combined Yoga and Endurance Exercise Group (Group- III) Expt. Group “C”	Source of variance	Sum of squares	df	Mean squares	F-ratio
Pre-test SD(\pm)	8.27 \pm 0.80	8.20 \pm 0.68	8.07 \pm 0.80	Between groups	0.31	2	0.16	0.27
				Within groups	24.27	42	0.58	
Post-test SD(\pm)	9.27 \pm 0.80	9.73 \pm 0.46	9.93 \pm 0.26	Between groups	3.51	2	1.76	5.76*
				Within groups	12.80	42	0.30	
Adjusted post-test	9.22	9.72	9.99	Between sets	4.46	2	2.23	12.96*
				Within sets	7.06	41	0.17	

*Significant at 0.05 level of confidence. Table value for df (2, 42) at 0.05 level = 3.22 Table value for df (2, 41) at 0.05 level = 3.23

Table 2: Scheffe’s test for the difference between paired means on passing

Yoga training group (Group-I) Experimet Group “A”	Endurance exercise (Group-II) Expt. Group “B”	Combined yoga and endurance exercise group (Group-III) Experimet Group ‘C”	Mean difference	Confident interval value
9.22	9.72	---	0.50*	0.39
9.22	---	9.98	0.76*	
---	9.72	9.98	0.26*	

*Significant at 0.05 level of confidence

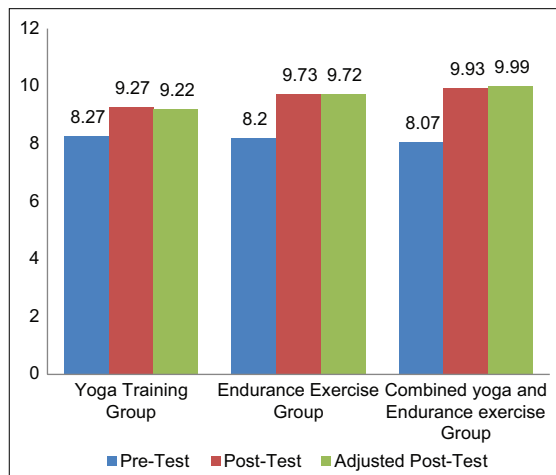


Figure 1: The pre, post, and adjusted mean values of yoga training, endurance exercise, and combined yoga and endurance exercise group on passing

experimental group “C” group. The mean difference values of experimental group “B” and experimental group “C” were 0.26, which showed no significant differences.

The above data also reveal that the combined yoga and endurance exercise groups were better than the yoga group and the endurance exercise group on passing.

The pre, post, and adjusted mean values of yoga training, endurance exercise, and combined yoga and endurance exercise group on passing are graphically represented in Figure 1.

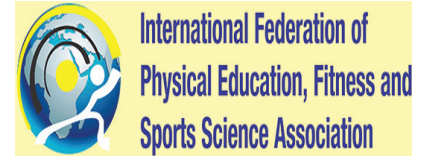
CONCLUSIONS

From the analysis of the data, the following conclusions were drawn.

1. There was a significant difference among yoga training, endurance exercise, and combined yoga and endurance exercise on selected football performance parameters such as passing among intercollegiate football players
2. significant improvements were noticed on selected football performance parameters such as passing due to yoga training, endurance exercise, and combined yoga and endurance exercise
3. Among the experimental groups, combined yoga and endurance exercise group had shown significant improvement on the selected dependent variable namely passing than that of yoga training and endurance exercise groups.

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Research Article

Effect of Circuit Training for Development of Explosive Strength among Kabaddi Players of Khammam District

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ABSTRACT

The purpose of the present study was to find out the effect of circuit training for the development of explosive strength among kabaddi players of Khammam district. The sample for the present study consists of 40 male kabaddi players of Khammam district, out of which 20 are experimental group and 20 are controlled group. Circuit training was given to experimental group on alternate days, i.e., three sessions per week and controlled group was given the general training for 6 weeks. Pre-test and post-test were conducted on standing broad jump test to measure the explosive strength among experimental group and controlled group. This study shows that due to the circuit training there is an improvement of experimental group in explosive strength and controlled group is decreased in performance of explosive strength.

Keywords: Circuit training, Kabaddi players, Speed, Stride length

INTRODUCTION

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

Dr. P Gopinathan (2019) Assistant Professor, Tamil Nadu Physical Education and Sports University, Melakottaiyur Post, Chennai, Tamil Nadu, India, study was to find out the effect of circuit training on selected physical fitness variables among inter-collegiate men handball players. To achieve the purpose of the study, thirty inter-collegiate handball players in an age group of 19–25 were selected as subjects

from the Arts and Science College. All the subjects were undergraduate students. The selected subjects were divided into two equal groups of 15 subjects each as experimental group and control group. Both the groups underwent their routine handball training and in addition to the above training, the experimental group underwent specified circuit training morning 1 h before starting the handball training in a schedule of weekly 3 days for the duration 6 weeks. The physical fitness variables of speed, agility, and explosive power were selected as dependent variables. The pre- and post-tests were conducted before and after the 6 weeks of experimental training. The collected data were statistically analyzed by using ANCOVA to find out the significant difference between the groups if any. In all cases, 0.05 level of confidence was fixed as a level of confidence to test the hypothesis. It was concluded from the result of the study that the experimental group significantly improved the selected physical fitness variables of speed, agility, and explosive power due to 6 weeks of circuit training.

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Science, Tiruchendur, Tamil Nadu, India (2018), study is to find out the effect of interval and circuit training on Vo2 max of kabaddi players. Forty-five male kabaddi players were selected from the Anna University V zone colleges, Tamil Nadu. They were divided into three groups, namely interval training (group – I), circuit training (group – II), and control (group – III). The two groups were experimented with interval and circuit training, respectively, for 12 weeks. The collected data from the three groups prior to and post experimentation were statistically analyzed to find out the significant difference if any, by applying the analysis of covariance (ANCOVA). Since three groups were involved, Scheffe’s test was applied as *post hoc* test to determine the paired mean differences, if any. In all the cases, statistical significance was fixed at 0.05 levels. Twelve weeks of interval and circuit training had a significant increase on Vo2 max of kabaddi players. Keywords: Interval and circuit training and Vo2 max.

Objectives of the Study

The objective of the present study is to find out the effect of effect of circuit training for the development of explosive strength among kabaddi players of Khammam district. It is hypothesized that there will be effect of circuit training for the development of explosive strength among Kabaddi players.

METHODOLOGY

The purpose of the present study was to find out the effect of circuit training exercises for the development of explosive strength among men kabaddi players. The sample for the present study consists of 20 male kabaddi players who practice at Khammam district stadium out of which 20 are experimental group and 20 are controlled group. Circuit training was given to experimental group on alternate days, i.e., three sessions per week and controlled group was given the general training for 6 weeks. Pre-test and post-test were conducted in standing broad jump to measure the explosive strength among experimental group and controlled group.

TRAINING INNervation

Days	Exercises	Repetitions and sets
Monday	Circuit Training with Continuous Method Pushups, sit-ups, high knee action running, dumbbell exercises, back arches, half squat with medicine ball, money walk, sit-ups, heel raising, front press with weight, dumbbell side ward bend, half squat jumps	Continuous Method 3-4 Sets (No Recovery) Each Exercises 30 Sec. followed by other exercises immediately

Wednesday	Circuit Training with Interval Method Medicine ball catching and hrowing up and down, sit-ups, shuttle runs, back press with weights, half squat with medicine ball, pushups, sit-ups, heel raising, bicep cups with weight, dumbbell side ward bend, lunge	Interval method 1 Min Sec. exercises 30 Sec. Rest
Friday	Circuit Training with Continuous Method Pushups, sit-ups, high knee action running, dumbbell exercises, sit-ups, half squat with medicine ball, pushups, bridge, heel raising, front press with weight, dumbbell side ward bend, burpee	Continuous Method 3-4 Sets (No Recovery) Each Exercises 30 Sec. followed by other exercises immediately

Tools

The following physical fitness tests are used for the collection of data.

Standing Broad Jump

Explosive Strength.

Purpose: To measure the explosive strength.

RESULT AND DISCUSSION

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

The experimental rroup of standing broad jump pre-test is 2.3590 and the controlled group mean is 2.3580 in pre-test. The experimental group mean is 2.4380 in post-test and controlled

Table 1: Paired samples statistics of experimental group and control group of kabaddi players in pre-test and post-test in standing broad jump

12 min run cooper test	Mean	Standard deviation	Standard error mean	n	t
Experimental					
Pre-test	2.3590	0.01875	0.00419	20	-14.937
Post test	2.4380	0.02003	0.00448	20	
Control group					
Pre-test	2.3580	0.02003	0.00448	20	1.615
Post test	2.3540	0.02469	0.00552	20	

group mean is 2.3540. Hence, there is an improvement in the experimental group from pre-test to post-test.

CONCLUSION

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

RECOMMENDATIONS

Similar studies can be conducted on other sports and games. The circuit training programs are useful for developing the motor quality of the sportspersons.

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Research Article

Comparative study of selected physical, physiological and psychological parameters among Osmania University kho-kho players based on their achievement level

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ABSTRACT

The purpose of the study was to compare the physical, physiological, and psychological parameters between high and low performers of Osmania University Kho-Kho players. For this purpose, the men Kho-Kho players who participated in the Inter College Tournament games held at Osmania University ground (near swimming pool), Tarnaka in 2016 were selected as subjects based on their achievement in the tournament as high and low performers. The following qualities such as Speed, Endurance, flexibility, body composition, vital capacity, aggression and mental health were selected as dependent variables. The concept of the high-level performers was significantly differed in speed, endurance, flexibility, vital capacity, aggression and mental health except body composition than the low-level performers.

INTRODUCTION

The modern world is the world of competition. In every phase of life, people have to face one or another kind of competition. In this competitive world, sports and games occupy a unique position. It is the arena of friendly rivalry. The world of sports is ever-expanding with the intensity of competition and enlarging scientific studies of human movement. Technological and scientific advancement has influenced the mode of selection, screening, and training and athletes in a variety of sports activities at the international level.

Kho-Kho is one of the most popular traditional sports in India. The origin of Kho-Kho is difficult to trace, but many historians believe, that it is a modified form of 'Run and Chase', it involves chasing and touching a person. It is played most often by school children in India and Pakistan. It is a competitive game. In 1936- BERLIN OLYMPICS, Pune Kho-Kho team exhibited the salient features of the game. Kho-Kho was introduced at the university level and the first inter-university tournament was held in 1955. In 1957, "All India Kho-Kho

Federation" formed and it was demonstrated in the Asian games festival in 1989. So, some new reforms have taken by the Asian federation.

STATEMENT OF THE PROBLEM

The purpose of the study was to compare the selected physical, physiological and psychological parameters among the Osmania University Kho-Kho players based on their achievement level in the intercollegiate tournament.

PROCEDURE

To achieve the purpose of study, the Kho-Kho players of Osmania University who participated in the Inter College Tournament games held at Osmania University ground (near swimming pool), Tarnaka in 2016 were selected as subjects based on their achievement in the tournament as high and low performers. The players of Govt College of Physical Education (GCPE) and Nizam college ($n=24$) were considered high performers as they entered in the finals and the players of Loyola Degree college and Badruka Degree college ($n = 24$) were considered as low performers as they placed at the bottom in the tournament according to their performances. The age of the subjects ranged from 18 to 24 years as per the records.

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Table 1: Test - selection

Variables	Test
Speed	40 yards sprint test
Endurance	3 km running test
Flexibility	Sit and reach test
Body composition	Skinfold caliper
Vital capacity	Wet Spirometer
Aggression	Tiwari and Chauhan inventory questionnaire
Mental health	Trier personality inventory by peter becker

Table 2: Summary of mean, standard deviation and t-ratio values of high and low performers of Osmania university kho-kho players

Variables	High PERFORMER Mean±SD	Low performer mean±SD	t-ratio
Speed	40.56±3.69	44.44±2.05	5.30*
Endurance	220.18±3.78	228.3±2.45	8.12*
Flexibility	39.31±2.68	36.06±3.61	4.08*
Body composition	13.86±2.72	14.72±3.09	1.46*
Vital Capacity	4481.25±392.79	3959.38±315.82	5.86*
Aggression	31.13±7.34	22.13±3.16	6.38*
Mental health	61.25±8.41	54.63±4.41	3.95*

*Significance at 0.05 level. The table value required for significant with df = 62 is 2.00

The following variables were chosen for this study and the data were collected by using standardized test as detailed below and presented in Table 1. The data pertaining to the study were analyzed using an independent *t*-test. The confidence interval was fixed at 0.05 level.

ANALYSIS AND DISCUSSION ON FINDINGS

From the Table 2, it is observed that the obtained *t*-ratio values between the high and low performers of Osmania University Kho-Kho players on speed, endurance, flexibility, vital capacity, aggression, and mental health were 5.30, 8.12, 4.08, 5.86, 6.38, and 3.95, respectively which are greater than the table value required for significant whereas the *t*-ratio value of body composition was 1.46 which is lesser than the table

value. Hence, it is inferred that a significant difference existed between the high and low performers of Osmania University Kho-Kho players on selected physical, physiological and psychological variables except body composition.

In sports, years of hard training precede a single moment of glory. The basic physical components are developed and improved significantly by one's regular and intensive participation in the training program which includes conditioning, specific training, and active participation in games and sports. Kho-Kho is a sport that requires a high level of physical fitness. Such fitness includes muscular and cardio-respiratory endurance, speed, strength, power, coordination, flexibility, and balance. The type of fitness needed for Kho-Kho players must be related to the requirement of the skills in the game. Kho-Kho players develop good heart rate, good vital capacity, and good speed because of strenuous and serious practice. Thus, it is understood that the players of GCPE and Nizam college were having superior physical, physiological and psychological qualities when compared to the players of Loyola Degree College and Badruka Degree College. This might be the reason in which GCPE and Nizam college had been dominating in the field of Kho-Kho in the Osmania University level tournaments.

CONCLUSIONS

1. There was a significant difference existed between the high and low performers of Osmania University Kho-Kho players on speed, endurance, flexibility, vital capacity, aggression, and mental health
2. There was no significant difference between the high and low performers of Osmania University Kho-Kho players on body composition.

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Research Article

Lived experiences of physical education teachers amidst the pandemic

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ABSTRACT

This study examines the lived experiences of physical education teachers amidst the pandemic. This qualitative research found that some participants have improved their physical and mental health as well as their family relations while teaching amidst the pandemic. Data also reveal that competencies of the participants in integrating technology are not yet sufficient for them to deliver the standards of flexible learning, preparations being done by the participants are more on self-paced and required formal capacity training in technology. Positive mindset, keeping themselves physically active, and prayer serve as their coping strategies with the challenges of new normal situations. Emphasis on the upgrading of physical education teachers' skills in the use of technology is highly recommended.

Keywords: Physical education, Teacher, Competencies

INTRODUCTION

Considerable amount of studies was conducted examining the physical education teacher's education (PETE) situations and competencies (Koka and Hein, 2003; Silverman *et al.*, 1992; Townsley and McNamara, 2021) (Mortejo and Mortejo, 2021). It has been also been revealed focus of interest of new studies were to predict the effects of technology in teaching physical education (Wang, 2021; Zhong, 2021) which has been proven that technology enhances actual physical activity and training scene and supports the players and students performance through wearable sensors and interactive media. While dramatic changes caused by the COVID-19 pandemic in the physical education system are now experience by majority of the PETE, it is also worth to further investigate the lived experiences of practicing PETE in the new normal set up to see the problems in the application of technology in physical education.

METHOD

The study will be phenomenological in nature in which in simple terms, phenomenology can be defined as an approach to

research that seeks to describe the essence of a phenomenon by exploring it from the perspective of those who have experienced it (Teherani *et al.*, 2015). The goal of phenomenology is to describe the meaning of this experience – both in terms of what was experienced and how it was experienced.

The participants of this study are (7) physical education teachers in select schools in the Philippines. Participants are handed to be selected and include in the sampling frame based on the certain qualities for the purpose of this study. Participants include these clients who fit to provide the needed data to answer the research questions who are physical education teachers.

Inclusion Criteria

The following criteria were included in the study:

1. A physical education teacher with no less than a year of service.
2. Must be teaching the subject physical education in the new normal setup through different learning delivery modality.
3. Willing to impart information or share their experiences with regard to the aims of the.

RESULTS AND DISCUSSION

Physical education teachers have experienced different challenges and opportunities amidst the pandemic. It is good

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that some of the participants have expressed the positive effects of these COVID-19 in their personal and profession lives. It's worth mention the lived experiences of the teachers that might be contributory to the situations of physical education teachers for better delivery of instruction and quality of life in general.

Essential Themes

Improve family relations

Most of the responses of the participants stated that the pandemic brought themselves into more family ties and bonding which is very important in the holistic development of the teachers improving the mental health

Improved physical health and mental health

Based from the narratives of participants, most of them experienced the improvement of their physical and mental health for their have a lot of time for their daily activities such as doing household chores, sweeping the yard, and doing some home-based physical activities which in return produces a positive effect on their health. They were able to set time for different things which they were not experienced before the time of their pandemic where the nature of the teaching job consumed their lots of time and energy. Finally, the results of the comparative inquiry emphasize that the attitudes and opinions of some participants made them successful and more healthier in the times of pandemic compare to other physical education teachers. The positive mindset of some of the participants and prayer brought them to more improved quality of life amidst the pandemic situation.

Lack of technology skills

Finally, the summary of the transcripts of physical education teachers supporting lack of technology skills in teaching physical education and the needing for capacity training in technology since majority of the participants have stated that most of them have self-paced learning for technology skills.

CONCLUSION

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

1. Improved physical and mental health was experienced by, most of the physical education teachers
2. Preparations being done by the participants are more on self-study. Formal training and seminars are needed.
3. Competencies of the participants in integrating technology are not yet sufficient for them really make use of technology in teaching.

RECOMMENDATIONS

The challenges of a COVID-19 pandemic for physical education are considerable. The vast majority of teachers have

faced the transition from their normal routines to new way of teaching and living. The isolation, anxiety, depression, and frustration of some educators are clear, but many of them have found strategies to deal with the pandemic specifically positive mindset, prayer, and keeping themselves active most of the times. However, the need for formal technology trainings in their field is highly recommended for pedagogy of teaching.

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Research Article

Effects of excessive workload among physical education teachers

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ABSTRACT

The purpose of the study was to assess the effect of excessive workload among physical education. The study revealed that teachers' excessive workload has negative effect on their teaching performance, familial relations, and quality of life, it is recommended that the school administrator should employ qualified teachers to increase the teaching force, and observed policies in giving workloads.
Keywords: Teacher, Physical education, Workloads

INTRODUCTION

Considerable amount of studies were conducted examining the impacts of workloads to teachers such as emotional exhaustion and burnout (Van Droogenbroeck et al., 2014) (Desouky and Allam, 2017). Reported observed effects were now experienced both by the students and the teachers in the field of physical education to transition brought about by the limitations amidst pandemic, physical education which is by nature being taught through face-to-face instruction and practical application of the lesson in sports, games, and exercises. To cope with the changes in the mode of teaching, other factors that can contribute to teacher's performance like teachers competencies and organizational role in flexible learning should were also worth mentioning (Avanzi et al., 2018) (Mortejo and Mortejo, 2020).

In this research, it takes part of significance for us to know the effects of excessive workload not only to teacher's performance but also in their general functioning as a whole.

METHODS

The study utilized the mixed method for information gathering. Questionnaire was given to the respondents (teachers), it is

divided into two parts: Respondent's profile and questions inclined to effects of excessive workload on physical education teachers. Then, face-to-face interviews were done among students and teachers themselves, criteria were set for examining the computation for normal and excessive load for sampling technique.

RESULTS AND DISCUSSION

The diagram above shows that in the question #1, five or 45.5% of the respondents rated that they are stressed due to overload.



CONCLUSION

The study has shown that there is a relationship between teachers' workload teachers' performance and his quality of life. The researchers found out that the effects of excessive

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workload on physical education are somehow manageable in some group of participants but seen to have negative effects in their delivery of instruction, familial relation, and personal well-being of the participants. Somehow having excessive workload did trigger their stress and resulting to low quality of life. It is also over served in the study that the image of the educators from their students was also affected by their evaluation of their teaching performance.

RECOMMENDATION

Due to the finding soft his study, the researcher recommends the following:

To reduce the problem of teachers' workload issues as revealed in this study, the school administrators should consider adding competent teachers from the field.

Furthermore, the observance of giving excessive workload load for teachers should be avoided.

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Research Article

Effect of strength training for the development of motor qualities among middle-distance runners of osmania university

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ABSTRACT

The goal of this research is to see how strength training affects the development of motor quality in male middle-distance runners in Hyderabad. The subject was chosen at random from a group of boys between the ages of 21 and 23 years old. $n = 20$ Experimental Group I and $n = 20$ control Group II are included in the study's sample. Barrow motor ability (standing broad jump) test was utilized in the study as a pre-test and post-test to determine motor quality in both groups. Experiment Group I received strength training on alternate days for 8 weeks, while control Group II received general warm-up training. The experimental group's performance on the standing broad jump improved from pre-test to post-test mean \pm S.D. After 8 weeks of strength training, the subject's experimental group pre-test (2.3590) and controlled Group II (2.3580) demonstrate improvement. After the training, the experimental group post-test I (2.4380) and controlled Group II (2.3540), respectively. After the results, it is concluded that significant effect in experimental Group I whereas the control group exhibits a reduction in their performance.

INTRODUCTION

There are three types of track and field events: Track events, field events, and combination events. Middle-distance running events are longer track races than sprints, lasting up to 3000 m. The 800 m, 1500 m, and mile run are the typical middle distances, while the 3000 m can also be considered a middle-distance event. The half-mile (880 yards) imperial measurement was used to create the race, which is a typical English racing distance. In the United States, imperial racing distances were typical. Following the NCAA's switch to metric lengths in 1976, American high schools (under the name of the NFHS) were the last to transition to metric distances in 1980. Following the 1966 Commonwealth Games, countries using the English system switched to metric distances. Eight hundred meters are 4.67 m short of a mile.

Beattie *et al.* (2016), the effect of strength training on performance indicators in distance runners. J Strength Cond Res 31(1): 9–23, 2017 – Running economy (RE) and velocity at maximal oxygen uptake (VV_{max}) are considered to be the best physiological performance indicators in elite distance runners. In addition to cardiovascular function, RE and VV_{max} are partly dictated by neuromuscular factors. One technique to improve neuromuscular function in athletes is through strength training. The aim of this study was to investigate the effect of a 40-week strength training intervention on strength (maximal and reactive strength), VV_{max}, economy, and body composition (body mass, fat, and lean mass) in competitive distance runners. Twenty competitive distance runners were divided into an intervention group ($n = 11$; 29.5 610.0 years; 72.8 66.6 kg; 1.83 60.08 m) and a control group ($n = 9$; 27.4 67.2 years; 70.2 66.4 kg; 1.77 60.04 m). During week 0, 20, and 40, each subject completed three assessments: Physiology (V₂ mmol/L BLa, V₂ mmol/L BLa [blood lactate], V₄ mmol/L BLa, RE, VV_{max}, V_{max}), strength (1 repetition maximum back squat; countermovement jump and 0.3 m drop jump),

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and body composition (body mass, fat mass, overall lean, and leg lean). The intervention group showed significant improvements in maximal and reactive strength qualities, RE, and VV_O2max, at weeks 20 ($p \neq 0.05$) and 40 ($p \neq 0.05$). The control group showed no significant changes at either time point. There were no significant changes in body composition variables between or within groups. This study demonstrates that 40 weeks of strength training can significantly improve maximal and reactive strength qualities, RE, and VV_O2max, without concomitant hypertrophy, in competitive distance runners.

Objective of the Study

The objective of the study is to find out the effect of strength training on the development of motor quality among middle-distance athletes of Hyderabad District.

Hypothesis

It was hypothesized that there would be a significant difference in strength training development motor quality among middle distance athletes of Hyderabad District.

METHOD

$n = 40$ at the top middle-distance runners between the ages of 21 and 23 were chosen at random and divided into two

groups: Experimental Group I $n = 20$ (strength training) and controlled Group II $n = 20$ (general training). The criteria for selection were based on their achievements at various levels such as state, inter-university, and national levels. Explained the training schedule and training plan with subjects before the session started.

Tools

Harold M Barrow developed a test of motor ability established in the year 1957.

Standing Broad Jump

Purpose of the Test: To measure power mainly but also agility, speed, and strength.

RESULTS AND DISCUSSION

The experimental group and the controlled group were given pre- and post-tests to see if there was an improvement in motor quality capacity after 8 weeks of strength training, while the controlled group received general training.

t-test

The analysis of the data reveals that the subjects with the strength training have shown improvement in the performance of standing broad jump test from pre- to post-test mean \pm S.D

Paired samples statistics								
	Mean	n	Std. deviation	Std. error mean				
Control group								
Pre-test	2.3580	20	0.02003	0.00448				
Post-test	2.3540	20	0.2469	0.00552				
Experimental group								
Pre-test	2.3590	20	0.01875	0.00419				
Post-test	2.4380	20	0.02003	0.00448				
Paired samples test								
	Paired differences				t	df	Sig. (two tailed)	
	Mean	Std. deviation	Std. error mean	95% confidence interval of the difference				
				Lower	Upper			
Control group								
Pre-test	0.00400	0.01107	0.00248	-0.00118	0.00918	1.615	19	0.123
Post-test								
Experimental group								
Pre-test	-0.7900	0.2365	0.00529	-0.9007	-0.6793	-14.937	19.	0.000
Post-test								

pre-test result shown (2.3590) and controlled group (2.3580). After 8 weeks of specific of strength training, there is improvement in the subject's experimental group (2.4380) strength training and controlled group (2.3540).

CONCLUSIONS

It was concluded that after the 8 weeks of strength training, there is improvement in experiment group, as it was analyzed in the results mention that the strength training has shown excellent effect in the improvement motor quality. The aim of formulating the effect of strength training to the betterment and enhance their performance as well as a guideline for middle-distance coaches at various level in preparing and designing quality and effective training program.

RECOMMENDATIONS

The following suggestions are made for the benefit of players, coach's academicians, and sports scientists. The researcher suggests the part of the coach to use the above-said development of the strength training program for middle-distance runners. The study helps the physical educationist and coaches for selecting the athletes.

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Research Article

Effect of own body exercises training for the development of selected performance parameters among school girl

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ABSTRACT

This study was concluded to find out the effect of own body exercises training for the development of selected performance parameters (speed) among School Girl. This was an experimental study. For concluded this study, $n = 50$ school girls students of 9th-11th were selected as subject the two equivalent groups of fifty members as one experimental groups I i.e. Own body exercise training group ($n = 25$) and a control group ($n = 25$) passing through own body exercise training for 8 weeks furthermore 3 days out of every week own body exercise training was given to experimental Group I and control which has normal Training apart from which they were not involved in any special training. The experimental group's performance on 50 meters dash run test improved from pre-test to post-test Mean S.D. After 8 weeks of own body exercise training, it is concluded that significant effect in experimental Group I whereas the control group exhibits a reduction in their performance.

Keywords: 50 m dash run, Own body exercise, Speed

INTRODUCTION

Bodyweight exercises (also called bodyweight workout) are strength training exercises that use the individual's own weight to provide resistance against gravity. Bodyweight exercises can enhance a range of bio motor abilities including strength, power, endurance, speed, flexibility, coordination and balance. This type of strength training has grown in popularity for both recreational and professional athletes. Bodyweight training utilizes simple abilities such as pushing, pulling, squatting, bending, twisting, and balancing. Movements such as the push-ups, the push ups, and the sit ups are some of the most common bodyweight exercises. While some exercises may require some type of equipment, the majority of bodyweight exercises require none. For those exercises that do require equipment, common items found in the household are usually sufficient (such as a bath towel for towel curls), or substitutes can usually be improvised (for example, using a horizontal tree branch to perform pull-ups). Therefore, bodyweight exercises are convenient when traveling or on vacation, when access to a gym or specialized equipment may not be possible. Another advantage of bodyweight training is that there are no costs involved.

The aim of this study was to examine the influence of selected exercises on motor development in elementary school third-grade girl students in Ahwaz City, Iran. Methods: The present study was semi-experimental, performed as field and using experimental and control groups. The statistical population included all third-grade girl students of elementary schools of Ahvaz city (10,500 subjects). Forty of whom were randomly selected (cluster stage) and then were divided randomly into two experimental ($n = 20$, Mean age = 8.9 ± 0.49) and control ($n = 20$, Mean age = 8.9 ± 0.48) groups. The experimental group was given training for 8 weeks, 3 sessions per week and each session lasting 45 min. To measure motor development, the Test of Gross Motor Development, edition 2 (TGMD2; 2002) was applied. Statistical analysis was performed using an independent *t*-test and paired *t*-test. Results: The results showed statistically significant differences between control and experimental groups regarding locomotion skills (8.433, *P*.

Objectives of the Study

The objective of the study is to find out the effect of **Effect of Own Body Exercises Training for the Development of Selected Performance Parameters among School Girl.**

Hypothesis

It was hypothesized that there would be significant difference in **Effect of Own Body Exercises Training for the Development of Selected Performance Parameters among School Girl.**

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Table 1: This study shows that experimental group (physical fitness and performance) are having better Speed compare to the control group in 50 M Run Speed

Variable	Group	Mean	Sd	Std error mean	T value
Pre-test 50 M run	Experimental	8.1289	0.73577	0.05166	9.189
	Control	8.1773	0.74266	0.0380	
	Variables group	Mean	SD	0.0380	
Post test 50 M run	50 M Run	7.6659	0.726054.570.000		
	Experimental				
	Control				
8.1883	0.76765				

*Significant at 0.05 level

METHODOLOGY

This study was concluded to find out the Effect of Own Body Exercises Training for the Development of Selected Performance Parameters (speed) among School Girl. This was an experimental study. For concluded this study, $n = 50$ school girls' students of 9th–11th were selected as subjects' = 50 divided into two groups experimental Group I and Controlled Group II.

Selected Performance Variable (Speed)

There are many fitness and performance components such as strength, agility, coordination, speed, and endurance, we give training for speed to improve the performance for school girls. Speed is a condition Ability athletes have to cover the maximum distance up on short time.

Tools

50 m dash run or sprints

The dash run helps to know the Speed condition ability in the athlete also called as sprints race.

Purpose

To measure the speed.

Equipment required

Measurement tape to measure and mark the distance, non-slip floor to take off, Whistle to start, and cones for visible marking. Most important is to stop watch to record the performance.

RESULTS AND DISCUSSION

In Table 1 the mean values of 50 M run of experimental group pre-test 8.1289 and post-test and 7.6659 control group pre-test 8.1773 and post-test 8.1883 is the average mean of the experimental group in 50 M Run is lesser than the control group.

It was found that the experimental group are having good speed performance compared to the control group. Hence, it is also

concluded that their own body exercise is very important to improve their performance.

CONCLUSION AND DISCUSSION

According to the result of the present study, the effect of own body exercise is proved more effective for the development of performance variables in school girls, however, this conclusion is limited to the school girls from 9th to 11th standard. More research should be conducted to investigate the effect of own body exercise in different ages and gender for various sports activities. I concluded the assessment process can be conducted every 3 and 6 months to update the progress of players performance and to ensure that it is up to date with the players training needs requirements. It is recommended that coaches assess their player's performance on a regular basis in order to ensure better compliance with the training program. The aim of formulating the effect of own body training exercise and to the betterment and enhance their performance as well as guide line for coaches at various level in preparing and designing quality and effective training program.

RECOMMENDATIONS

This type of study is useful to the coaches and physical education teachers to train the students as per the requirement of the performance variable for better performance in sports. Conducting a similar study, by adding other performance factors such as goal setting, achievement motivation, and concentration. Doing a similar study on individual and team games.

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Research Article

Effect of physiological efficiency between male kabaddi and kho-kho players of Osmania University level

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ABSTRACT

Introduction: The main purpose of the study was to compare the physiological variables of male players of kabaddi and kho-kho players. **Methodology:** For the aim of the present study, 30 male players from kabaddi and kho-kho of Telangana region were selected randomly. The age of the subjects was ranging from 18 to 21 years. The selected players were tested, for analysis of blood pressure, pulse rate, and body temperature by electronic apparatus (dynamic). **Conclusion:** The results of this research showed significant difference found between kabaddi players and kho-kho players on blood pressure, pulse rate, and body temperature at 0.05 levels.

Keywords: Kabaddi, Kho-kho players, Physiological

INTRODUCTION

In these indigenous games, physiological requirements for kabaddi and kho-kho players have become more specific over the past decade with further advances (pro kabaddi and pro league kho-kho) in both sports science technology and general understanding of the physiological requirements for testing kabaddi and kho-kho. However, despite this progress in testing procedures and knowledge, there still appears limited research regarding the analysis and critical appraisal of tests used specifically for kabaddi and kho-kho players. Many laboratories and field tests for physiological assessment do exist, however to be thorough in reviewing physiological status is important to assess all components of the sport, specifically measuring each energy system. Physiological exercise testing is important in helping and identifying the potential talent but also to provide the players, trainers, and coaching staff with some profiles for the players and a measure for evaluating training programs. The purpose of the study was to compare the physiological

variables between the university level kabaddi and kho-kho players.

METHODOLOGY

Selection of Subjects

To achieve the purpose of this study, 30 kabaddi and kho-kho players, that is, kabaddi ($n = 15$) and kho-kho ($n = 15$), who participated in the university level competition.

Selection of Variables

The study was taken to pinpoint the physiological variables of (1) blood pressure, (2) pulse rate, and (3) body temperature.

Research Design

The physiological variables of blood pressure, pulse rate, and body temperature were recorded after the training session of both kabaddi and kho-kho players through electronic devise of dynamic for BP and body temperature was recorded through thermometer.

Statistical Technique

To test the significance of mean difference between the kabaddi and kho-kho players, t -test was applied.

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Table 1: Statistical difference on physiological between kabaddi and kho-kho players

S. No.	Dimensions	Kabaddi		Kho-kho		Df	t	P-value
		Mean	SD	Mean	SD			
1	BP (systolic)	125.65	12.612	127.16	13.41	27.894	-0.317	0.7531
2	BP (diastolic)	80.37	7.215	76.33	6.00	27.894	0.8492	0.403
3	Pulse rate	115.35	18.265	103.4	17.53	27.9534	1.8264	0.0785
4	Temperature (F°)	97.34°	1.655	96.35°	1.60	27.9681	1.6539	0.1093

*Significance of (28) $t=2.04$ at 0.05 level of confidence

RESULTS AND DISCUSSION

Since the purpose of the study was to analyze the selected physiological variables of players of kabaddi and kho-kho, were explained with the help of different tables.

Above table shows the mean of systolic pressure during rest was 125.65 ± 12.612 of kabaddi and 127.16 ± 13.41 of kho-kho players. The calculated t -value was -0.317 and $P = 0.75$ which was higher than $P = 0.05$. The mean of diastolic pressure during rest was 80.37 ± 7.215 of kabaddi and 76.33 ± 6.00 of kho-kho players. The calculated t -value was 0.849 and significance was 0.40 which was higher than $P = 0.05$. The mean of pulse rate during rest was 115.35 ± 18.265 of kabaddi and 103.4 ± 17.53 of kho-kho players. The calculated t -value was 1.82 and significance was 0.07 which was higher than $P = 0.05$. The mean value of body temperature during rest was $97.34^\circ\text{F} \pm 1.65$ of kabaddi and $96.35^\circ\text{F} \pm 1.60$ of kho-kho players. The calculated t -value was 1.65 and significance was 0.10 which was higher than $P = 0.05$.

DISCUSSION OF THE RESULTS

The data revealed that physiological variables of pulse rate and blood pressure (systolic and diastolic) and temperature was observed that no significant difference was found between male kabaddi and kho-kho players.

CONCLUSION

The results of the study stated that both kabaddi and kho-kho players had optimum endurance levels in terms of training bradycardia, that is, decrease in heart rate during resting period.

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Research Article

Effect of Hatha Yoga of selected physical fitness variables among school students of Gulbarga district

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ABSTRACT

The purpose of the present study is to find out the effect of Hatha Yoga for development of physical fitness variables (flexibility) among schoolboys 8th–10th of Gulbarga district. The subject was chosen randomly. $n = 25$ Experimental Group I and $n = 25$ Control Group II are included in the study's sample. Sit and reach test was utilized in the study as a pre-test and post-test to determine flexibility in both groups. Experiment Group I received Hatha Yoga training on alternate days for 8 weeks, while control Group II received general warm-up training. The experimental group's performance on the sit and reach improved from pre-test to post-test. It is concluded that there was a significant effect in experimental group, whereas the control group exhibits a reduction in their performance.

Keywords: Flexibility, Hatha Yoga, Sit and reach test

INTRODUCTION

Conventionally, Hatha Yoga is a catchall term for any type of yoga that pairs pose (“asanas”) with breathing techniques (“pranayama”). Essentially, many of the yoga styles that are popular in the U.S. – such as Ashtanga, Restorative, Vinyasa, and Iyengar, – fall under the umbrella of Hatha. At the same time, the term “hatha” has also evolved in the U.S. to describe a particular type of yoga class that is typically slow-paced with a focus on proper alignment, explains Lisa Maria, national workshop director at Yoga Works and certified yoga instructor. What is the difference between Hatha Yoga and Vinyasa? Compared to Vinyasa classes, which often flow through series of poses at a quick clip, Hatha classes typically guide practitioners through postures at a slower pace with more guidance on how to do each pose correctly. Hatha Yoga is a branch of yoga. The Sanskrit word हठ haṭha literally means “force” and thus alludes to a system of physical techniques.[2-3]

In India, Haṭha Yoga is associated in popular tradition with the Yogis of the Natha Sampradaya through its traditional

founder Matsyendranath, who is celebrated as a saint in both Hindu and Buddhist tantric and Haṭha Yoga schools. Almost all Hatha yogic texts belong to the Nath Siddhas, and the important ones are credited to Matsyendranath's disciple, Gorakhnath or Gorakshanath.[4] According to the Dattatreya Yoga Śāstra, there are two forms of Haṭha Yoga: one practiced by Yajñavalkya consisting of the eight limbs of yoga, and another practiced by Kapila consisting of eight mudras.

The oldest dated text so far found to describe Haṭha Yoga, the 11th-century Amṛtasiddhi, comes from a tantric Buddhist milieu.[5] The oldest texts to use the terminology of Hatha are also Vajrayana Buddhist.[3] Later, Haṭha Yoga texts adopt the practices of Haṭha Yoga mudras into a Saiva system, melding it with Layayoga methods which focus on the raising of kuṇḍalinī through energy channels and chakras. Dr. Deba Prasad Sahu Assistant Professor Department of Physical Education, Mahishadal Girls' College, Purba Medinipur, West Bengal, India, and Dr. Sandip De Assistant Professor Department of Physical Education, Mugberia Gangadhar Mahavidyalaya, Purba Medinipur, West Bengal, India, (2015) study was to investigate the effect of Hatha Yoga, aerobic training, and combination of Hatha Yoga and aerobic training on physical fitness of college level students.

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Table 1: This study shows that experimental group (physical fitness) flexibility are having better speed compare to the control group in sit and reach test

Sit and Reach test measured in near centimeters o						
Variable	Sample	Group	Mean	SD	Std error mean	T value
Sit and reach test	n=25	Experimental group Pre-test	8.0470	3.19640	.13539	8.652
		Experimental group Post-test	9.7560	3.35932		
Sit and reach test	n=25	Control group Pre-test	5.990	3.66242	.10212	1.332
		Control group Post-test	5.8400	3.44336		

*Significant at 0.05 level

METHODS

Subjects were divided into four equal groups on random basis (Groups A, B, C, and D) consisting of 25 subjects in each group. Three out of the four groups were given experimental treatments, i.e. aerobic training (Group A), Hatha Yoga (Group B), and combination of Hatha Yoga and aerobic training (Group C), while the remaining one group (Group D) was designated as control group. Results: Aerobic training, Hatha Yoga, and combination of aerobic and Hatha Yoga are found to be more significant difference in physical fitness of college mail students. Conclusion: The aerobic training is found to be more effective in changing the physical fitness in comparison to the effect of Hatha Yoga training and combination of Hatha Yoga and aerobic training on aforesaid physical fitness.

Objectives of the Study

The objective of the study is to find out the effect of Effect Hatha Yoga for development of physical fitness variables (flexibility) among schoolboys 8th-10th standard of Gulbarga district.

Hypothesis

It was hypothesized that there would be significant difference in effect Hatha Yoga for development of physical fitness variables (flexibility) among schoolboys 8th-10th standard of Gulbarga district

METHODOLOGY

This study was concluded to find out the effect of Hatha Yoga training for the development of selected physical fitness (flexibility) among schoolboys. This was an experimental study. For concluded this study, $n = 50$ schoolboys' students of 8th to 10th standard were selected as subjects' = 50 divided into two groups experimental group I and controlled Group II.

Tools

Tool used was sit and reach test.

Purpose

The purpose of the study was to measure the flexibility.

Equipment required

Equipment required was sit and reach box (or alternatively a ruler can be used, and a step or box).

Procedure

This test involves sitting on the floor with legs stretched out straight ahead. Shoes should be removed. The soles of the feet are placed flat against the box. Both knees should be locked and pressed flat to the floor – the tester may assist by holding them down. With the palms facing downward, and the hands on top of each other or side by side, the subject reaches forward along the measuring line as far as possible, ensure that the hands remain at the same level, not one reaching further forward than the other. After some practice reaches, the subject reaches out and holds that position for at least 1–2 s while the distance is recorded.

RESULTS AND DISCUSSION

In Table 1, the mean value sit and reach test of experimental group pre-test is 8.0470 and post-test is 9.7560 and control group pre-test is 5.990 and post-test is 5.8400. The average mean of experimental group in sit and reach test is more than the control group.

It was found that experimental group are having good flexibility compare to the control group. Hence, it is also concluded that Hatha Yoga exercise is very important to improve their performance.

CONCLUSION AND DISCUSSION

The result of the study clearly showed that effect of Hatha Yoga training on schoolboys level students was positively significant. The result proved that Hatha Yoga are very helpful to improve physical fitness of the students. I concluded that the assessment process can be conducted every 3 and 6 months to

update the progress of players performance and to ensure that it is up to date with the players training needs requirements. It is recommended that coaches assess their player's performance on a regular basis in order to ensure better compliance with the training programme. The aim of formulating the effect of Hatha Yoga training exercise and to betterment and enhance their performance as well as guide line for coaches at various level in preparing and designing quality and effective training program.

RECOMMENDATIONS

This type of study is useful to the coaches and physical education teachers to train the students as per the requirement of the performance variable for the better performance in sports. Conducting a similar study, by adding other performance factors such as goal setting, achievement motivation and concentration.

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Research Article

Effects of circuit training for the development of selected physical fitness variables among inter college women volleyball players of Mahabubnagar district

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ABSTRACT

The purpose of the present study was to find out the effect of circuit training for the development of speed among volleyball players of Mahabubnagar District. The sample for the present study consists of $n = 40$ female volleyball players of Mahabubnagar District out of which $n = 20$ are experimental group and $n = 20$ are controlled group. Circuit training was given to experimental group on alternate days, that is, three sessions per week and controlled group was given the general training for 6 weeks. Pre-test and post-test were conducted in 50 m dash run test to measure the speed among experimental group and controlled group. This study shows that due to the circuit training, there is an improvement of experimental group in speed and controlled group is decreased in performance of speed.

Keywords: Circuit training, Stride length, Volleyball players, speed

INTRODUCTION

Circuit training is a form of body conditioning or resistance training using high-intensity aerobics. It targets strength building or muscular speed. An exercise “circuit” is one completion of all prescribed exercises in the program. When one circuit is complete, one begins the first exercise again for the next circuit. Conventionally, the time between exercises in circuit training is short, often with rapid movement to the next exercise. The program was developed by Morgan and Adamson in 1957 at the University of Leeds in England. Circuit training is a form of training where participants rotate through a number of stations, performing different exercises to time or repetitions, back to back, with minimum rest until the circuit is completed. There are various ways of constructing a circuit, but they would normally contain several movements including body weight, weighted, and dynamic exercises.

The great thing about circuits is the adaptability available. They can be developed for cardiovascular improvement, strength,

mobility, sport specific...virtually anything. They also do not need a lot of space or time and do not need to be overly complicated (unless you want them to be).

Benefits of circuit training include:

1. Improvements in cardiovascular fitness
2. Improvements in muscular strength
3. Improvements in muscular endurance
4. Increased social interaction during a workout
5. Increased adherence to exercise.

Baby and Moorthy (2011) study was *The Effect of Circuit Training on Selected Motor Fitness Components and Physiological Variables among College Level Basketball Players* Sport is a challenge represented by a lot of standards or traditions. As physical wellness assumes vital job in the achievement of a competitor, the motivation behind this investigation was to discover the impact of high-intensity aerobics on chose engine wellness segments and physiological factors among school level basketball players. For this, an aggregate of 30 basketball players of age bunch 18–25 years was chosen as subjects from Newman College of Arts and Science, Thodupuzha, Kerala State. The haphazardly chosen basketball players were partitioned into control group (15) and

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experimental group (15). The irregular gathering configuration was utilized as trial plan for this examination. The information gathered from the exploratory gathering and control bunch amid pre-test and post-test on speed, quality continuance, dangerous power, cardiorespiratory perseverance, and resting beat rate were utilized for factual analysis to discover critical distinction between the pre-test and post-test implies by figuring subordinate “F” test (ANCOVA) for every factor independently. In all cases, 0.05 dimension of certainty was used to test the criticalness. Our outcomes uncovered that there was huge contrast among basketball players on chose physical wellness segments. The experimental group basketball players were observed to be superior to anything the control group players on all chosen engine wellness and physiological factors among school level basketball players. Consequently, this investigation gives knowledge to the usage of successful physical preparing programs for better games results.

Objective of the Study

The objective of the study is to find out the effect of circuit training for the development of speed among volleyball players of Mahabubnagar District.

Hypothesis

It was hypothesized that there would be significant difference in circuit training for the development of speed among volleyball players of Mahabubnagar District.

METHODOLOGY

The purpose of the present study was to find out the effect of circuit training exercises for the development of speed among women volleyball players. The sample for the present study consists of 40 female volleyball players which practices at Mahabubnagar District stadium out of which $n = 20$ are experimental group and $n = 20$ are controlled group. Circuit training was given to experimental group on alternate days, that is, 3 sessions per week and controlled group was given the general training for 6 weeks. Pre-test and post-test were conducted 50 m dash run test to measure the speed among experimental group and controlled group.

Physical Fitness Variable (Speed)

There are many fitness components such as strength, agility, coordination, speed, and endurance, we give training for speed to improve the performance in basketball players. Speed is condition ability athlete has to cover maximum distance up on short time.

Tools

50 meters dash run or sprints

The dash run helps to know the speed condition ability in the athlete also called as sprints race.

Table 1: This study shows that experimental group (physical fitness psychology) is having better speed compare to the control group in 50 M run

Speed					
Variable	Group	Mean	SD	t	P-value
Pre-test	Experimental	7.66	0.56	4.60	0.00
50 m run	Control	7.69	0.65		
Variables	Group	Mean	SD	P - value	
Post-test	50 m run	7.51	0.36	14.570.000	
50 m run	Experimental				
	Control				
7.70	0.609				

*Significant at 0.05 level

Purpose

To measure the speed.

Equipment required

Measurement tape to measure and mark the distance, non-slip floor to take off, whistle to start, and cones for visible marking. Most important is stop watch to record the performance.

Procedure

The subjects stand behind the starting line. The researchers before the start give the demonstration and explanation clearly so the subject performs well in manner. Subjects have to run with his maximum speed. The running start had been done in standing position, after the whistle they have to start the run up to 50 m. Subject got three chances in each chance the rest period 5 min, the best timing was recorded in his three attempts.

RESULTS AND DISCUSSION

In Table 1, the mean values of 50 m run of experimental Group I pre-test 7.66 and post-test 7.69 and control group pre-test 7.51 and post-test 7.70 is the average mean of experimental group in 50 M run is lesser than the control group.

It was found that experimental group is having good speed compare to the control group. Hence, it is also concluded that speed of running is very important for basketball players to improve their performance.

CONCLUSION

It was concluded that the circuit training showing the great improvement in development of speed, author keenly observes that the athlete also enjoying the workout because of number of different station without getting bored they can carry out different station exercise very easily, circuit training helps to

overall development of the body, based on our specific goal, circuit training and its station can be plan according tour aim of physical fitness variable, minimum 8 weeks necessary to show the effect of training.

Recommendation

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 training program for volleyball players. The study helps the physical educationist and coaches for selecting the athletes.

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Research Article

Impact of Yogasana training on physiological parameters of interscholastic boys

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ABSTRACT

The purpose of the study was to investigate the impact of Yogasana training on selected performance parameters (resting pulse rate and Vo_2 max) among the interscholastic boys of Sri Ramakrishna Mission Vidyalaya High School (Gurukulam), Periyanaickenpalayam, Coimbatore-20. To achieve the purpose of the study, the investigator randomly selected 30 interscholastic boys and their age ranged between 11 and 14 years age. The criterion variables selected for this study were digital B.P. monitor for resting pulse rate and step test for Vo_2 max. Pre-test was conducted before starting the training and post-test was conducted after 8 weeks Yogasana training. To find out the effect of Yogasana training on the dependent variables, paired sample t-test was used. The level of confidence was fixed at 0.05 levels. According to the result, it can be concluded that 8 weeks of Yogasana training significantly increase resting pulse rate and Vo_2 max in interscholastic boys.

Keywords: Resting pulse rate and Vo_2 Max, t-test, Yogasana training

INTRODUCTION

Yoga is a spiritual discipline that focuses on bringing the mind and the body into harmony. It focuses on a very subtle science. It's both an art and a science of managing a balanced lifestyle. The word "Yoga" comes from the Sanskrit root "Yuj," which means "to join, yoke, or to unite." Asana is a yoga posture, posture, or body posture. Asanas are described as "steady and comfortable pose" by Patanjali in Ashtanga yoga. A safe and peaceful body is the basis for advanced practice. This is exactly what asana is about. Depending on the application of asanas, their use in different physical environments and their level of practice, they can be categorized or categorized in a variety of ways. Asanas are distinct in terms of taking a position (slow and regulated movements), maintaining a position (stability, comfort, and relaxation), and releasing a position. The following four levels may be used to learn asanas (physical positions).

Yogic activities, especially Pranayama, enhance cardiorespiratory capacity and change circulatory status,

resulting in a significant reduction in basal pulmonary function. These exercise-induced changes (i.e. a decrease in DP and an improvement in other factors) are substantially reduced after yoga training. As a result of exercise, the quality of aerobic metabolism within the body increases. The heart pumps enough blood with each heart beat by lowering the resting heart rate (HR) and the HR at sub-maximum loads. This, along with other physiological improvements, improves the ability to extract oxygen.

METHODOLOGY

The purpose of the study was to investigate the impact of 8-week Yogasana training on selected performance parameters (resting pulse rate and Vo_2 max) among the interscholastic boys of Sri Ramakrishna Mission Vidyalaya High School (Gurukulam), Periyanaickenpalayam, Coimbatore-20. To achieve the purpose of the study, the investigator randomly selected 30 interscholastic boys and their age ranged between 11 and 14 years age. The criterion variables selected for this study were digital B.P. monitor for resting pulse rate and step test for Vo_2 max. Pre-test was conducted before starting the training and post-test was conducted after 8 weeks Yogasana training. To find out the effect of Yogasana training on the

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Table 1: Computation of “t” ratio between the pre- and post-tests on resting pulse rate of experimental and control groups

Group	Tests	M	SD	σDM	DM	t-ratio	P-value
Experimental	Pre	88.27	2.03	0.26	3.30	12.54*	0.00
	Post	81.97	2.66				
Control	Pre	84.27	2.12	0.60	0.43	0.72	0.48
	Post	83.83	2.44				

*Significance at 0.05 level

Table 2: Computation of “t” ratio between the pre- and post-tests on Vo2max of experimental and control groups

Group	Tests	M	SD	σDM	DM	t-ratio	P-value
Experimental	Pre	43.23	1.30	0.17	1.13	6.04	0.00
	Post	44.36	1.51				
Control	Pre	43.01	1.26	0.17	0.11	0.67	0.51
	Post	42.90	1.29				

*Significance at 0.05 level

dependent variables, paired sample *t*-test was used. The level of confidence was fixed at 0.05 levels.

It observes from Table 1 that the experimental group mean value for pre-test was 88.27 and post-test was 81.97. The standard deviation for the pre-test was 2.03 and post-test was 2.66. The standard error of the different between the means was 0.26. The mean difference for the pre-test and post-test was 3.30. It revealed that the obtained t-ratio 12.54 was greater than the required t-ratio of 2.05. Hence, there was a significant improvement on resting pulse rate of experiment group at 0.05 level of confidence.

It may be seen that the control group’s mean value for pre-test was 84.27 and post-test was 83.83. The standard deviation for the pre-test was 2.12 and post-test was 2.44. The standard error of the different between the means was found out and value was 0.06. The mean difference for the pre-test and post-test was 0.43. It revealed that the obtained t-ratio 0.48 was lesser than the table value of 2.05, hence, there was no significant improvement on resting pulse rate of control group at 0.05 level of confidence. Meshram and Meshram (2019) and Yoga and Alaguraja K (2019), the findings from this research are in collaboration with the findings from earlier studies.

It observes from Table 2 that the experimental group mean value for pre-test was 43.23 and post-test was 44.36. The standard deviation for the pre-test was 1.30 and post-test was 1.51. The standard error of the different between the means was 0.17. The mean difference for the pre-test and post-test was 1.13. It revealed that the obtained t-ratio 6.04 was greater

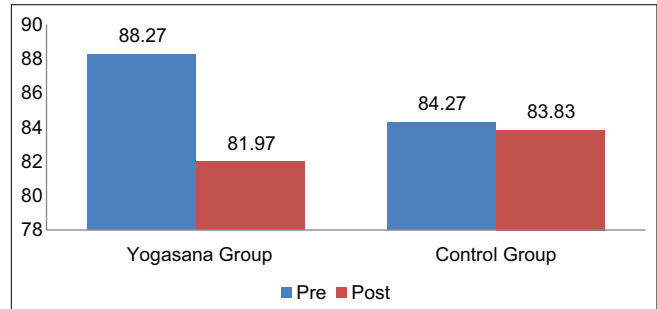


Figure 1: The mean difference of pre- and post-tests scores on resting pulse rate of experimental and control groups

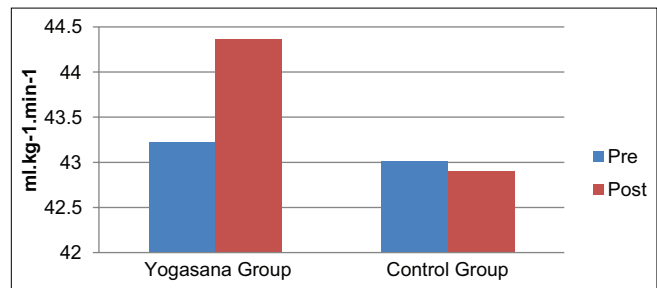


Figure 2: The mean difference of pre- and post-tests scores on Vo2 max of experimental and control groups

than the required t-ratio of 2.05. Hence, there was a significant improvement on Vo2 max of experiment group at 0.05 level of confidence.

It may be seen that the control group’s mean value for pre-test was 43.01 and post-test was 42.90. The standard deviation for the pre-test was 1.26 and post-test was 1.29. The standard error of the different between the means was found out and value was 0.17. The mean difference for the pre-test and post-test was 0.11. It revealed that the obtained t-ratio 0.51 was lesser than the table value of 2.05, hence, there was no significant improvement on Vo2 max of control group at 0.05 level of confidence. Dhivyalaxmi and Murugavel (2013) and Doijad *et al.* (2013), the findings from this research are in collaboration with the findings from earlier studies.

DISCUSSION AND CONCLUSIONS

The results of the study reveals that there was a significant difference found from pre- to post-test means on resting pulse rate and Vo2 max among the interscholastic boys do to 8 weeks of Yogasana training but the control group did not improved resting pulse rate and Vo2 max of interscholastic boys.

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Research Article

The analytical study on physical fitness and its effects in pandemic situations

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ABSTRACT

The impact of this pandemic is massive, and the only strategy to curb the rapid spread of the disease is to follow social distancing. The imposed lockdown, resulting in the closure of business activities, public places, fitness and activity centers, and overall social life, has hampered many aspects of the lives of people including routine fitness activities of fitness freaks, which has resulted in various psychological issues and serious fitness and health concerns. In the present paper, the authors aimed at understanding the unique experiences of fitness freaks during the period of lockdown due to coronavirus disease. The paper also intended to explore the ways in which alternate exercises and fitness activities at home helped them deal with psychological issues and physical health consequences. The analysis revealed that during the initial phase of lockdown, the participants had a negative situational perception and a lack of motivation for fitness exercise. They also showed psychological health concerns and overdependence on social media in spending their free time. However, there was a gradual increase in positive self-perception and motivation to overcome their dependence on gym and fitness equipment and to continue fitness exercises at home. Participants also tended to play music as a tool while working out. The regular fitness workout at home during the lockdown greatly helped them to overcome psychological issues and fitness concerns.

INTRODUCTION

The coronavirus disease (COVID-19) pandemic is a massive global health crisis of recent times. As compared to the earlier pandemics, the world has witnessed, the current COVID-19 pandemic is now on the top of the list in terms of worldwide coverage. This is the 1st time the whole world is affected simultaneously and struck strongly in a very short span of time.

COVID-19 has affected the life of nearly each person around the world. The difference between personal or professional lives has narrowed due to work-from-home instructions, and people's lives are revolving around these two due to the lockdown. People have also been pondering over a vital concern at home, that is, the importance of their health and fitness. Recent multinational investigations have shown the negative effect of COVID-19 restrictions on social participation, life satisfaction (Ammar *et al.*, 2020b), mental

well-being, psychosocial and emotional disorders, and severely impaired their mental health, which has been manifested in the form of increased anxiety, stress, and depression.

METHODS

To know the experiences of people's lives during this pandemic and their efforts to maintain a healthy lifestyle, a qualitative approach was adopted through survey. We used analytical study on physical fitness and its effects survey-related issues to delve into the participants unique experiences during the lockdown period.

Participants

A homogeneous sample of 399 participants was attended for this survey. In these online-based survey, a total of 399 people were participated, mainly this survey was used to identify the different level and situations facing among the participants, in this study were asked some questions based on basis information under goes raising problems to do fitness and workouts.

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Inclusion and Exclusion Criteria for the Participants

The participants meeting the following criteria were included in the study:

- Individuals aged 15–25 years or older
- Individuals with no known history of physical and/or psychological illness
- Individuals who were doing regular gym workout for the past 6 months or more for at least 45 min daily before COVID-19
- Individuals who were completely dependent on gym exercise for their physical fitness.

However, individuals meeting the following criteria were not included in the study:

- Individuals who were irregular or occasional gym visitors
- Individuals who were practicing other physical exercises besides gym workout
- Individuals with any physical and/or psychological conditions or individuals on any kind of medication.

Procedure

The purpose, importance, and relevance of this survey were explained to the participants, and informed consent was obtained for their participation. The participants were requested to share their convenient time for an online survey. To explore the exclusive experiences of the participants with regard to their physical fitness during the lockdown. Open-ended questions were prepared. There was no fixed order of questions; they were modified and remodified as per the flow of the conversation with each participant.

Were Open-ended Questions Asked to Participants

“Before the pandemic, where you practicing physical activity regularly,” “if yes, what type of Physical activity were u performing,” “Since when have you been practicing the above-mentioned activity,” “What is your Frequency,” “Where are you performing the Physical activity,” “Time duration you perform the Physical activity,” “What is the trigger point of Performing the activity,” “With whom were you practicing before Pandemic,” “Do you have any Medical issues,” “Have you observed any changes in health due to the Physical activity,” “Do you Perform physical activity during the lockdown,” “If, you started workout in lockdown then mention the Reason for Workout,” “What type of physical activity (select as many apply),” “Do you suggest physical activity for your friends and family,” “Have you observed any improvement in your health after physical activity,” “Do you observe any lifestyle changes during the pandemic,” and “What food habit changes do you have during this pandemic.”

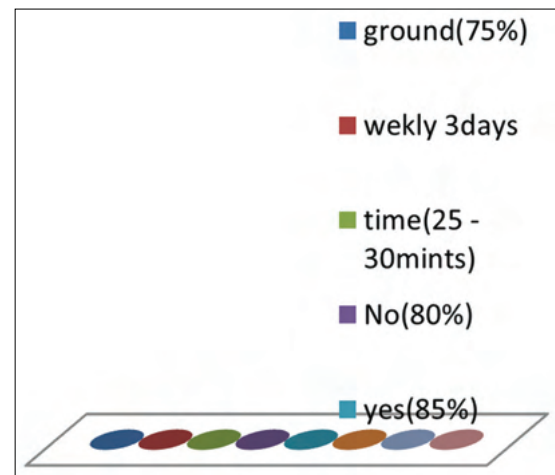
Lack of Motivation for Fitness

The closure of gyms and other fitness activity centers, including sports stadiums and morning walk parks, and the heightened

Table 1: The number of participants included in this study

Of the participants included in this study	Age	Female	Male
399	15-25	374	25

Table 2: Analytical study on physical fitness and its effects in pandemic situations



psychological health issues have resulted in the lack of fitness motivation.

DISCUSSION

The COVID-19 pandemic has brought major upheaval in the life of every individual across the globe. It has hampered the day-to-day activities of almost all individuals including those who depend on gyms for their physical fitness routine. The present study was conducted with individuals for whom going to the gym was a routine activity so as to explore their experiences in terms of their perceptions of the pandemic situation and their ways of coping with COVID-19-induced uncertainties and health issues. The findings of this study not only are consistent with a range of studies that have reported psychological health issues due to the COVID-19 pandemic and subsequent lockdown, it is important to note that, being a social entity, people like the company of others and feel connected to each other. This feeling of connectedness is found to be associated with various psychological constructs such as persistence, motivation, self-esteem, self-efficacy, and physical as well as psychological issues, participants accepted the reality and started thinking about alternatives to exercises related to heavy gym equipment. Some of the alternatives listed by them included switching to yoga and meditation high-intensity workout at home. Apart from this, participants also experienced a lack of emotional attachment, as face-to-face interaction during this period was missing. To conclude, the findings of

the study indicate that the perceptions and social media habits of fitness freaks, who were hitting gyms for a regular workout before the lockdown, were greatly impacted by the COVID-19 pandemic. They also experienced psychological health issues during the initial phase of the pandemic. However, they gradually changed their dependence on gym-based workout and switched to alternative exercises that helped them greatly to restore their mental and physical health.

Implications and Future Suggestions

The findings of this study were the level of stress is increase due to fear of COVID-19 to engage in home-based exercises (including aerobic activities, balance, and flexibility exercises).

It could be extended to the common public also persuade them to engage in physical fitness exercises for about 150–180 min/week (in the present survey its ½ h).

To use social media, music, and/or similar techniques to increase adherence to physical exercises, and to practice dancing and yoga to reduce stress, anxiety, and depression, and even improve the quality of sleep.

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Research Article

Nutrition in relation with sports performance

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INTRODUCTION

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

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

METHODOLOGY

Sample

The present study was conducted on 200 football and basketball male players aged between 13 and 16 years from an urban school in Bengaluru.

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During the pre-test and post-test, physical fitness assessment will be done.

- Physical fitness – speed, agility, flexibility, endurance, power, and their performance through various tests.
- Nutritional status assessment.

Objectives

The objectives of the study were as follows:

- To study the factors influencing sports performance.
- To determine the baseline nutrition knowledge of sportspersons.
- To create awareness on the role of sports nutrition, sports practice, and attitude on sports performance.

Hypothesis

- There would be significant improvement of nutritional knowledge among adolescent athletes.
- There would be positive influence of sports nutrition knowledge on sports performance.

Significance

Maintaining a strong and healthy athletic performance is more than just a matter of training, practice, and keeping in shape. Body needs support in the form of proper nutrition, hydration, and rest to optimize an athlete's performance. Nutrition is an important component of any physical fitness program. Knowledge of nutrition among adolescents in school has to be given due importance to reach their peak performance. This not only helps athletes to maintain fitness but also helps them to strive harder for better performance in sports.

Analysis of Data
Nutrition practice

Nutrition practice	Game		Total (n=200)	P-value
	Basketball (n=100)	Football (n=100)		
Regular consume breakfast consumption	76	81	157	0.389
Breakfast at home	78	82	160	0.480
Preference for home food	100	99	199	1.000
Snack consumption between meals	92	86	178	0.175
Milk consumption	90	89	179	0.818

Perception on Nutrition and Performance

Perception about nutrition	Game		Total	P-value
	Basketball	Football		
Eating habits plays an important role sports performance				
• Pre	4.46±0.80	4.09±1.13	4.28±0.99	0.008*
• Post	4.88±0.33	4.81±0.39	4.85±0.36	0.173
• P value	<0.001**	<0.001**	<0.001**	
The quality of diet affects performance an athlete				
• Pre	4.17±1.07	3.87±1.24	4.02±1.16	0.038*
• Post	4.66±0.76	4.75±0.56	4.71±0.66	0.339
• P value	<0.001**	<0.001**	<0.001**	
Diet affects mental performance such as ability to remember things and reaction time.				
• Pre	4.17±1.07	3.50±1.29	3.84±1.23	<0.001**
• Post	4.73±0.63	4.88±0.33	4.81±0.51	0.037*
• P value	<0.001**	<0.001**	<0.001**	
Skipping meals can negatively affect athletic performance				
• Pre	4.28±1.01	4.05±1.15	4.17±1.08	0.134
• Post	4.76±0.59	4.93±0.26	4.85±0.46	0.009**
• P value	<0.001**	<0.001**	<0.001**	
Having less food during competition will keep a sportsperson fitter and agile				
• Pre	2.91±1.29	2.96±1.33	2.94±1.3	0.787
• Post	4.67±0.47	4.30±0.96	4.49±0.78	0.001**
• P value	<0.001**	<0.001**	<0.001**	

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Research Article

Sense of ability to enhance their table tennis performance during competition

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ABSTRACT

The distinction between positive and negative sense of ability is fundamental in perception models. The purpose of this study was to investigate the correlation between field perceptions of table tennis players and the outcome (net result) during the matches in a competition. Experimental data were collected from 10 elite table tennis players and analyzed. The results addressed the following three competition field perceptions: (1) Before the service, the player's positive perceptions had significant effect on the positive outcome (winning rate) of that service; (2) the perception after the net result of the previous service increased the positive outcome of the next service, and (3) the player's positive/negative perception during the matches affected the win/loss outcome of that competition. In conclusion, the player's positive perceptions enhanced their winning rate during table tennis competitions. Therefore, during the training program, coaches need to develop positive perceptions and strengthen the psychological quality of table tennis players.

INTRODUCTION

Table tennis is a racket game that requires functional pairing between perceptual and action modalities under different spatial and temporal demands. A player must be in a good physical shape as well as mental condition and their skill is the decisive factor in the winning of a table tennis game. Table tennis players are often not only physically exhausted after a competition but also highly mentally tense. During a table tennis game, the player's psychological state undergoes rapid changes that directly affect the win/loss (outcome) of the entire competition. That table tennis player's positive emotions during matches enhanced the win rate of a competition; conversely, a nervous or anxious emotional state negatively affected the net result of the competition. It has been also reported that lack of confidence, overstress, and inability to cope with opponent's tactics are ranked as the top three psychological factors that interfere with the player's performance during competition.

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METHODOLOGY

Ten male elite table tennis players agreed to participate in the study. The players' activity was studied from the doubles matches held in 2018–19 during the competition of the state level table tennis competitions. We requested their consent after completion of each match. All players self-reported.

Their average age was 21 years (SD = 8.1), and their average competitive table tennis experience was 10.5 years (SD = 9.1).

Research Hypotheses

In the present study, we chose the following three perceptions: (1) The perception before the service would affect the win/loss (outcome) of that rally.

Procedures

Each athlete played four doubles matches against different opponents, and then, the obtained perception [Table 1] data were analyzed to verify our hypotheses. The data were gathered by continuous video recording of the players' actions during the doubles matches.

Table 1: The selected field sense of ability analyzed in the present study

Sense of ability	Contents
Positive	
Optimism	The player can adopt a positive perspective regarding the next coming ball.
Courage	The player can welcome the coming ball with positive courage.
Pleasantness	The player happily and joyfully approaches the ball.
Luck	An apparent table corner ball, net touched ball, or error made by opponent.
Relaxation	Relaxation can be divided into physiological and psychological relaxation. Physical relaxation and psychological relaxation have their mutually interactive effects on the perceptions before hitting the ball and after the completion of an individual ball.
Hope	The player has a positive perception of the winning result of the ball before and after hitting this ball.
Excitement	The player has a positive expectation before hitting the ball, after the completion of each ball, and for the result.
Self confidence	The player has no doubt about the things that have been done or judgments that had been made.
Negative	
Tension	The player experiences high tension, muscle stiffness, inconsistent actions, or random tempos, which negatively affect skills.
Lack of confidence	The perceptions before the ball service and after the completion of each ball, as well as when facing the next coming ball.
Anxiety	The state of competition. This type of state can easily cause the individual stress and anxiety and might further affect the individual performance.
Regret	The emotion of regret after ball completion; inactive and harmful emotion.
Depression	Depression is felt when the expected result did not occur in relation to the performance or a lack of fighting will and activity.
Anguish	A negative state connected with anger, which arises in the competition or during ball play.
Fear	Experienced before or during the competition, it may affect performance.
Hesitation	Confusion generated before and after competition, resulting in a perception of uncertainty in deciding how to hit the ball.
Loss	A situation of "not knowing what to do" with the coming ball before and after the competition.

Table 2: The selected field sense of ability analyzed in the present study

	Value	Approx. significance
Nominal		
Phi	0.103	0.072*
Cramer's V	0.103	0.072*
No. of valid cases	289	

Significant $P < 0.01$ level

Statistical Analysis

In this study, the Phi and Cramer's V coefficients were used to determine the correlation between variables. The level of significance was set at $P < 0.05$.

RESULTS

Table 1 shows the psychological factors and their reasons that influenced table tennis performance. The perception effect of before the service on the outcome (win or loss) of that rally was the primary variable of interest in this study.

The analyzed results are presented in Table 2. The Phi correlation coefficients have a $P < 0.10$. Accordingly, it can be inferred that the perceptions after the win/loss outcome of a rally did affect the win/loss outcome of the next rally.

It is known that in table tennis, players need to have a good psychological state, well-developed perceptions, and strategic skills to face each incoming ball and to return it in a different strategic way. It has been previously reported that maintaining positive thinking and emotional management are crucial for table tennis players to win a competition also observed that elite players presented better positive psychological states (concentration, self-confidence, positive thinking orientation, emotional management, and motivation) than lower-level players. The main finding of the study was that the player's positive perceptions such as optimism, courage, pleasantness, luck, relaxation, hope, excitement, and self-confidence contributed to an enhanced winning rate during a table tennis competition.

These results agree that the better table tennis performances were closely associated with the psychological state of the players. Second, negative perceptions, such as anxiety, may lead the athletes to perform abnormally. It was also reported that table tennis player's competitive anxiety displayed a positive psychological pattern when the score increased and an explosive negative psychological pattern when the score decreased.

This study examined the player's negative perceptions such as tension, lack of confidence, anxiety, regret, depression,

anguish, fear, hesitation, and loss. It was observed that negative perceptions resulted in a negative outcome (loss of game). In addition, our findings also provide further evidence that positive or negative perceptions affect the outcome (win/loss) of the next rally. The psychological response at the moment affects the treatment of a particular ball and therefore decides the win/loss outcome of that ball. However, psychological situations are varied, that is, some people will be nervous, anxious, and perform abnormally, some people are less motivated and not inclined to learn, while others have easily diverted attention spans and concentrate less, which may affect their performance.

CONCLUSIONS

Findings from this study highlight the importance of positive and negative perceptions of table tennis players. In particular, positive perceptions before the service enhanced the winning rate of that service. The perceptions after the win/loss outcome of the first rally affected the outcome of the next rally. Furthermore, positive and negative perceptions affected the win/loss of that ball. Therefore, coaches need to strengthen

the positive perceptions and psychological states of players and, teach the players to overcome the negative perceptive disadvantages when a service was lost. Taken together, the results of this study encourage positive training and a competitive environment for table tennis players.

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Research Article

Mental toughness with regard to table tennis players performance

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ABSTRACT

The purpose of this study was to investigate the effect of mental toughness on the performance score of table tennis players. To work on this purpose, a total of 12 table tennis players (male and female) were selected as the subjects purposively. The mental toughness questionnaire developed by Goldberg (1995) was used to measure the level of mental toughness of the players. ANOVA and independent t-test were computed to find out the significant relationship. Level of significance was set at 0.05. The results indicate that there is significant relationship exists for the handling pressure a subcategory of mental toughness among table tennis female and male players, further it was found that there is no significant difference exists between table tennis female and male players in the variables of concentration, mental rebounding, and winning attitude and/or other subcategories of mental toughness. The comparison between female and male in this study has not shown any significant difference but as a means, the male players have greater mental toughness than their counterpart.

INTRODUCTION

Along with other sport in table tennis, the psychological factors also play a crucial role in performance determination. Positive or negative psychological factors can lead a participant towards the high or low performance. Table tennis competition demands participants to perform at their best, under intense pressure and specific conditions. Remarkable amounts of training are required to perform well, and the success depends on the physical and mental toughness.

Mental toughness can be interpreted as a contributing element that leads to enhance performance in a competitive situation. Mental toughness demands to stay focused on progress, ignoring distraction, and pushing through all challenging moments. Thus, the purpose of this study was to investigate the effect of mental toughness on the performance of table tennis players, as well as use mental toughness for the prediction of sportsperson performance.

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METHODS AND MATERIALS

The research design adopted in this study was descriptive survey method. The study was conducted in Kalaburagi District, Karnataka State.

Participants

The present study was conducted on 12 male and female table tennis players of Kalaburagi District. The age of the selected subjects ranged from 18 to 22 years. The average training age of the subjects was 7 years. The lowest participation level of selected participants was state level.

Tools

The mental toughness questionnaire was used to measure the level of mental toughness of the players. The questionnaire developed in 1995 by Goldberg, consists of four categories, namely: Handling pressure (20 statements), winning attitude (9 statements), concentration (17 statements), and mental rebounding (14 statements). The mental toughness questionnaire consists of 60 items; every statement has two possible responses, that is, True or False. The test-retest reliability of the questionnaire was reported as 0.79.

Procedure

The questionnaire on mental toughness was administrated on the subjects. After explaining the objective of the study, the questionnaires were distributed among the subjects. The instructions on how to respond on the statements were also explained to the players. There was no time limit for the completion of the questionnaire but participants were directed to do not take much time for any statement and respond to all items in the questionnaire. The subjects responded to each question according to how they generally feel in regard to table tennis. All the questionnaires were recollected and processed for further analysis.

Statistical Analysis

For data analysis, responses were recorded as mean score and standard deviation. Independent *t*-test was also computed to find out the significant difference among total mean score of mental toughness and its subfactors. The level of significance was set at 0.05.

RESULTS

Table 1 shows the psychological factors and their reasons that influenced table tennis performance. The perception effect of before the service on the outcome (win or loss) of that rally was the primary variable of interest in this study.

The analyzed results are presented in Table 2. The Phi correlation coefficients have a $P < 0.10$. Accordingly, it can

Table 1: Descriptive statistic of subcategories of mental toughness of male and female table tennis players

	N	Mean	SD
Handling pressure			
Female	6	6.70	1.35
Male	6	7.83	0.96
Total	12	14.53	2.31
Concentration			
Female	6	6.50	0.60
Male	6	6.33	0.68
Total	12	12.83	1.28
Mental rebounding			
Female	6	5.83	0.57
Male	6	5.50	0.52
Total	12	11.33	1.04
Winning attitude			
Female	6	3.50	0.56
Male	6	3.25	0.39
Total	12	6.75	0.95

be inferred that the perceptions after the win/loss outcome of a rally did affect the win/loss outcome of the next rally.

The means and standard deviation is presented in the above cited Table 1. Table 1 indicates that the mean of handling pressure of table tennis female and male players has been reported 6.72, 7.83 and standard deviation 1.35, 0.96, respectively. The means of concentration of table tennis female and male players have been found 6.50, 6.33 and standard deviation 0.60, 0.68, respectively. Further, the mean of mental rebounding between table tennis female and male players has been reported 5.83, 5.50 and standard deviation 0.57, 0.52, respectively, the winning attitude between table tennis female and male players has been reported 3.50, 3.25 and standard deviation 0.56, 0.45, respectively.

To test the objective of the study, analysis of variance was applied among the subcategories of mental toughness. The result indicates that the obtained “F” value for the handling pressure has been reported 2.74 which is more than the tabulated value. This reveals that there is significant difference exist between these subcategories of mental toughness among table tennis female and male players. The result presented in the table further indicates that the obtained “F” value for the concentration, mental rebounding, and winning attitude between table tennis female and male players has been reported 0.20, 1.10, and 0.78 which are lower than the tabulated value. This reveals that there is no significant difference found between these three

Table 2: ANOVA showing the difference of subcategories of mental toughness between male and female table tennis players

	Sum of squares	df	Mean square	F	Sig.
Handling pressure					
Between groups	15.18	1	15.37	2.74	0.014
Within groups	60.79	10	2.76		
Total	75.97	11			
Concentration					
Between groups	0.33	1	0.33	0.20	0.26
Within groups	18.33	10	0.83		
Total	18.66	11			
Mental rebounding					
Between groups	1.33	1	1.33	1.10	0.076
Within groups	13.33	10	0.60		
Total	14.66	11			
Winning attitude					
Between groups	0.75	1	0.75	0.78	0.111
Within groups	10.50	10	0.47		
Total	11.25	11			

Significant at 1.47 level

subcategories of mental toughness among table tennis female and male players at 0.05 level of significance.

CONCLUSIONS

The comparison between female and male in this study has not shown any significant difference but as a means, the male players have greater mental toughness than their counterpart. There is a psychological need for the improvement of sports performance, psychological training should be given equal importance with others training methodologies, especially that would be directly or indirectly related with performance and affect through mental toughness. Regarding the consistency, it can be said that many psychological variables have been identified so far, which have had effects on athletes' performance.

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Research Article

The effect of pranayama on selected physiological variables among boxers of Mahatma Gandhi University, Nalgonda, Telangana, India

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ABSTRACT

This study was conducted to find out the effect of pranayama on selected physiological variables among boxers of Mahatma Gandhi University, Nalgonda, Telangana. Twenty male boxers were selected and considered as experimental group. Data were considered before and after 6-week training program of pranayama; the collected data were statistically analyzed dependent “t”-test, it was found that there was a significant development on breath holding time and pulse rate due to practice of pranayama.

Keywords: Pranayama, Boxer’s

INTRODUCTION

Pranayama has toward Prana + Ayama “Prana” stands for life energy “Ayama” stands for expansion. Pranayama is the practice of breath control in Yoga in modern yoga as exercise, it consists of synchronizing the breathe with movements between asanas but it also a distinct breathing exercise on its own usually practiced after as a healthy person normally breathes in and out 15 times in a minute by regular practice of pranayama a person can gradually slow down breathing rate a regular pranayama practitioner can reduce 15 cycles for minutes to 12, 10, 8, 4, 2, or even less in gradually human life span considered 100 years based on the normal breathing condition and so many research studies say slow breathing rate persons lives longer than a person with faster breathing rate the object of yoga and pranayama is the control of the mind and it’s a vacations Chitta Vrittis to control the mind we use pranayama to tie or control the mind similarly pranayama is possible by the controlled regulation of inhalation, exhalation, and retention thus it is a tricycle consisting of breath, life force, and the mind, there are many types of pranayama, they are (1) Ujjayee, (2) Surya

Bheda, (3) Bhastrika, (4) Shitali, (5) Seetkari, (6) Bhramari, (7) Moorcha, and (8) Plavani.

Boxing

Boxing is a deceptively difficult sports at first glance boxing looks like it entails merrily moving around and throwing punches quit the contrary boxing requires absolute control of the body, mind, breathe emotions, and surrounding atmosphere it demands deep concentration excellent mind body coordination and exceptional physical and cardiovascular strength.

Pranayama Benefits for Boxer’s

“Breathing” others breathing patterns might not seem like they matter in the middle of the fight, but pranayama practitioner breathe has a profound impact on his performance, during vigorous physical activity, most people breathe just enough to stay alive yogic breathing however focuses on long deep breathes throughout each moment once they have got their breath under control their heart rate slows, body relaxes, and their mind becomes more clear and able to make quick decisions by focusing on the breathe on the moment and on their body in space yoga teaches you to be present in the moment caring that mindfulness into the boxing ring, pranayama improves intuition heightens their awareness of their self and their surroundings and pranayama helps to control boxer’s mental and emotional state.

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Table 1: The dependent “t” value of resting pulse rate between the pre- and post-test means of experimental group

Physiological variables	Test	Mean	S.D	S.E.	“t” ratio
Resting pulse rate	Pre	65.10	2.022	0.46	0.48
	Post	57.45	2.036	0.46	

Table 2: The dependent “t” test value of breathe holding time between the pre- and post-test mean of experimental group

Physiological variables	Test	Mean	S.D	S.E	“t” ratio
Breathe holding time	Pre	34.00	3.28	0.75	1.77
	Post	71.22	3.04	0.46	

METHODOLOGY

Twenty male boxers of 18–23 years of age from Mahatma Gandhi University were selected as the subjects the selected subjects were gone under 6 weeks pranayama practice (Puraka, Rechaka, Kumbhaka, Pranabandanam, and Himanah); the following physiological variables such as breathe holding time and resting pulse rate were selected, the breathe holding time and resting pulse rating were tested through nose holding and pulse beats counting method, the pre-test data were collected before the training program both the cases the date; data were collected in single day the same day.

RESULTS AND DISCUSSION

The mean, standard deviation, standard error, and “t” ratio of resting pulse rate and breath holding time pre-test and post-test are presented in the following tables.

From Table 1, the dependent “t” value of resting pulse rate between the pre- and post-test means of experimental group was greater than the table value of 0.48 level due to the effect of pranayama practice, the experimental group had significant development (decreases) on resting pulse rate.

From Table 2, the dependent “t” test value of breathe holding time between the pre- and post-test mean of experimental group was greater than the table value of 1.77 due to the effect of pranayama practice, the experimental group had significant improvement on breathe holding time.

CONCLUSION

1. Six weeks of training pranayama practice improves (reduce) male boxers resting pulse rate
2. Six weeks of training pranayama practice improves male boxer’s breath holding time
3. Six weeks of training pranayama practice improves male boxer’s concentration on fight and performance in the ring.

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Research Article

Delve into the awareness of contraception among adolescents in metro manila, Philippines: A case study

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ABSTRACT

United Nations Population Fund report stated that every year, approximately 12 million girls aged between 15 and 19 years, and at least 777,000 girls under 15 years, give birth in developing regions of the world. In 2016, the Philippines was one of the highest number of adolescent’s pregnancies across Asia. Moreover, pregnancies among adolescents aged between 10 and 14 years old went up to 2200 in 2018, more than double the 1000 recorded in 2007 in the Philippines. Adolescent’s pregnancies have led to some 3.9 million unsafe abortions among girls aged between 15 and 19 years old per year, contributing to maternal mortality, morbidity, and lasting health problems. Sex education has a positive effect on adolescent sexual behavior, and reduces unplanned teen pregnancy. There is a better understanding and insight into birth control methods in adolescents, the utilization of contraceptive methods will be increased; hence, unwanted pregnancies and abortions will likely be reduced. The objectives of this study were to evaluate the adolescents’ knowledge/awareness about methods of contraception, and also to find out from where they learn about contraceptive methods. 450 students from Pamantasan ng Lungsod ng Maynila, Senior High School Department were recruited randomly for this study. This study revealed that condom and pills were the conceptive methods rated the highest awareness levels compared to other methods. Results also showed that television and internet were rated the highest source for the students to obtain information or knowledge regarding contraceptive methods. Hence, more works to be done by the sex education in the school to provide a correct information and right source formally.

Keywords: Adolescents, Awareness of contraception

INTRODUCTION

The highest adolescent birth rates at the country level are reported in Lao PDR, Cambodia, Thailand, Indonesia, and the Philippines. In spite of declines in recent decades, the prevalence rates of child marriage and early union remain high in Southeast Asia (WHO, 2020). In the Philippines, one in four pregnancies is unintended and 610 000 unsafe abortions are performed each year (Nagai *et al.*, 2019).

United Nations Population Fund (UNFPA) report stated that every year, approximately 12 million girls aged between 15 and 19 years, and at least 777,000 girls under 15 years, give birth in developing regions of the world. In 2016, the Philippines was one of the highest number of adolescent’s pregnancies

across Asia. Multiple partners and low condom use were some of the factors cited for the increase in birth rates. Moreover, the UNFPA reported that one in 10 young Filipino women age 15-19 is already a mother (UNFPA, 2021).

The annual total Filipino women of reproductive age (15-49 years) who do not use any contraception, even though they do not want to become pregnant, could increase by another 2.07 million by the end of 2020, a 67% increase from 2019. Consequently, the total unintended pregnancies in 2020 could reach 2.56 million, 751,000 more than the 2019 figures, or a 42% increase. “This is an epidemic within an epidemic” (UNFPA, 2021). Moreover, pregnancies among adolescents aged between 10 and 14 years old went up to 2200 in 2018, more than double the 1000 recorded in 2007 in the Philippines (UNFPA, 2021). Adolescence defined as the stage from childhood to adulthood (Johnson *et al.*, 2011) and contraceptive is described as methods for preventing pregnancy such as condom use and birth control (Mermelstein and Plax, 2016).

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Furthermore, early pregnancy among adolescents results in major health effect for young mothers and their babies, according to the World Health Organization (WHO). The United Nation agency said that pregnancy and childbirth impediments are the leading causes of death among adolescent girls globally, with low-and middle-income countries accounting for 99% of global maternal deaths of females aged between 15 and 49 years old. Other than that, the WHO also stated that adolescent's pregnancies have led to some 3.9 million unsafe abortions among girls aged between 15 and 19 years old per year, contributing to maternal mortality, morbidity, and lasting health problems.

Thus, it is essential to offer sexual education to new generations, since this can be regarded as a preventive measure decreasing the risks related to early sexual initiation. Teaching children and the adolescents about sex is a part of school education, aiming at developing sexually healthy people, who accept their sex, are able to express their sexuality physically and emotionally, accept the gender roles, as well as have a sense of responsibility for their sexual conduct and the effect it may have on their partners and the rest of the society (Grunseit *et al.*, 1997).

The previous researchers believe that sex education has a positive effect on adolescent sexual behavior, and reduces unplanned teen pregnancy (Hefner, 2014). Sex education is an ongoing topic of considerable sensitivity particularly in socially conservative countries in Southeast Asia like the Philippines.

Data obtained showed that 59% believed that early adolescent pregnancy was the most important problem, followed by physical violence at 11% and unexpected pregnancy at 11% in the Philippines (POPCOM, 2020). As reported, by the end of 2020, more than 70,000 families were led by minors. However, the agency warned that this number will dramatically rise to 133,265 by the end of 2021. An increase in the rate of adolescent pregnancies has been reported in the Philippines. This is a negative phenomenon, both because of its social and economic impact, as well as the medical implications. These adolescent achieve physical and sexual maturity at a younger age but they still do achieve neither a full emotional nor social maturity (POPCOM, 2020).

Kennedy *et al.* (2011) have argued when there is a better understanding and insight into birth control methods in adolescents, the utilization of contraceptive methods will be increased; hence, unwanted pregnancies and abortions will likely be reduced. The previous study also highlighted that knowledge and awareness do not always lead to the utilization of contraceptive methods, and that it is important to understand the level of awareness and practices in the community.

This study is timely and relevant to our country which most of the adolescents does not recognized protection for their

own health because of lack of understanding about various contraceptive methods that are not fully taught, inattention into account the incidence in our country, and absence of courtesy in the Philippines Educational Institutions. In some way, the real scenario of aggressive adolescents' life manifest on this study.

The objectives of this study were to evaluate the adolescents' knowledge/awareness about methods of contraception, and also to find out from where they learn about contraceptive methods.

METHODS

The researchers used the quantitative methods with descriptive statistical which includes percentage and tables for this study. This design is useful in studying a wide range of public health issues. We have frequently used descriptive to explore the pattern of adolescent knowledge and awareness about type of contraceptive methods. The previous study employed descriptive design to understand the early and increased sexual risk behaviors of adolescents in Nigeria and exposures leading to such behaviors (Olugbenga-Bello *et al.*, 2014).

Furthermore, quantitative researchers typically take a more structured approach to data collection and analysis than qualitative researchers and attempt to answer questions and hypotheses by way of generating numerical data and transforming data into usable statistics (Creswell, 2013). This methodological approach allows attitudes, opinions, behaviors, and other defined variables to be quantified and the results generalized from the sample to the larger population. Measured data can be used to uncover patterns and answer the research questions (Creswell, 2013).

Participants

This study was carried out in Pamantasan ng Lungsod ng Maynila (PLM), Senior High School Department during the official school year in 2017. The sample size was 450 students who were randomly recruited as respondents for this study. The total population students in PLM, Senior High School Department is 980, we utilize the fishbowl method for the sampling procedures to get 50% from the population as our samples for this study. The fishbowl procedure is applicable especially if the total population is small. Each units of the population are represented by a slip of paper containing a number, the slips of paper are put in a box and shuffled, and the slips are then pulled out one by one without looking at them, until the number of slips selected equals the sample size. This method can also be referred to as the lottery method.

Instruments

The researchers scale questionnaire which Part A included the demographic of the respondents. And the instrument Part B used for this study is a modified questionnaire created by researchers, the questionnaire used in this study was validated

by the experts of the Physical Education of the College of Education in PLM and with the reliability value of $r=0.72$ from the pilot test conducted before the actual study.

Procedures

After obtaining written permission and consent from the administration of the school and approval from the university, the researchers were conducted the data collected at the school of selected participants in their classrooms during class time. Questions were asked on demographics, awareness of contraceptives methods and the sources they learned about contraceptive methods. On distributing the questionnaires, the researchers guided the respondents with regards to the questions.

Ethical Considerations

Before undertaking this study, several key ethical and cultural considerations were identified, because the researchers aimed to interact and explore deeply with the participants with regards to their perspectives, knowledge, and experiences about contraceptive methods. It was paramount to respect the participants' right, decisions, and privacy in following research ethical principles (Cresswell, 2003).

Statistical Analysis

After obtaining and uploading the data file into SPSS 24, the researchers evaluated the data to ensure that the requested data set included all questions. Immediately following the evaluation of the data set, an assessment of each value commenced. Responses of the samples summarized in frequency tables. Frequency which corresponded to the number of items that belong to that category and corresponding percentage (%).

RESULTS

Demographic data collected showed that the mean age of the respondents for this study $M=17.96$. Female reported the highest respondents with 275 students which are equal to 61% of the whole representation of sample size data and male respondents with 175 students which is equal to 39% of the whole sample.

Results revealed that the distribution of respondents based on Strand as Art Business Management comprised of 135 students (30.00%), Humanity and Social Sciences is 90 students (20.00%), and Science, Technology, Engineering, and Mathematics with 225 students (50%) from the total respondents in this study.

From the data collected regarding the awareness of various contraceptive methods from the list provided, respondents rated that the awareness levels of contraceptive methods as shown in Table 1:

Based on Table 1, condom and pills revealed the highest respondents and absolute total percentage in sample size. Condom and Pills which absolute 450 respondents responded they are aware and it is equal to 100% of total the whole representation of sample size. Followed by the withdrawal method, with 449 respondents which are equal to 99.77% of the whole respondents, they are aware of this contraceptive method. While only 1 student responded which is equals to 0.22% from the total respondents reported not aware about this contraceptive method. Furthermore, the abstinence from sex with 444 respondents which is equal to 98.667% of the whole respondents' aware bout this method.

This study also wants to find out from the respondents regarding the source where they learn about contraceptive methods. Table 2 showed the source where the respondents obtained the information regarding contraceptive methods.

Based on Table 2 presented, 378 students responded that source of their information is from the television which is equal to

Table 1: Percentage of awareness on contraceptive methods

Contraceptive methods	Yes	%	No	%
a. Condoms	450	100	0	0
b. Pills	450	100	0	0
c. Withdrawal method	449	99.78	1	0.22
d. Abstinence from sex	444	98.67	6	1.33
e. Rhythm method	150	33.33	300	66.67
f. Tubal ligation	76	16.89	374	83.11
g. Casectomy	27	6	423	94
h. Intra uterine device	25	5.56	425	94.44
i. Ovulation method	19	4.22	431	95.78
j. Implant	13	2.89	437	97.11
k. Symptothermal method	2	0.44	448	99.56

Table 2: Sources to know/learn about contraceptive methods

Sources to know/learn about contraceptive methods	Responses
a. From the television	378
b. From the internet	324
c. From the friends/Peers	207
d. From the newspaper	141
e. From the school	96
f. From the radio	81
g. From the neighborhood	63
h. From the family	42
i. From the text messages	18

84%. Followed by the internet with 324 respondents is equal to 72% of the whole respondents. And some students reported that they learned contraceptive methods from the friends with 207 students which are equal to 46% of the whole respondents.

DISCUSSION

Based on the results obtained, condom and pills were the popular contraceptive method which 100% of students rated that they are aware about these contraceptive methods. However, 448 or 99.56% of students does not know Symptothermal Method therefore least numbers of students known this method of contraception which 2 respondents out of 450 students on this method which is equal to 0.44% of the whole respondents.

Condoms rated the most well-known and higher awareness level due to condoms are highly reliable when used properly and help protect against most sexually transmitted infections. Condom use may also help to protect against cervical cancer. Furthermore, condoms can be used as a barrier contraceptive and/or to protect against many sexually-transmitted diseases. They are easy to buy and use and free from medical risk. Carefully used, and used in conjunction with a spermicide, condoms have similar reliability in contraception.

Results obtained from this study found that oral pills contraceptive method also the higher awareness among the respondents. This results are consistent to the previous report that the pill remains as the most popular contraceptive method among married women 15–49 years old with 13.7% using this method in 2000 (Nagai *et al.*, 2019).

In addition, the previous report stated that the public sector is the major source of modern contraceptives. Three out of four women (73.7 %) currently using a modern contraceptive method obtain their supplies from the public sector. In contrast, only one out of four women (24.7%) obtain her supply from a private source. Government hospitals (25.4%), rural health units/urban health centers (26.5%) and barangay health stations (19.6%) are the leading sources of supply within the public sector (Philippine Statistic Authority, 2021).

Only 2.2% of women obtain their supplies from the barangay service point officers/health workers. The private sector, wherein the pharmacies and private hospitals/clinics are the more popular sources, provides supplies to almost a quarter (24.7%) of users of modern methods. In particular, 37.2% of condom users obtain their supply from pharmacies (Philippine Statistic Authority, 2021).

Pertaining to the source of obtaining knowledge/information on contraceptive methods, 378 students (84%) of the total respondents reported that they learned contraceptive methods

from Television which was their main source to know various contraceptive methods. Results from this study revealed that only 96 students (21.33%) of total respondents obtained their knowledge/information regarding contraceptive methods from the school.

From the results, it showed that school sex education did not contribute much on the contraceptive information to the students. As Adegoke (2003) stated that sex education is the acquisition of knowledge that deals with human sexuality. It consists of instruction on the development of an understanding of the physical, mental, emotional, social, economic, and psychological phases of human relations as they are affected by sex. In other words, sex education involves providing children with knowledge and concept that will enable them make informed and responsible decisions about sexual behaviors at all stages of their lives.

In addition, Buston and Jozep (2001) suggest that teachers need to be approachable, that students should be able to ask explicit questions, including those about the physical aspects of sex. These include the teacher as protector and friend, that there should be a climate of trust fostered between students and that the program should be seen as fun. Furthermore, Siecus (2006) defined sex education as a lifelong process of acquiring information and forming attitudes, beliefs, and values. It encompasses sexual development, sexual and reproductive health, interpersonal relationships, affection, intimacy, body image, and gender roles.

Results from this study reported that the students learn contraceptive methods from family were very low. This is similar reported by Snegroff (2000) that the difficulty parents have discussing sexuality comfortably with their children, even when they recognize the importance of such communication. Even parents who do not discuss sexuality with their children still project their feelings about sexuality to them through their behavior. If the message young children get about sexuality from their parents is negative, then they are less likely to discuss sexuality issues with parents when they are older.

Another source which rated high in this study is the students learn from their own friends or peer. Previous findings by Roqib (2018) states that if adolescents get information and experience about the wrong sex, it will create a psychological burden and affect their sexual health later. According to Sanjaya *et al.* (2011) adolescents have a habit of imitating what others do.

CONCLUSION

More works can be done to improve the current situation about awareness of contraceptive methods among adolescents, especially in the Philippines to prevent early pregnancy among Adolescents. The school sex education also needs to highlight

the contraceptive methods enable the students to obtain the correct information from the formal education source.

Suggestion from this Study

Findings of this study can offer benefits and contributions to the community and people of society, such as students and teachers.

Students – Students will be more conscious in their health status. The result of this study may assist them to realize and appreciate the importance of knowing awareness on contraceptive methods and, inculcate to their minds appropriate knowledge to protect oneself.

Teachers – Will help to teach their knowledge to the students to be more aware of the various contraceptives by acknowledge the consequences and risk to every teenager engaged in early sex activity, and this research paper serve as a tool to expose information on outcome of the study that may serve to improve on the implementation in educating awareness of one's life.

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Review Article

Impact of playing ability on physiological variables among Kabaddi players

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ABSTRACT

The purpose of the study was to study the impact of playing ability on physiological variables among Kabaddi players. To meet the study's goal, 40 girl's Kabaddi players from secondary schools were chosen as subjects. During the Kurnool district's district level competition, data pertaining to four selected physiological variables such as vital capacity, pulse rate, systolic blood pressure, and diastolic blood pressure were assessed using a wet spirometer, pulse rate, systolic blood pressure, and diastolic blood pressure was measured using an Omron MX3 automatic blood pressure monitor. During the district level event, three experts subjectively rated each player's ability to play Kabaddi, and the average was used as the criterion score. The obtained data were analyzed using the coefficient of correlation statistical technique to see if there was a link between chosen physiological variables and Kabaddi playing ability among girl's secondary school Kabaddi players. The coefficient of correlation in the Relationship of chosen physiological variables with Kabaddi playing skill among secondary school girl's Kabaddi players is shown in the statistical analysis. The results of the study revealed that there was a significant relationship between selected physiological variables such as diastolic blood pressure and Kabaddi playing ability among secondary school girl's Kabaddi players, but no significant relationship between selected physiological variables such as vital capacity, pulse rate, and systolic blood pressure.

Keywords: Kabaddi, Physiological, Playing ability

INTRODUCTION

Predicting future events or results from current or historical data are one of the goals of scientific inquiry. We come across various forms of predictions in our daily lives, such as wealth forecasts, market forecasts, stock market forecasts, election trends, and so on. These are accurate predictions since they are based on some known fact. Research in the realm of sports and games has shown that an individual's or a team's future success may be anticipated by analyzing specific elements that are determined to be the foundation for total performance. The following criteria, such as anthropometrical, physical, physiological, and skill performance, are more important than others in determining an individual's playing ability. Volleyball, unlike many competitive team sports, does not include physical contact between opponents. Volleyball players

stay on their respective sides of the court, separated by a tall net that serves as a barrier between the two teams. This basic configuration distinguishes volleyball from other sports and determines the qualities required to be a competent Kabaddi player. The physiological features of players are measured with high intensity position particular attributes. The physiological effectiveness of various organs aids in doing the action with greater vigor and excitement. More training is beneficial in order to improve physiological efficiency. The heart is the most important muscle that adapts to exercise.

The metabolic waste products are drained away. The more blood that is pumped, the more oxygen that is available to the muscles that are working. As muscles become more trained, they become better at extracting and using oxygen to generate greater work. Over time, the heart adjusts to aerobic exercise and can pump more blood every stroke. Kabaddi performance is heavily influenced by the physiological efficiency of many organs. A unit is the Sports Skill. A sport or athletic game is created when it is combined with other units in a pattern and

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certain rules are followed. These motor patterns have basic skills or racial talents like running, walking, hanging, and so on. The underlying basic characteristics of movement, such as strength, speed, power, agility, hand-eye-foot-eye-coordination, balance, and so on, are all important for efficient performance in different motor patterns.

Sports skills are created when these core skills are integrated in various patterns and sequences with the underlying basic elements. Each game or physical activity has its own set of rules. Playing talents, or specific skills, are an important aspect of every game and sport, and they play a critical influence in an individual's performance. Skill is generally defined as "knowledge or skill," but in physical education, it refers to the capacity to manage and repeat certain exercises or movements in order to achieve desired results. In a Kabaddi match, players perform a variety of quick movements and re-actions such as toe touch, hand charge, blocking, pushing, kicking, and defending. Kabaddi is an amazing all-around team sport that is generally acknowledged as both a highly competitive and enjoyable sport all over the world. It is now a game of power and strategies that is played at a faster pace, necessitating faster thinking, higher skill levels, and technological application. Hence, in this study, physiological measures such as resting heart rate, peak expiratory flow, systolic blood pressure, and diastolic blood pressure were used to assess playing ability. The goal of the study was to see if there was a link between chosen physiological factors and Kabaddi playing abilities in secondary school girl's.

ANALYSIS OF THE DATA AND RESULTS OF THE STUDY

To meet the study's goal, 40 girl's Kabaddi players from secondary schools were chosen as subjects. During the Kurnool district's district level competition, data pertaining to four selected physiological variables such as vital capacity, pulse rate, systolic blood pressure, and diastolic blood pressure were assessed using a wet spirometer, pulse rate, systolic blood pressure, and diastolic blood pressure was measured using an Omron MX3 automatic blood pressure monitor. During the district level event, three experts subjectively rated each player's ability to play Kabaddi, and the average was used as the criterion score. The obtained data were analyzed using the coefficient of correlation statistical technique to see if there was a link between chosen physiological variables and Kabaddi playing ability among girl's secondary school Kabaddi players. The coefficient of correlation in the relationship of chosen physiological variables with Kabaddi playing skill among secondary school girl's Kabaddi players is shown in the statistical analysis. The impact of playing ability on physiological variables among Kabaddi players was studied using the coefficient of correlation statistical approach.

The purpose of this study was to see how playing ability affected physiological characteristics in Kabaddi players. The Pearson moment correlation (r) was calculated, and the results are reported in Table 1.

S. No	Variables	Correlation co-efficient
1	Vital capacity	0.80
2	Peak expiratory flow	0.049
3	Systolic blood pressure	0.50
4	Diastolic blood pressure	0.230

The impact of playing ability on physiological variables among Kabaddi players is seen in the table above. In secondary school girl's Kabaddi players, there is a strong link between diastolic blood pressure ($r = 0.230$) and Kabaddi playing ability. There is no significant relationship between Kabaddi playing ability and vital capacity ($r = 0.089$), peak expiratory flow ($r = 0.050$), or systolic blood pressure ($r = 0.051$) among secondary school girl's Kabaddi players.

CONCLUSION

The following conclusions have been drawn based on the findings of this study:

1. Physiological characteristics such as diastolic blood pressure were found to have a significant relationship with Kabaddi playing ability among secondary school girl's Kabaddi players
2. Physiological characteristics such as vital capacity, peak expiratory flow, and systolic blood pressure were found to have no significant relation with Kabaddi playing ability among secondary school girl's Kabaddi players.

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Review Article

Ayurveda and Yoga to prevent coronavirus disease 2019

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ABSTRACT

India has a great heritage of Ayurveda and Yoga. Both Ayurveda and Yoga is the origin of India. From our ancient times, we depend on Ayurveda as our medicine and yoga as our lifestyle. We are aware of the pandemic coronavirus disease 2019 as it affects the world. All the roads are closed, cities are closed, and everybody has to sit in their house with the family. This is an extremely hard time for all of us.

Keywords: Coronavirus disease 2019, Immunity, Pandemic, Yoga

INTRODUCTION

It was in Charak Samhita and in it, there is a chapter called “Janapada Dvamsa Vyadhi” which means worldwide epidemics. In that book Charak says this is a great opportunity to stay at home.

WHAT TO FOLLOW

We can start our daily routine life as follows. Start your day early in the morning, brush your teeth, scrape your tongue, rinse your mouth, and drink hot or warm water little bit turmeric or lemon juice added to it. Have ginger, cinnamon and cardamom tea, regular chai made with tulsi (one or two leaves), or even mint, cinnamon, and cardamom tea. These herbal teas boost your immune and energy. As long as we keep our digestive system strong, then illness will not happen to us. There is a package of eight pranayama exercises: Bhastrika, Kapalbhata, AnulomVilom, Brahmri, Utjayi, Utgati and Sheetal and Sheetkari. By doing this pranayama, we can strengthen our immune system, lymphatic system and respiratory system. In this way we can boost our energy. It will help to develop and maintain the balance of immunity, strength, digestion and vital force of life. Charaka has mentioned simple herbal remedies, even though there is no common cold, Charaka says

that you should take, sitopaladi, talisadi, abhkrabhasma, and mahasudarsanachurna. Consume this preparation, ½ teaspoon 3 times a day or twice a day, every morning and evening. If you are tired, you do not want to do that, you can make a chai and just put a pinch of sitopaladi or pinch of talisadi into the chai, it will give a good flavor to the tea. By doing pranayama we can clean our respiratory system so that we can keep away the virus.

In the same way is to do some yogasana such as camel pose, cobra pose, cow pose, boat, bow and bridge pose, lotus and lion pose, we can improve our health supporting system. If it will too hard for you, just do surya namaskar. While doing surya namaskar, do a minimum of 7 rounds and a maximum of 12 rounds. There are 12 important poses in surya namaskar. After surya namaskar do pranayama and the meditation. For meditation, sit quietly in lotus pose, sidhasana pose or sahasana pose, and inhale with the sound “so” in your mind and exhale with the sound “hum.” It will flower the inner joy, the inner beauty. After that sit quietly and feel your presence. It will feel you Sat Chet Anand. Sat means truth, Chit means Awareness and Anand means joy. Hence, we have to see what is going on in this outer world. Everything that is going on, it will come and it will go in course of time, even this coronavirus disease 2019 (COVID-19). We should enjoy the home-made food with our family members. Enjoy khichri (with moong dal and vegetables). Hot food is good, do not drink cold drinks. The cold foods will suppress your digestive system. Exposure to cold will diminish your natural resistance. You can have hot water. Take it throughout the day or while eating.

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Even at your home, you can do pooja, you can do aarti. During pooja clap with prarthana. It is a maram of heart, marma of lungs, marma of kidneys, and this clapping will strengthen your energy. It sends a message to your internal organs of each body part. You can chant om, allahoakabar or any other spiritual language.

What Weakens your Immune System?

1. Poor diet, including too much sugar intake
2. Smoking
3. Excessive alcohol uses
4. Inadequate sleep
5. Dehydration
6. No regular exercise
7. Stress
8. Obesity
9. Too many antibiotics.

DURING COVID-19 CRISIS, INCLUDE IN YOUR DIET

1. Greenly leafy vegs
2. Seeds and nuts
3. Traditional immunity boosting foods
4. Probiotics – curd
5. Legumes and whole grains.

SPICES AND CONDIMENTS FOR IMMUNITY

Holy basil, turmeric, pepper, cinnamon, ginger, fennel, cumin, and coriander are spices help to boost the immune system. With all above we need Vitamin D and calcium to develop the immune system.

Sun light is the rich sources of Vitamin D. Every day 15 min of exposure to sun in between 10 a.m. and 11 a.m. will help to get the Vitamin D from natural sources.

CARE FOR ELDERLY PERSON DURING COVID-19

1. Wash your hands and face at regular intervals with soap and water
2. Ensure proper nutrition through home cooked fresh hot meals, hydrate frequently, and take fresh juices to boost immunity
3. Take your daily prescribed medicine regularly (prescribed by doctor)
4. Do exercise and meditation
5. Postpone your elective surgeries (if any) such as cataract surgery or total knee replacement

6. Clean the frequently touched surface with disinfectant regularly
7. Monitor your health, if you develop deep fever, cough and breathing difficulty, immediately contact nearest health care facility and follow the medical advice.

OBESITY AND COVID-19

Respiratory Dysfunction

- Impaired respiratory mechanics
- Increased airway resistance
- Impaired gas exchange
- Low lung volume
- Low muscle strength.

Comorbidities

- Cardiovascular diseases
- Diabetes mellitus
- Kidney diseases.

Metabolic Risk

- Hypertension
- Prediabetes
- Insulin resistance
- Dyslipidemia.

For an obese person all the above risk will be high during this period.

VEGETABLE CARE DURING COVID-19

- First wash the vegetables using warm water
- Weep them steeped in warm water for 10–15 min
- If the vegetables are more soiled steep them in water containing 1 teaspoon baking soda for 10–15 min
- Rinse the vegetables using plain water, leave in air to dry, then store
- Use kent vegetable purifier to virus free.

How to Reduce your Anxiety. During Lockdown Period Anxiety is Quite Common to Everyone

1. Share with your family very cordially
2. Basic well-being practice is highly essential
3. Think in prospective way
4. Balance between your work and life
5. Stay connected with your friend and family, use technology carefully
6. Instead of watching TV news every time read articles online
7. Show kindness and compassion.

How to Reduce Stress

1. Give plenty of time for sleep/rest
2. Regular yogic exercise



3. Balance diet
4. Spiritual practice
5. Engage yourself with art, culture and entertainment.

RECOMMENDED MEASURES

1. Daily practice of, yoga, pranayama, and meditation for at least 30 min
2. Drink warm water throughout day
3. Spices such as haldi (Turmeric), jeera (Cumin), dhaniya (Coriander), and lahsun (Garlic) are recommended in cooking
4. Do not eat fried food frequently
5. Drink 3.5 to 4-l water/day
6. Ayurvedic immunity promoting measures:
 1. Take Chyavanprash 10 mg (1 tsf) in the morning, diabetics should take sugar free Chyavanprash
 2. Drink herbal tea, kadha, lomon juice, and fruits
 3. Golden milk- Half teaspoon haldi powder in 150 ml of hot milk once or twice a day.

Simple Ayurvedic Procedure

1. Oil pulling Therapy - Take 1-tab spoon sesame or coconut oil in mouth. Do not drink, Swish in the mouth for 2–3 min and spit it off followed by warm water rinse. This can be done once or twice a day

2. Nasal application – Apply sesame oil/coconut oil or Ghee in both the nostrils (Pratimarsh Nasya) in morning and evening.

During Dry Cough/Sore Throat

1. Steam inhalation with fresh Pudina (Mint) leaves or Ajwain (Caraway seeds) can be practiced once in a day
2. Lavang (Clove) powder mixed with natural sugar/honey can be taken 2–3 times a day in case of cough or throat irritation.

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Research Article

Effects of different training program on agility and sprinting performance of 13–15 years school boys

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ABSTRACT

The aim of this study was to evaluate the effect of a different degree of contextual interference (CI) training program on the change of direction ability (CODA) itself and on the straight sprinting (SSP) performance (5 m and 15 m) in students in the 13–15 years of school boys. It also evaluated which CI training program was more effective. Eighty-eight students (6.42 ± 0.38 years) volunteered as participants for the present study. Participants were randomized into five different CI training programs (low CI [LCI], moderate CI [MCI], high CI [HCI], variable CI [VCI], and CG: Control group) during a 3-week period. Significant CODA improvements ($P < 0.05$) in pre-posttest were found in MCI (4.39%, effect size [ES] 0.41) and VCI (9.37%, ES 1.12) groups. Furthermore, LCI, MCI, and HCI groups ameliorated their SSP performance, both in 5 m (5.92%, ES 0.81; 6.67%, ES 0.90; and 8.05%, ES 1.33, respectively) and 15 m SSP (5.86%, ES 0.76; 6.47%, ES 0.80; and 2.47% ES 0.41, respectively). These results suggest that training through games of tag (VCI) was the most effective in improving the CODA and training with MCI was the only type which induced improvements in both capacities (SSP and CODA).

Keywords: Change of direction ability, Contextual interference, High contextual interference, Low contextual interference, Moderate contextual interference, Straight sprinting, Variable contextual interference

INTRODUCTION

Physical fitness is considered a key health marker in boys and adolescents (Ortega *et al.*, 2008; Ruiz *et al.*, 2009). Furthermore, adequate physical activity levels have been reported to be necessary and decisive for the development and functioning of many physical, physiological, psychomotor, and psychosocial processes in young people (Gallotta *et al.*, 2009; Gutin *et al.*, 2005; Ruiz *et al.*, 2006; Strong *et al.*, 2005; Zivcic *et al.*, 2008). Physical activity levels have severely changed over the last few decades (Stalsber and Pedersen, 2010) and their consequences for boy's overall development and health have attracted much attention from the media, scientific researchers, and policy-makers (Fjørtoft *et al.*, 2011). In this sense, several practical guidelines for appropriate physical activity habits during childhood have been published (Gallotta *et al.*, 2009; Twisk, 2001).

Physical education is an indispensable instrument to encourage young people to establish a long-lasting healthy lifestyle (Fairclough *et al.*, 2002; Kirk, 2005). Specifically, straight sprinting (SSP) performance and change of direction ability (CODA) are considered primordial qualities in many activities (Sporis *et al.*, 2010b; Young *et al.*, 2001) and important physical components related to youth health status (Vicente-Rodriguez *et al.*, 2011). CODA is defined as the ability to change the direction of the body in an efficient and effective manner (Young and Willey, 2010), while SSP is a relatively closed skill involving predictable and planned movements (Young *et al.*, 2001). A proper attainment of these two fundamental and independent motor skills (Jovanovic *et al.*, 2011; Salaj and Markovic, 2011) is considered important for an appropriate development of health processes in young people (Ortega *et al.*, 2008; Vicente-Rodriguez *et al.*, 2011).

METHODS AND PROCEDURE

The sample consisted of 88 students (43 boys and 45 girls) in the 13–15 years of school boys. Participants were randomized into five different CI groups: (i) Low contextual interference

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(LCI) group, (ii) moderate contextual interference (MCI) group, (iii) high contextual interference (HCI) group, (iv) variable contextual interference (VCI) group, and (v) control group (CG). Each participant performed a pre-test and a post-test session separated by a 3-week period, where the participants were randomly assigned to five different contextual interference (CI) training programs. At both test sessions, the participants performed a SSP test and CODA test. Before the pre-test, the researchers gave all participants graphic and direct instructions about how to successfully perform the test. Two test sessions were performed to practice the tests and to ensure that the participants performed both tests correctly. Before the tests, the participants completed a 10 min warm-up, including jogging, bilateral movements, dynamic stretching, skipping, and jumping. Participants were given verbal encouragement to run as fast as possible during the tests. All tests were performed outdoor ground which is available in the school arena. All test sessions were conducted in the before and after school hours. The training sessions were conducted during the physical education class times. The SSP test consisted of three maximum acceleration drills of 15 m with a 180 s rest between them. Running time was recorded using stopwatch and split times were recorded at 5 m and 15 m. Similar distances have been used previously in other studies in both adults (Gorostiaga *et al.*, 2009; Sporis *et al.*, 2010a) and boys (Condello *et al.*, 2013; Oxyzoglou *et al.*, 2009; Yanci *et al.*, 2012). The CODA test was performed 48 h after the SSP test. Based on a previous protocol for the t-design test (Sporis *et al.*, 2010b), the modified agility test (MAT) proposed by Sassi *et al.*, 2009, and Pauole *et al.*, 2000, was chosen for CODA assessment. This is considered a short duration test where linear movement in the anteroposterior and mediolateral directions is required (Sassi *et al.*, 2009). The previous studies (Yanci *et al.*, 2012) conducted with primary school students showed excellent MAT test reproducibility values (ICC = 0.91, CV = 2.30%).

Statistical Analysis

One-way ANOVA and Tukey's *ad hoc* analysis were conducted to find initial and final differences between groups, and Bonferroni correction has been applied for *P*-values. A repeated measure ANOVA was conducted to analyze the differences among pre- and post-test results, and a related measures Student's *t*-test was carried out to analyze each group independently. Data analysis was performed using the Statistical Package for the Social Sciences (version 19.0 for Windows, SPSS Inc., Chicago, IL, USA).

RESULTS

Table 1 indicates the results of the repeated measures ANOVA among pre-test and post-test scores for each group (LCI,

Table 1: Repeated measures ANOVA for the MAT and the SSP running test

Test	Group	Pre-test	Post-test	F	df	<i>P</i>	Dif. pre-post (%)	ES
MAT (s)	LCI	9.82	9.37	3.80	(14)	0.071	4.58	0.44
	MCI	10.03	9.59	4.48	(14)	0.050*	4.39	0.51
	HCI	9.87	9.66	1.89	(15)	0.189	2.12	0.25
	VCI	10.56	9.57	21.38	(19)	0.001**	9.37	0.99
	CG	10.46	10.20	1.59	(18)	0.222	2.48	0.22
SSPT at 5 m (s)	LCI	1.52	1.43	19.89	(14)	0.001**	5.92	0.98
	MCI	1.50	1.40	25.28	(14)	0.001**	6.67	0.99
	HCI	1.49	1.37	41.16	(15)	0.001**	8.05	0.00
	VCI	1.51	1.55	1.77	(19)	0.198	-2.64	0.24
	CG	1.46	1.50	4.38	(18)	0.051	-2.74	0.51
SSPT at 15 m (s)	LCI	3.75	3.53	31.27	(14)	0.001**	5.86	0.99
	MCI	3.71	3.47	35.22	(14)	0.001**	6.47	1.00
	HCI	3.63	3.54	5.96	(15)	0.028*	2.47	0.63
	VCI	3.78	3.77	0.05	(19)	0.836	0.26	0.05
	CG	3.59	3.80	34.78	(18)	0.001**	-5.85	1.00

P*<0.05, *P*<0.01. MAT: Modified agility test, SSPT: Straight sprinting running test, ES: Effect size, LCI: Low contextual interference, MCI: Moderate contextual interference, HCI: High contextual interference, VCI: Variable contextual interference, CG: Control group

MCI, HCI, VCI, and CG). For the MAT test, significant differences were only reported for the MCI and VCI groups, which improved their performance by 0.44 s and 0.99 s after the intervention, respectively. There were no significant differences among groups after the program for the MAT test. No significant differences were obtained between groups after the training.

Regarding the 5 m SSP test, LCI, MCI, and HCI groups improved their performance (0.09 s, 0.10 s, and 0.12 s, respectively). Significant differences were found between groups in the post-test scores ($F(4,80) = 12.86$; $P < 0.001$; $\eta^2 = 0.391$), specifically VCI with regard to LCI ($P < 0.01$), MCI ($P < 0.001$), and HCI ($P < 0.001$) groups. Thus, the VCI group reported higher acceleration scores than the other three groups (+0.12 s, +0.15 s, and +0.18 s, respectively). Furthermore, MCI and HCI groups showed a shorter SSP running time at 5 m (0.10 s for $P < 0.05$ and 0.13 s for $P < 0.001$, respectively) in comparison to the CG.

Similarly to the previous results, in the 15 m SSP test, LCI, MCI, and HCI improved their performance (0.22 s for $P < 0.01$, 0.24 s for $P < 0.01$, and 0.12 s for $P < 0.28$). On the contrary, the CG showed a longer SSP running time at this distance (0.21 s for $P < 0.01$). Significant differences were found between groups in the post-test scores ($F(4,80) = 6.02$;

$P < 0.001$; $\eta^2 = 0.232$), once again VCI with regard to LCI ($P < 0.05$), MCI ($P < 0.05$), and HCI ($P < 0.05$) groups. This time, the VCI again reported higher SSP scores regarding the other three groups (+0.24 s, +0.3 s, and +0.23 s, respectively). There were also significant differences between the CG with regard to LCI ($P < 0.05$), MCI ($P < 0.01$), and HCI ($P < 0.05$) groups, with higher SSP scores of +0.27 s, +0.33 s, and +0.26 s, respectively.

The results of the SSP tests in 5 m and 15 m suggest a significant improvement of the LCI, MCI, and HCI between the pre- and post-tests. Nevertheless, no significant differences were observed in the VCI and CG groups in 5 m (ES = 0.24, -2.64%, ES = 0.51, -2.74%). Furthermore, a significant loss of acceleration capacity was observed in 15 m in the GC after a 3-week period (ES = 1.00, -5.85%). The LCI group improved the results obtained in 5 m (ES = 0.98, 5.92%) and in 15 m (ES = 0.99, 5.86%). Young *et al.*, 2001, observed that agility training is barely related to acceleration performance and vice versa. The LCI group, which performed one-way direction tasks, improved the SSP test significantly but not the COD test. This result coincides with the results obtained by Young *et al.*, 2001, and is consistent with the concept of training specificity (Salaj and Markovic, 2011; Sassi *et al.*, 2009; Sheppard and Young, 2006; Sporis *et al.*, 2010a). The VCI group, which performed variable CI tasks, showed significant improvements (ES = 0.99, 9.37%) in the CODA after a 3-week training program.

CONCLUSION

Significant differences were found in agility improvements in MCI and VCI groups after a 3-week agility training period with 13–15 years of school boys. By contrast, no significant difference was found in the LCI and HCI and CG groups. The most important improvement was found in the VCI group. Significant differences were found in 5 m and 15 m performance in LCI, MCI, and HCI groups after a 3 weeks agility training period. No significant difference was found in the VCI group.

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Research Article

An investigation on the effect of dissimilar training etiquettes on low-density lipoprotein cholesterol among middle-aged women

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ABSTRACT

Background: This study examined the impact of 16-week program of low to submaximal intensity aerobic, resistance, and interval training program on low-density lipoprotein cholesterol (LDL-C) in 60 untrained women ages 30–35 years. **Objective:** The objective of the study was to investigate the training effect of 16 weeks of sub-maximum intensity progressive aerobic, resistance, and interval training program on LDL-C in young men. **Methods:** Participants were randomly assigned to an aerobic-based training group $n = 15$, resistance-based training group (RBTG) $n = 15$, interval-based training group (IBTG) $n = 15$, and control group (CG) $n = 15$ participants in the experimental groups performed their training protocols. **Results:** Maximum intensity aerobic, resistance, and interval training program on LDL-C show significant decrease when compared to CG and in between exercise protocol groups, LDL-C is identical.

Keywords: Aerobic, Interval, Low-density lipoprotein cholesterol, Resistance

INTRODUCTION

Countries that have in terms of technology development, as residents living, inactivity, and passive enough to become prevalent that the prevalence of direct or indirect cause of many problems and issues such as health and wellness heart diseases – cardiovascular disease, obesity, and CAD is so that as a major problem in these communities are known. One of the problems today especially in developed countries are atherosclerosis is one. The health-related physical fitness which is considered as key component in an individual's life is develop and protected through participation in various physical activities. Low-density lipoprotein cholesterol (LDL-C) is considered the most potent independent risk factor for coronary heart disease (CHD) and is inversely correlated with CHD.^[1] Endurance exercise training characterized by continuous activity at moderate exercise intensity demonstrates significant decreases in LDL-C in both men and women after a period of training, typically 20–30% for endurance athletes

compared with inactive controls.^[2] Aerobic-based training has been proposed as an effective mechanism for improving cardiovascular protection, with training resulting in decreases of LDL-C in men 18 years of age and older^[3] also found positive training related adaptation on total cholesterol (TC), triglycerides, LDL-C, and high-density lipoprotein cholesterol (HDL-C),^[4] or only on LDL-C and T.C/HDL-C without changes on HDL-C and T.G.^[5] Considering the observed deterioration of the cardiovascular system and the metabolic profile that tends to accompany young men, it is important to know the potential benefits derived from the exercise. Although the effects of aerobic versus resistance training on cardiovascular risk factors have been compared.^[6,7]

MATERIALS AND METHODS

Sixty sedentary individuals (30–35 years) volunteered (women [SD] age \pm 32.5 [2] years) to participate in this study. Participants were informed about any potential risks and/or discomforts associated with participation in this study and were required to provide their written informed consent before being included in the study. Participants were randomized into three training groups and one control group (CG). All the participants

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were from the various colleges of Kurnool city under the Rayalaseema University, Kurnool, Andhra Pradesh, India.

Aerobic-Based Training Group

The training was supervised by an exercise physiologist and the frequency was kept 3 times per weeks for 16 weeks with 45 min per session. The intensity of the main part of the session started with work heart rate (HR) 50% HR_{reserve} (1st–4th week) increasing progressively to 51–55% HR_{reserve} (5th–8th week), 55–60% HR_{reserve} (9th–12th week), 60–65% HR_{reserve} (13th–16th week).

Resistance-Based Training Group (RBTG)

After an adequate warm-up, the participants completed resistance exercise for 3 days a week for 16 weeks. They performed 8 exercises with elastic bands for the major muscular groups respecting the following progression.

1 set of 8 repetitions (1 st –2 nd week)	1 set of 12 repetitions (3 rd –4 th week)
2 sets of 8 repetitions (5 th –6 th week)	2 set of 10 repetitions (7 th –8 th week)
2 sets of 12 repetitions (9 th –10 th week)	2 sets of 15 repetitions (11 th –12 th week)
3 sets of 12 repetitions (13 th –14 th week)	3 sets of 15 repetitions (15 th –16 th week)

An interval period of at least 3 min was assured between sets of the same exercise.

Interval-Based training Group (IBTG)

The experimental participants run/walk a distance of 3.2 km 3 days per week for 16 weeks. Participants ran four sets of 800 m interval, that is, 4 × 800 m interval 1:1 work: rest ratio at approximately 60–65 of their age predicted maximal (HR Max 220 – age in complete years).

CG

The CG was instructed not to undertake any vigorous exercise during the training period.

Materials

Venous blood samples were collected in the morning between 8 AM and 9.30 AM by two specialized staff nurses before the training session and the blood samples has collected after completion of 16-week training session. LDL-C was determined using a direct two-point Kinetic assay kit (CH2652, Randox, laboratories, Ltd., U.K.).

Statistical Analysis

Analysis of covariance technique was used to study the effect of the experimental variable on the selected physiological variables. Scheffe's *post hoc* test also applied to find out the source of significant difference among the groups and to test the hypotheses to arrive at conclusion. The level of significance was 0.05.

Analysis on LDL-C

Table 1 depicts analysis of covariance for the LDL-C of the subjects on the experimental variable selected. The table indicates that there is a significant effect through the selected experimental variable, that is, aerobic, resistance, and interval for the selected experimental period. The obtained F value, that is, 34.915 is much higher than the table F value, that is, 2.78 and hence the selected experimental variables caused the significant change in the selected LDL-C levels of the subjects.

Table 2 contains the mean values of the selected criterion variable, that is, LDL-C of the subject. The table brings out the following observations. The aerobic running group showed better reduction in LDL-C levels when compared to the other two groups, namely, resistance and IBTG. The aerobic running group's post-training LDL-C mean is 116.30, the resistance group's post-training LDL-C mean is 121.7636, and the IBTG post-training LDL-C mean is 125.214. When compared with the mean values of the three groups, it is clear that the aerobic group showed significant reduction in LDL-C when compared to the other two groups. The resistance group also showed reduction in the LDL-C levels when compared to the IBTG. This simple analysis on the post-training adjusted mean values shows that there is significant reduction in the LDL-C levels of the subjects due to the selected three activities at the selected intensity.

Although there is variance in the mean values of the LDL-C because of the three protocols of the exercise, to find out the real difference and the cause of significant difference, the Scheffe's *post hoc* individual comparison test was conducted.

The Scheffe's *post hoc* individual comparison test for the individual groups is presented in Table 3. The individual

Table 1: ANCOVA table

Source	DF	SS	MS	F	CR.F
Total	59	2849.847			
BG	3	1868.653	622.8845	34.91526	2.78
WG	55	981.1941	17.83989		

Table 2: Pre-training, post-training, and adjusted post-training means for LDL-C

Groups	n	MX	MY	MY.X
IBTG	15	115.0667	109	125.2149
RBTG	15	124.3333	114.2	121.7626
ABTG	15	136.4667	120.0667	116.3004
CG	15	153.8667	152.0667	132.0541
		132.4333	123.8333	123.833

IBTG: Interval-based training group, RBTG: Resistance-based training group, ABTG: Aerobic-based training group, CG: Control group, LDL-C: Low-density lipoprotein cholesterol

Table 3: Scheffe’s *post hoc* test for low-density lipoprotein cholesterol

CD for Scheffe’s test			
CD=	$\sqrt{(a-1)F\sqrt{((2(MsError)/n))}}$ 4.355		
Individual comparisons for LDL-C			
Groups and Values	AG	RBTG	IBTG
	116.3004	121.7626	125.2149
RBTG	-5.4622		
121.7626	Sig		
IBTG	-8.9447	-3.45227	
125.2149	Sig	n.sig	
CG	-15.7537	-10.2915	-6.83918
132.0541	Sig	Sig	Sig

IBTG: Interval-based training group, RBTG: Resistance-based training group, ABTG: Aerobic-based training group, CG: Control group, LDL-C: Low-density lipoprotein cholesterol

comparisons through the Scheffe’s *post hoc* test elicited that the aerobic running group has brought out significant reduction in the LDL-C of the subjects when compared to the other two experimental protocols of exercise. The resistance and IBTG post-training adjusted averages are different in values, the Scheffe’s *post hoc* comparison test indicated that the difference between the groups is insignificant and hence the training effect of the resistance and IBTG is identical. However, all the three exercise protocol groups of the experimentation showed significant reductions in the LDL-C levels as per the Scheffe’s *post hoc* individual comparison test when compared to the CG.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The following conclusion has been derived after analyzing the experimentation results through the appropriate statistical tools:

1. All the three different protocols selected for the aerobic training group, resistance training group and interval training group at the moderate intensity of maximal HR intensity caused for the significant decrease in the LDL-C levels of the subjects.

Recommendations

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

1. Aerobic exercise programs at a moderate intensity of 60–70% of the maximal HR of not <4 km distance should be needed to better control the precipitating factors for the degenerative diseases such as CHD and hypertension
2. Similar study may be conducted cross sectionals for various populations changing the geographical limitations
3. Same type of study may be done for various ages of the same geographical population or to the different geographical area population
4. Similar study may be conducted for longitudinal studies with an increased experimentation period
5. Many similar studies may be conducted changing the intensity factor of the experimentation exercise protocol.

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Research Article

Analysis of psychological and physiological variables among high and low physical fitness male university volleyball players

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ABSTRACT

The purpose of the study was to compare the high and low physical fitness male university volleyball players in psychological and physiological variables. To attain this aim, 175 volleyball players were selected from south-north zone interuniversity tournament for men. The selected subjects were divided into high and low physical fitness groups based on their performance in AAHPERD youth fitness test. The selected psychological variables – regression, fixation, resignation, and aggression (manual frustration questionnaire variables) were assessed by following, Tiwari and Chauhan manual frustration questionnaire (1972). The physiological variables, breath holding time, vital capacity, resting pulse rate, and blood pressure were assessed by manual method, wet spirometer, radial pulse method, and sphygmomanometer, respectively. The data were analyzed by following ANOVA. The results of the study showed that high physical fitness volleyball players showed high fixation and aggression when compared to low physical fitness volleyball players group. High physical fitness group had less regression and resignation when compared to low physical fitness group. The results also revealed that breath holding time and vital capacity of high physical fitness group were significantly higher when compared to low physical fitness group. The resting pulse rate was significantly less in high physical fitness group, and there was no significant difference in blood pressure between high and low physical fitness volleyball players group.

Keywords: High and low physical fitness, Frustration, Physiology

INTRODUCTION

Science has established the fact that all efficient functioning of the body improves when it is used and regresses when it is not used. This means that all normal organs of the body perform more efficiently and effectively when they are regularly exercised. Human body is built to be active and thrives on activity. This realization has acquired for physical education and fitness program an imperative place in the scheme of education in almost all the countries. Further, the need of physical education and fitness program becomes more and more urgent today as a result of increasing use of machines resulting in a lesser and lesser use of muscular parts of the body. Sport is psychophysical as well as a social activity.

The main objective of sports is to develop physical and psychological health. Further, it has to integrate or to bring about psychophysical coordination, socialization, and culture interaction and thus to develop a spirit of tolerance.

The repeated failure in spite of planning and efforts puts one in the state of utter confusion and bewilderment. This state of an individual is termed as frustration. Frustration leads to one or combination of four psychological variables, namely, regression, fixation, resignation, and aggression. Participation in regular physical activity has been shown to be important for health and quality of life. Physical activity also influences physiological and psychological parameters. Playing volleyball game at university level demands rigorous physical activity. As the physical activity has the influence on psychological and physiological variables, there may be differences in physical or psychological and physiological variables with the difference in fitness levels. Hence, the present study has been formulated

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to verify the effects of high and low physical fitness on selected psychological and physiological variables. Frustration: It can be defined as the blocking of a desire or needs. It refers to failure to satisfy a basic need because of conditions, either in the individual or external obstacles. Regression: Regression means reversion to primitive or childish forms of expression or behavior. Fixation: It is psychological: A strong attachment to a person or thing, especially such an attachment formed in childhood or infancy and manifested in immature or neurotic behavior persists throughout life. Resignation: An individual tends to withdraw himself from the situation that causes frustration or failure. Aggression: Aggression is defined as “an act whose goal response is injury to an organism.” Genevieve (2006) his study states that aggression in team sports as a function of gender, competitive level, and sport type. The results revealed that male players always display more aggressive behaviors than female players, whatever the sport, the competitive level or the nature of the observed aggression; instrumental aggressive behaviors increase and hostile aggressive behavior decrease when competitive level rises. The frustration scale by Chauhan and Govind Tiwari was used to measure frustration. He concluded that the maximum resignation frustration was seen among the Indians, whereas the maximum regression was seen among the Iranian. The females tended to be aggressive, whereas the males were aggressive and resigned. The expression of frustration in aggression led to balanced mental status, whereas regression resulted in neuroticism. Adolescents both from India and Iran had more aggression-frustration in comparison with their adult counterparts. The Indian women had predominantly more aggression whereas Iranian females had regression. Werner Helsen and Janet Starkes (2002) examined the relative importance of attributes determined largely by the efficiency of the visual or central nervous system versus cognitive domain specific skills, in the determination of expertise in soccer. A stepwise discriminate analysis of both non-specific abilities and soccer-specific skills revealed an average squared canonical correlation = 0.84, with the significant step variables all being domain-specific skills. Pown Radha, in this study, psychological factors, namely, sports competition anxiety and aggressiveness were studied in relation to soccer playing ability. Sports competition anxiety test questionnaire and aggressiveness questionnaire developed by Rainer, Marten, and Smith were adopted to measure the anxiety and aggressiveness. Experts subjectively rated the soccer playing ability of the subjects (0–10 point scale). He concluded that, to these two psychological factors, aggressiveness is highly correlated with soccer playing ability at insignificant level. The results of this investigation revealed that moderate levels of anxiety and aggressiveness are present among the South Indian-University Soccer players.

METHODOLOGY

For the purpose of the study, 175 ($n = 648$) volleyball players were selected from 54 university teams, participated in

south-west zone interuniversity competition for men held at Annamalai University by following random sampling method. Further, the selected players were divided into high and low physical fitness groups based on the AAHPERD youth fitness test. For this, the scores of each item were converted to standard score using Hull scale (The formula. $50 + 100 \div 7 (X - \text{Mean})$); the subjects physical fitness composite scores were derived. The composite scores were arranged in descending order and 33% of scores of the subjects (58) from the top and 33% of scores of the subjects (58) from the bottom were selected for high and low physical fitness groups, respectively. The scholar made an attempt to compare selected psychological and physiological variables between high and low physical fitness male university volleyball players.

Psychological variables are regression, fixation, resignation, and aggression. The psychological variables were assessed by a questionnaire constructed by Tiwari and Chouhan. The questionnaire consists of 40 questions. Each variable is assessed by 10 questions. The physiological variables breath holding time, vital capacity resting pulse rate, and blood pressure were assessed by following manual method, wet spirometer, radial nerve method, and sphygmomanometer, respectively.

Description of the Questionnaire

Tiwari and Chauhan manual frustration questionnaire (1972) was used to measure the student’s general frustration level. It consists of 40 statements. It means measures frustration on four dimensions, namely, regression, fixation, resignation, and aggression. Each of the four modes of frustration has 10 items. Each item has six options from “very much” to “not at all.”

Method of Scoring

The frustration test has forty statements. Each of the 40 items has six answers from “very much” to “not at all.” A score of 5 was given to the response “very much,” 4 for “much,” 3 for “ordinary,” 2 for “less,” 1 for “very less,” and 0 for “not at all.” The high score indicates that the student is saturated with frustration and the lower score “0” indicates no frustration. There are four categories of frustration in this test, namely, regression, fixation, resignation, and aggression. The score for each of the four categories varies between 0 and 40. The question number items that measure regression are 1, 5, 9, 13, 17, 21, 25, 29, 33, and 37, fixation 2, 6, 10, 14, 18, 22, 26, 30, 34, and 38, resignation 3, 7, 11, 15, 19, 23, 27, 31, 35, and 39, and aggressions 4, 8, 12, 16, 20, 24, 28, 32, 36, and 40. The scores obtained for regression, fixation, resignation, and aggressions were added separately. The total score for each of the dimensions was considered for statistical treatment.

Reliability of the Data

The reliability of the data was established by test-retest method. Ten subjects were randomly selected from various university

volleyball teams and they were tested twice by the same testers and similar conditions on each criterion variable. Since the obtained values were much higher than required value, the data were accepted as reliable in terms of instruments, tester, and subjects. The intraclass correlation technique was used to find out the reliability of the data with test-retest scores on each criterion variable separately and they are presented in Table 1.

Experimental Design and Statistical Analysis

The experimental design used for this study was static group comparison design. The study compares the state of psychological and physiological parameters of high and low physical fitness university volleyball players. The data collected were analyzed by one-way analysis of variance to

identify the differences between high and low physical fitness groups. The level of significance selected to accept or reject the hypotheses was 0.50 level. The data collected on the criterion variables, that is, regression, fixation, resignation, aggression, breath holding time, vital capacity, resting pulse rate, systolic blood pressure, and diastolic blood pressure were analyzed separately using ANOVA and the results were presented below.

DISCUSSION ON FINDINGS

The results of the study indicated that among the four psychological variables, high physical fitness group was significantly less in regression and resignation when compared to low physical fitness group, and also in conformity with

Table 1: Analysis of variance for the data on regression, fixation, resignation, aggression, breath holding time, vital capacity, resting pulse rate, systolic blood pressure, and diastolic blood pressure among high and low physical fitness male university volleyball players

Sources of variables	High physical fitness	Low physical fitness	Sum of squares	Degree of freedom	Mean sum of squares	"F" ratio
Mean	30.96	33.62	B: 204.45	1	204.45	
Regression						4.73*
SD	6.65	6.50	W:4931.59	114	43.26	
Mean	28.72	26.28	B:171.39	1	171.39	
Fixation						4.16*
SD	7.47	8.69	W:4691.19	114	41.15	
Mean	23.19	25.27	B:276.22	1	276.22	
Resignation						4.21*
SD	7.47	8.69	W:7488.50	114	65.69	
Mean	33.12	29.76	B:327.80	1	327.80	
Aggression						8.37*
SD	6.10	6.41	W:4462.78	114	39.15	
Mean	56.68	47.55	B:2415.80	1	2415.80	
Breath holding time						4.10*
SD	2.24	2.58	W:67148.60	114	589.00	
Mean	220.36	207.02	B:5164.45	1	5164.45	
Vital capacity						5.14*
SD	30.54	32.78	W:114396.38	114	1003.48	
Mean	68.91	72.38	B:348.28	1	348.28	
Resting pulse rate						10.60*
SD	6.26	5.15	W:3744.22	114	32.84	
Mean	121.12	120.86	B:1.94	1	1.94	
Systolic blood pressure						0.03
SD	6.87	8.12	W:6449.05	114	56.57	
Mean	80.31	79.50	B:19.04	1	19.04	
Diastolic blood pressure						0.61
SD	5.15	6.03	W:3582.91	114	31.43	

Significance at 0.05 level. Table value for significance at 0.05 levels with DF 1 and 114 is 3.93

present results fixation and aggression higher for high physical fitness group, when compared to low physical fitness group. This phenomenon is due to the fitness and the other factors such as more instrumental aggressive behavior, team sports, ability, the type of training, and length of training might have also contributed the finding of Banga, Metz and Alexander, Pawan Radha, and Genevieve are also in conformity with present results. In the physiological variables, breath holding time, vital capacity, and resting pulse rate are better for high physical fitness group. In case of systolic blood pressure and diastolic blood pressure, there was no significant difference between high and low physical fitness groups. The findings of Bucher, Leloahov, etc., also support the findings of the present study.

CONCLUSION AND RECOMMENDATIONS

Based on the analysis of the data, the following conclusions were drawn:

1. Among the selected psychological variables, regression and resignation were significantly less in high physical fitness volleyball group when compared to low physical fitness volleyball group
2. In case of fixation and aggression, players of high physical fitness group were significantly higher when compared to low physical fitness group of volleyball players
3. In the physiological parameters, high physical fitness volleyball players were significantly better in breath holding time, vital capacity, and resting pulse rate when compared to low physical fitness volleyball players
4. There was no significant difference between high and low physical fitness groups of volleyball players in systolic and diastolic blood pressure
5. The results of the study indicate that aggression, resignation, and regression are the best discriminator psychological variables of priority that classified the high and low physical fitness male university volleyball players
6. The results of the study indicate that the resting pulse rate and vital capacity are the best discriminator psychological variables of priority that classified the high and low physical fitness male university volleyball players.

RECOMMENDATIONS

1. Efforts may be undertaken using audiovisual aids to educate the low physical fitness students and its effect can be assessed
2. Proper physical fitness program may be designed and implemented for the low physical fitness students to improve their physical and psychological capabilities
3. Similar study may be conducted on subjects belonging to various age groups
4. The physical education teachers and coaches/sports trainers should consider the psychological factors while imparting teaching and training to the students, athletes, and players. They should lay emphasis on mental fitness and psychological conditioning.

A comparative study on physical fitness and psychological parameters between athletes and players may be conducted to find out the level of fitness and psychological variation.

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Research Article

Effect of plyometric training for the development of explosive power among men volleyball players of Warangal urban

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ABSTRACT

The purpose of the present study is to find out the effect of plyometric training for the development of explosive power among men volleyball players of Warangal urban. The subject was chosen at random from a group of boys between the ages of 21 and 25 years old. n = 20 experimental Group I and n = 20 control Group II are included in the study's sample. Vertical jump test was utilized in the study as a pre-test and post-test to determine explosive power in both groups. Experiment Group I received plyometric training on alternate days for 8 weeks, while control Group II received general warm-up training. The experimental group's performance on the vertical jump improved from pre-test to post-test. It is concluded that significant effect in experimental Group I whereas the control group exhibits a reduction in their performance.

INTRODUCTION

Volleyball is a team sport in which two teams of six players are separated by a net. Each team tries to score points by grounding a ball on the other team's court under organized rules.^[1] It has been a part of the official program of the Summer Olympic Games since Tokyo 1964. Beach volleyball was introduced to the programmed at the Atlanta 1996. The adapted version of volleyball at the Summer Paralympic Games is sitting volleyball.

The complete set of rules is extensive, Cronin and Owen^[2] but play essentially proceeds as follows: A player on one of the teams begins a "rally" by serving the ball (tossing or releasing it and then hitting it with a hand or arm), from behind the back boundary line of the court, over the net, and into the receiving team's court. The receiving team must not let the ball be grounded within their court. The team may touch the ball up to 3 times, but individual players may not touch the ball twice consecutively Docherty *et al.*^[3] Typically, the first two touches are used to set up for an attack. An attack is an attempt to direct the ball back over the net in such a way that the team receiving the ball is unable to pass the ball and continue the rally, thus, losing the point.

Ana Filipa Silva *et al.*^[1] (2019) study was that volleyball is considered a very explosive and fast-paced sport in which plyometric training is widely used. Our purpose was to review the effects of plyometric training on volleyball players' performance. A systematic search was conducted according to the preferred reporting items for systematic reviews and meta-analyses guidelines using PubMed, Scielo, SportDiscus, Medline, Scopus, Academic Search Complete, CINAHL, and Web Science for articles published no later than December 2018. Any criteria were imposed for the included sample. The search focus was on interventional studies in which athletes underwent a plyometric program. To the 1831 articles found, another five were added, identified through other sources. Duplicated files were removed, titles and abstracts were screened, which left 21 remaining studies for extensive analysis. Results showed that the vertical jump (15 studies) was the major ability studied in plyometric training interventions, followed by strength (four studies), horizontal jump (four studies), flexibility (four studies), and agility/speed (three studies). In addition, it was observed that young (under 18 years old) female athletes were the most studied. The included studies indicated that plyometric training seems to increase vertical jump performance, strength, horizontal jump performance, flexibility, and agility/speed in volleyball players. However, more studies are needed to better understand the benefits of plyometric training in volleyball players' performance.

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Table 1: Paired samples statistics

Vertical jump basketball players	Mean	N	Std. deviation	Std. error mean
Control group				
Pre-test	57.9000	20	105880	0.23674
Post-test	56.9000	20	1.12091	0.25278
Experimental group				
Pre-test	57.5000	20	1.10501	0.24609
Post-test	61.9000	20	1.20881	0.27049

Objective of the Study

The objective of the study is to find out the effect of plyometric training on the development of explosive power among volleyball players of Warangal urban.

Hypothesis

It was hypothesized that there would be a significant difference in plyometric training development explosive power among volleyball players of Warangal urban.

METHODS

The purpose of the present study is to find out the effect of plyometric training for the development of explosive power among men volleyball players of Warangal urban. The subject was chosen at random from a group of boys between the ages of 21 and 25 years old. $n = 20$ experimental Group I and $n = 20$ control Group II are included in the study's sample.

Tools

Vertical jump.

Purpose of the Test

The purpose of the study was to measure explosive strength.

RESULTS AND DISCUSSION

The experimental group and the controlled group were given pre- and post-tests to see if there was an improvement in explosive power after 8 weeks of plyometric training, while the controlled group received general training.

T-test

The analysis of the data reveals that the subjects with the plyometric training have shown improvement in the performance of vertical jump test from pre- to post-test Mean \pm SD experimental group pre-test result shown (57.5000) and controlled group (57.9000) after 8 weeks of specific of plyometric training; there is improvement in the subject's experimental group (61.9000) plyometric training and

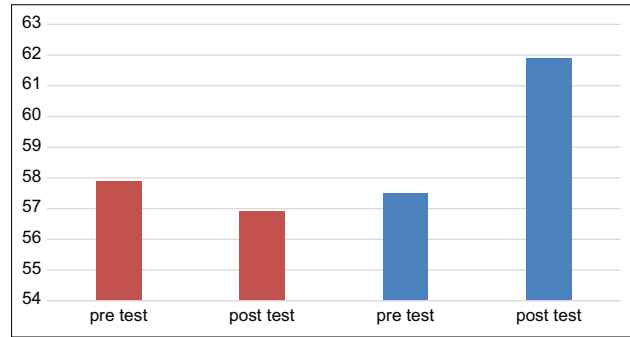


Figure 1: Performance of volleyball players

controlled group (56.9000). The measurement of vertical jump in centimeters.

Figure 1 shows the performance of volleyball players in vertical jump. Orange color bar represented the control group whereas is clearly showing the reduction in performance and blue bar represented the experimental group was clearly showing the increase in the performance.

CONCLUSIONS

It was concluded that after the 8 weeks of plyometric training, there is improvement in experiment group, as it was analyzed in the results mention that the plyometric training has shown excellent effect in the improvement explosive power. The aim of formulating the effect of plyometric training to the betterment and enhances their performance as well as a guideline for volleyball coaches at various levels in preparing and designing quality and effective training program.

RECOMMENDATIONS

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

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Research Article

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

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ABSTRACT

The purpose of the study was to verify experiment, analyze, and understand the construction of physical fitness norms for university women students of Rayalaseema Region in Andhra Pradesh (explosive strength). For concluded this study, $n = 360$ university players were selected as subject age about 18–25 years. This research aimed to analyze the construction of physical fitness norms for university women students of Rayalaseema Region in Andhra Pradesh. The researcher reviewed the available literature pertaining to the study taking into consideration of the variables, the physical fitness (explosive strength), for construction of norms of the study. A total of 360 women college students from different universities in Rayalaseema Region have been tested and AAHPERD youth fitness test (standing broad jump) was conducted to them. AAHPERD youth fitness test battery has been administered to total 360 university women students.

Keywords: Explosive strength, Standing broad jump, Physical fitness

INTRODUCTION

Physical fitness has been outlined because the development and maintenance of a sound physique and soundly functioning organs, to the tip that the individual realizes in an optimum live his capability for physical activity also as for mental accomplishment unhampered by physical drains or by a body lacking in physical strength and vitality. The fitness is that the capability of a private to perform given physical tasks involving muscular effort. Williams opines that the fitness is that the capability of a private to perform physical work. Fitness is that the capability of an activity that should be enough to perform the given task. Fitness is that the entire organism's ability to operate expeditiously and effectively. Fitness is not directly coupled to the improved health standing as some people though possess high levels of fitness should still carry predicament factors.

Health is considered as an outcome to proper fitness management and appropriate follow-up in the direction.

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Since, the degenerative diseases such as diabetes mellitus and cardiovascular morbidities are multi factorial in nature. It may be difficult but ideal to understand the various markers of these diseases. Physical wellness been emphasized very much among all the dimensions of human wellness and health. This significance to this dimension may be due to its emphatic effect of influence on the other dimensions of human health.

“Aim for a healthy body weight” health and longevity square measure vulnerable once someone is either overweight or weedy. Overweight and fat increase one's risk of developing serious CVD.

Alves JMVM (2015) were conducted a study on construction of norms for health relates fitness take a look at for school women in Karaikudi, Ramnad, and Vellore districts. One thousand and five hundred women from the higher than districts were chosen for the study. The subsequent variables were chosen for this study 9 min 10 sit-ups, and sit and reach. Mean variance and hull scale were the applied mathematics strategies used for this study in 9 min run as per the qualitative grading for the created norms.

Chelly MS (2010) evolved norms of physical fitness for college women from 25 faculties. The info from 2500 subjects was

collected for seven things. Score norms were calculated from 8 to 100 at an interval of five figure six run area unit best for gymnasium women so as to enter achievements for special assertion fitness awards norms for the take a look at things were on the market severally for boys and women at every age from 5 to 18 years, they took the shape of performance needed for your award levels, referred to as certificates 20th score, normal 14th score benefit 16th score governor 18th score.

Objectives of the Study

The objective of the study is to analyze and understand the construction of physical fitness norms for university women students of Rayalaseema Region in Andhra Pradesh (explosive strength).

METHODOLOGY

This study was concluded the verify experiment, analyze, and understand the construction of physical fitness norms for university women students of Rayalaseema Region in Andhra Pradesh (explosive strength). For concluded this study, $n = 360$ university players were selected as subject age about 18–25 years.

Tools

Standing broad jump.

Purpose of the Test

The purpose of the study was to measure the explosive strength.

Statistical Technique

After collecting the data to compute the norm, mean, standard deviation, and hull scale were computed.

RESULTS

To construct the norms for the standing broad jump performance test for women, the hull scale value of 0.013 is serially added to and subtracted from mean to determine the value from 0 to 100 in the scale. When the hull scale value of the 0.013 meter is added to the mean score 1.38, the standing broad jump performance for the 51st score is 1.39 meters. Similarly, for the 49th score, hull scale is deducted from the mean and is calculated as 1.37 meters. A subject performing 1.71 m obtained 75 points in the scale. Like that a subject performing 2.03 meters obtain 100 points. A subject performing below 0.74 meters is not getting any point.

The norms thus constructed from 0 to 100 for standing broad jump performance for university women students of Rayalaseema Region in Andhra Pradesh.

Table 3 shows the performance of university players in standing broad jump, the results, and test constructed as per the standard norms, mean (1.38), S.D. (0.19), and hull scale (0.013).

Table 1: Criterion measures

S. No.	Test items	Variables	Unit of measurement
1.	Standing broad jump	Explosive power	Meters and centimeters

Table 2: The qualitative grading for the constructed norms for the performance of standing broad jump

Score	Qualitative grading	Number of subjects in each grade
25 and below	Failing	14
26–35	Below average	30
36–50	Average	85
51–65	Above Average	176
66–75	Good	40
75 and above	Outstanding	15

Scores in meters

Table 3: Mean, standard deviation, and hull scale values of standing broad jump, performance of university women students of Rayalaseema region in A.P.

S. No.	Test	Mean	S.D.	Hull scale
1.	Standing broad jump	1.38	0.19	0.013

CONCLUSIONS AND DISCUSSION

This study was conducted to construct norms for physical fitness for university women in Rayalaseema region of Andhra Pradesh. The age group of the subjects was 18–25 years. To achieve this purpose, totally 360 students were selected. The raw scores were converted into hull scales and thus norm was constructed. One the basis of the hull scale norms in the performance of AAHPERD youth physical fitness test standing board jump tests for university women students of Rayalaseema Region in Andhra Pradesh, the following conclusions were drawn. In standing board jump, test for women according to the qualitative grading by the constructed norms it is found out 14 subjects (3.89%) out of 360 subjects have fallen in the failing category, 30 subjects (9.33%) are in the below average grade, 85 subjects (23.61%) are in the average grade, 176 subjects (48.89%) are in the above average category, 40 subjects (11.11%) are in the good category, and 15 subjects (4.17%) are in the outstanding category.

Recommendations

On the basis of the findings and conclusions of the investigation, the following recommendations were drawn.

- 1) The norms constructed by the research scholar may be used to select the students at the time of admission.
- 2) A similar study may be conducted to construct norms for the college women in Andhra Pradesh.

- 3) Research study on this problem may be under taken for different age group.
- 4) A study of similar nature may be conducted to construct national norms in the entire athletic event for women.
- 5) Physical fitness tests may be constructed periodically at university level so as to estimate the level of physical fitness of every individual student and to recommend the remedial measures if any.

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Research Article

The relationship between coaching behaviors and athletic performance

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ABSTRACT

The purpose of this study was to explore the factors affecting the athlete’s perception of coaching and psychological behavior in relation to their sports performance. Study focused on winning athletes and nine coaches in select State University in the Philippines a member of State Colleges and Universities Athletic Association. A none-experimental survey research design was employed by administrating coaching behavior scale for sport and a psychological performance inventory. The coaching behavior as perceived by the student athletes included coaching motivation, coaching style, and communicating skills. Psychological behavior included anxiety, mental toughness, and stress. Data revealed that all the variables in coaching behavior and mental toughness greatly affect the winning athlete’s performance in competition. Slight results differences were determined among two groups of respondents. Under the light of the study results further exploration of the factors for winning should be done through qualitative design.

Keywords: Athletes, Coaching behavior, Sport management

INTRODUCTION

Many factors were investigated in terms of winning in sport competition (Mata and Da Silva Gomes, 2013) (Mortejo, 2021). While some mentioned variables significantly affecting athletes performances such as home court advantage (Arruda et al., 2014) considerable amount of experiment significantly correlating the amount of enjoyment, effort exerted and achievement of athletes associated to coaching behavior (Wang et al., 2009, According to Bali (2014), sports performance is not simply a product of physiology (e.g. stress and fitness) and biomechanical (e.g. technique factors) but psychological factors also play a crucial role in determining performance. On the other hand, North (2017), stated that athletes perceive and interpret their athletic experience based on the leadership they receive, as well as their ability to perform well. Most people consider a coach’s primary job to be encouraging individual athletes, as well as the team. Coaches can have a huge impact on athletes’ personal lives and goals and how they perceive themselves and their community. Individual

athletes look to coaches for leadership and encouragement beyond the sports environment, and this also carries over to athletic achievements. However, the previous studies also ask for adding psychological variables measures in the existing body of knowledge. Due to some conflicts in some studies confirmatory in the statistical results in terms of connection of coaching behavior and athlete’s performance also emerge as one of the recent recommendations in the field of coaching management (Aleksic Veljkovic et al., 2019).

METHODS

There searchers used the quantitative method study. It involves there search relationships between variables through the use of various measures of statistical association. It is a procedure in which subjects’ scores on two variables are simply measured,

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Table with 4 columns: Variable, Beta, and two unlabeled columns. Rows include Coaching style, Coaching motivation, Communication skills, Mental toughness, and Psychological behavior.

without manipulation of any variables to determine whether there is a relationship.

Table 11 reflects that coaching style greatly affects the athletic achievement compared to other variables. The beta coefficient value of psychological behavior is not significant since its correlation is not significant. The coaching style has the highest contribution in predicting the values of the athletic achievement compared to the other given variables.

According to Defreese and Smith (2013), here is evidence to show that coaching styles and behaviors have a strong influence on motivation and well-being of athletes. Studies have shown that athlete burn out is negatively related to positive social support.

DISCUSSION

This chapter presents the summary of findings of the study, the conclusions that were arrive data based on their search output, as well as their commendations forwarded in the light of the conclusion drawn.



The coaching behavior be described interms of perception of the coaches themselves regarding coaching motivation is “extremely high” with the grand mean of 6.5469 while students’ perception to their coaches is “high” with the grand mean of 6.0311. This only shows that there is as light difference between how the coach perceives his coaching motivation compare to the perception of student-athletes. On the other hand, the perception of the coaches themselves regarding their coaching style is “extremely high” with the grand mean of 6.6339 while students’ perception regarding to their coaches is “high” with the grand mean of 5.8189. This only shows that there is as light difference between how the coach perceives his coaching style compare to the perceptions of student-athletes. Lastly, the perception of the coaches themselves regarding their communicating skills is “slightly high” with the grand mean of 4.6154 while students’ perception to their coaches is

“slightly high” with the grand mean of 5.2932. This only shows that there is no significant difference between how the coach perceives his communicating skills compare to the perceptions of student-athletes.

The psychological behavior be described interms of perception of the coaches themselves regarding anxiety is “low” with the grand mean of 3.9792 while students’ perception to their coaches is “moderately” with the grand mean of 3.0811. This only shows that there is a slight difference between how the coach perceives his communicating skills compare to the perceptions of student-athletes. On the other hand, the perception of the coaches themselves regarding their mental toughness is “extremely high” with the grand mean of 6.5500 while students’ perception regarding to their coaches is “high” with the grand mean of 6.1947. This only shows that there is as light difference between how the coach perceives his mental toughness compare to the perceptions of student -athletes. Finally, perception of the coaches themselves regarding their stress is “high” with the grand mean of 4.1042 while students’ perception regarding to their coaches is “moderately” with the grand mean of 2.9385. This only shows that there is as light difference between how the coach perceives his stress compare to the perceptions of student-athletes. This only shows that there is as light difference between how the coach perceives his stress compare to the perceptions of student-athletes.

The significant difference between the perception of the student-athletes and the coaches in the coaching behavior of the trainers was tested. The statistical treatment that was used is Mann–Whitney U-test with an average of 0.101. This only shows that there is no significant difference between the perception of the student-athletes and coaches in the coaching behavior of the trainers.

The coaching style has the highest contribution in predicting the values of the athletic achievement compared to the other given variables. Therefore, it concludes that coaching style greatly affects the athletic achievement of the student-athletes compared to other variables.

RECOMMENDATION

In conclusion, the finding of this study suggested that motivation, coaching style, and communicating skills which are all under coaching behavior parameters significantly affected the athlete’s performance in playing. Data also suggested that the mental toughness of the winning athletes significantly influenced their performances, further exploration of other contributing factors in athletes’ sports performances during competition should be investigated trough qualitative approach to validate the results of this research design.

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Research Article

Feed backing of talent identification in sports

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ABSTRACT

The purpose of this study is to assess assets and modes of talent identification and development in different sport discipline among select elementary and secondary schools in the Philippines. Two hundred and seventy-seven athletes (277) and seven coaches (7) participated in the study. Talent identification and development questionnaires examining the assets and modes of talent identification were used. Data revealed that system of identifying and selecting potential athletes is mostly based on the observation of the coaches 'during inter school competition; the program was challenged by limited sports equipment's and inaccessible facilities. The coaches and sports managers found to be lacking in terms of scientific methods of measuring physical, physiological, psychological, and social attributes of athletes in identifying potential athletes. Further research is recommended through qualitative design to further unveil the stories of talent identification program in sports especially in the new normal situation since the study is done before pandemic.

Key words: Sports management, Talent identification, Athletes, Pandemic

INTRODUCTION

Several numbers of studies were conducted exploring the role of talent identification in sports in the past few years. Factors include sports psychology and sports science in correlation to athletes' performance giving new multi-disciplinary studies which giving unique insights to talent identification using new multi-disciplinary approaches (Baker *et al.*, 2019). These investigations help to uncover the best predictors of future performance, and these new strategies in examining the variables in potential elite athletes are good to counter biases in talent identification (Mann *et al.*, 2017) While Traditional physiological testing continues in other sports programs despite poor predictability and limited specificity and trainability differs among individuals. Therefore, "once only" testing during adolescence may be misguided. (Pearson *et al.*, 2006) Sport results depend on various factors which arise from an athlete or his or her environment. Genetic potential of athletes and their development, an adequate and systematic training process, high level of motivation, pedagogic, and professional work are the key factors to success in sport. Selectivity is one of

the main characteristics of sport. Initial selection - talent identification is a universal interdisciplinary field of genetics, kinesiology, biomechanics, sport medicine, physiology, and developmental psychology. Initial selection is closely related to gift talent of an individual. Who is gifted, who talented? Giftedness is a wider term, talent narrower. Gifted students are those who show great success in various fields. Talented students are those who show great potential and success in one field. As cited in the study of Milan (2018).

METHOD

This study used descriptive survey as research design methodology. The study aimed at collecting data from students-athletes and coaches in different sports discipline among selected public and private elementary schools in Bataan. Descriptive research is aimed at casting light on current issues or problems through a process of data collection that enable them to describe the situation more completely that was possible without employing this method.

It is evident from the results shown in Table 1 that most of the respondents in this study were of the view that the TID has insufficient equipment for measuring physical, psychological, and social attributes (87%). The next proportion of the respondents indicated that the TID has poor system in selection

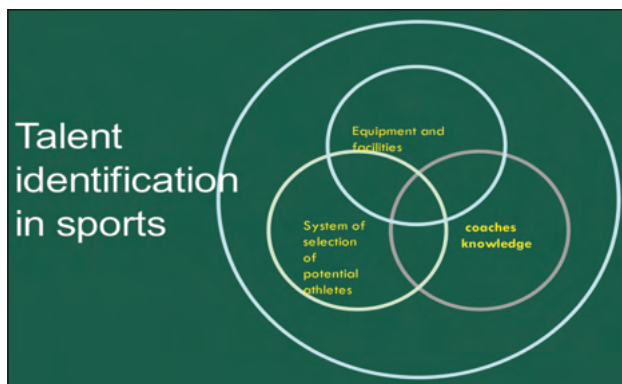
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Table 1: Summary of findings

	Response	Student-athletes		Game tutors		Total	
		Freq.	%	Freq.	%	Freq.	%
My school has equipment for measuring physical, physiological, psychological, and social attributes	Agree	14	12	18	30	92	10
	Disagree	220	88	52	70	132	90
My school has coaches who plan training to incorporate a wide variety of useful skills and attribute, that is, techniques, tactical physical, mental, and decision making skills	Agree	34	12	24	10	58	19
	Disagree	82	88	16	90	168	81
My school has varied strategies in selecting potential athletes	Agree	42	14	21	13	23	11
	Disagree	204	86	19	87	163	89
My school has sports facilities that are of the required standard	Agree	34	19	36	10	29	12
	Disagree	228	81	14	90	147	87
My school has employed adequate number of sport coaches	Agree	251	88	32	80	283	87
	Disagree	25	12	18	20	53	13
My school has coaches with knowledge for measuring physical, physiological, psychological, and social attributes as well as technical abilities of players	Agree	51	18	35	12	60	17
	Disagree	235	82	15	88	222	83

**Figure 1:** Talent identification in sports component model

of potential athletes whereby the athletes is just selected through observation and try out only.

This was followed by findings that the coaches are challenged by their skills in measuring physical, physiological, psychological, and social attributes of the athletes.

RECOMMENDATIONS

1. Talent identification program in sports should develop coach education programs to provide coaches with opportunities to upgrade their theoretical, conceptual, technical, and tactical knowledge of the sports that they coach
2. Talent identification program in sports should develop adequate and quality sport facilities and avail the required equipment for quality practice and effective talent development

3. Talent identification program in sports should include scientific methods of measuring physical, physiological, psychological, and social attributes of athletes in identifying athletes with potential of becoming elite. This will help avoid poor judgment of student-athletes potential
4. Since the study is being conducted in the times of normal situation, further research is recommended how talent identification of potential athletes is done amidst pandemic.

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Research Article

Role of sports management for promotion of professional sports in India

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ABSTRACT

Sports management professionals hold a number of different positions. Promotion and development directors are hired by sports teams and school athletic programs to design and implement promotional campaigns that will increase ticket sales. These directors also negotiate sponsorships in which advertisers and/or sporting goods manufacturers pay a fee to have their ads or products featured at a sporting event. Sports marketing is a subdivision of marketing that focuses both on the promotion of sports events and teams as well as th. Sports marketing is an element of sports promotion which involves a wide variety of sectors of the sports industry, including broadcasting, advertising, social media, digital platforms, ticket sales, and community relations' promotion of other products and services through sporting events and sports teams. In India Sports management mainly Deals with the Indian Premier Cricket League, Pro Kabaddi, Badminton Premier League, and Ultra Marathons.

Keywords: Sports management, Marketing, Promotions profession sports

INTRODUCTION

Sports management is a global industry that affects many different segments of business. The sport industry is amongst the world's largest industries and places importance on business relationships in order to maintain its competitiveness. The changing business environment has meant that businesses involved in sport need to constantly change and innovate in order to compete better. As sport has a global appeal it is particularly important in today's global economy.

The evolution of sports management reveals the necessity of a radical change in organizing that activity. The substantiations for that new approach are related to the unilateral training of those authorized to manage the sports activities, to the confusions produced by misunderstanding the general interest and the specific interest of one compartment or field and, not at least, the conservatism of most leaders of sports activities.

PROFESSIONAL LEAGUES IN INDIA

The Indian Premier League (IPL) is a professional Twenty20 cricket league, contested by eight teams based out of eight different Indian cities. The league was founded by the Board of Control for Cricket in India (BCCI) in 2007. It is usually held between March and May of every year and has an exclusive window in the ICC Future Tours Programme.

The IPL is the most-attended cricket league in the world and in 2014 was ranked sixth by average attendance among all sports leagues. In 2010, the IPL became the first sporting event in the world to be broadcast live on YouTube. The brand value of the IPL in 2019 was ₹475 billion (US\$ 6.7 billion), according to Duff and Phelps According to BCCI, the 2015 IPL season contributed ₹11.5 billion (US\$ 160 million) to the GDP of the Indian economy.¹ IPL 2020 set a Massive Viewership Record With 31.57 Million Average Impressions and with an overall consumption increase of 23% from 2019 season.

There have been thirteen seasons of the IPL tournament. The current IPL title holders are the Mumbai Indians, who won the 2020 season. The venue for the 2020 season was moved

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due to the COVID-19 pandemic and games were played in the United Arab Emirates.

PRO KABADDI

The Pro Kabaddi League is a professional-level Kabaddi league in India. It was launched in 2014 and is broadcast on Star Sports. The league's inception was influenced by the popularity of the Kabaddi tournament at the 2006 Asian Games. The format of the competition was influenced by the Indian Premier League. The Pro Kabaddi League uses a franchise-based model and its first season was held in 2014 with eight teams each of which has paid fees of up to US\$250,000 to join.

PREMIER BADMINTON LEAGUE

The Premier Badminton League (PBL) is one of the top badminton leagues in the world. Its playing field features the top Indian and international badminton talent in the world, including Olympic and World Championship Medal Winners. Besides showcasing the best of international and Indian talent, the tournament has also been successful in widening the base of the game.

Indian badminton has a strong legacy from the past with players like Prakash Padukone and Pullela Gopichand who have put India on the global badminton map. The Premier Badminton League has reached more than 100 million badminton fans in India through TV, On-ground activities, various social media, and other platforms in the past 4 seasons. Over the past few years, Indian players such as Saina Nehwal, P.V Sindhu, Kidambi Srikanth, and many others have performed commendably internationally. There is no doubt that the sport is continuously growing and gaining popularity all over the country. The exceptional fan following received during PBL proves that the Indian audiences want more badminton action.

There is a significant amount of literature on sports and its linkages with tourism, peace. Vanessa Ratten, Sports Management: Current Trends and Future Development, Thunderbird International Business Review pointed out that sports management is a global industry that affects many different segments of the business. The sport industry is among the world's largest industries and places importance on business relationships in order to maintain its competitiveness.

Objectives of the Study

The following are the objectives of the study:

1. To understand the need and importance of sports.
2. To study the growth of sports in India.
3. To highlight the current trends that are occurring in sports.
4. To suggest measures to improve sports activities in India.

Table 1: Top 10 sports by participation (%)

Sports	2009
Cricket	8.8
Chess	4.5
Badminton	3.5
Volleyball	2.0
Cycling	2.0
Football	1.6
Bowling	1.6
Running	1.4
Fitness	1.4
Swimming	1.3

Source: Ministry of Youth affairs and Sports 2009

RESEARCH METHODOLOGY

As the study is descriptive and analytical, the survey method is followed for the study. The data are collected through secondary sources. Secondary Data were collected through journals, research reports, newspapers, and websites. The data were tabulated and analyzed for drawing conclusions. A few suggestions are made at the end.

The popularity of and participation in different sports tend to vary across years but some sports like cricket, badminton, chess, football seem to be popular across all years. The top ten sports by participation are given in Table 1. There have not been any major changes in the status of sports in 2008 with cricket still having the most prominent position. Sports such as boxing and shooting have gained popularity in 2008 after India won medals at the Beijing Olympics in 2008. However, the participation is low. With increasing health consciousness, running and fitness seem to have gained popularity and participation has increased. In a tropical country like India, swimming is a popular sport but it suffers from a lack of infrastructure. Furthermore, swimming in many parts of India is seasonal.

The Table 1 reveals that Cricket is the most popular sports activity in India followed by Chess and Badminton. Other sports are not much popular in the country. The developed countries are popular in other sports.

CONCLUSIONS

The sport industry is one of the fastest-growing sectors worldwide, including India. With the increasing disposable income and broader range of sporting activities combined with the growing awareness for the needs of healthy and balanced lifestyle, consumers are spending more time and money to enjoy sports and leisure activities.

The activities and value of the global sport industry indicate tremendous growth. In response to the era of green economy, modernization will continue. Globally, there is a transition from traditional to modern retailing, and as India develops and globalizes this will be a natural trend in the country. The government can help the traditional sector to have a smooth transaction and upgrade itself.

Since this sector faces financial crunch, government-owned banks and micro-credit institutions can have innovative packages for meeting the specific requirements of this sector. Some banks have already started micro-financing for the small retailers. The government can work with small retailers' associations to streamline the procurement process and encourage them to do bulk purchases through associations. Government can work closely with them in up-gradation of technology, training of workforce, investment in infrastructure.

Suggestions

The following suggestions are made for the improvement of sports in India.

1. The Government spending on sports activity should be increased.
2. Government should work closely with sports industry in up-gradation of technology, training of manpower, investment in infrastructure.
3. The government should work with retailers' associations to streamline the procurement process and encourage them to do bulk purchases through associations.
4. More importance should be given for Olympic games rather than Cricket and other games.

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Research Article

A study of social intelligence of sportsmen and non-sportsmen students

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ABSTRACT

This study was design to assess whether any difference exists between sportsmen and non-sportsmen male and females on social intelligence. A total of 400 (200 sportsmen and 200 non-sportsmen) male and females were selected as subjects of the study. The data on social intelligence were collected using social intelligence scale (SIS) developed by Chanda and Ganesan (2007). Two-way ANOVA and independent *t*-test were used to compare sportsmen and non-sportsmen on the selected psychological variables. The results of the study showed significant difference found between sportsmen and non-sportsmen on social intelligence and no significant difference found male and female on social intelligence.

Keywords: Social intelligence, Sportsmen and gender

INTRODUCTION

In the present era, which is marked with social confrontations due to diminishing social norms, it is difficult to lead a successful life in a society without social intelligence. An individual's social intelligence can be known or measured only from his adjustability. To be well adjusted, an individual has to be intelligent so that he can think rationally, act purposefully, and deal effectively with the environment. A person is socially intelligent and adjustable only when he molds himself according to the needs of the society. While living in a society, man should live with love, cooperation, and kindness. It is because every society has certain customs, traditions, norms, and ideals, the fulfillment of which is the primary responsibility of man so that he can reside well in the society.

Social intelligence is the capacity to know oneself and to know others. Social intelligence develops from experience with people and learning from success and failures in social settings. It is more commonly referred to as "tact," Common sense," or "street smarts." Ross Honeywill believes that social intelligence is an aggregated measure of self- and social

awareness, evolved social beliefs and attitudes, and a capacity and appetite to manage complex social change. Nicholas Humphrey believes that it is social intelligence, rather than quantitative intelligence, that defines who we are as humans.

Within Guilford's (1967) more differentiated system, social intelligence is represented as the 30 (5 operations \times 6 products) abilities lying in the domain of behavioral operations. In contrast to its extensive work on semantic and figural content, Guilford's group addressed issues of behavioral content only very late in their program of research. Nevertheless, of the 30 facets of social intelligence predicted by the structure-of-intellect model, actual tests were devised for six cognitive abilities (O'Sullivan *et al.*, 1965; Hoepfner and O'Sullivan, 1969) and six divergent production abilities (Hendricks *et al.*, 1969).

O'Sullivan *et al.* (1965) defined the category of behavioral cognition as representing the "ability to judge people" (p. 5) with respect to "feelings, motives, thoughts, intentions, attitudes, or other psychological dispositions which might affect an individual's social behavior" (O'Sullivan *et al.*, p. 4). They made it clear that one's ability to judge individual people was not the same as his or her comprehension of people in general, or "stereotypic understanding" and bore no *a priori* relation to one's ability to understand oneself. Apparently, these two aspects of social cognition lie outside the standard structure-of-intellect model.

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DEFINITION OF SOCIAL INTELLIGENCE

“Social intelligence as the ability to understand and manage men and women, boys and girls – to act wisely in human relations” – Thorndike (1920). “Social intelligence is the ability to deal with and adjust to other persons traits considered to be measurable aspect of social intelligence are the following: Sense of humor memory for names and faces, common sense in social relations, recognition of the mental stage of the speaker, and common observation of social behavior” – Moss & Hunt (1927). “Social intelligence as the person’s ability to *get along* with people in general social technique or ease in society, knowledge of social matters, susceptibility to stimuli from other members of a group, as well as insight into the temporary moods or underlying personality traits of strangers.”

“Social intelligence as the individuals’ capacity to develop and manage relationships between individualized autobiographic agents which by means of communication build up which help to integrate and manage the individuals basic (selfish) interests relationship to the interests of social system the net higher level” – Dautenhahn, K. (1999).

SOCIAL INTELLIGENCE IN LIFE TASKS AND SOCIAL PERFORMANCE SKILLS

According to Cantor and Kihstrom (1987), social intelligence is specifically geared to solving the problems of social life and in particular managing the life tasks, current concerns (Klinger, 1977), or personal projects (Little, 1989) which the person selects for him or herself or which other people impose on him or her from outside put another way, one’s social intelligence cannot be evaluated in the abstract, but only with respect to the domains and contexts in which it is exhibited and the life tasks it is designed to serve, and even in this case “adequacy” cannot be judged from the view point of the external observer, but rather from the point of view of the subject whose life tasks are in play.

Abraham Maslowe’s (1986) model of social intelligence comprised five domains: Pro-social attitude, social performance skills, empathetic ability, emotional expressiveness, and confidence.

- Pro-social attitudes – These are indicated by having an interest and concern for others.
- Social performance skills – These are demonstrated in appropriate in direction with others.
- Empathetic ability – It refers to one’s ability to identify with others.
- Emotional expressiveness – It describes one’s “emotionality” toward others.

- Confidence – Confidence in social situations is based on one’s comfort level in social situation.

Physical education and sports participation are an integral part of general education and curricular subject. Its participatory benefits to students in terms of socialization and social intelligence development are well documented. “Social intelligence is the ability to understand and manage men and women, boys and girls, to act wisely in human relations” (Thorndike, 1920). Recently, however, Cantor and Kihstrom (1987) redefined social intelligence as, “the individual’s fund of knowledge about the social world.” Social intelligence refers to the ability to read other people and understand their intentions and motivations. People with this intelligence are usually clued in to the differences between what others say and what they really mean. As a result, socially, intelligent types may sometimes be accused of being mind readers. People who successfully use this type of intelligence can be masterful conversationalists. This can be due to a combination of excellent listening skills and the ability to meaningfully engage others.

Problem: To compare social intelligence of sportsmen and non-sportsmen.

Objectives of the Study

Major objectives of study are as follows:

1. To compare the social intelligence of sportsmen and non-sportsmen.
2. To find out gender differences in social intelligence of sportsmen and non-sportsmen.

Hypotheses

1. “There will be significant differences in social intelligence of sportsmen non-sportsmen.”
2. “Male sportsmen develop better social intelligence than female sportsmen.”

RESEARCH METHOD

Sample

In this study, 400 respondents were selected by successive purposive sampling techniques from above colleges in Aurangabad city. Both 400 respondents studying U.G. (B.A, B.Sc, and B.com) 3rd year class of non-professional faculty, as well as all off students age group in between 20 and 26 years, degree level sportsmen students selected from all colleges, in the basis of participated criteria, that is, district, state, intercollegiate, university and interuniversity, and national level and 200 degree level students who are not participate in any sports activities in college life. Besides, 200 male and 200 female students will be discriminate for comparison of gender differences.

Operational Definition of the Terms used in the Sample

- 1) Sportsmen students
Those students who were participated in district, state, intercollegiate, university and interuniversity, and national level of sports activities.
- 2) Non-Sportsmen Students
Who were studying in U.G degree level students of non-professional faculties, as well as they did not participate in any sports activities.

Psychometric Tool Used for the Data Collection

Keeping in views the problems under study, it was through desirable to employ social intelligence scale (S.I.S) psychological test used for data collection are given below.

Social intelligence scale developed by Dr. N.K. Chadha and Usha Ganesan in English/Hindi version. There are 66 statements distributed in five parts with the different instructions for responses. In Part I – 36 statements and three responses are a, b, and c. In Part II – 3 quotations, each quotation has a, b, and c alternatives. Part III – 7 statements regarding the act, each statement has a forced choice response of either “Yes” or “No.” In part IV – 8 incomplete jokes with a, b, and c alternatives, and finally, part V – 12 picture of eminent persons, subject should be write down accurate name of each picture in below space. The reliability of scale was measured by test-retest and split half techniques it found is 0.86 and 0.89, respectively. Validity coefficient is 0.70.

Data Collection

The principals and lecturers of the various colleges were contacted and explained the purpose of data collection. Data collection schedule was prepared with their consent. Every student was asked to fill in the student’s information sheet on the first page of each test which included the full name, gender, age, class, parents’ occupation, caste, monthly income of parents, and name of the college. The researcher confirmed that the students had filled in all the items of student’s information correctly. The instruction printed in the beginning of each scale was read aloud and explained to the subjects. Doubts if any were clarified. The subjects were asked to raise their hand to indicate if they had any doubts while responding the questions in the scale and address it to researcher. Explanations to the doubts were given by the researcher as and when subjects raised any doubt. Same of the subjects were permitted to carry home the set of all three scales and absolve in their own time. However, they were also warned to do it honestly and not to take others opinions in this regard. Incomplete answers or unsolved questions were not considered for the results. Such items were cancelled from data. Before actual conduct of the scale, good report was established with the subject.

Research Design

The several variables mentioned about the first two were treated as independent variables and the remaining as dependent variables. Thus, a balanced 2x2 factorial design was used.

Balanced 2×2 factorial Research design.

Group	A1	A2
B1	A1B1 (100)	A2B1 (100)
B2	A1B2 (100)	A2B2 (100)

N = 400. IVs: (A) Students stream: A1 – Sportsmen and A2 – Non-Sportsmen (B) Gender: B1 – Male and B2 – Female. DVs: Social Intelligence

STATISTICAL ANALYSIS AND RESULTS

As per the purpose of the study, researcher employed two-way analysis of variance and descriptive statistics method for data analysis.

In the Table 1 univariate analysis of variance, it is shown that the first main effect of students stream, that is, sportsmen and non-sportsmen. The value F (df=1,396) is 11.59, which is significant on 0.01 level. Hence, it indicates that sportsmen and non-sportsmen are show significant the difference for social intelligence and eta-squared value is 0.028 and it shows small effect of sample size and variance is 2.8.

Second main effect is gender of students, that is, male and female, the F (df=1,396) value is 20.36, which is significant on 0.01 level. Hence, male and females show significant difference for social intelligence. Here, eta-squared value is 0.049 and it shows moderate effect of sample size and variance is 4.9.

The interaction effect shows significant difference on social intelligence, “F” value is 0.65 which is no significant and here eta-squared value is 0.002 and no question of effect size.

For search out the difference between two means, researcher analyzed *post hoc* test as “t” test.

In the Table 2, the mean value of sportsmen is 103.30 and SD is 6.87. The mean value of non-sportsmen is 100.80 and SD is 8.04. The obtained t value is 3.38, which is significant at 0.01 level. On the basis of mean value and test norms, higher score on social intelligence shows high level of social intelligence. Here, the mean score of social intelligence is high in sportsmen than non-sportsmen. Hence, it is concluded that the social intelligence is better develop in sportsmen than non-sportsmen. Moreover, first hypothesis, “*There will be significant differences in social intelligence of sportsmen Non-sportsmen,*” is accepted. The mean of male students is 100.40 and its SD is 9.01. The mean of female students is 103.70 and

Table 1: Analysis of variance for social intelligence X sportsmen-non-sportsmen

Source	Type III sum of squares	df	Mean square	F	Sig.	Partial eta squared
Corrected model	1743.820 ^a	3	581.273	10.869	0.01	0.076
Intercept	4165681.000	1	4,165,681.000	779.0	0.01	0.995
Students stream	620.010	1	620.010	11.594	0.01	0.028
Gender	1089.000	1	1089.000	20.364	0.01	0.049
Students stream X gender	34.810	1	34.810	0.651	NS	0.002
Error	21,177.180	396	53.478			
Total	4,188,602.000	400				
Corrected total	22,921.000	399				

^aR squared=0.076 (adjusted R squared=0.069). P-0.05=3.86; 0.01=6.70. Eta squared=0.01=Small effect; 0.06=Moderate effect, 0.14=Large effect (Cohen, 1988)

Table 2: t value of sportsmen and non-sportsmen for social intelligence variable

Group	Variable	n	Mean	SD	t	Significance level
Sportsmen	Social intelligence	200	103.30	6.87	3.38	0.01
Non-sportsmen		200	100.80	8.04		
Male		200	100.40	9.01	4.52	0.01
Female		200	103.70	5.33		

P=0.05=1.98; 0.01=2.617

its SD is 5.33. The obtained t value is 4.52, which is significant at 0.01 level. On the basis of mean value and test norms, higher score on social intelligence shows high level of social intelligence. Here, the mean score of social intelligence is high in female students than male students. Hence, it is concluded that the social intelligence is better develop in female students than male students. Moreover, second hypothesis “*The social intelligence will be better developing in male students than female students*” is rejected.

DISCUSSION OF FINDINGS AND RESULTS

The several dimension of social intelligence which are measured in the present study, the results supported the findings of Dr. Sukhraj Singh (2013) college level non-sportspersons male and female students differed on sociability, mental toughness, and emotional stability; where again, the males were found to be better on these traits than females on other traits such as dominances, extraversion, conventionality, and self-concept, they did not differ significantly. The combined group of students non-sportspersons differed only on sociability, mental toughness, and emotional maturity where again male students were found to be better on these traits. Social intelligent peoples are managing the all types of psychological hardiness in their life also peoples. So that researcher linked results of Atena Mehrparvar *et al.* (2012) revealed that the psychological hardiness of athletes was significantly higher than that of the non-athletes. Sembayan (2012) type of institution and students faculty exhibited significant difference

in respect of their social intelligence of college students as well as athletics students having more social intelligence. Here, Bogy Shankar (2012) found that gender has no role in influencing the social intelligence of players, these results are not supporting in finding of the present study.

Participating in sport can improve the quality of life of individuals and communities, promote social inclusion, improve health, counter anti-social behavior, raise individual self-esteem and confidence, and widen horizons. The social nature of most sporting activities may serve to provide encouragement and support to ensure the level of frequency and adherence required to obtain sport-related health benefits. Hence, social environment in sporting may be developing social intelligence of sportsmen. According to Scully *et al.* (1998), Fox (1999) different types of physical activity may be effective in relation to particular conditions. Furthermore, different psychological conditions respond differently to differing exercise regimes; for example, non-aerobic, aerobic, anaerobic, and short-, medium-, or long-term duration, all have differing impacts.

The presented results confirm the existence of the statistically significant differences between the answers of men and women in assessing the selected social intelligence factors. Statistically significant differences between the female and male teachers were detected in assessing two social intelligence factors as a relation to sports stream. In particular, they were the factors of cognitive processing and emotional release. In both factors, higher scores were achieved by the female students. It means that these forms of behavior were preferred more by the

men, who scored lower, which means that the male students think more about whether they have hurt somebody or what could have possibly happened, and in this sense, they gain more information from their acquaintances than the female students. Men also tend not to react to the situation immediately but they talk about it with their friends or complain to their acquaintances.

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Research Article

The impact of the family climate and area of residence on sportsman's locus of control and adjustment

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ABSTRACT

The basic aim of the present study is to find out the effect of area of residence on locus of control and adjustment of sports adolescents and search whether positive and negative family climate differ adjustment of adolescents significantly or not. There are four main hypotheses were formulated relation to level of family climate and area of residence with sports adolescents adjustment level and locus of control. A total of 200 jr. college-going students were from positive family climate and 200 were from negative family climate. Both groups were classified equally on urban and rural. Indian adaptation of bells adjustment inventory was used for measuring adjustment and Rotter's locus of control scale will be used to measure the internal and external locus of control. Results drawn by with the help of two-way ANOVA and descriptive statistics, it shows significant difference between negative and positive family climate on adjustment and locus of control and sportsmen living in urban area and sportsmen living in rural area having different locus of control tendency but similar kind of adjustment level. Further discussion and conclusion are highlighted in full length of paper.

Keywords: Sports adolescents, Family climate, Area of residence, Adjustment and locus of control

INTRODUCTION

This study may provide quantitative data on effect of family climate and area of residence on locus of control and adjustment. The study may highlight the importance of the family climate and area of residence status as a field of inquiry for profound our understanding of the nature, prediction locus of control, and adjustment. The study may bring an impetus for future experimental studies regarding the effect on prediction of locus of control, adjustment on the bases of family climate, and area of residence on locus of control. Just due to curiosity of view of nurturing environment in home researcher was present purpose of the study, that is, to see locus of control, adjustment was influenced by such important variables family climate.

LOCUS OF CONTROL

The concept was developed originally Julian Rotter in the 1950s (Rotter, 1966). Locus of control refers to an individual's

perception about the underlying main causes of events in his/her life. Or, more simply: Do you believe that your destiny is controlled by yourself or by external forces (such as fate, god, or powerful others)?

Rotter's view was that behavior was largely guided by "reinforcements" (rewards and punishments) and that through contingencies such as rewards and punishments, individuals come to hold beliefs about what causes their actions. These beliefs, in turn, guide what kinds of attitudes and behaviors people adopt. This understanding of locus of control is consistent, for example, with Philip Zimbardo (a famous psychologist): "A locus of control orientation is a belief about whether the outcomes of our actions are contingent on what we do (internal control orientation) or on events outside our personal control (external control orientation)" (Zimbardo, 1985, p. 275). Thus, locus of control is conceptualized as referring to a unidimensional continuum, ranging from external to internal:

In simplistic terms, a more internal locus of control is generally seen as desirable. Having an internal locus of control can also be referred to as "self-agency," "personal control," "self-determination," etc. Psychological research has found that

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people with a more internal locus of control seem to be better off, for example, they tend to be more achievement oriented and to get better paid jobs. However, thought regarding causality is needed here too. Do environmental circumstances (such as privilege and disadvantage) cause LOC beliefs or do the beliefs cause the situation? Although people can be classified comparatively as “internals” or “externals,” chronological development within each individual generally proceeds in the direction of an internal locus control. As infants and children grow older, they feel increasingly competent to control events in their lives. Consequently, they move from being more externally focused to a more internal locus.

ADJUSTMENT

The term adjustment refers to the extent to which an individual's personality functions effectively in the world of people. It refers to the harmonious relationship between the person and the environment. In other words, it is the relationship that comes among the organisms, the environment, and the personality. A well-adjusted personality is well prepared to play the roles which are expected of the status assigned to him within given environment.

Adjustment as a process is of major importance for psychologists, teachers, and parents. To analyze the process, we should study the development of an individual longitudinally from his birth onwards. The child, at the time of his birth, is absolutely dependent on others for the satisfaction of his needs, but gradually with age he learns to control his needs. His adjustment largely depends on his interaction with the external environment in which he lives. When the child is born, the world for him is a big buzzing, blooming confusion. He cannot differentiate among the various objects of his environment but as he matures he comes to learn to articulate the details of his environment through the process of sensation, perception, and conception.

IMPORTANCE OF ADJUSTMENT IN FAMILY RELATIONSHIPS

Our parents provide us food, clothing, and other necessities of life. They also give us many other things that are equally important. It is in our homes, living with others as a family, that we find our greatest joys. Our homes provide us with love and affection. They give us many social, recreational, and educational advantages as possible. They give us a sense of security. It is through family living that we are able to secure the best things in life. Everything goes pretty smoothly in most families most of the time. We also know that family life can be very complicated. Getting along happily with our father and mother, our brother and sisters are not always easy. There are times, no doubt, when we and our parents do not

agree. When these conflicts arise, we may get discouraged. Sometimes, we feel our parents do not understand us that they lack confidence in our judgment. There are many causes of conflict and misunderstanding between parents and teenage children. In the first place as we grow older, we are becoming more independent. We go less to our parents with our problems. This is only natural. Every normal boy and girl wants to grow up and to assert himself or herself as an individual. However, in asserting our independence, we probably do so at times in such a way that our parents do not understand us. They are puzzled by this change in our conduct. As a result, conflicts may develop.

REVIEW OF THE RELATED LITERATURE

Peter and Spiess (2016) investigating the impact of family instability is important as more and more children experience different family changes in many industrialized countries. In this paper, we examine the dynamics of family structure, looking at the potential effect of yearly maternal partnership transitions on adolescents' locus of control. We aim at combining research on family instability with research on non-cognitive skill formation. We use rich and nationwide German data to identify the relationship between family instability and adolescent locus of control. Combining entropy balancing with a novel econometric method to assess potential bias from omitted variables, we find that experiencing maternal partnership transitions are negatively associated with adolescents' belief in self-determination and that internal locus of control is reduced by about a fifth of a standard deviation among those affected, even after conditioning on a large number of covariates. This is particularly true if the transitions take place during “middle childhood.”

Kaura (2015) investigates loneliness and locus of control among adolescents belonging to joint and nuclear families. A total of 120 adolescents (males = 60; females = 60) in age range of 15–17 years residing in nuclear and joint families. Locus of Control Scale Indian Adaptation of Levenson Scale (Vohra, 1992) and Perceived Loneliness Scale (Jha, 1997) were administered to the participants. Analysis of variance revealed that the adolescents belonging to nuclear and joint families significantly differed on loneliness score. Results indicated that there was no difference between powerful others, chance control (external factors) and adolescents in nuclear and joint families, and individual control (internal factors) and adolescents in nuclear and joint families. Hence, it can be concluded that adolescents in nuclear families were lonelier as compared to adolescents in joint families. The study also shows that adolescents residing in joint families possessed higher internal locus of control whereas adolescents from nuclear families had higher external locus of control. Dr. Mahmood (2017) was conducted to investigate the impact

of family on the adjustment of adolescents. Descriptive survey method of research was used for collecting the data using personal information schedule developed by investigator and adjustment inventory developed by Sinha and Singh (1971). The sample comprised randomly selected 120 adolescents (nuclear families: 60 and joint families: 60) studying in Xth class in Darbhanga town (Bihar). Descriptive and inferential statistics were used to compare the means between the groups. Findings of the study revealed that (i) there is a significant difference between adolescents from nuclear and joint families on the measure of emotional adjustment, (ii) there is a significant difference between adolescents from nuclear and joint families on the measure of social adjustment, and (iii) there is a significant difference between adolescents from nuclear and joint families on the measure of educational adjustment. Pattankar (2014) states that there lies no significant difference between joint and nuclear families and powerful factor of locus of control among athletes. Gehlawat (2011) to study the adjustment among high school students (boys and girls) and found no significant difference in the emotional, educational, and social adjustment. Basu (2012) conducted a study on adjustment of secondary school students. The findings of the present study reveal that there exist highly significant differences between the adjustment of secondary school students when compared on the basis of gender, type of family structure, and medium of instruction in school. Chauhan (2013) conducted a study on adjustment of higher secondary school students of Durg district. The t-test results indicate that there is a significant difference in adjustment of higher secondary school's students and female students have good adjustment level when compared to the male students. Sharma and Saini (2013) studied health, social, and emotional problems of college students. The findings of the study revealed that girls are average in the dimensions of health and social adjustment and unsatisfied in emotional areas. Boys are average in the dimensions of social adjustment and unsatisfied in health and emotional areas. There is no significant they differ significantly difference between health, social, and emotional adjustment of girls and boys. There is a significant difference between health and emotional adjustment of urban and rural college students but they do not differ significantly in social adjustment. Devik (2013) found that significant difference exists in the emotional adjustment of the boys and girls and with regard to social adjustment, no significant difference found between boys and girls of higher secondary school students. Makwana and Kaji (2014) conducted a study on adjustment of secondary school students in relation to their gender. The result shows that there is no significant difference in home, school, and emotional adjustment of boys and girls secondary school student. However, there is a significant difference in social adjustment of boys and girls secondary school students at 0.05 level. It means boys are social adjustment better than girls. Mohanraj and Latha (2014) studied perceived family environment in relation to adjustment and academic

achievement. Academic performance was significantly related to independence and conflict domains of family environment. Boys and girls differed in perception of the home and environment. Vishal and Kaji (2014) studied adjustment of boys and girls school level students in Ahmedabad. The result shows that there is a significant difference in total, home, social, and emotional adjustment of boys and girls students at 0.01 and 0.05 levels. There is no significant difference in school adjustment of boys and girls students in Ahmedabad. Pooja (2016) conducted a comparative study of emotional adjustment of secondary school students in relation to their gender, academic achievement, and parent-child relationship. The results of the study showed that female secondary school students are emotionally more adjusted as compared to male secondary school students. Vaghela (2015) conducted a study on adjustment among adolescent girl students of secondary school with respect to their type of family. The findings of the study showed that (i) there were significant differences between adolescent girl students from nuclear and joint families in relation to their social adjustment. (ii) As regarding the emotional adjustment, there were statistically significant differences between adolescent girl students from nuclear and joint families, (iii) there were no significant differences between adolescent girl students from nuclear and joint families in relation to their educational adjustment.

Statement of the Problem

To study the influence of the family climate and area of residence on locus of control and adjustment among adolescents.

Objectives of the Study

The objectives of the study were as follows:

1. To see the effect of positive and negative family climate on locus of control of sportsmen.
2. To see the effect of positive and negative family climate on adjustments.
3. To see the effect of area of residence on locus of control of sportsmen and search whether the rural urban area adolescents differ from each other significantly or not.
4. To see the effect of area of residence on adjustment of sportsmen.

Hypotheses

The following hypotheses are formulated:

1. The sportsmen having positive family climate would exhibit more internal locus of control than sportsmen having negative family climate.
2. The sportsmen having positive family climate would experience more adjustment than sportsmen having negative family climate.
3. The adolescents living in urban area would exhibit more internal locus of control than the sportsmen living in rural area.

- The sportsmen living in urban area would exhibit more adjustment than the sportsmen living in rural area.

Sample

The college-going students of XI from the sample of the Jalna District. The stratified randomize sample taken into consideration for the study consisted of 400 Jr. college-going students of XI std who were participate in various sports, in which 200 students were from positive family climate and 200 were from negative family climate. Both groups were classified equally on urban and rural. The efforts were made to have the sample as representative as possible in terms of area of residence.

Research Design

2 × 2 factorial design was used for this investigation.

Family climate (A)	Area of residence (B)	
A1 (Positive)	B1 (Urban)	B2 (Rural)
	A1B1	A1B2
A2 (Negative)	A2B2	A2B2

Variables

- Family climate and area of residence were treated as independent variables in this study.
- Locus of control and adjustment were taken as dependent variables in this study.

Operational definitions of variables

Family climate

Dr. Beena Shah's family climate scale was used to determined positive and negative family climate.

Adjustment

Level of adjustment was determined with the help of Indian adaptation of bells adjustment inventory developed by Lalita Sharma.

Internal-external locus of control

Internal-external locus of control considered on Rotter's locus of control scale.

Tools used for data collection

Family climate scale

Dr. Beena Shah's family climate scale was used to determined positive and negative family climate. Reliability: There were 10 dimensions of FCS value of reliability coefficients is in average 0.77 for different dimensions of FCS.

Adjustment inventory

Indian adaptation of bells adjustment inventory was used for measuring adjustment in various field. The Indian adaptation of bells adjustment inventory was developed by Lalita Sharma.

The inventory consists of 80 items, which all are designed to measure adjustment in one or the other area. The inventory is useful in measuring adjustment in four areas, namely, emotional, social, family, and health. The author has given reliability coefficient of 0.73, validity is not given.

Locus of control scale

Rotter's locus of control scale will be used to measure the internal and external locus of control. There are 29 statements. The reliability coefficient thus calculated was found to be 0.55. The validity of the scale is 0.76.

Statistical Analysis and Interpretation

The sample available for statistical analysis consisted of 400 sample. For the each subject, initially data of each group were separately scrutinized by employing descriptive statistics. The statistical analysis was mainly consisted of descriptive statistics, that is, mean and S.D. and two-way ANOVA on family climate and area of residence.

"The sportsmen having positive family climate would exhibit more internal locus of control than sportsmen having negative family climate."

Table 1 shows the mean and S.D. scores for positive and negative family climate of adolescents on locus of control. Descriptive statistics show that the mean score (9.36) of adolescents having positive family climate is comparatively smaller than mean score (12.80) of adolescents having negative family climate on locus of control, it indicates that adolescents having positive family climate experience internal locus of control and adolescents having negative family climate experience external locus of control. F value for positive and negative family climate of adolescents on locus of control. Analysis of variance shows that the (F [1, 392] = 76.02, P > 0.01) significant difference between adolescents having positive family climate and sportsmen having negative family climate on locus of control, thus, it can be concluded that adolescents having positive family climate exhibited more internal locus of control than adolescents having negative family climate. Thus, the results support to the hypothesis no. 1.

These results might be due to the fact that family climate, that is, positive and negative experienced by adolescents. Negative family climate could be an autocratic environment in which restrictions are imposed on children by parents to discipline

Table 1: Mean and S.D. values for positive and negative family climate of sportsmen on locus of control

Family climate	n	Mean	SD	F	Significance
Positive	200	9.36	4.24	76.03	0.01
Negative	200	12.80	4.39		

them. Those students experience autocratic atmosphere in which many restrictions are imposed on children by the parents to discipline them they believes that his/her behavior is guided by fate, luck, or other external circumstances; therefore, they cannot concentrate on their study, cannot recognize, manage, and use of emotions and experience lack of self-confidence, but those students experience appropriate control they believe that his/her behavior is guided by his/her personal decisions and efforts, therefore, they got able to recognize, manage, enhance, and use their potentials and emotions to eliminate ensuing obstacles and advance their career horizons to exhibit internal locus of control.

“The sportsmen having positive family climate would experience more adjustment than sportsmen having negative family climate.”

Mean and S.D. scores for positive and negative family climate of adolescents on adjustment present by Table 2. A glance of the results shows that the mean score of positive family climate (21.98) is smaller than mean score of negative family climate (24.85) of adolescents on adjustment. According to this result, it can be interpret that level of adjustment can determine by family climate of adolescents. The F value for positive and negative family climate of adolescents on adjustment. F value (21.85, [1, 392] $P < 0.01$) shows significant difference between adolescents having positive family climate and adolescents having negative family climate on adjustment, therefore, the sportsmen having positive family climate exhibit higher adjustment than sportsmen having negative family climate. Hypothesis no. 2 supported by results.

These results might be due to the fact that positive family climate of adolescents enhance the skill of coping in every situation. Coping is the quality of home environment implies adjustment of independent among adolescents, but lack of coping in family can made adolescents depending. Thus, adjustment accounts more in positive family climate of adolescents. The results are consistent with the study conducted by Mohanraj and Latha (2005) and Ravneet (2005).

“The sportsmen living in urban area would exhibit more internal locus of control than the sportsmen living in rural area.”

Analysis of variance reveals by Table 3. Fourteen for urban and rural area of adolescents on academic achievement. F value (7.68, [1, 392] $P < 0.01$) shows significant difference between sportsmen living in urban area and sportsmen living in rural area on locus of control. Therefore, adolescents living in urban area tend to be exhibit more locus of control than adolescents living in rural area. Hypothesis no. 7 has proven.

These results possibly can be due to the fact that characteristics of culture, education, peers group, and coworkers experience by adolescents living in urban area would different than

Table 2: Mean and S.D. values for positive and negative family climate of sportsmen on adjustment

Family climate	n	Mean	SD	F	Significance
Positive	200	21.98	6.24	21.85	0.01
Negative	200	24.85	6.36		

Table 3: Mean and S.D. values for urban and rural area of sportsmen on locus of control

Area of residence	n	Mean	SD	F	Significance
Urban	200	10.53	4.55	7.68	0.01
Rural	200	11.63	4.69		

Table 4: Mean and S.D. Values for urban and rural area of sportsmen on adjustment

Area of residence	n	Mean	SD	F	Significance
Urban	200	23.17	6.20	0.61	Not significant
Rural	200	23.65	7.71		

adolescents living in rural area. Therefore, these results might be occurred.

“The sportsmen living in urban area would exhibit more adjustment than the sportsmen living in rural area.”

Table 4 reveals F value for urban and rural area of adolescents on adjustment. Analysis of variance ($F = 0.61$, [1, 392] $P > 0.05$) does not indicate significant difference between sportsmen living in urban area and sportsmen living in rural area on adjustment. Thus, sportsmen living in urban area tend to be exhibit similar kind of adjustment with sportsmen living in rural area. Thus, the results do not support to the hypothesis no. 8.

The plausible explanation could be that nurturance. These results might be due to the fact that subjects living in urban area face more competition than subject living in rural area, therefore, they tend to be exhibit more coping in their family life. The present results are supported by the earlier findings by Kundu and Singh (2010) and Stanley *et al.* (2008).

CONCLUSIONS

On the basis of data and discussion of results, the hypotheses were tested and verified. Some hypotheses were partially retained and some were rejected and following conclusions were drawn.

1. Sportsmen having positive family climate exhibit internal locus of control than Sportsmen having negative family climate.
2. The sportsmen having positive family climate exhibit higher adjustment than sportsmen having negative family climate.

3. Sportsmen living in urban area tend to be exhibit more locus of control than sportsmen living in rural area.
4. Sportsmen living in urban area tend to be exhibit similar kind of adjustment with sportsmen living in rural area.

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Review Article

Health and fitness through cardio training for old adults

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INTRODUCTION

Health and fitness are interrelated if an individual wants to live healthily he needs to have some degree of fitness. This varies on the age and composition of the body. Fitness can be said in two ways as muscular fitness and cardiovascular fitness. This again varies sportsmen and non-sportsman. Here, we are very much concern about the older adults who needs to maintain health-related fitness to carry out their routine activities in day-to-day life.

“Fitness is the ability to carry out one’s own routine activity without fatigue”.

PHYSIOTHERAPY BASED CARDIO

Physiotherapy base cardio programming combines low-impact aerobic activity and strength training movements in basic patterns of reaching turning, pushing, and pulling. This scientifically-based exercise program was developed by a group of physiotherapists and sports trainers from Switzerland and Germany. Their goal was to introduce a new functional exercise as an alternative to traditional group exercise programs. The combine exercises with functional movements patterns to improve strength, balance, flexibility, mobility, and cardio fitness and they choreographed the program to music. This program is unique as it incorporates elastic resistance bands and tubing, adding resistance to the basic movements. The elastic resistance also allows for resistance progression as strength and endurance improve.

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WATERS NATURAL RESISTANCE (AQUATIC CIRCUIT TRAINING)

Another exercise mode that is appropriate for older adults and other special population is aquatic training. Aquatic circuit training is a combination of water aerobics and muscle strengthening exercises. Water is nature’s resistance tool and is about twelve times more resistant than air and has a stabilizing affect that is especially helpful in strengthening the trunk and postural muscles to improve balance and it is minimally weight-bearing. When exercising in water people bear only about thirty percent of their actual weight. In deep water exercise programs, they bear no weight. For these reasons, doctors recommend water exercise for adults whose joints cannot tolerate weight-bearing and exercise programs.

AQUA AEROBICS

The fun and exciting way to fit this exhilarating of exercises combines the format of land aerobic with the no-impact advantage of exercising in the water definitely more pleasant and easier on the body. Loads of fun too- you won’t stop smiling.

Benefits Include

- Stress and tension reduction
- Improves cardio-vascular fitness-heart and lungs
- Tones the muscles
- Great for men and women of all ages
- Alleviates arthritis, back and knees problems
- Weight loss- reduces fat
- Helps with pregnancy
- Cross-training, flexibility, increases strength
- Improves motivation and self-esteem
- Work at your own pace and level
- Great for meeting new friends its fun and laughs too.

Exercising the water is 12 times harder than on land yet its easier on the body and certainly more refreshing.

CLASS SCHEDULE

Day	AM	PM
Monday	9.00–9.45	5.45–6.30
Wednesday	9.00–9.45	5.45–6.30
Friday	9.00–9.45	5.45–6.30

EFFECTS OF AQUA AEROBICS ON CARDIOVASCULAR FITNESS IN RELATION TO DEVELOPMENT OF PHYSICAL FITNESS

- Develops a feeling of pride in yourself
- Improves your posture
- Helps you think clearer and faster
- Corrects your body alignment
- Boosts your morale and confidence
- Makes you stronger more coordinated, flexible, peaceful, and energetic. Trims and shapes your waist, hips, thighs, buttocks calves, ankles, upper arms abdomen
- Enhance your ability and performance in other activities
- Improves the capacity of your heart, lungs, and circulatory system
- Eliminates back and neck pain. Increases your stamina
- Improves Diet and Burns fat and calories. Gives you glowing skin
- Contributes to healthier looks prevents falling hair.

Cardiovascular functions such as the potential it has for preventing circulatory diseases, improving work capacity, and providing greater distance fatigue, this component if properly developed can reach a major contribution to individual's health. According to Robert cardiovascular endurance is the ability to continue or persist the strenuous task involving large muscle groups for a long period of time. By combining strength and aerobic exercises one can help older adults live longer and improved their ability to perform the activities of daily living.

POSITIVE EFFECTS OF EXERCISES

Many studies are documents benefits of resistance exercise for cardiovascular and pulmonary health, it increases blood flow to the heart, lower the number of cardiac event, reduces coronary risk factors, lower resisting heart rate and blood pressure, improves functional capacity among victims of heart disease. Resistance exercises are advisable to older adults who are capable of increasing their strength through exercise just as

well as younger adults. Studies have suggested that after 10 to 16 weeks of resistance training, older adults have demonstrated ten to thirty percent of gains in strength. Those strength gains result in improved body composition and lipids, lower resting heart rate and blood pressure, and increased endurance, in other words, better cardiovascular health.

POOR NUTRITION AND SEDENTARY LIFE STYLE

Global Impact

- Poor nutrition and lack of physical activities are responsible for an estimated 300,000 to 600,000 preventable deaths each year
- An estimated one-third of all cancers are attributable to poor nutrition, physical inactivity, and being overweight
- Since nutrition and physical activity are associated with many chronic conditions, it is important to note that more than 90 million Americans live with chronic illnesses, which represent 70% of all deaths, 60% of medical care costs, and one-third of the years of potential life lost before age 65 in the US
- Approximately 50% of America's youth aged 12–21 are not regularly, physically active, moreover, physical activity declines dramatically during adolescence
- Those who are physically inactive have between 1.5 and 2.4 times risk for developing coronary heart disease, comparable to that observed for high blood cholesterol, high blood pressure, or cigarette smoking
- A sedentary lifestyle increases the risk of developing diabetes, hypertension, colon cancer, depression and anxiety, obesity, and muscles and bones
- Regular resistance will allow your body to burn more calories while at rest. Regular resistance exercise been proven to prevent and reverse osteoporosis has.

CHOOSING EXERCISE FOR BETTER HEALTH

If a miracle drug could help you lose weight, build muscles, avoid disease, stave off bone loss, and improve your mental health, would you take it. Before you answer, know that you need to take the drug 3–5 times a week, and each dose takes 30–45 min to administer. Furthermore, the drug causes most people to sweat and breathe heavily, but only during its administration.

WEIGHT CONTROL

Obesity is a risk factor for heart disease and a culprit in other diseases as well. Exercise coupled with a healthy diet is the key to effective weight loss.

MENTAL HEALTH

Physical activity can improve self-esteem and impart a general sense of well-being. It can also augment medications to improve depression and anxiety.

REGULAR AEROBIC EXERCISE

Regular aerobic exercise will increase your energy level. An active person has 40% more energy available than a sedentary person. Regular aerobic exercise is effective in helping you to manage your stress. Will make you hardier (stress-resistant) can enhance your mood “Runners high” is a physiological fact. When you exercise, hormones are released that make you feel better.

Regular aerobic exercise will increase your endurance. A fit 50-year-old will have more endurance than an unfit 20-year-old. Regular aerobic exercise when done often and at low to moderate intensity can help to elevate your HDL cholesterol (the good kind). Regular aerobic exercise is the best way to burn body fat. Regular aerobic exercise will help to control your appetite and promote weight loss by moderating your body’s insulin production. Regular aerobic exercise can give you a greater of control, a sense of self-mastery.

REGULAR RESISTANCE EXERCISE

- Regular resistance exercise will increase your strength
- Regular resistance exercise will help you to tone and shape your body.

DESIGNING EFFECT EXERCISES

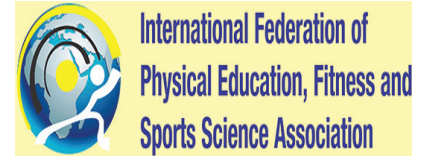
- We must teach exercises that are safe and effective. Designing effective group exercises is a real challenge
- Posture and core conditioning use exercises on the floor, both prone and spine. Never stop talking about neutral posture

- Stay vertical as much as possible. Keep in motion. Move the spine in every direction. Just do not stay in any one position for too long
- Look for simple vertical core exercises. The simplest way to activate the anterior core is to water walk forwards, and/or run forwards
- The simplest way to activate the posterior core is to water walk and/or run backwards. Emphasize back extension, but do not stay there for extended periods of time
- Limit the amount of repeated hip flexion. Stretch the hip flexors and the hamstrings
- Stretch the abductors, adductors, and rotators. Do not use hip flexion for abdominal training
- Heighten awareness by placing hands on hip bones, ribcage, and pelvis. Instead of running in a circle, I use individual challenges like run for 8 counts and then strike a pose
- Strengthen the core buy using blending static, held contractions with moving contractions. Use “bracing” exercise to help strengthen the deep spinal muscles. Maintain strength and mobility in the upper and lower body, because they are connected to the core

When you only have an hour with your class, prioritize the areas that are classic problems-over stretched middle back, tight hip flexors, head too forward, anterior pelvic tilt, tight hamstrings, round shoulders, tight pecks, and breathing. Find more ways to teach posture successfully.

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Research Article

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

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ABSTRACT

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

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

INTRODUCTION

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

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

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

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

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

RESEARCH DESIGN AND METHOD

Objectives of the Study

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

Instruments and Participants

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

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

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RESULTS AND DISCUSSION

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

The selection of exercises has proceeded in two steps as follows.

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

Piloting the questionnaire with 01 expert and 03 coaches who have experience in training tugging athletes in Srinagar city on the use of physical development exercises in tug of war.

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

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

The results in Table 1 show that for all the tests with χ^2 calculated value is less than χ^2 from the table ($=3.84$), $\text{sig}>0.05$, thus there is consistency between the two times of interview. From the results in Table 1, we decided to select 14 exercises above as the number of agreed votes was over 75% in both times.

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

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

The process was carried out in two steps:

Step 1: Synthesizing of tests to assess the physical fitness level of the athletes from different authors. Due to the late introduction of International Tug-of-war sport to Kashmir,

Table 1: Results of the questionnaire

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

there are few studied been found in the field. To select the tests, we have reviewed some previous researches. Furthermore, based on the features of tug of war, facilities for the research; we decided to choose seven tests for evaluating physical fitness.

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

The results in Table 1 show that the tests χ^2 calculated value is $< \chi^2$ from the table ($=3.84$), $\text{sig} > 0.05$, thus there is consistency between the 2 times of interview. From the results in Table 2, we decided to choose those tests with 75% of the experts' agreement. Six tests were selected including Right-handed force (Kg), Left-handed force (KG), Push-ups in 1 minute (times), Step upstairs in 1 min (times), Duck walking 30 m (s), Duck walking 30 m (s).

Step 3: Check the reliability of the tests.

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

The results from Table 3 revealed that the six tests were reliable ($0.91 \leq \text{Sig} < 0.05$), $r \leq 0.99$ and Physical fitness is an important determinant of athletes 'performance. Due to the actual requirements of the competition, players who want to attack defend, and counter-attack must master a variety of techniques, so they must have a solid level of physical fitness. A tug of war athlete must be 'as fast as a short distance runner and as strong as a weightlifter, as enduring as a long-distance runner, as flexible as an acrobat'. It means that tug of war athletes must move quickly, have good physical fitness and flexibility to win. Therefore, the above tests are very suitable for assessing the physical fitness of tug- of-war athletes.

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

Building the experimental plan

We developed the procedure to conduct the experimental training with the selected exercises. The ten athletes of tug of war received 3-month training with three sessions a week and each session lasted 2 h. To assess the effectiveness of these exercises, the tests selected above were used. The results of pre-training and post-training were compared and presented in Table 4 below.

The data in Table 4 show that after the experimental training, the physical fitness levels of all female athletes of the tug of war team increased and the figures were statistically significant different

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

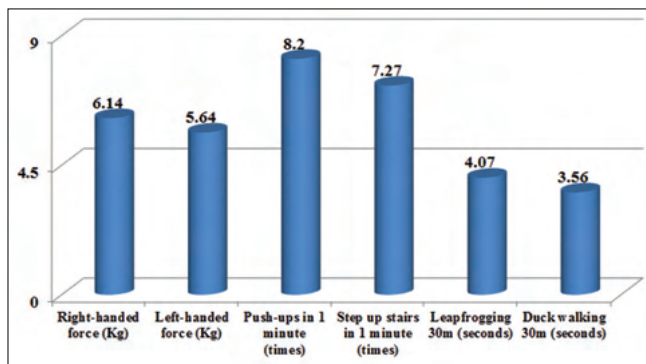
Tests	Interview result				χ^2	Sig
	1 st time (n = 14)		2 nd time (n = 14)			
	Agree	%	Agree	%		
1 Right-handed force (Kg)	11	78.57	11	78.57	0.00	1.00
2 Left-handed force (Kg)	11	78.57	12	85.71	1.74	0.19
3 Push-ups in 1 min (times)	12	85.71	12	85.71	0.00	1.00
4 Step up stairs in 1 min (times)	11	78.57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

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

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

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

No	Tests	Before the experiment		After the experiment		
		$\bar{X} \pm S$	$\bar{X} \pm S$	\bar{W}	t	Sig
1	Right-handed force (Kg)	31.10±6.14	33.60±6.47	6.14	3.77	0.00
2	Left-handed force (Kg)	25.40±4.81	27.60±4.74	5.64	4.12	0.00
3	Push-ups in 1 minute (times)	25.80±3.52	27.90±2.81	8.20	3.71	0.00
4	Step up stairs in 1 minute (times)	118.40±14.96	126.90±11.50	7.27	4.41	0.00
5	Leapfrogging 30m (seconds)	18.86±1.78	17.93±1.63	4.07	5.29	0.00
6	Duck walking 30m (seconds)	26.66±1.93	25.73±1.95	3.56	4.31	0.00
				\bar{W}	5.81	

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

before the experiment and after the experiment ($\text{sig} < 0.05$). The results indicated that the fitness level of these players gained some improvement after the treatment with $\bar{W} = 5.81\%$. Among the selected tests, *push-ups* had the highest improvement level with $\bar{W} = 8.20\%$ meanwhile the test *duck walking* gained the lowest score of development with $\bar{W} = 3.56\%$.

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

In short, the results show that the twelve physical exercises have a positive impact on the physical development of the athlete subjects and they could be employed for training these players in tug of war.

CONCLUSION

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

The results after the treatment revealed that the 14 physical exercises had a positive effect on the physical fitness level of the tug of war athletes of a team in Srinagar city. The mean development

level is found $\bar{W} = 5.81\%$ in which *push-ups* gained the highest level with $\bar{W} = 8.20\%$ meanwhile the test *duck walking* was recorded the lowest score of development with $\bar{W} = 3.56\%$.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest for this study.

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Research Article

Effects of combination therapies on disabled athletes' recovery

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ABSTRACT

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

Keywords: Disabled athlete, Muscle soreness, Para athlete, Range of motion, Recovery, Rehabilitation

INTRODUCTION

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

Frequent results made in the sports science articles for the benefits of those include stretching of tendons, connective tissue^[7] and relief of muscle tension and spasm.^[8,9] They are also commonly assumed to reconstruct muscle recovery from

intense exercise, principally because it speeds up muscle blood flow, range of motion (ROM) which may lead to the acceleration in the decrease in interstitial creatine kinase even in mental relax was reported.^[10]

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

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

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Recently, researchers have shown that phototherapy administered to skeletal muscle immediately before resistance exercise can enhance contractile function, prevent exercise-induced cell damage, and improve post-exercise recovery of strength and function.^[15] The further reaffirms the postulated metabolic stimulation effects of high-intensity laser treatment (HILT).^[16]

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

METHODS

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

Athletes were instructed to abstain from exercise and alcohol 24 h before the testing. At the start of each testing session, participants were assessed body fat skinfold in order to

determine the body fat percentage based on biceps, triceps, subscapular and suprailiac skinfolds. The body composition was calculated following the Durnin and Womersley equation.^[17] Then they were measured the ROM of both right and left shoulder joint (ROM) according to the American Academy of Orthopedic Surgeons criteria.^[18] The visual analog scale (VAS) was applied to determine the muscle soreness, using a 100-mm VAS on which 0 indicated no soreness and 10 represented extreme sore.^[19]

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

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

Statistical Analysis

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

Table 1: The characteristics of participants

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

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

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

RESULTS

The experiment duration was 8 weeks, athletes were estimated before and after applying recovery methods. The results were as follows:

Regarding the active ROM in Table 4, the mean was slightly below AAOScriteria in both Arm flexion and Arm abduction, although the participants had functional mobility and indicating an increase in ROM after experiment. The left external rotation also was narrow comparing to the data AAOS. All athletes were greater than the data AAOS in Arm extension and internal rotation, and slightly higher in right external rotation. Most of the parameters

were increased significantly except for the right and left external rotation. The highest elevated was found in right extension (3.23%) and left internal rotation (3.33%) and others ranging from 1.18% to 2.7%. There was a different characteristics between the two teams, the throwers have more flexible shoulders than powerlifters. The daily training and technique structure can affect to their shoulders. For shoulder ROM, there were significant differences from baseline to 8 weeks, which means that recovery benefit could have a positive impact to the shoulder function, to make it more flexible.

The results of the survey on muscle soreness in Table 5 show that the athletes feel good after the experient. VAS scores dropped in all athletes, muscle soreness was gone.

About 85.71% of athletes reported mild pain and 14.29% moderate muscle pain prior to the experience, and their sensations were quite variable after applying the rehab benefits. Most of them feel good (no pain) and only one person still feels mild pain. In summary, an 8-week rehab program has appreciated benefits for para-athletes to improve their shoulder function and reduce muscle soreness.

DISCUSSION

Our investigated the effects of recovery program include ACT, stretching, massage, sauna, CWI jacuzzi and HILT on para-athletes. We used a self-report VAS to quantify the magnitude of muscle soreness for the upper quadrant body;

this scale has been reported to be the most satisfactory means of assessing pain sensation.^[21] Because the perception of pain is highly subjective and varies widely among individuals, the use of soreness as a quantifier of muscle injury is problematic.^[22]

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

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

Table 3: Schedule of experiment

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

HILT: High-intensity laser treatment, CWI: Coldwater immersion

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

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

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

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

VAS: Visual analog scale

Moreover, the changes in ROM and muscle soreness immediately after training can be seen clearly. The DOM will be developed if there is no intervention. Athletes and coaches need to be received a recovery program or multi rehab choices.

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

CONCLUSION

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

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Research Article

A study on physical fitness components of cricket players university and college level

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ABSTRACT

The purpose of the study was to compare the talent associated physical fitness components of cricket players at extraordinary level of competition. An organization of 40 topics aged 21–28 years participated within the study. The purposive sampling approach turned into used to gain the objectives of the study. They were similarly divided into agencies of 20 every (i.e., $n_1 = 20$; college and $n_2 = 20$; university). The unpaired t-test was used to discover the good sized differences among university and college male cricket gamers. To check the hypotheses, the level of significance becomes set at 0.05. The effects determined massive variations among university and university male cricket gamers on the variables, that is, response time, stability, strength pace, agility, and coordination and university level gamers completed higher than university game enthusiasts on all the variables.

Keywords: Physical fitness variables, Cricket players, University, College level

INTRODUCTION

Cricket is an undertaking wherein fitness is historically no longer idea of as very essential. The importance of health in any exercise cannot be underlined. The healthy you are the better you could play. However, cricket is one such recreation which checks your game competencies, intellectual power, stamina, and bodily persistence as nicely. The distinct test playing nations have rightfully located more emphasis on fitness currently and are reaping the benefits. With the creation of in the future cricket and greater recently 20, the game has long past through major modifications and the bodily wishes made on a cricketer's body have additionally advanced dramatically.

Depending on the model of the game being completed and the position of the participant in the group, the significance of health will range: The health necessities of a fast bowler might be greater and also distinctive than that of an opening batsman, and 1 day cricket may be greater disturbing than a check in shape.

For the reason that cricket is a set recreation, all the gamers are required to be in motion. It takes plenty of stamina for bowlers to throw the ball rapid, correct, and without overstepping. The fielders should be alert and at vigil all the time. They want to dash, chase the leather-based, and make a dive to prevent the ball earlier than it crosses the boundary line. The batsman must require the stamina to run constantly among the wickets and the energy needed to execute huge snap shots. The umpires too require masses of patience and flexibility to perform their obligations. However, the most "fittest" player in a cricket game is actually the wicket-keeper. Chirping and hoping at the back of the stumps, a wicket-keeper has to constantly stand on his feet. A wicket-keeper shows exceptional degree of physicality.

Cricket is one of the most famous sports activities in India. It is far a game played using both male and lady throughout many age agencies and tiers of participation from leisure to professional sports. In India, the sport also is performed in any respect stages from beginner to professional competitions. India has been safely represented at both tiers, from intercollegiate to world championship, in both junior and senior ladies and men classes.

Cricket is a multi-faceted game with a couple of formats based totally around the usual of play, the desired degree of ritual

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and the time to be had. A critical department in terms of expert cricket is between suits restricted by time wherein the groups have innings apiece, and people restricted through number of overs, in which they have got an unmarried innings each. The former, known as first-rate cricket, has duration of 3–5 days (there have been examples of “timeless” matches too); the latter, known as limited over cricket due to the fact each team bowls a limit of normally 50 or 20 over, has a deliberate length of someday most effective. Usually, innings fits have at the least 6 h of gambling time every day. There are commonly formal intervals on each day for lunch and tea with short casual breaks for drinks. There is additionally a short c programming language between innings.

Cricket has emerge as has one of the most popular game in the international and of all the primary game in India; it is the simplest one which has been jealously preserved using all people who participant supported. Physical variables are the maximum critical contributing factors for better performance in all sports activities and video games so are in cricket. The game of cricket calls for substantial quantity of physical fitness and mastery of competencies. A cricket participant needs to own particular velocity, strength, power, agility, flexibility, and staying power in abundance so as to learn and master the techniques of the game. The present day needs in someday competitions, particularly for schooling of fast bowlers, batsman, fielders, and wicket-keepers ok; emphasis is given for the improvement physical traits. Consequently, the cutting-edge fashion in the subject of cricket is to evaluate the related components efficaciously as part of overall frame and size of every cricketer and interpret how a ways every of

those components are beneficial within the performance of a cricketer underneath in shape circumstance.

METHODOLOGY

A complete 40 ($n = 40$) male subjects aged among 21–28 years had been selected for this study. The purposive sampling approach became used to reap the goals of this observe. All the topics, after having been knowledgeable approximately the goal and protocol of the look at, gave their consent and volunteered to take part in this study. They were similarly divided into organizations of 20 each (i.e., $n_1 = 20$; college and $n_2 = 20$; university).

RESULTS AND DISCUSSION

Because the historical times, it is been believed that an appropriate frame is vital to acquire achievement specially sports activities. Judging the overall performance of the human frame through its size, shape, and form has been a subject of extremely good difficulty. Physical and physiological additives are essential factors that have contributed to the achievement of national and global competition in sports activities sports. Team cricket, such as numerous other ball video games, calls for now not best technical and tactical capabilities; however, additionally extraordinary deal of physical fitness.

The evaluation of facts pertaining to dating of bodily health variables with sports activities sports performance among cricketers observed out awesome huge courting in regards to the

Table 1: Details of physical fitness components, tests

S.No	Physical fitness components	Tests	Unit of measurement
1.	Reaction time	Nelson hand reaction time test	In 1/10 th of s
2.	Balance	Stork balance stand test	In 1/10 th of s
3.	Power	Standing broad jump	Meters
4	Speed	30 yard dash	In 1/10 th of s
5	Agility	Illinois agility test	In 1/10 th of s
6	Coordination	Eye hand coordination test	In 1/10 th of s

Table 2: Mean, standard deviation, standard error of the mean, t-value, and p-value of cricket players at different level of competition

Variables	Mean		SD		SEM		t-value	P-value
	University	College	University	College	University	College		
Reaction time	0.21	0.23	0.023	0.009	0.005	0.002	2.13*	0.0394
Balance	27.45	24.10	5.48	4.81	1.23	1.08	2.05*	0.0469
Power	2.28	2.03	0.31	0.43	0.07	0.09	2.02*	0.0499
Speed	6.72	7.03	0.57	0.28	0.12	0.06	2.09*	0.0425
Agility	6.71	9.24	0.66	1.31	0.14	0.29	7.69*	0.0001
Coordination	22.45	28.75	3.90	3.90	0.87	1.19	4.28*	0.0001

sub-variables; stomach energy patience, agility, explosive leg strength, tempo, and cardiovascular staying energy. However, insignificant relationship among sports activities overall performance and motor fitness sub-variable; shoulder strength was observed. The nice significant relationship suggests that motor fitness variables are contributing difficulty in immoderate level cricket normal overall performance. An exquisite cricketer requires excessive level of physical fitness further to different elements for generating excessive standard overall performance.

The final end result of examine might be due to the reality that the cricket performance is complex phenomena and direct bio-made from motor actions. Hence, the advanced diploma of belly strength patience, agility, explosive leg power, velocity, and cardiovascular staying power is vital to perform the cricketing abilities effectively with requisite grace, accuracy, and prolonged period. The insignificant affiliation among motor health issue; shoulder strength endurance and cricket overall performance become observed as the shoulder energy persistence is likewise an indispensable difficulty of cricket performance, mainly among pace bowlers; however, the gift takes a look at modified into performed on batsmen, all-rounders, and spin bowlers which may have hindered the affiliation among those two variables. The findings of the existing are in step with the findings in truth explicated that motor health had super dating with the playing capability of the cricket game enthusiasts.

CONCLUSION

On the concept of the findings, university players are better in standard talent associated physical fitness than their counterpart

collegiate as they scored better determined on expertise associated fitness components viz. reaction time, stability, power, speed, agility, and coordination.

Better physical fitness is related to better sports activities usual performance among cricketers. The physical components are bad factors contribute closer to the higher ordinary performance in cricket. therefore, it's miles advocated that coaches, sports running shoes, and gamers worried in the machine of sports activities sports education have to take utmost care of physical improvement of their sports activities humans because it has already been mounted with the useful resource of numerous researches that the variable in question is an vital element for advanced sports activities overall performance.

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