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THE ROLE OF ADMINISTRATIVE LEADERSHIP IN DEVELOPING THE ORGANIZATIONAL CULTURE OF THE FACULTY MEMBERS OF THE COLLEGE OF PHYSICAL EDUCATION AND SPORTS SCIENCE OF AL-MUSTANSIRIYA UNIVERSITY

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ABSTRACT

The present study aimed to identify the role of administrative leadership in developing the organizational culture of the faculty members of the College of Physical Education and Sports Sciences of Al-Mustansiriya University. The researcher used the descriptive approach with the survey and correlative method as it is the appropriate approach to the nature of the research. The research sample includes (77) which are all the teaching staff of the College of Physical Education and Sports Science/Al-Mustansiriya University. After data collection, it was treated using the statistical program SPSS as it is as suitable for the type of data. The results show that successful leadership when makes the teaching staff a coherent, balanced, sequential, and continuous circle. Besides, the leadership's confidence in teachers will make them feel that they are part of the institution, and this leads to their compliance with orders without opposition. The researcher recommended the need to develop the organizational culture of the faculty by holding courses by specialists and academics in the administration.

Keywords*:* Administrative hierarchy, Leadership, Organizational culture, Sport faculty, Spirit of cooperation,

1. NTRODUCTION

The phenomenon of leadership, in general, and the administration in particular, has attracted the attention of researchers and scholars of various disciplines and across the different stages of the development of human life since the oldest ages. It starts with the first example of simple primitive human society and passes through a series of transformations, changes, and multifaceted alterations, in various economic, social, cultural, and organizational scientific aspects. The conducted studies by scholars in the field of leadership are rich with interpretation, analysis, and divergence of theoretical and methodological approaches in the different disciplines to that they have been exposed. It has been given increasing attention in doing research and studies across the fields of different disciplines, such as sociology, psychology, management, politics, economics and trade, and organizational behavior to show its relation with some variables such the motivation, job performance, decision–making and organizational culture, conflict-containment, and the production efficiency. Since those previous studies showed the importance and role of leadership in their results, they motivate us to try to explore the relationship between leadership and the detailed structure of educational institutions with the variable of organizational culture. Scholars who are interested in the educational process have seen diversity and variance in adopting and using developmental options. So the diversity in the development of organizational culture could reflect changing conditions changing ideologically, socially, and organizationally. The role of good administrative leadership is the basis for the university's success and prosperity in general, and the modern sports leadership administration in particular. It works on developing and succeeding faculties of physical education and sports sciences and spreads the spirit of cooperation, understanding, and trust among faculty members to achieve the goals set. Thus, the secret to the success and progress of college depends on many variables, including the nature of work within colleges, the type of relations and interactions prevailing among faculty members, and the style of administrative leadership.

The administrative leadership plays a major role in the development of the organizational culture of the faculty members, and its success in creating the appropriate atmosphere for individuals. This subsequently would encourage to create of a purposeful work atmosphere and pave the way for stability for both individuals and the organization, as faculty members feel their importance at work and their ability to participate in decision-making and contribute to the formulation of policies and plans and a sense of trust prevails between administration and individuals. Therefore, the importance of the research lies in identifying the role of administrative leadership in developing the organizational culture of the faculty members of the College of Physical Education and Sports Sciences at Al-Mustansiriya University because leadership works to find an appropriate and balanced culture with the goals of the college. We can conclude from this definition that leadership has a major role in the development of organizational culture, which led us to investigate the role of administrative leadership in developing organizational culture. Since leadership is a social, cultural, and political task undertaken by the leader to achieve the desired goals and objectives, the leader needs to educate and refine the organization's culture for new members, as well as create harmony and coordination between juniors and more seniors to exchange experiences to reach positive result.

1.2 Research objectives

1. Know the role of administrative leadership in developing organizational culture.
2. Identify the role of organizational culture in achieving success for administrative organizations.

1.3 The hypotheses of the research

There is a statistically significant relationship between the communication styles of the administrative leadership of the organization and the development of organizational culture.

1.4 Study field

Based on the study objectives, the study field includes

1. The human domain: includes the faculty members of the College of Physical Education and Sports Science of Al-Mustansiriya University.
2. Time domain: 12/22/2020 – 2/4/2021.
3. Place domain: The headquarters of the College of Physical Education and Sports Sciences of Al-Mustansiriya University.

2.MATERIAL AND METHODS

The human resources department is the most important part of institutions. Therefore, it is necessary to receive more attention than other parts in order to reach the stage of development and organizational change by developing and upgrading its efficiency and effectiveness within the college. This can be only achieved by adopting successful leadership that could affect and fix a positive organizational culture in the minds of group members in line with the college objectives because administrative leadership is the first pillar and the basic criterion by which the process of success and efficiency is determined. We conclude from the above definition that the organizational culture in which all institutions seek to do important change and positive development needs to provide harmony and integration in a way that ensures the continuity of the group, its efficiency, and its ability to solve its problems on its own to achieve its common goal. Thus, institutional orientations and future planning are related to leadership style in general and successful leadership can show a specific behaviour that inevitably affects future planning of a flexible organizational culture. Thus, the development of the college is based on the role of leadership administrative leadership hierarchy. In this respect, the present study aims to find out the role of administrative leadership in developing the organizational culture of the faculty members of the College of Physical Education and Sports Sciences at Al-Mustansiriya University.

2.1 Research Methodology

The researcher used the descriptive approach with a survey style because it is one of the most appropriate approaches to the nature of the research problem.

2.2 Research sample

The research sample includes (77) members of the teaching staff of the College of Physical Education and Sports Sciences at Al-Mustansiriya University, consisting of (23) female teachers and (54) male

2.3 Research tools and data collection

The researcher uses various resources to investigate the phenomenon under the study.

A. Arabic sources
B. Literature, previous studies, and experts.
C. Questionnaire form.
D. Observation
E. Survey form Information and data analysis.

2.4 Research Procedures

The researcher submits a questionnaire with the topic “the role of administrative leadership in the development of organizational culture” to the expert and specialists to determine the validity of items and if there are some items that need to be modified, deleted, or

added. And after doing corrections and getting appropriate items, the acceptance rate of them is more than 80% in the experts' and specialists' opinions. The final form version includes (34) items with options (yes, no, sometimes). The researcher applies the statistical analysis (SSP) to the form items by extracting the internal consistency (ratified items of scale) to reach the discriminatory strength of the items. Pearson's Correlation coefficient was used to achieve this purpose, and after consultation with experts. The researcher used the (Ka2) test to identify the valid items or not. The results showed the validity of all items because the value of (Ca2) calculated for these fields was smaller than its tabular value (3.84) at the degree of freedom (1) and the level of significance (0.05). Thus, all the items of the questionnaire were accepted, and this is evidence of the face validity. According to Omar and Abdel-Aal Amni (2006, p.165), "The test is reliable if the test gives similar results or the same results if it is applied more than once in similar circumstances". So, the researcher first applied the test to (10) male and female teachers, then the test was repeated by applying the same test and to the same sample and in the same Conditions after one week. the researcher used to extract the value of the stability of the entire measure, obtained a stability coefficient of the evaluation test using the Pearson simple correlation coefficient, and its value was (0.88). This is a good indication of the stability of the test. As for its two topics, the experts supported the objectivity of the form of the role of administrative leadership in developing organizational culture, and it was characterized by the ease of answering the content and clarity of its items.

2.5 T-Test:

The questionnaire was carried out on the sample, where the forms were distributed to the faculty members of the College of Physical Education and Sports Science of Al-Mustansiriya University, who numbered (77) and answered its items. To process it statistically and show the final results of the study.

2.6 Statistical methods:

SPSS statistical method was used according to the requirements of the research procedures.

3.RESULTS

The researchers use the arithmetic mean and the standard deviation to find out the role of administrative leadership in the development of organizational culture among faculty members of the Faculty of Physical Education and Sports Science at Al-Mustansiriya University in comparison with the hypothetical mean of the scale as shown in Table (1).

TABLE 1
THE MEAN AND DEVIATION OF THE LEVEL OF THE ROLE OF ADMINISTRATIVE LEADERSHIP IN THE DEVELOPMENT OF ORGANIZATIONAL CULTURE WITH THE HYPOTHETICAL MEAN OF ITS SCALE.

Topic	No.	The total score	unit	N	C	+A	hypothetical mean
The role of administrative leadership in the development of organizational culture with the hypothetical mean of its scale	34	102	degree	70	86.59	12.568	68

As shown in Table (1), the measure of the level of the role of administrative leadership in the development of the organization was (86.59) and the standard deviation was (12.568), in

comparison with the hypothetical mean of the scale of (68). This suggests that the sample exceeded the hypothetical mean level.

Table 2 presents frequency, percentage, arithmetic mean, and the relative importance of each of the items and their analysis to know the more accurate responses of the sample on a scale of the level of the role of administrative leadership in the development of organizational culture among the faculty members.

TABLE 2
A DESCRIPTION OF THE FREQUENCIES, PERCENTAGES, ARITHMETIC MEAN, AND THE RELATIVE IMPORTANCE OF EACH ITEM OF THE SCALE

No.	Yes		No.		Sometimes		means	Parentage
	k	%	k	%	k	%		
1	50	40.741	7	25.926	13	33.333	2.074	61.137
2	57	51.852	10	37.037	3	11.111	2.407	80.247
3	54	40.741	12	44.444	4	14.815	2.259	75.309
4	58	55.556	9	33.333	3	11.111	2.444	81.481
5	60	62.963	2	7.407	8	29.630	2.333	77.778
6	61	66.667	0	0	9	33.333	2.333	77.778
7	65	81.481	2	7.407	3	11.111	2.704	92.123
8	53	37.037	5	18.519	12	44.444	1.926	64.198
9	68	92.593	2	7.407	0	0	2.926	96.531
10	54	40.741	14	51.852	2	7.407	2.333	77.778
11	63	74.074	3	11.111	4	14.815	2.593	85.420
12	56	48.148	8	29.630	6	22.222	2.259	75.309
13	55	44.444	10	37.037	5	18.519	2.259	75.309
14	53	37.037	10	37.037	7	25.926	2.111	70.370
15	51	29.630	17	62.963	2	7.407	2.222	74.074
16	52	33.333	2	7.407	16	59.259	1.741	58.025
17	45	7.407	12	44.444	13	48.148	1.593	53.086
18	52	33.333	15	55.556	3	11.111	2.222	74.074
19	49	22.222	17	62.963	4	14.815	2.074	69.136
20	50	25.926	18	66.667	2	7.407	2.185	72.840
21	51	29.630	10	37.037	9	33.333	1.963	65.432
22	53	37.037	5	18.519	12	44.444	1.926	64.198
23	54	40.741	7	25.926	9	33.333	2.074	68.136
24	63	74.074	3	11.111	4	14.815	2.593	86.420
25	68	92.593	2	7.407	0	0	2.926	97.531
26	55	44.444	10	37.037	5	18.519	2.259	75.309
27	58	55.556	9	33.333	3	11.111	2.444	81.481
28	61	66.667	0	0	9	33.333	2.333	77.778
30	52	33.333	15	55.556	3	11.111	2.222	74.074
31	65	81.481	2	7.407	3	11.111	2.704	90.123
32	51	29.630	17	62.963	2	7.407	2.222	74.074
33	54	40.741	7	25.926	9	33.333	2.074	69.136
34	50	25.926	18	66.667	2	7.407	2.185	72.840

Table (2) shows that the items (7,9,25,31) achieved the highest frequency in choosing the option (yes), as its range between (90.123-97.531%) to occupy the first-rate among the responses, while the items (2,4,24,27) achieved the second highest frequency with the option

(yes), to be between (80.247-86.4200%). Next, the rest of items (3, 5, 6, 10, 12, 13, 14, 15, 18, 20,26,28,29,30, 32,34) achieved the third rate of frequency in the respondents 's choice at the option (yes), as it ranges between (77.778 -70.370%). On the other hand, the items (1,8,19,21,22,23,33) achieved a lower value of frequency in use than the average at the option (yes), with (69.136-61.137%) in percentages, to be the fourth of the responses. Furthermore, the items (16.17) achieved the least frequencies when the option (yes) reached, respectively (53.086-58.025%) and got the smallest arithmetic mean and level of significance, respectively (1.593) and (53.086) to be the last choice in the sample responses on the scale items.

4. DISCUSSION

The researcher attributes this result to be the best way in which the administrative leadership can deal and interact with others without favouritism and discrimination in terms of job position or occupation. Besides, the good treatment provides confidence, reassurance, and credibility for the faculty members, and helps the worker to adapt to the new environment and acquire a college culture easily and integrate with others. Also, this is emphasized by the School of Human Relations when it suggests that administrative leadership plays a vital role in affecting the formation of groups and modifying their traditions in line with the organization's objectives. In this respect, the administrative leadership should work on rapprochement and interaction with the faculty. The respondents think that leadership has a major role in creating a strong relationship with the faculty and, via this relationship, the leader can create a strong culture for the worker and his sense of identity. In addition, "we must not look at the individual as a rational person, rather, as a social being that can do social relations with co-workers that arises automatically and have its standards and values, and organizational culture is of great importance in directing and controlling the behaviour of the individual (Morsi, 2006, p. 56)". Thus, the respondents highlight the great role assigned to the administrative leadership, they see that the personality of the leader in the college affects the respect of the faculty for the administrative ladder, which means that the presence of the leader as a member of a group would lead him to have a character with values, beliefs, and activities similar to the values, beliefs, and activities of other individuals and the faculty in the same organization. Abdel Hamid (2015, p. 98) argues that "the successful leader or the successful character makes the faculty a continuous and successful chain, and tries to enhance the relations between them by imposing a strong, balanced, fair, and non-bureaucratic personality, and serious in drawing goals trying to achieve them by creating a cooperative family atmosphere where respect prevails among all members of the organization".

The strength of the personality of a leader in the college affects the commitment of the worker within it. It has an impact on the discipline of the worker, and the strength of the personality is shown in reward, accountability, and control. Besides, the leader's capacity to deal with all difficult situations and circumstances makes the employee find him come up with the line of the goals and values of the organization. The strength of the leadership personality can be demonstrated by its encouragement and adoption of development and recognition to achieve the principle of innovation and development of competencies so that the principle of cooperation becomes more manifested in achieving better results than before. Some scholars see that the leader's confidence in the faculty members makes them work seriously, which means that the leadership's trust in the faculty will make them feel that they are part of the college. This will certainly lead them to obey regulations and follow the instructions and decisions without opposition. Therefore, they will make the necessary effort, and reduce all the interference with orders and decisions; subsequently, increase the level of performance efficiency, and develop individual values and the college's values. This can only be achieved by strengthening the

administrative leadership's confidence in the behaviour of the faculty in the right trends of effective performance and by reducing weaknesses via finding and building a positive, clear, and common vision. That common positive behaviour would reflect on the values of the individual and the group and the values of the entire college. While, the weakness of the leader's personality makes the faculty indifferent to dedicating to the work, as the data analysis has shown. It becomes clear that a strong or successful leader imposes his/her personality on the faculty and guides them to achieve the college goals without problems, works on obstacles, and helps the faculty to transfer their visions to reality. This will not do without the leader imposing his personality since he has assumed the administration of the college's affairs. Kanaan (2006, p. 121) states that "the weak leader can control the situations in the college and will negatively affect all administrative processes, including motivation, job mobility, work turnover, conflict, and organizational culture. This leadership is considered a failure and unsuccessful, and this means weak organizational culture and values". Intelligent leadership places confidence in the faculty without imposing permanent supervision and pressure to increase production because this leaves the worker with boredom and a feeling of fatigue and indifference. It is noted that the leadership is the one that chooses and develops the human resource, and it also addresses the problems facing organizations. It opens up prospects for success, development, growth, and stability, as well as the development of a human standard of faculty for the organization, and this will only be done when the leader approaches the worker and made him a sense of this relation. Thus, the worker would respect his leader, colleagues, and job position according to the administrative hierarchy. The findings clearly show that the leadership style in dealing with the teaching staff without favoritism or discrimination based on position, kinship, or gender will undoubtedly contribute to motivating them to commit and obey the administrative hierarchy and dedicating to the work, which leads to the development of their abilities, organizational culture, and creative skills. The philosophy, type, and practice of administrative leadership are what create an organizational culture of work, rationalization of work, and work in a collective spirit. It can only come from wise leadership that makes it concerned to create a common culture according to administrative processes that focus on the hard work and performance required to achieve the common goals of the college. As observed in the table, the faculty members apply everything instructed to them, and when The leader sets the goals for the worker, he feels that he is part of them, which leads to raising his morale and his awareness about the tasks entrusted to him, and this means that the teaching staff is the real tool to achieve the goals of the administration because they are the ones who employ the rest of the resources available to the organization if the positive circumstances that help the worker to work and produce. Besides the data analysis in the table has shown that if leadership seeks the interests and objectives of both the administration and the faculty members, it should play a conciliatory role in doing dual loyalty for both through achieving integration between them. The successful and wise leader is the one who improves the relationship with the faculty and approaches them to read their needs and motivate them.

It will inevitably make the faculty work with the discipline even with the absence of censorship or a sense of control over them. This creates a value of time, work, and discipline. Thus, the success or failure of organizations is usually attributed to organizational culture. A study was conducted by (the American Magazine Fortune) about the most appreciated institutions for their excellent ranks. It found that the best predictive indicator of the overall excellence of the facility is of ability to attract, appreciate and retain talented individuals. The executives of those companies indicate that organizational culture is among the most important mechanisms or tools

that help to improve the level of their companies. To sum up, we conclude that successful administrative leadership should improve the way of dealing with workers "And this is what the School of Human Relations has emphasized). The organization leaders should understand the dimensions and components of the organizational culture as the environmentalmedium in which the college lives and is affected by the type of behaviour that it interacts with others (Qersh, 2008, p. 21)".

It becomes clear that a strong leadership personality plays a major role in the application of the internal system of the institution. The leader must impose his personality since he has assumed the leadership of the college and applied the system by his rule without any trouble with the faculty. They can achieve it through optimal investment in light of the multicultural and different values of workers that contribute to creating an appropriate culture resulting from the diversity and multiplicity of ideas. This will contribute to solving many problems and dilemmas created by the bureaucracy. The principle of innovation, creativity, and excellence becomes manifest and expands to embody the visions and fruits of cooperation when the leadership creates a fertile environment that allows for the growth and distinctiveness of the organizational culture. This emerges as a result of personal strength, wisdom, and the leadership's ability to invest diverse cultures positively towards the interest of the organization to integrate its goals with the goals of the faculty and the goals of the organization. As shown, it becomes clear that smart or successful leadership provides collaboration and creates teamwork to work in a family atmosphere with mutual understanding and respect. The faculty certainly would perform their work within the framework of the organization's internal system without getting bored. This builds values of organizational culture that affect the behaviour or the overall system of the organization. Al-Lawzi et al (2009, 69) view that "This can be done by language (signs, feelings, and meaning), behaviour, location (natural or physical places), and rational processes (directions, Strategies, objectives, technical tasks, structures, communications, decision-making, cooperation, and interpersonal relations). all these indicators do not take place without linking them within a framework of organizational culture, and to achieve the goals, successful leadership that stimulates innovation, creativity, and the cultivation of competition among them".

Therefore, administrative leadership has a role in the formation of the organizational culture, and this is manifested only by creating a fertile environment that allows for the growth and distinction of a strong organizational culture. A successful leader influences the behaviour of individuals so that they ultimately contribute to raising the level of organizational efficiency and effectiveness. To sum up, there is no doubt that smart leadership leads the practices that contribute to the development of the culture of the faculty.

5. CONCLUSIONS

1. The administrative leadership interaction with a faculty staff supports the worker with confidence, reassurance, and credibility that helps them adapt to the new environment.
2. Successful administrative leadership makes the faculty staff relations a coherent, balanced, sequential, and continuous circle. The leadership's confidence in the staff will make them feel that they are part of the college. Thus, this leads them to follow and obey orders without opposition.
3. Intelligent leadership should provide cooperation, and create an atmosphere with respect and understanding for work that positively affects work performance.
4. The administrative leadership should understand the dimensions and components of organizational culture as the environmental median in which organizations work.

5. The task of the leader is to find ways, pave them, unify the efforts of subordinates, and achieve harmony, rapprochement, and cooperation that will positively affect the creative and cultural abilities of the worker.
6. We conclude that administrative leadership contributes to the development of the organizational culture within the organization through a set of procedures and factors.

6. RECOMMENDATIONS

1. Boosting the concept of "the role of administrative leadership'' by the faculty's administrative body by providing information that helps the faculty staff to scientifically make sound decisions to reach the desired goals.
2. Holding courses by specialists and academics in the administration to develop the organizational culture of the faculty staff.
3. Doing training workshops in the field of administrative leadership and organizational culture via seminars, conferences, and direct meetings.
4. Conducting studies for new variables in the administrative leadership to develop the organizational culture.

Conflicts of interest -There is no conflict of interest

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Appendix 1
Names of Experts

No.	Name	Topic	Work location
1.	Dr. Naseer Qassim Khalif	Administration and Management	College of Physical Education and Sports Science /University of Diyala
2.	Dr. Khalid Aswad	Administration and Management	College of Physical Education and Sports Science for Girls/ Al-Muthanna University
3.	Dr.Salam Hantoush	Administration and Management	College of Physical Education and Sports Sciences/ Al-Mustansiriya University
4.	Dr. Jassim Jabber Muhammad	Administration and Management	College of Physical Education and Sports Sciences/ Al-Qasim University
5.	Dr. Sajid Majid Jaffir	Administration and Management	College of Physical Education and Sports Sciences/ Al-Qadisiyah
6.	Dr. Aseel Naji Fahd	psychology	College of Physical Education and Sports Sciences / University of Al-Muthanna
7.	Dr. Abdullah Hazza Al Shaafi	Psychology/management and administration	College of Physical Education and Sports Sciences/University of Baghdad
8.	Dr. Noor Hatem Haddad	Tests	College of Physical Education and Sports Science for Girls/University of Baghdad

Appendix 2

No.	item	yes	no	sometimes
1.	Good treatment of you and your colleagues in the work environment makes you respect your job position.			
2.	Good treatment of you and your colleagues made you dedicated to working.			
3.	Your leader's respect for you is subject to the administrative ladder.			
4.	your respect for the administrative ladder is affected by the personality of your college leader			
5.	The strong character of a college leader has an effect on your discipline in the college.			
6.	The leader's confidence in you and your colleagues makes you feel work and serious.			
7.	A weak college leader makes you not dedicated to work.			
8.	You and your colleagues react to your college leader's distrust and doubt of you.			
9.	Your nearing your leadership in the college makes you need to respect the administrative ladder.			
10.	A leader who provides you and your colleagues with training opportunities makes you respect the administrative ladder and dedicate to work.			
11.	Intelligent leadership that takes care of diversity among people motivates you to be disciplined and dedicated in work.			
12.	Leadership that encourages innovation in college helps you to be disciplined.			
13.	You support the logo of the college ‘mission for all’.			
14.	You make a leader who does not deviate from social values in the leadership of the organization as a model in your job performance.			
15.	Your nearing to leadership centres affects the relational process you make in the college.			
16.	Successful leadership who provides cooperation in the college makes you completely obey the regulations.			

No.	item	yes	no	sometimes
17.	Administrative leadership that treats all staff well develops your follow working time.			
18.	Administrative leadership that has a good relationship with workers has an impact on your acceptance of the institution's internal system.			
19.	The leader's personality can affect the applying the internal system of the college.			
20.	The administrative leadership style in the college affects your acceptance of the bonus and promotion systems.			
21.	The administrative leadership with a good relationship with you makes you satisfied with the terms of employment in the college.			
22.	In your opinion, a college with effective and successful leadership motivates the worker to create and innovate within the limits of its internal system			
23.	The leader personality in the college governs the relational process in it.			
24.	Does the administrative leadership that encourages the individual to innovate have an impact on his relational process in the college?			
25.	Administrative leadership with confidence in individuals motivates them to deal with each other.			
26.	Successful leadership that has the spirit of cooperation in the college imposes you to completely follow the rules of the internal system.			
27.	Administrative leadership that grants training opportunities encourages you to deal within the college.			
28.	In your opinion, administrative leadership forms an organizational culture for the individual.			
29.	If the administrative leadership is marginalized, doyou respect the internal system of the institution?			
30.	Administrative leadership with good behaviour motivates you to deal with all within the college.			
31.	If the leader maintains organizational values and behavioural controls in the organization, you will follow his behaviour.			
32.	in your opinion, the marginalized administrative leadership has an impact on the relational network process in the college.			
33.	Does your administrative leadership's respect for individual differences have an impact on the process of relations in the college?			
34.	Does the administrative leadership that imposes cooperation within the college encourage the communicative process in the college?			

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EFFECTS OF ORAL GLUTAMINE CONSUMPTION ON STRENGTH AND CIRCUMFERENCE OF UPPER-ARM AND THIGH MUSCLES IN YOUNG ADULT MALE BOXERS

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ABSTRACT

Background and objective: The aim of this study was to investigate the effect of glutamine consumption on muscle strength and circumference of upper-arm and thigh muscles in young adult male boxers. It has been hypothesized that glutamine is utilized for muscle growth and protection against muscle breakdown and muscle tissue loss, and can thus improve muscle growth and performance of athletes. Method: This study was a double-blind, placebo-controlled randomized trial in which 30 physically active non-smoker male boxers were recruited and randomly assigned to two groups of 15 participants; control and glutamine groups. The participants underwent boxing workout protocol 3 times a week for a period of 8 weeks, and pretest and posttest forearm and thigh muscle strength and circumference were recorded. Participants in the glutamine group received glutamine supplement at 0.15 g / kg body mass plus 0.15 g of maltodextrin/kg of body mass and participants in the control group received 0.30 g maltodextrin/ kg body mass 30 minutes before each training session. Posttest measurements were compared between glutamine and control groups. Results: There were significant differences in the average forearm and thigh muscle strengths between the glutamine group and control group after 8 weeks of training ($P<0.005$), but no significant differences were observed when forearm and thigh circumferences were compared between the two groups ($p>0.005$). Conclusion: Our results show that taking glutamine supplements for boxing training can increase thigh and upper-arm muscle strength. Also, glutamine supplements alone may not be sufficient for increasing upper-arm and thigh circumference in male boxers in a short period of time.

Keywords: Boxing, Glutamine, Lower extremity, Upper extremity, muscles, strength, circumference,

.

1. INTRODUCTION

The use of protein supplements has increasingly gained popularity among physically active individuals who believe that supplementation, combined with regular exercises, can help improve their physical performance and gain of lean body mass (Pasiakos, McLellan, & Lieberman, 2015). However, one of the important things that athletes pay attention to in professional sports is the effect of the type of exercise and the type of nutrition on increasing physical abilities, especially muscle strength and volume.Professional trainers often contemplate on whether exercising alone or to what extent can dieting be effective in increasing the strength and volume of upper, middle and lower muscles of the body.The issue that exercise leads to tissue damage through free radical generation was first raised in 1978, however, in addition to refuting this hypothesis, the last decade has seen the growth of knowledge about the impact of nutrition and exercise on increasing muscle strength and volume (Khosravi et al., 2019). Protein supplementation has been shown to effectively increase muscle strength and performance after 8-11 weeks of resistance training (Pasiakos et al., 2015).

Glutamine is an amino acid that is naturally present in plasma, muscle and skeleton. This amino acid makes up 60% of the amino acids in the cells of the human body. In the body, glutamine is utilized for muscle growth and protection of muscle against breakdown and loss of muscle tissue, as well as in immune system function(Poindexter et al., 2003). For this reason, the use of glutamine supplements in various sports and for athletes has gained the attention of many researchers over the past years.

Available literature claims that glutamine supplements may benefit athletes in a number of ways. Glutamine plays a key role in immune function and fight against infection in athletes. The acute depletion of plasma glutamine after strenuous exercises can expose athletes to infection and therefore, glutamine supplementation can be beneficial (Parry-Billings, Blomstrand, McAndrew, & Newsholme, 1990). It is hypothesized that decreased levels of plasma glutamine after strenuous exercise may be due to its increased usefor the process of cellular energy supply or gluconeogenesis, which in turn is associated with decreased glutamine synthesis. Thus, increase in physical activity can indirectly reduce glutamine synthesis. Consumption of glutamine by active cells of the immune system can also contribute to glutamine depletion after strenuous exercises. Also, glutamine has a physiological role in cell proliferation, acid-base balance, intercellular transport of amino acids, and the synthesis of antioxidants (Cruzat, Rogero, Borges, & Tirapegui, 2007; Cruzat, Rogero, & Tirapegui, 2010; Cruzat & Tirapegui, 2009; Powers, DeRuisseau, Quindry, & Hamilton, 2004). Glutamine is considered as a rate-limiting factor in the synthesis of glutathione. Glutathione is one of the most important antioxidants in the body that can protect the body against oxidative stress. The results of some studies show that muscle damage can be prevented by the use of glutamine supplements in dietswhich can help stabilize high levels of glutathione (Amores-Sánchez & Medina, 1999; Matés, Pérez-Gómez, Núñez de Castro, Asenjo, & Márquez, 2002).Glutamine supplementation was associated with less muscle damage in athletes involved in eccentric sports compared with a placebo group which had high levels of muscle damage enzymes (Córdova-Martínez, Caballero-García, Bello, Pérez-Valdecantos, & Roche, 2021).

Some studies have shown that after strenuous eccentric exercises, glutamine supplements can attenuate short-term strength loss(Street, Byrne, & Eston, 2011), which supports the suggestion that glutamine supplementation can help in muscle strength recovery after intense exercises (Castell & Newsholme, 1997).Also, oral glutamine supplementation has been found to attenuate injury and inflammation cause by exhaustive and intense aerobic exercises (Raizel & Tirapegui, 2018).Boxing is a high-intensity sport which involves highly specialized kinetic linking movements with the arms and legs in constant motion. Thus, the ability to maintain greater strength in the arms and legs is of great importance in boxing. A study that analyzed the kinetics in boxing indicated that punching power in boxing is highly dependent on leg strength as the legs generate power from lower parts of the body and transfer it to the fist(Cheraghi, Agha-Alinejad, Arshi, & Shirzad, 2014). Boxing involves high-intensity actions with short periods of recovery. Thus, ability to recover quickly following the high-intensity actions is of paramount importance, and the development of strength contributes to improvement in aerobic abilities.The punching arm momentum is also an important determinant of the punching

power.On the other hand, gain in weight may inhibit rapid movements displayed by boxers. However, gain in lean body mass is beneficial for boxers for speed and coordination(Hembrough et al., 2016).

The possible role of glutamine supplementation alone in improving muscle strength and volume is still debatable and has not been extensively investigated in different sports fields. Majority of the previous studies have focused on the role of glutamine in strength recovery and immune function in athletes. Therefore, the aim of the present study was to investigate the effect of oral glutamine supplements on the strength and circumference of upper-arm and thigh in young adult male boxers.

2. METHODOLOGY

2.1 Participants

The aim of this study was to evaluate the effect of glutamine supplementation on the strength and circumference of upper-arm and thigh muscles in male boxers aged 20 to 29 years in selected boxing clubs in Tehran, Iran. Thirty (30) healthy, non-smoker young adult male boxerswere randomly selected from 7 boxing clubs in Tehran, Iran, to participate in the study. The participants wererandomly assigned into two groups of 15 participants; glutamine group (intervention group) and control group.

2.2 Study protocol

This study was conducted as a double-blind, placebo-controlled randomized trials. The participants were randomized into 2 equal groups (15 participants each). The purpose of the study and need to cooperate with the study protocol was clearly explained to the participants. Each participant was provided written informed consent and those who agreed to participate in the study selected before randomization. The height (cm), body mass (Kg), and age (years) of the participants were recorded using a researcher designed form prior to the beginning of the study protocol. Also, Pretest measurements, including the circumference and strength of the upper-arm and thigh muscles were recorded using the plastic tape measure and dynamometer, respectively, before the supplement protocol was started.

The boxers underwent normal boxing training protocol 3 sessions per week for 8 weeks. Each training session lasted for 90 minutes and included jump roping, leg lifts, shadow boxing, pad work, compound lift, resistance and isometric exercises.The participants in each group underwent the same set of exercises with the same duration and intensity. The intervention group was given oral glutamine supplements whereas the participants in the control group were given a placebo (maltodextrin).The participants were supervised for eight weeks after which the circumference and strength of the thigh and upper-arm muscles were measured again and compared between the groups. The study protocol was approved by the ethics committee of the AllamehGhazvini Higher Education Institute.

2.3 Measurements

The push-pull ver. 2.0.1 dynamometer was used to measure muscle strength as seen in figure 1. The maximum isometric muscle strength for the upper-arm and thigh muscles were measured by trained physiotherapists who know how to use the dynamometer. Strengths of the left and right upper-armswere measured and the average was recorded for each participant. Similarly, the average strength of both left and right thighs was recorded for each participant. Muscle strength measurements were recorded in kilograms (Kg).

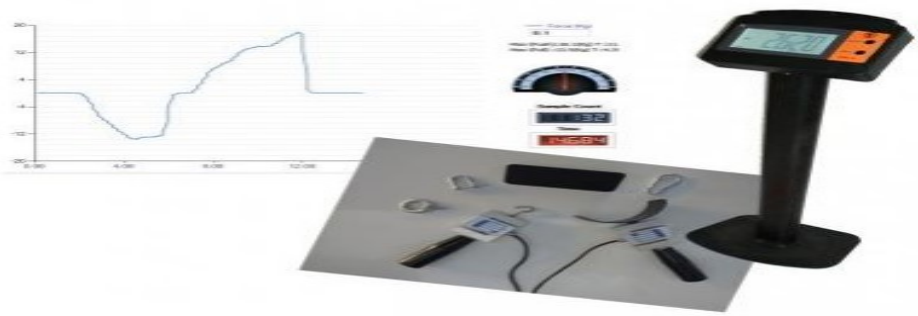

Figure 1. Dynamometer used for measuring muscle strength

The plastic tape measure was used to measure circumference of the upper-arm and thigh of the participants. Measurement of the thigh circumference was performed 15 cm proximal to the superior pole of the patella and the mid upper-arm circumference (MUAC) was measured at the midpoint between the acromion and olecranon processes on the shoulder blade and the ulna of the arm, respectively as shown in figure 2. Measurements of both arms and thighs were taken and the averages were recorded in centimeters.

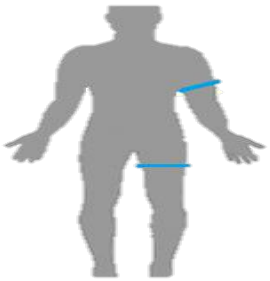

Figure 2. Measurement points of the upper-arm and thigh circumference

2.4 Supplement protocol

Glutamine powder ON was mixed with water and maltodextrin as an oral supplement for the participants in the experimental group; 0.15 g glutamine/ kg body mass plus 0.15 g maltodextrin/kg of body mass 30 minutes before each training session. Participants in the control group received a placebo; 0.30 g maltodextrin/ kg body mass 30 minutes before each training session.

2.5 Statistical analysis

Statistical analysis was performed using SPSS version 25. Scale variables have been reported as mean±SD. The Kolmogorov–Smirnov test was used to test for the normality of data. In this study, all data conformed to the hypothesis of normal distribution. The independent t-test was used to compare the anthropometric measurements between the 2 groups. P-values<were considered statistically significant.

3. RESULTS

The aim of the present study was to investigate the effects of glutamine supplement on strength and circumference of the upper-arm and thigh muscle in young adult male boxers aged 20-29. The results of this study have been presented in tables 1, 2, 3, 4, and 5. As seen in table 1, the average age of the participants was 25.45±2.5 yearsand 26.12±2.1 years**.** The overall mean age of the participants was 25.92±3.2 years. The mean body mass and height of the entire study participants were 74.87±6.9 kg and 174.75±10.1, respectively.

TABLE 1.
DESCRIPTIVE DATA FOR THE ENTIRE STUDY PARTICIPANTS

Variable	Intervention (n=15) Mean ±SD	Control (n=15) Mean ±SD	Total (n=30) Mean ±SD
Age (years)	25.45±2.5	26.12±2.1	25.92±3.2
Height (Cm)	179.11±9.4	178.42±10.3	178.75±10.1
Body mass (Kg)	83.52±8.6	85.43±6.4	84.87±6.9

TABLE 2.
COMPARISON OF POSTTEST THIGH MUSCLE STRENGTH BETWEEN THE INTERVENTION AND CONTROL GROUPS

Independent t test		Df	SD	mean	Group
Sig	t-value	27.66	*4.632*	47.80	Glutamine
0.036	2.201	28	*4.148*	44.27	control

As shown in table 2, after 8 weeks of exercise protocol, the mean muscle strengths of the thigh muscles in the control group and intervention (glutamine) group were 44.270±4.12 and 47.8±4.63 kg, respectively. The increase in thigh muscle strength was significantly higher than in the control group ($p< 0.05$).

TABLE 3.
COMPARISON OF POSTTEST UPPER-ARM MUSCLE STRENGTH BETWEEN THE INTERVENTION AND CONTROL GROUPS

independent t test		Df	SD	Mean	Group
Sig	t-value	*27.994*	*3.502*	*39.47*	Glutamine
0.007	*2.987*	*28*	*3.555*	*35.73*	control

As shown in table 3, after 8 weeks of glutamine and placebo consumption along with boxing exercises, the mean upper-arm strengths in the control and interventional groups were 35.73±3.56 and 39.47±3.50 kg, respectively. There was a significant difference ($p<0.005$) in upper-armstrength between the glutamine group and the control group.

TABLE 4.
COMPARISON OF POSTTEST THIGH CIRCUMFERENCE BETWEEN THE INTERVENTION AND CONTROL GROUPS

Independent t test		Df	SD	mean	Group
Sig	t-value	*23.955*	*3.529*	*65.80*	Glutamine
0.629	*0.556*	*28*	*5.462*	*64.87*	control

The mean thigh circumferences in the control and interventional groups were 64.87±5.46and 65.80±3.53 cm, respectively. Table 4 shows that even though glutamine supplementation increased the circumference of the thigh more than in the control group, the difference was not significant ($p> 0.05$).

TABLE 5.
COMPARISON OF POSTTEST UPPER-ARM CIRCUMFERENCE BETWEEN THE INTERVENTION AND CONTROL GROUPS

Independent t test		Df	SD	mean	Group
Sig	t-value	*27.345*	*2.854*	*43.00*	Glutamine
0.70	*1.882*	28	*3.335*	*40.87*	control

As seen in table 5, the mean upper-arm circumferences in the control and interventional groups were 40.87±3.34 and 43.00±2.85 cm, respectively. Even though circumference of the thigh increased more than in the control group, the difference was not significant ($p> 0.05$).

4. DISCUSSION

The last decade has seen the growth of knowledge about the impact of nutrition and exercise on increasing muscle strength and volume. In the present study, we investigated the effect of glutamine supplements on the strength and circumference of upper-arm and thigh muscles in young adult male

boxers. The results of this study show that glutamine supplementation can significantly increase upper-arm and thigh muscle strength in boxers. Also, our results indicate that glutamine supplements alone cannot increase muscle mass or circumference after 8 weeks of normal boxing exercises.

Exercises can differently affect muscle glutamine production and plasma glutamine availability. The change in plasma glutamine concentration during exercise depends on the duration and intensity of the exercise. Endurance and resistance exercises appear to be associated with acute depletion of available plasma glutamine due to intense and prolonged energy consumption. A significant decrease in plasma glutamine concentration in endurance runners after a marathon has been reported (Castell & Newsholme, 1997). Also, some studies have shown that at least 8 weeks of resistance training with appropriate frequency, intensity and duration is required for the improvement in muscle function even with supplementation (Pasiakos et al., 2015). In the present study, training protocols were performed for 8 weeks with 3 sessions per week. Moreover, some studies have indicated that the timing of the exercise and the type of protein supplement consumed are important factors that promote the synthesis of muscle proteins. Protein supplements taking immediately before, during or within few after exercises can effectively promote muscle protein synthesis(Pasiakos et al., 2015). In the present study, supplements were taken 30 minutes before each training session.

In 2011, effect of glutamine on aerobic and anaerobic capacities as well as body composition of soccer players was investigated. Compared to placebo, glutamine supplementation increased the aerobic and anaerobic capacities as well as gain of lean body mass. Also, glutamine supplementation decreased body fat percentage (Ghanbarzadeh & Sedaghatpour, 2011). As mentioned earlier, improved aerobic capabilities and gain in lean body mass are vital qualities of professional boxers. In the present study, glutamine supplementation resulted in a significant gain in muscle strength of both upper-arms and thighs similar to the study Ghanbarzadeh et al.(Ghanbarzadeh & Sedaghatpour, 2011). In contrast to our results, Candow et al. indicated that glutamine supplementation had no significant effect on muscle size, strength, or muscle protein degradation after 6 weeks of strength training exercises(Candow, Chilibeck, Burke, Davison, & Smith-Palmer, 2001). However, as mentioned earlier, many studies have reported that supplementations may exhibit their effects after at least 8 weeks of exercises (Pasiakos et al., 2015), and thus supplementation along with only 6 weeks of exercise may not yield significant results.A similar study in 2016, which was conducted on 40 handball players over a period of 6 weeks, examined the effect of glutamine supplementation on the strength, aerobic energy systems and plasma glutamine levels. The results of their study show that glutamine supplementation had a significant effect on VO2max ($P < 0.05$) and strength ($P < 0.05$), as well, glutamine had a modification effect on plasma glutamine depletion (Sajedi, Salari, Bas, & Bayram, 2016), which is similar to the findings of our study. The last decade has seen contrasting reports on the benefits of protein supplements on improving athlete performance. The effects of glutamine supplementation on muscle mass and strength remain debatable and unresolved. In 2003, Falk et al. indicated that enhancement of muscle strength and endurance in a group of athletes who were given a supplementation consisting of effervescent creatine, ribose and glutamine was not significantly different when compared with a placebo group (Falk, Heelan, Thyfault, & Koch, 2003) which is contrary to the findings of (Ghanbarzadeh & Sedaghatpour, 2011).

A major problem faced by athletes is strength loss and exercise-induced muscle injury or soreness. For a sport like boxing that requires highly specialized kinetic linking movements, attenuation of strength loss is very important. Street et al. indicted that glutamine supplementation was effective in reducing muscle pain and soreness after eccentric exercise-induced injury (Street et al., 2011). In a study conducted in 2018 by researchers to investigate the effects of glutamine supplementation on neutrophil function in 26 male judokas, 2-week consumption of 3000 mg glutamine per day prevented increased muscle damage and ROS activity produced even in strenuous exercises (Sasaki et al., 2013). There are various opinions about the effect of glutamine supplementation on athletes' performance. However, many researchers believe that glutamine has a significant effect on recovery from overtraining and prevents exercise-induced injuries or oxidative stress(Castell, Poortmans, & Newsholme, 1996; Sasaki et al., 2013; Vasilescu, 2014). Some also believe that taking glutamine supplement along with other supplements may be more effective on athletes' body composition [142,139]. Even though many studies have evaluated the

effects of glutamine on attenuating strength loss, muscle strength and immune function, only few studies have focused on muscle volume (Candow et al., 2001). In the present study, 8 weeks of glutamine supplementation combined with boxing exercises did not significantly improve the circumference of upper-arms and thighs, indicating that glutamine had no significant effect on muscle volume similar to the findings of Candow et al. Since many studies have shown that increase in strength and not mass may be beneficial for boxers, it seems that glutamine may be the ideal supplement for boxing training programs.

5. CONCLUSION

The results of this study showed that taking 8 weeks of glutamine supplementation could increase the strength of thigh and arm muscles in boxers who seek to improve the strength of upper arms and thighs. However, glutamine intake did not have any effect on increasing muscle mass or circumference.This study showed that glutamine supplementation can affect many factors in the body of athletes, including, increasing strength, reducing the severity of pain due to injury, increasing immunity, increasing lean body weight, and reducing percentage of body fat. Our study did not resolve the possible positive effects of glutamine on increasing muscle volume. Future studies are required to confirm these findings. Since many studies have shown that increase in strength and not mass may be beneficial for boxers, it seems that glutamine may be the ideal supplement for boxing training programs.

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CORRELATIONAL STUDY OF LEG STRENGTH AND SELECTED COORDINATIVE ABILITIES AMONG COLLEGE-LEVEL FOOTBALL PLAYERS

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ABSTRACT

The purpose of the study is to find out the relationship between leg strength and selected coordinative abilities among college level football players. On the basis of literature reviews, it was hypothesized that there will be a significant relationship between leg strength and selected coordinative abilities of football players. 30 male football players of age 18 to 25 years were selected as subjects from the football match-practice group of Lakshmibai National Institute of Physical Education, Gwalior. Data was collected for leg strength by using humac 2009 software for dynamometer. Reaction ability data was collected from the Sensamove's Baseline Measurement Software (BMS). Rhythm ability and orientation ability test was conducted in the field and data was collected by the researcher himself by using a stopwatch, pen and paper. To find out the relationship between leg strength and selected coordinative abilities of football players. The statistics used were descriptive and Neymann Pearson Correlation. Findings of the study revealed that there was a significant Correlation between leg strength and selected coordinative abilities among football players.

Keywords: Coordinative Abilities, Leg Strength, Male, Football players

1. INTRODUCTION

Football is a Game in which two 11-member teams try to propel a ball into the opposing team's goal, using any part of the body except the hands and arms. Only the goalkeeper, when positioned within the penalty area in front of the goal, may use hands and arms. The game's first uniform set of rules was put in place in 1863, when England's Football Association was created. In the late 1880s, professional leagues started to emerge, initially in England and subsequently in other nations. Since its founding in 1904, the Fédération Internationale de Football Association (FIFA) has hosted the World Cup every four years. 32 nations compete against one another in the FIFA Men's World Cup™. Since 1908, football has been a part of the Olympic Games. Over 250 million people play this game today across all continents in over 200 nations.

The most played ball game in the world is football (Witvrouw E,2003)in terms of both participants and viewers(Wong P, 2005).The sport may be played practically everywhere, from official football playing fields to gymnasiums, streets, school playgrounds, parks, or beaches, thanks to its basic rules and necessary equipment. A combined television audience of more than 2.6 billion people watched football's premier competition, the quadrennial month-long World Cup finals, in 2010. According to FIFA, there were approximately 250 million football players and over 1.3 billion "interested" in the sport at the turn of the twenty-first century.

Football players have been said to require the physical and physiological traits of aerobic fitness, muscle strength, high level of speed, explosive jumping power, reaction time, and agility. (Arnason A,2004). Generally, football players are divided into four categories regarding playing position. Each position—goalkeepers, defenders, midfielders, and attackers—has distinct qualities. The team's fastest players seem to be the attackers. The midfielders who serve as a bridge between defense and offence look to cover the most ground overall (Rienzi E,2000).Football motions frequently call for lower body strength. The more powerful your lower body is, the better you can run with the ball, block, tackle, and even kick. Strengthening your legs through exercise will improve your speed, explosion and endurance there is excellent evidence to support that strength training reduces lower extremity injury rates in athletes. Beautiful and graceful motions in technical sports result from highly developed technical abilities and coordinated actions. In many sports, especially those that heavily rely on technical and tactical variables, the coordinative talents establish the upper limits to which athletic performance can be increased.Coordinative abilities play an important role in quick changing of the body position during game. In some sports like football, coordinative abilities are very essential for better and effective movement for any execution of movement.Coordination skills, or a combination of several coordination skills, are crucial for carrying out any skill or action in sports. The execution of any movement or skill benefits from the blending of diverse coordinative talents.There are seven identified coordinative abilities namely, (i) Orientation ability, (ii) Differentiation ability, (iii) Coupling ability, (iv) Adaptation ability, (v) Rhythmic ability, (vi) Balance ability, (vii) Reaction ability.For the long-term training process and for the ongoing improvement and adjustment of sport tactics, all coordination skills are crucial. The degree of coordinative abilities has a significant impact on the motor learning capacity.

So, coaches need some researches for proper talent identification and how to improve the physical variables needed for football players in order to increase their performance. There is a lack of standardized evaluation of correlation among these Variables. Variables like lower extremity strength, and coordinative abilities can have a great influence on football playing skills. The researcher in this study attempt to find any correlation among these variables.

2. MATERIALS AND METHOD

For the purpose of the research 30 male football players of Lakshmibai National Institute of Physical Education were selected through random sampling as subjects. The age of the subjects ranged from 18 to 25 years. The subjects were selected by using simple random sampling method. Leg strength, reaction ability, rhythm ability & orientation ability were the variables considered for this study. Rhythmic ability and orientation ability tests were used as instructed by Peter Hirtz(Hirtz, 1985).

In order to find out the relationship between leg strength and reaction time of football players. The statistics used were descriptive statistics and Neymann Pearson Correlation. For testing the hypothesis, the level of significance was set at 0.05. All statistical calculations were done by SPSS Software.

S.No.	Variables	Test Items	Measuring units
1.	Leg strength	Dynamometer	Newton meter (Nm)
2.	Reaction time	Sensbalance	Time in seconds(s)
3.	Rhythm ability	Sprint at given rhythm test	Time in seconds(s)
4.	Orientation ability	Numbered medicine ball run test	Time in seconds(s)

The criterion measures to test the hypothesis of the study were below:

3. ADMINISTRATION OF TEST

Leg Strength

Purpose: To measure the leg strength of football players.

Equipment: In this test, leg strength was measured by using is dynamometer with Humac 2009 software.

Procedure: Football Player sat on the chair and tester made all the necessary adjustments with the equipment and in the software. Subject had put his maximum effort in flexion and extension for generating peak torque.

Scoring: Score was generated for each leg separately in Newton meter.

Reaction Ability

Purpose: To measure the reaction ability of the football players.

Equipment: In this test, reaction ability was measured by using the Sensamove's, sensebalance mini-board and baseline measurement software

Procedure: The capacity to precisely and quickly reach the target is measured by the response time and travel time to the target disc, which appear abruptly.

Scoring: Time recorded in seconds by software was the score of respective player.

Rhythm Ability

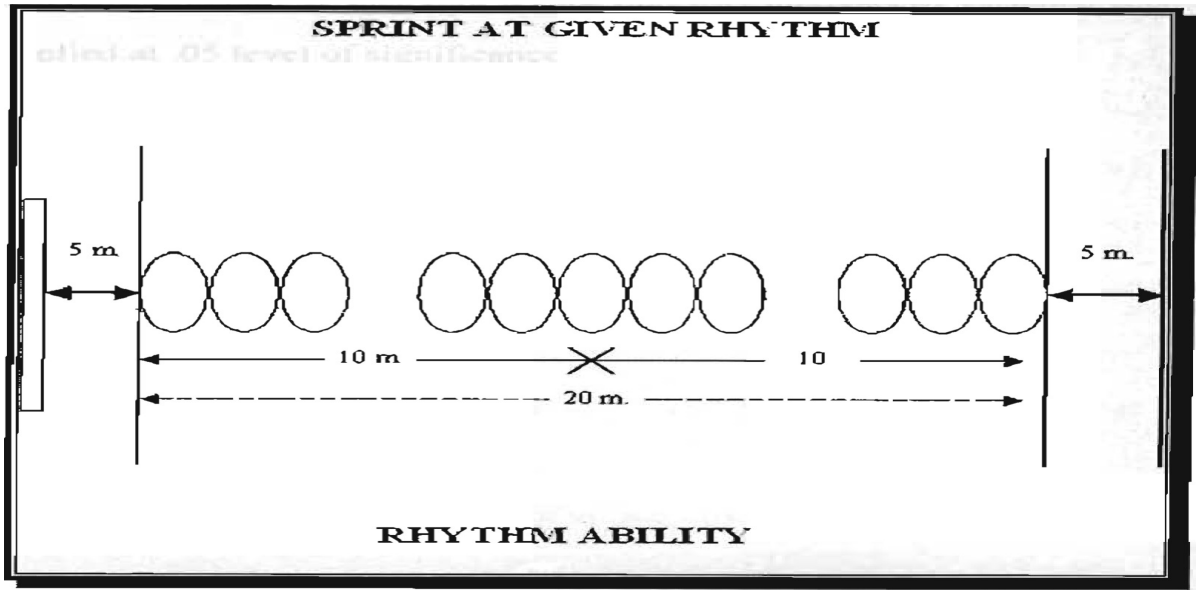
Purpose: To determine the Rhythm Ability of the subjects.

Equipment: Eleven gymnastic hoops, each 1 m in diameter. One Stop Watch. One measuring tape.

Procedure: The subject had to run a distance of 30 m marked between two lines with maximum sprinting speed. The sprinting time of the subject was recorded by stop watch. In the second try, the subject had to run through eleven hoops that were arranged in a specific rhythm and at their maximum speed. Three hoops were kept in a row against one another at a distance of 5 m from the starting line. Similar to this, three hoops were kept five meters apart from the finish line. In the middle of the running distance, five more hoops were kept in a row. The subject has to

navigate those obstacles by stepping through each one. Each subject received one try after the expert explained the test and gave a demonstration.

Scoring: The score was determined by difference between the timing of the first and second scores.



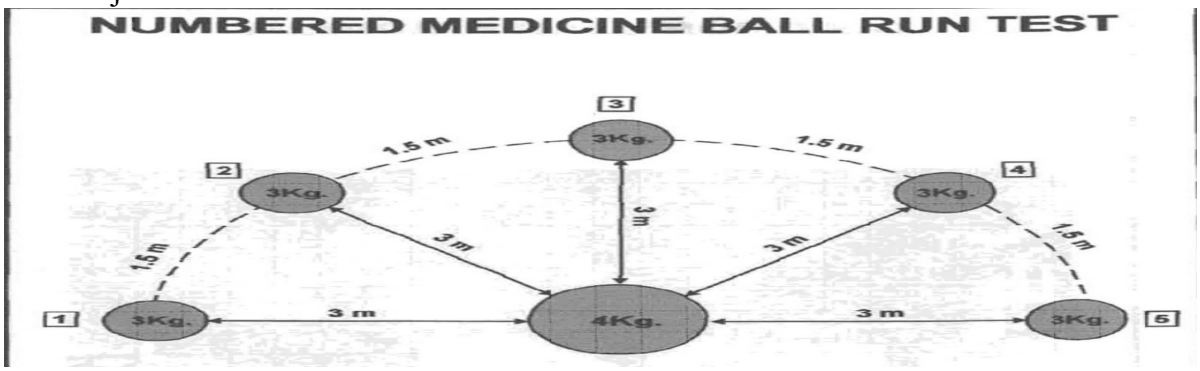
Orientation Ability

Purpose: To assess the subjects' orientation skills.

Equipment: Five medicine balls each weighing 3 Kg.,one medicine ball, 4 kg., Stop Watch, Clapper, pencil, papers, and a clipboard, together with five metallic numbered plates.

Procedure: Five medicine balls weighing 3 kg. were arranged on an even ground in a semi-circle, the sixth medicine ball weighing 4 kg. was kept 3 m, away from these medicine balls. Behind all the medicine balls of 3 kg. metallic number plates of 1 square foot size were kept from 1 to 5. Before the start of the test, the subject was asked to stand behind the sixth medicine ball facing towards the opposite direction. On the signal, the subject turned and ran towards the particular ball number called by the tester and the subject touched the medicine ball and ran back to touch the sixth medicine ball, immediately another number was called, similarly the number was called three times by the tester and the subject performed accordingly. Before the actual test was administered, one practice trial was given to all the subjects.

Scoring: The time taken to complete the course was noted in seconds. Two trials were given to each subject and the best one was recorded as the score.



3. RESULTS

TABLE 1

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
LEG STRENGTH	30	222.50	444.00	285.96	42.23761
ORIENTATION ABILITY	30	6.10	7.86	7.08	.46133
RHYTHMIC ABILITY	30	.72	3.29	1.6953	.52459
REACTION ABILITY	30	.75	3.42	1.7770	.59239

From the table no.1, the observed mean and standard deviation of leg strength is 285.96±42.23, minimum value is 222.50 Nm and maximum value is 444 Nm.

Observed mean and standard deviation of orientation ability is 7.08±0.46, minimum value is 6.10 secs and maximum value is 7.86 secs. Observed mean and standard deviation of rhythmic ability is 1.69±0.52, minimum value is .72 secs and maximum value is 3.29 secs. Observed mean and standard deviation of reaction ability is 1.77±0.59, minimum value is .75 secs and maximum value is 3.42 secs.

TABLE 2
Correlation between leg strength and orientation ability

		LEG STRENGTH	ORIENTATION ABILITY
LEG STRENGTH	Pearson Correlation	1	.132
	Sig. (2-tailed)		.487
	N	30	30
ORIENTATION ABILITY	Pearson Correlation	.132	1
	Sig. (2-tailed)	.487	
	N	30	30

From table no. 2, we observed the correlation between leg strength was insignificant as the p-value is greater than 0.05.

TABLE 3

Correlation between Leg Strength and Rhythmic Ability

		LEG STRENGTH	RHYTHMIC ABILITY
LEG STRENGTH	Pearson Correlation	1	.044
	Sig. (2-tailed)		.816
	N	30	30
RHYTHMIC ABILITY	Pearson Correlation	.044	1
	Sig. (2-tailed)	.816	
	N	30	30

From table no.3, we observed that the correlation between leg strength and rhythmic ability was insignificant as the p-value is greater than 0.05. And Pearson correlation is weak at .044.

TABLE 4

Correlation between Leg Strength and Reaction Ability

		LEG STRENGTH	REACTION ABILITY
LEG STRENGTH	Pearson Correlation	1	.365*
	Sig. (2-tailed)		.047
	N	30	30
REACTION ABILITY	Pearson Correlation	.365*	1
	Sig. (2-tailed)	.047	
	N	30	30

*. Correlation is significant at the 0.05 level (2-tailed).

From table no.4, we observed that the correlation between leg strength and reaction ability was significant as the p-value is greater than 0.05. And Pearson correlation was strong at .365.

TABLE . 5

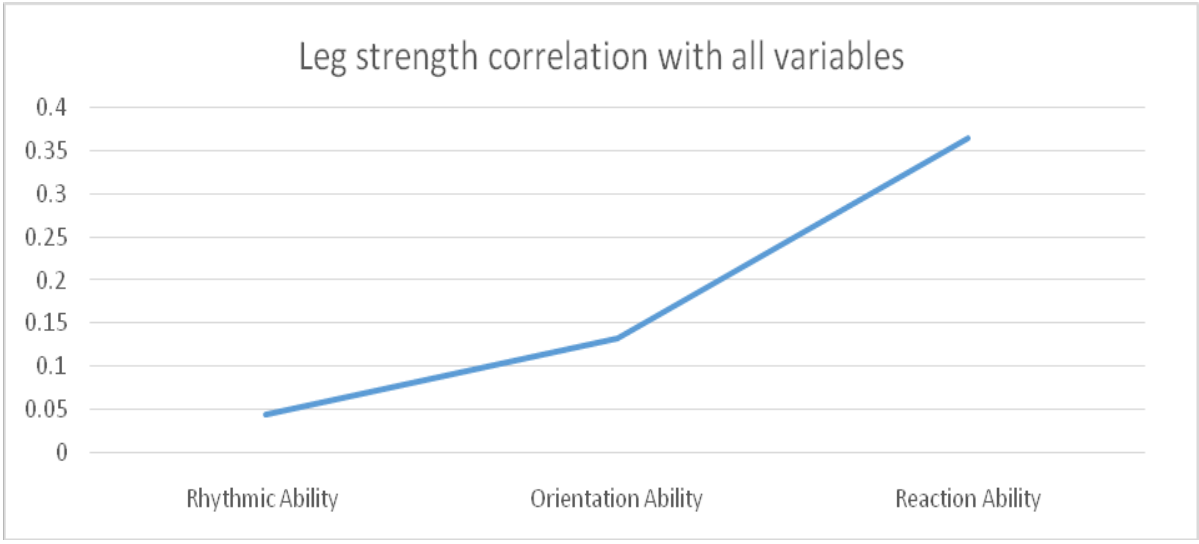


Table no.5, represents the graphical representation of correlational value of leg strength with variables.

4. DISCUSSION

Results of the study revealed that significant correlation was not found between leg strength and two variables (rhythmic ability & orientation ability). Reason for that can be limited number of participants, higher number of participants can so show significant correlation between the variables. Weather & temperature can be a factor in reduced performance during the field tests. Psychological factors like lack of motivation can be a factor for insignificant correlation to on field tests. But significant correlation was found between leg strength and reaction time.

5. CONCLUSION

Based on the analysis and within the limitations of the present study, the following conclusions can be drawn -

1. Significant correlation was found between leg strength and reaction ability.
2. Insignificant correlation was found between leg strength and orientation ability.
3. Insignificant correlation was found between leg strength and rhythmic ability.

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A TRADITIONAL GAME OF INDIAN CULTURE : MALLAKHAMB

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ABSTRACT

Mallakhamb is combination of Yoga, Gymnastics, and Martial Arts. The Exercises of poles of mallakhamb and rope are played against the Gravity during upward and downward movement. Mallakhamb is the name given to a little known style of physical culture practiced in India. Mallakhamb developed in the state of Maharashtra in India and the first reference to it is in the Manasollasa (1135 AD). In 17th century Shri. Balambhatta Dada Deodhar introduced this game to others. There are many types of Mallakhamb as Pole, Rope, Hanging, Niradhar (without support), on cane, on floating platform, Mallakhamb with weapons etc. Mr. Takejamal was the first performer to demonstrate the art of Mallkhamb to Sir. Elphniston (British Resident of Pune). Saptashringi Wani, Nashik & Kothure were the birth place of Mallkhamb. Mallakhamb was originally practiced to develop the strength, agility and flexibility of wrestlers and has now developed into a National Sport of India. In 1962, Gymnastics Federation of India organized the official First National Championships of Mallakhamb at Gwalior (M.P.) as apart of National Gymnastic Championships. In 1968-69, the game of Mallakhamb was introduced in the All India Inter-university Gymnastic Championship. The National Championships of Mallakhamb were organized until 1976 due dissociation of Mallakhamb from GFI, During this Mallkhamb championships, Mallakhamb Federation of India they formed on January 29, 1981. After formation of Mallakhamb Federation (Regd) India,t State Mallakhamb associations were started affiliated with this federation.. Mallakhamb was included in National School Games by School Games Federation of India in 19 years boys and girls age Groups. A total of 35 national championships had been organized by different state of India for different age groups. Maximum number of national Mallakhamb championships were organized in the state of Maharastra followed by Madhya Pradesh., Andhra Pradesh, Uttar Pradesh, U.T (Goa), Rajasthan, Madras, Punjab, Gujrat, Pondichery and Tamilnaidu. It is suggested that the practicing the exercise on Mallakhamb helps to develop flexibility, speed and rhythm, endurance, strength and stamina, speed, reflexes, concentration and coordination of individual, and combat game's player i.e. wrestling, judo, gymnastics, athletics, horse Riding, and court games etc. But with the phenomenal and ever increasing popularity of mallakhamb in the past few years, there is a shocking lack of research in this specific area.

Keywords: Mallakhamb, Indian Game, physical fitness, Yoga, Gymnastics, and Martial

1. INTRODUCTION

Mallakhamb is combination of Yoga, Gymnastics, and Martial Arts. The Exercises of poles of mallakhamb and rope are played against the Gravity during upward and downward movement. Mallakhamb is the name given to a little known style of physical culture practiced in India. Mallakhamb developed in the state of Maharashtra in India and the first reference to it is in the Manasollasa (1135 AD). In 17th century Shri. Balambhatta Dada Deodhar introduced this game to others. There are many types of Mallakhamb as Pole, Rope, Hanging, Niradhar (without support), on cane, on floating platform, Mallakhamb with weapons etc. Mr. Takejamal was the first performer to demonstrate the art of Mallkhamb to Sir. Elphniston (British Resident of Pune). Saptashringi Wani, Nashik & Kothure were the birth place of Mallkhamb. Mallakhamb was originally practiced to develop the strength, agility and flexibility of wrestlers and has now developed into a National Sport of India.

Mallakhamb is known as "The mother sport of ancient India." Mallakhamb is the most scientific ancient art of making the body swift, supple, agile and healthy. Mallkhamb is no exception for this Indian Traditional culture. At present, 5th generation of Mallkhamb the is carrying forward and resulting in even growing popularity not only in India but also throughout the world. The literatures of Mallkhamb were published in Encyclopedia of Indian Culture, souvenir of different competitions, Vyayam magines, some Journals and books earlier in India., the Vyayamdnyankosh, a incomplete book on mallakhamb was written & published in Vadodara city in 20th century. This sport requires the agility, suppleness of body, quickness of reflexes, coordination of different muscles, strength, flexibility for the performers to execute turn, twist, stretch, balance exercises on the pole of Mallakhamb during training and competition.

Mallakhamb needs concentration, speed and flexibility. It is the only game which is played against gravity. It is a good exercise to our body especially for backbone. Our whole body gets a message while performing on Mallakhamb.

Mallakhamb is a pure Indian game. It is a sport that combines various exercises that improve speed, flexibility, strength, concentration, coordination and agility. Along with neuromuscular development, areas of personal character, discipline and self-motivation will be strongly enhanced. Becoming top player isn't for everyone. It improves the concentration, helps enhancing immunity power, increases the competitive spirit, and to fight the stress levels in an organized and better ways.

Mallakhamb is combination of Yoga, Gymnastics, and Martial Arts. The Exercises of poles of mallakhamb and rope are played against the Gravity during upward and downward movement. This Sport provides the maximum exercises in minimum period of time for maximum muscles of mallakhamb players. Sport makes the player agile. Mallakhamb is a anaerobic type of activity. Strength endurance play a vital role in the game of mallakhamb. Mallakhamb strengthened the sport muscles of human body. Mallakhamb imparts proper tone and form to every muscle and perfect control over each part of the body. It stimulates the mind and builds the body.The controlled and rhythmic breathing and smooth balanced movements in mallakhamb help in the development of the mental and physical faculties of our body. Mallakhamb training improve the speed of movement, vital capacity and peak expiratory flow rate, enhance concentration based performance and voluntary control of breathing of players.

2. MALLAKHAMB FOR SPORTS

Training on mallakhamb helps to develop speed, reflexes, concentration and coordination in the players of Wrestling, Judo, Gymnastics, Athletics, Horse Riding and Tennis etc. Most of the wrestlers use the shoulder vault on mallakhamb as a shadow practice in the

game. Training on mallakhamb will strengthen a gymnasts shoulder girdle for Roman Ring and also helps to develop the flexibility, grace, swiftness and rhythm of a successful gymnast. Mallakhamb increases the endurance, strength and stamina of the athlete needed for athletic events. Training on mallakhamb will strengthen the muscle of the shoulder girdle as well as forearm and. increases the flexibility of the wrist joint of Tennis and badminton players. To save a goal in Cricket, Hockey and Football games, side dive catch on the mallakhamb will halp the players of these games. The basic grip on mallakhamb helps a horse rider very much, as the grip is similar in both the cases. The horse mount on the mallakhamb is exactly similar to the literal horse mount. But with the phenomenal and ever increasing popularity of mallakhamb in the past few years, there is a surprising lack of research in this specific area.

Bal, Kaur, and Singh (2012) indicated the significant effect of 6-week rope mallakhamb training on speed of movement, vital capacity and peak expiratory flow rate. The results of this study showed that rope mallakhamb training lasting 6 weeks significantly Our findings are supported by (Tellles. et al. 1993) reported that after only 10 days of practicing asanas significantly improved static motor performance (eye-hand coordination). Thus, such mallakhamb training may be recommended to improve speed of movement, vital capacity and peak expiratory flow rate may contribute to enhance concentration based performance and voluntary control of breathing. Jayasinghe (2004) indicated that the yogic exercise s on mallakhamb improves muscle strength and endurance, flexibility and cardiopulmonary endurance .

Mallakhamb is the name given to a little known style of physical culture practiced in India. Mallakhamb developed in the state of Maharashtra in India and the first reference to it is in the Manasollasa (1135 AD), a detailed instruction manual on the scholar ship and military training of young Chalukyan princes written by the Chalukyan King Somes vara III. Mallakhamb was originally practiced to develop the strength, agility and flexibility of wrestlers and has now developed into a national sport with championships held annually at district, state and national levels throughout India. Mallakhamb involves an unusual mix of wrestling strength training and yoga postures practiced on apparatus including a wooden pole and a cotton rope (Jon burtt, Skadada, and Quebec)

3. MALLAKMAMB FOR HEALTH

Mallakhamb proves to be of immense value of diseases or disorders like insomnia, anemia, chronic pains in the body, abdominal problems, kidney troubles, E.N.T. problems, headache, migraine, chronic bronchitis, chest pain, respiratory or lung troubles, rheumatism and other types of irregularities of hygienic disturbances, Mallakhamb proves to be of immense value (http://www.fitternity.com)

Mallakhamb is a systematic and scientific mode of physical exercise. The controlled and rhythmic breathing and smooth balanced movements help to develop the mental and physical faculties of our body. The arm-holds and the upper handgrips help to develop powerful wrists, strong forearms and muscular biceps and triceps. The clinging grips of the fingers, palms and toes render the nerves and muscles strong and powerful. The acrobatic nature of the feats improves the sense of judgment and the hectic swings, jumps or somersaults promote toughness and fearlessness. By the hanging and swinging actions, neuromuscular co-ordination is enhanced. The light jerks and jumps gradually tone the lungs and improve the efficiency of the respiratory organs. The forward and backward bends during the display help to accomplish the healthy functioning of the kidney, spleen, liver pancreas and urinary systems. The balancing activities like lifting and

resting the body at various angles tone the ligaments of the spine, vertebral column, knees, elbows, ankles, neck and shoulders. (www.mallkhambindia.com)

4. ORIGIN, HISTORY AND DEVELOPMENT OF MALLAKHAMBIN IN INDIA

The origin of mallakhamb can be traced to the 12th century, where it is mentioned in Manas-Olhas - a classic by Chalukya in 1135 A.D. In 17th century Shri. Balambhatta Dada Deodhar introduced this game to others. There are many types of mallakhamb as Pole, Rope, Hanging, Niradhar (without support), on cane, on floating platform, Mallakhamb with weapons etc. But at competitive level only pole, rope and hanging mallakhamb are being performed by mallakhamb players. The boys are performing on pole, rope and hanging mallakhamb and girls on rope mallakhamb. For seven centuries, the art lay dormant, till it was revived by Balambhatta Dada Deodhar, the sports and fitness instructor to Peshwa Bajirao II, who reigned during the first half of the 19th century Deodhar was wrestler from the Peshwa court in Pune. He developed mallakhamb as a training aid for wrestlers over the years, He was involved in gymnastics.

There are references to Indian wrestling in Vedic texts that date back to 1700 B.C, in the Rig Veda (Avari 2007), and also in the classic Indian epics, the Ramayana and the Mahabharata.Wrestling in India is a synthesis of two distinct forms. The indigenous Indian form, malla- yuddha , is described in the Mahabharata which was written between 500-300BC, and then later references to wrestlers exercising on wooden poles occur in the Manasollasa (1135AD),which is a detailed instruction manual on the scholarship and military training of young Chalukyan princes written by the Western Chalukya king Somesvara III (Ghoshal 1962,Alter 1994). It was from malla-yuddha, or the indigenous wrestling form, that mallakhamb historically traces its origins in the 12th century The next reference to mallakhamb does not appear until the early 18th century. This lack of any historical documentation about mallakhamb for a period of more than six centuries is remarkable

By the early 18th century, the Peshwas , who were Brahmin prime ministers appointed by the Marathi king, had seized control of the Maratha Empire. These coned mallakhamb revival happened during the reign of the last Peshwa ruler, Bajirao Peshwa II, who was later defeated and annexed by the Britishin1819 (Ferguson2004).In the inter weaving of legend and history that is a distinctive part of Indian culture, a legend describes Hanuman appearing before the great warrior

Uday Deshpande, a mallakhamb expert said, "Malla as in wrestler, khamb as in pole, evolved as a game, where the pole became the opponent for the wrestler. Mallakhamb's own name entwines Sanskirt and Hindi to literally means "pole wrestling." The climbing, joyfulness, and irreverence of mallakhamb are said to be informed by the spirit of Hanuman, the Hindu monkey god, and its strange apparatus reflect his anatomy: the pole is his phallus and the rope is his tail. Hanuman is said to have appeared to the famed physical trainer of the Marathi kingdom's royal Prime Minister, Balambhatta Dada Deodhar, in the late 18th century, after he was challenged to a wrestling match by sinister outsiders. The trainer watches Hanuman climb a tree and acquires the monkey-god's skills, learning to mimic Hanuman's strength and agility.

. Mr. Takejamal was the first performer to demonstrate the art of Mallkhamb to the foreigner Sir. Elphniston. He was the british resident of Pune . He was also the trainer of mallkhamb to kings of Vadodara. and Sir Jummadada of Indian Military. Saptashringi Wani, Nashik & Kothure were the birth place of mallkhamb. Sir Balambhatt Dada Deodhar was the founder of mallkhamb from Kothure. Afghan wrestler challenged Bajirao to fight with him, This challenged was accepted by Balambhatta Dada Deodhar. He practiced wrestling tricks on mallakhamb and defeated Afghan wrestler. In the 19th century, Ali and Gulab wrestlers from the

Nizam of Hyderabad came to the Darbar of Shrimant Bajirao Peshwa and threw open challenge to the State wrestlers for a bout. 18 year young Guru Balambhattdada Deodhar accepted their challenge. He started practice practicing yoga and tricks of wrestling. During the deep meditation, he saw a vision of Lord Hanuman demonstrating a few tricks on a wooden pole. He rigorously practiced the tricks from his vision on the wooden pole and defeated his opponents easily.

5. JOUNEY OF MALLAKHAMB IN INDIA

Gymnastic Federation of India proposed to recognize and include the game of mallakhamb in subsequent National Gymnastics Championships. In 1962, Gymnastics Federation of India organized the official Ist National Championships of mallakhamb at Gwalior (M.P.) as apart of National Gymnastic Championships. However, in the year 1968-69, The game of mallakhamb was included and introduced in the All India Inter-university Gymnastic Championship. The National Championships of mallakhamb were organized until 1976. After dissociation of mallakhamb from GFI, recognized National Championships of mallakhamb were not organized from 1977 to 1980. Mr. Rajesh and Rakesh Shrivastava, Dr. Bamshankar Joshi and some other lovers of Mallakhamb at Ujjain (M.P.) instituted an All India Level Association on 21/11/1980, which was later called Mallakhamb Federation of India. First All India Invitational National Mallakhamb Championships were held at Ujjain from 27- 29 January, 1981. During this Mallkhamb championships, they instituted the "Mallakhamb Federation of India on January 29, 1981. Since then, different state associations of mallakhamb affiliated to MFI are organizing the national mallakhamb championships in different age groups of Boys, Girls, Men and women. It was registered Under society registration act on dated 07/06/1984 vide registration no 13752/84/M.P. at Ujjain (M.P.) in the name of Mallakhamb Federation. Since, this same Federation is working continuously in the name of Mallakhamb Federation (Regd) India.

Mallakhamb was included in by SGFI in National School Games wide letter No. SGFT/011/07/Dated22/06/2007 in 2008-09 included in Sport calendar of SGFI. Grant started by Cenral Govt in 2007-2008 and end in. 2008-2009. Again GOI started grant from 2017 to till continue. At present, 29 states are affiliated with MFI.

One hundered Khelo India Mallakhamb centre were approved by GOI in 2018. Since all centers were started in various states of India with the help of state associations of Mallakhamb. List of states, where the 100 Khelo India Centers were allotted by MFI to the states are mentioned below in Table 1

TABLE 1

DISTRIBUTION OF MATERIALS AND EQUIPMENTS TO STATE MALLAKHAMB ASSOCIATION

S,No.	Name of state	Allotted centers	Provided Materials for Mallakhamb Each Centre in 2018	Provided Materials
1	New Delhi	06	Tracksuit=100, Costume (Boys/Girls)=100, Fixe Mallakhamb Jr =01, Fixed Mallakhamb Sr =01 Hanging Mallakhamb =01, Fixed Mallakham Jr.=01, Portable Mallakhamb Sr.=01, Mallakham Rope Sr)=04, Mallakhamb Rope Jr)=04 Mallakhamb Frame=01 Mallakhamb Mat=0 Crash Mat= Not Mentioned Hanuman Murti=01	06
2	Haryana	04	Same as Mentioned in S. No. 1	04
3	Maharastra	08	Same as Mentioned in S. No. 1	08
4	Goa	07	Same as Mentioned in S. No. 1	07
5	Rajasthan	09	Same as Mentioned in S. No. 1	09

S,No.	Name of state	Allotted centers	Provided Materials for Mallakhamb Each Centre in 2018	Provided Materials
6	Madhya Pradesh	08	Same as Mentioned in S. No. 1	08
7	Telangana	07	Same as Mentioned in S. No. 1	07
8	Tamil Nadu	07	Same as Mentioned in S. No. 1	07
9	Uttar Pradesh	05	Same as Mentioned in S. No. 1	04
10	Andhra Pradesh	06	Same as Mentioned in S. No. 1	06
11	Karnataka	06	Same as Mentioned in S. No. 1	06
12	Jharkhand	02	Same as Mentioned in S. No. 1	02
13	Kerala	01	Same as Mentioned in S. No. 1	01
14	J & K	01	Same as Mentioned in S. No. 1	01
15	Uttrakhand	02	Same as Mentioned in S. No. 1	02
16	Assam	02	Same as Mentioned in S. No. 1	02
17	Chhattisgarh	05	Same as Mentioned in S. No. 1	04
18	Gujrat	05	Same as Mentioned in S. No. 1	05
19	Bihar	03	Same as Mentioned in S. No. 1	03
20	Puducherry	03	Same as Mentioned in S. No. 1	03
21	Punjab	02	Same as Mentioned in S. No. 1	02
22	Chandigarh	01	Same as Mentioned in S. No. 1	01
23	Oddisa	01	Same as Mentioned in S. No. 1	01
24	West Bengal	01	Same as Mentioned in S. No. 1	01
	Total	**100**		**100**

Pole Mallakhamb as a competitive event was introduced for Girls U/16 and A/16 years in 33rd Junior and 36th Senior National championships held at Ujjain from 28/9/2021 to 30/09/2021-MFI. Mallakhamb was first time included in Khelo India Youth games U/18 years (Boys & Girls) in 2021 and 36th National Games in 2022. All national championships are mentioned below in Table 2.

TABLE 2
NATIONAL MALLAKHAMB CHAMPIONSHIPS FROM 1981 TO 2021

No.	Year	Month	Place	State	Organized National Championships
1	1981	January	Ujjain	M.P.	1st national Championships
2	1982	Feburary	Ujjain	M.P.	2nd national Championships
3	1984	January	Mumbai	Maharastra	3rd national Championships
4	1985	January	Baroda	Gujrat	4th national Championships
5	1985	December	Jhansi	U. P.	5th national Championships
6	1987	December	Dharwad	Karnatka	6th national Championships
7	1989	January	Dawargiri	Karnatka	7th national Championships
8	1990	December	Pune	Maharastra	8th national Championships
9	1991	December	Jhansi	U. P.	9th national Championships
10	1993	Feburary	Kanyakumari	Tamilnadu	10th national Championships
11	1994	March	Mumbai	Maharastra	11th national Championships
12	1995	January	Ujjain	M.P.	12th national Championships
13	1996	March	Mumbai	Maharastra	13th national Championships
14	1997	March	Mumbai	Maharastra	14th national Championships
15	1999	March	Mumbai	Maharastra	16th national Championships
16	2000	Feburary	Sangli	Maharastra	17th national Championships
17	2001	December	Jhansi	U. P.	18th SubJunior, Junior, Senior
18	2002	23-25 March	Bhusawal	Maharastra	19th SubJunior, Junior, Senior
19	2003	12-14 Jan.	Satara	Maharastra	20th national SubJunior, Junior, Senior
20	2003	21-23 Decembe	Bharatpur	Rajasthan	21st national SubJunior, Junior, Senior
21	2005	11-13 Feb.	Dadar- Mumbat	Maharastra	22nd National SubJunior, Junior, Senior

No.	Year	Month	Place	State	Organized National Championships
22	2006	16-18 Jan.	Amritsar	Punjab	23rd National SubJunior, Junior, Senior
23	2007	02-04 Feb.	Chennai	Madras	24sth National SubJunior, Junior, Senior
24	2007	26-28 Nov.	Ponda, Goa	U.T.	25th Mini, SubJunior, Junior, Senior
25	2008	27-28 Dec.	Bhimavaram	A.P.	22nd Mini and SubJunior Boys and 21th mir ,subjunior Gtrls
26	2009	18-20 Jan	Sangli	Maharastra	26th Senior & 25th Junior boys and 22nd Senior & junior Girls
27	2009	26-27 Dec.	Khachroud(Ujjain)	M.P.	Junior23rd Girls and 26th Boys
28	2009	5-6 Nov.	Gwalior	M.P.	Senior 27th Boys and 23rd girls
29	2009	26-27 Dec,	Khachroud-Ujjain	M.P.	26th boys junior, 23rd girls
30	2010	26-28 Feb.	Hyderabad	A.P.	23rd Mini and Subjunior Boys and 22nd Girls
31	2010	26-28 Dec.	Miraj -Sangli	Maharastra	24th Mini and SubJunior Boys and 23rd mir subjunior Gils
32	2011	28-30 jan.	Haveri	Karnatka	27th Jr. Boys, 24th Jr Girls, 28th Sr. Boys, 24th S Girls
33	2012	24-26 Nov.	Mardol, (Goa)	U.T.	Senior & Junior Boys and Girls
34	2013	16-17 March	Uppalam	Pondicherry	26th mini and Subjunior Boys, 25th Mini Subjunic Girls
35	2014	28-30 March	Ujjain	M.P.	Senior & Junior Boys and Girls
36	2015	31Jan-2Feb.	Khachroud(Ujjain)	M.P.	(Senior: Men and Women), Junior (Boys and Girls
37	2015	21-23March	Bhopal	M.P.	. (Sub-Junior, Mini Boys and Girls)
38	**2016**	**6/12/2016 to 8/12/2016**	Bhopal	M.P.	33rd senior men; 30th jr boys and 29th senior junior girls; 29th sub junior boys and girls; 28th mini boys and girls
39	**2017**	**28/1/2017 to 31/1/2017**	Satara	Maharastra	33rd sr men; 30th jr boys and 29th sr. jr. girls ; 29th sub junior boys and girl
40	**2017**	**24/11/2017 to 26/11/2017**	Satara	Maharastra	34th seniormen; 31st junior boys and 30th senior abd junior girls
41	**2017**	**23/12/2017 to 25/12/2017**	Vellupuram	Chennai	30th sub-junior boys and girls; 29th mini boys and girls
42	**2017**	**17/2/2017 to 20/2/2017**	Ujjain	M.P.	33rd senior men; 30th jr boys & 29th sr Jr girls; 29th subjunior boys and girls; 28th mini boys and girls
43	**2018**	**23/2/2018 to 25/2/2018**	Villupuram	Chennai	30th subjunior boys and girls; 29th mini boys and girls
44	**2018**	**30/11/2018 to 2/12/2018**	New Delhi	U.T	31st Sub-junior boys and girls ; 30th Mini boys and girls
45	**2019**	**11/01/2019 to 14/01/2019**	PondGoa	U.T	31st Junior (Boys U/18), 31st Junior Girls (U/16), 35th Senior (Boys A/ 18) Senior Girls A/16)
46	**2020**	**05/03/2020 to 07/03/2020**	Bilaspur	Chhattisgarh	32nd Sub-junior I (U/12 & U/14) and II(U/12 & U/14) boys and girls
47	**2020**	**20/03/2020 to 22/3/2020**	Bimavaram	A.P.	33rd Junior (Boys U/18), 32nd Junior Girls (U/16), 32nd Senior Girls A/16) and 36th Senior (Boys A/ 18) **Postponed due Covid- 19**
48	**2021**	**25/09/2021 to 27/09/2021**	Ujjain	M.P.	33rd Sub-junior I & II (Boys &Girls)
49	**2021**	**28/09/2021 to 30/09/2021**	Ujjain	M.P.	33rd Junior (Boys U/18), 32nd Junior Girls (U/16), 32nd Senior Girls A/16) and 36th Senior (Boys A/ 18)
50	**2021**	**04/06/2021 to 13/06/2021**	Panchkula	Haryana	**Khelo India Youth Games-2021 -U/18 years age group Boys and Girls First Time Participation (07 June-13 June-2021-Mallakhamb)**
51	**2022**	**18/09/2022 to 13/10/2022**	Ahemdabad	Gujrat	36th National Games-2022- **First Time Participation (05Oct.- 12 Oct. 2022-Mallakhamb)**

Note: In 1983, 1986, 1988, 1992, 1998, & 2004, National Championships were not organized by Mallakhamb Federation of India.

6. MALLAKHAMB AT INTERNATIONAL PLATEFORM

After that, mallakhamb gained wide publicity and extensive popularity among the youth. of India. This sport is slowly accepted in the USA, Germany, and Japan as well. In the US, every year players perform demonstrations and conduct summer camps to promote this great sport. Nicoleta (Greece) and Fred (America) have performed in several circus and acrobatic shows around the world, but it was the ancient sport of mallakhamb that brought them to India. Fred Norman (gymnast) also suggested that the mallakhamb should be propelled into Olympics movement.

International Mallakhamb Championships are being conducted for last 5 years in different countries viz. Argentina, Brazil, Portugal, Spain and Italy and recently, the International Mallakhamb Federation has also been formed. In 1936, a troupe of 35 acrobats from a small town in Central India traveled to the Berlin Olympic Games to demonstrate the ancient sport of mallakhamb.

Asian Mallakhamb Federation was constituted on 1 January 2011 and it's head quarter situated in Pune, Maharashtra, India.The federation was incorporated by Govt. of India under [Pursuant to sub-section (2) of section 7 of the Companies Act, 2013 and rule 8 of the Companies (Incorporation) Rules, 2014] in 3/11/2014 and it's head quarter situated in Pune, Maharashtra, India.

Mallakhamb Confederation of World, Asian Mallakhamb Federation, and South Asian Mallakhamb Federation, were founded by Dr. Jaydeepsinh Jadhav as president, Uday Deshpande as secretary general, Vinayak Rajmachikar as technical committee chairman, Dr. Ashish Mehta as treasurer and Geetanjali Shitole as member.

Deshpande has almost single-handedly been responsible for getting mallakhamb international exposure in recent years, through demonstrations and training camps in over a dozen countries around the world since 1997. Despite this, it was only recently that the Indian government started to change its attitude towards mallakhamb and recognised it as a legitimate national sport. Mallakhamb is now a growing sport in India. It will be included as a showcase sport in the 2010 Commonwealth Games in Delhi and new associations are springing up all over India.

7. KINDS OF COMPETITIVE MALLAKHAMB

Pole Mallakhamb : A vertical wooden pole is fixed in the ground. The wood used is usually teakwood or sheeshum, preferred because of its twin characteristics of toughness and smoothness. The pole stands 225 cm above ground level. It has a circumference of 55 cm at its lower end, 45 cm in the middle, and 30 cm at the upper end. The height of the neck is 20 cm, and its circumference is 15 cm, and radius of the upper knobe is 13 cm.

The pole mallakhamb form involves grappling movements executed on a smooth oiled teak pole which is fixed to the ground. The pole is tapered from roughly the size of a wrestler's thigh at the bottom to the size of a forearm at the top, with a narrower high neck above that. At the very top of the neck is a rounded knob the size of a clenched first and the shape of the apparatus is in fact very phallic. The pole itself is very heavy and weighted with a heavy metal base with outriggers for stability. It is stable enough to support group pyramid formations. The oiling of the wood gives the pole a smooth surface which reduces changing on the body and allows the body to follow smoothly around the apparatus

Hanging Mallakhamb : A smaller version of the fixed mallakhamb, it is suspended with the aid of hooks and chains. The swinging and revolving motion of this type of mallakhamb renders the exercises quite difficult and exacting.

The hanging mallakhamb is generally only practiced as an advanced variation as it is very difficult due to the effect of the pole continually swinging away from the bodyweight of the

practitioner. This form, as a variation of the pole form, is again only practiced by men. As a sport, the choreography of Indian mallakhamb routines has to conform to competition rules. Competition sequences follow a Western gymnastic model of set skills and time limits. This requires the athlete to complete as many separate postures or skills as possible in a two minute period .

Rope Mallakhamb: A cotton rope which is 2.5 cm thick, replaces the wooden pole. The performers are expected to strike various yogic poses, without knotting the rope in any way.

Rope mallakhamb is the form practiced by females but which is also practiced by some men and boys. The mallakhamb rope is symbolically viewed as the god Hanuman 's tail. The rope sequences feature the extreme use of flexibility, daring falls and catches. A unique toe grip is employed which issued for climbing and holding the rope. This is because the sole of the foot is forbidden to touch the rope at any time as this would be considered disrespectful to Hanuman .At the end of the apparatus or "tail" the inner core of the rope is exposed and plaited to actually resemble a monkey's tail and this is a symbolic visual reference to Hanuman.

8. CODE OF MALLAKHAMB

The Mallakhamb pole is firmly fixed into the playground. Castor oil is applied to it, in order to reduce friction and prevent abrasive injuries to the body of the player. The player mounts over the tower, performing numerous poses and postures, which cover various awkward twists, turns, hooks, grips, catches and hanging positions. Besides these, a number of asana postures and aerobatic feats are also performed.

Mallakhamb player perform 90-second routines packed with intricate skill combinations as a panel of three judges assesses each competitor's speed, grace, and difficulty on one of the sport's three apparatuses: pole mallakhamb, hanging mallakhamb, or rope mallakhamb. Mallakhamb Federation of India organizes the national competitions each year.

9. KINDS OF RECREATIONAL MALLAKHAMB

1. Revolving Bottle Mallakhamb: This is a recent innovation, and consists of 32 glass bottles placed on a wooden platform, with the mallakhamb balanced on top. Presently, it is used for demonstration purpose.
2. Grease Mallakhamb: On the occasion of Janmastmi-A Hindu festival, it is used for the entertainment purpose in some states of India. A lubricant, called Grease is applied on the Iron Pole and prepare for climbing a person on it. A pot made up of soil filled with some fruits, rupees, coins etc is hanged at the top of Iron pole. Person can climb in any fashion at the top of the pole and win prize from the organizer.

10. CLASSIFICATION OF ELEMENTS

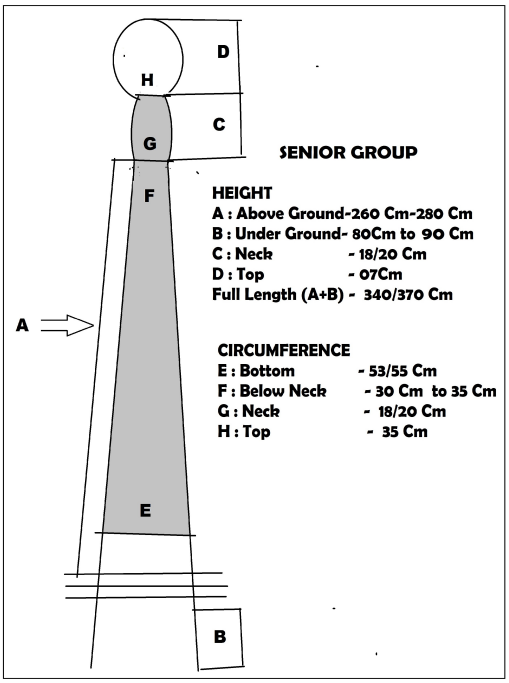
A, B, C class elements are performed on Pole Mallakhamb (Boys, Girls & Men), Hanging Mallakhamb (Boys & Men) and Rope Mallakhamb (Boys and Men, Girls and Women). These three class elements are chosen from the five groups of exercise i.e. mounts, hold parts, acrobatic elements, catches and dismounts by all mallakhamb players.

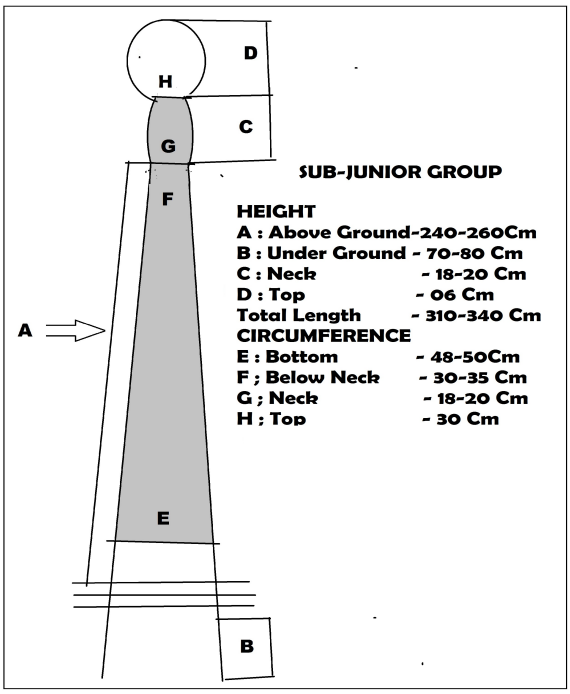
11. KIND OF CHAMPIONSHIPS

1. Competition I: Team Championships and Qualifying Round for competition II and III
2. Competition II- Individual All round Championship,
3. Competition III- Apparatus Championship.
4. Pyramid Competition-Optional for All teams

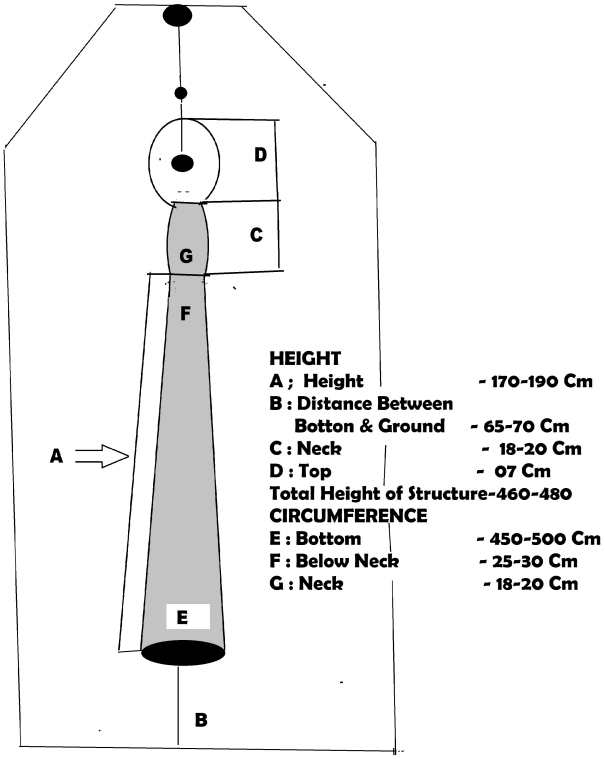
12. DIMENSIONS OF COMPETITIVE MALLAKHAMB

1. FIXED MALLAKHAMB

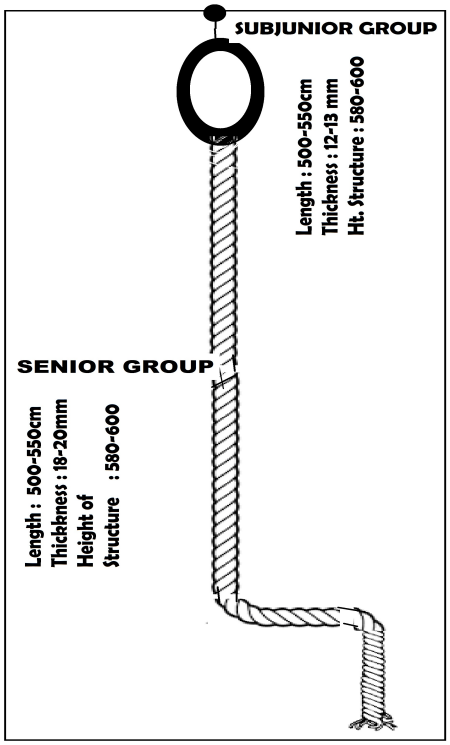


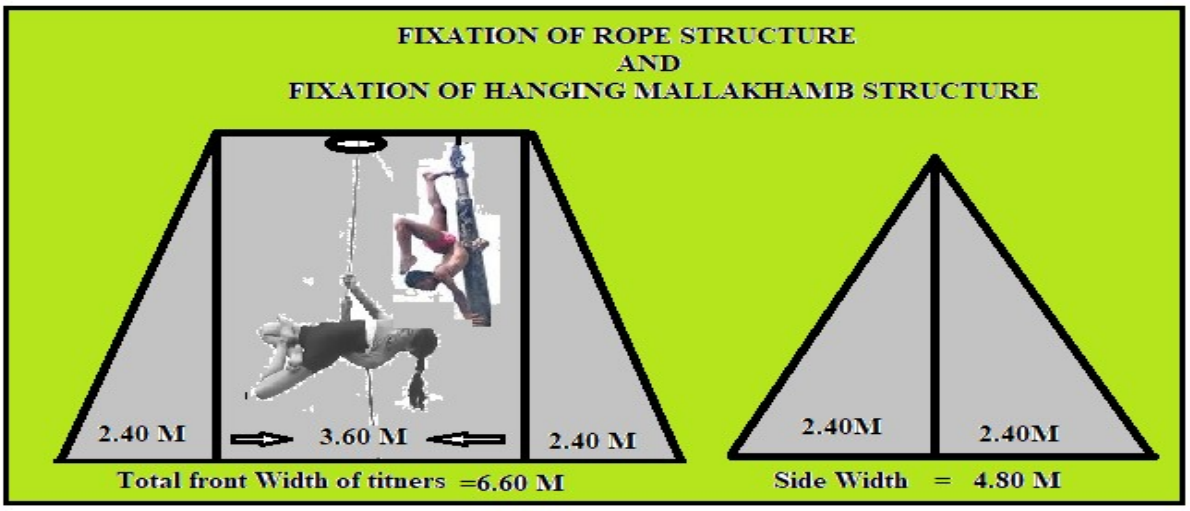


2. HANGING MALLAKHAMB



3. ROPE MALLAKHAMB





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EFFECT OF YOGA ON PHYSICAL FITNESS COMPONENTS OF INTER-COLLIGIATE LEVEL FOOTBALL PLAYERS

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ABSTRACT

The purpose of study was to find out the effect of Yoga and physical fitness training on physical fitness of Inter-collegiate Football players. The study was incorporated for 40 Inter-collegiate level football players The age range of the football players was 19 to 26 years. The physical fitness training (Push-up, Pull-ups, Sand Training, Circuit training and aerobic and general physical Exercises) and yogic practices were planned for 12 weeks for Inter-collegiate level football players from Monday to Friday for one hour. The pre-test was taken for both treatment and control group before start of the intervention. The physical fitness test were conducted to measure the muscle strength, muscular endurance, cardiovascular endurance, strength, sprints, change of direction with speed and flexibility. The results of study indicated that Inter-collegiate level Football players of control group were found similar in all the components of physical fitness i.e. muscular strength, muscular Endurance, cardiovascular endurance, flexibility and BMI and Football players of treatment group were also found dissimilar in flexibility. The effect of yoga on flexibility was observed among Inter0collegiate level football players.

Keywords: Yoga, Physical fitness, Football players, physical training exercise

I. INTRODUCTION

Better health is need of the hour and can be achieved by yogic practices. Yoga literature from Upnishads, Purans and in Bhagvad Geeta claims the higher goal of life. At present, worldwide yoga was accepted as the best system of exercise for health benefits. The philosophy behind the yoga was explored by Maharshi Patanjali which was condensed in 195 sutras to master yogic practices. Regular yoga practices have a positive influence on physical (Hadi, 2007), psychological, social, emotional, spiritual (Madanmohan, 2008) and enhance the overall functioning of the human systems (Upadhyay et al., 2008). Asana and Pranayama have been integrated into the remedial treatment system.

Yoga posture (asanas), yoga breathing (pranayama) and meditation can interact with various somatic and neuroendocrine mechanisms and produce therapeutic effects (Malhotra and Singh, et.al., 2002). The asanas are made with slow, gentle, calm and graceful movements. They are also short at the average rated training intensity (Ray, Pathak & Tomer, 2011) and on the physical, mental and emotional level power and extend Fitness (Nagarathna & Nagendra, 2013). Yoga has received a lot of awareness from the sciatic community over the past two decades because of its efficiency in improving muscle strength, endurance, body flexibility (Woodyard, 2011), generating balanced energy, liveliness (Arora and Bhattacharjee, 2008) and maintaining the spirit of serenity Nagarathna & Nagendra, 2013).

Football is the most popular alternating team sports due to the growing popularity and financial importance of football. Many types of research on movement science have been taking place depending upon the basis of match data collection and analysis. (Reilly and Thomas, 1976). Football is a multifaceted team game that requires the replication of numerous different measures and different assessment is underway to measure the physical abilities of the athletes (Rampinini et al., 2007). The development of game performance is usually seen in the teaching and learning process of various skills according to the game situation. (Mitchell et al., 2006, Grehaigne et al., 2005).

Fitness is an important factor, even though the team is made up of extremely talented, precise and competent players. This is protected by game performance and this results from many factors. The usual fitness factors are muscle strength, muscular endurance, cardiovascular endurance, strength, sprints, change of direction with speed and flexibility.The experts observed that the techniques and strategy of a player or group, physically and physiologically unique, contributed to improving performance (Deba Prasad Shahu, 2016).

The purpose of study was to find out the effect of Yoga and physical fitness training on physical fitness of Inter-collegiate Football players.

2. METHODOLOGY

2.1 Subjects

The study was incorporated for 40 Inter-collegiate level football players All the participants were informed about the possible benefits associated with the study and experimental procedures. The participants were divided into Treatment group (N=20) and control group (N=20) randomly. The age range of the football players was 19 to 26 years.

2.2 Administration of Test

The following physical fitness test were conducted to measure the muscle strength, muscular endurance, cardiovascular endurance, strength, sprints, change of direction with speed and flexibility.

1 Muscular strength- Hand Grip Dynamiter , 2 Muscular Endurance -Bent Knee Sit-ups Test, 3. Cardio-vascular Endurance - Harvard step test , 4. Flexibility- Sit and reach Test, 5 Body Composition BMI Formula

2.3 Experimental design

The physical fitness training (Push-up, Pull-ups, Sand Training, Circuit training and aerobic and general physical Exercises) and yogic practices were planned for 12 weeks for Inter-collegiate level football players from Monday to Friday for one hour. The pre-test was taken for both treatment and control group before start of the intervention. The subjects were allowed to take 20 min warm up.

3. RESULTS

To find out the effect of yoga on physical fitness of Football players belong to control and experimental groups, t-ratios were computed and data pertaining to this, has been presented in Table 1 and 2.

TABLE 1

SIGNIFICANCE OF DIFFERENCE BETWEEN PRETEST AND POST TEST IN THEIR ON PHYSICAL FITNES OF FOOTBALL PLAYERS BELONG TO CONTROL GROUP

Fitness Components	N	Tests	Mean	MD	DM	t-ratio
Muscular Strength	20	Pre	59.20	2.85	4.45	0.64
	20	Post	62.05			
Muscular Endurance	20	Pre	28.25	2.70	3.15	0.86
	20	Post	30.95			
Cardiovascular Endurance	20	Pre	127.69	1.48	4.92	0.31
	20	Post	126.21			
Flexibility	20	Pre	6.30	2.70	1.42	0.07
	20	Post	9.00			
BMI	20	Pre	20.60	0.11	0.78	0.14
	20	Post	20.71			

Non-significant at .05 Level, t.05 (38)=2.02

Table 1 indicates that statistically significant differences were not existed between pre-test and post-test of various components of physical fitness of Inter-collegiate level Football players belong to control group, as the calculated t-values of 0.64, 0.86, 0.31, 0.07 and 0.14 for muscular strength, muscular Endurance, cardiovascular endurance, flexibility and BMI respectively were less than the required t.05 (38)=2.02. .

TABLE 2

SIGNIFICANCE OF DIFFERENCE BETWEEN PRETEST AND POST TEST IN THEIR PHYSICAL FITNES OF FOOTBALL PLAYERS BELONG TO TREATMENT GROUP

Fitness Components	N	Tests	Mean	MD	DM	t-ratio
Muscular Strength	20	Pre	89.20	2.80	4.43	0.63
	20	Post	62.00			
Muscular Endurance	20	Pre	28.55	2.40	3.14	0.77
	20	Post	30.95			
Cardiovascular Endurance	20	Pre	111.99	4.33	7.37	0.58
	20	Post	116.33			
Flexibility	20	Pre	6.05	2.95	1.42	2.07*
	20	Post	9.00			
BMI	20	Pre	20.41	0.15	0.75	0.20
	20	Post	20.56			

Significant at .05 Level, t.05 (38)=1.97

Table 2 indicates that statistically significant differences were not existed between pre-test and post-test of various components of physical fitness of Inter-collegiate level Football

players belong to treatment group , as the calculated t-values of 0.63, 0.77, 0.58 and 0.20 for muscular strength, muscular Endurance, cardiovascular endurance, and BMI respectively were less than the required t.05 (38)=2.02. .But significant difference was observed between pre-test and post-test of flexibility component of physical fitness of Football players belong to treatment group, as the calculated t-value of 2.07 for flexibility was high than the required t.05 (38)=2.02

4. DISCUSSION

Football is one of the most popular games in the world because of its participation and its viewers. It is a very alternating and energetic sport with skillful actions (Bloomfield et al., 2007, and Mohr et al., 2003). The usual fitness factors are muscle strength, muscular endurance, cardiovascular endurance, strength, sprints, change of direction with speed and flexibility. Yoga is a widely performed ancient Indian form of conditioning practice. Yoga asanas are postures combined through slow, smooth, steady, and graceful movements. Regular exercise of yoga as well as physical training are useful for developing certain aspects of fitness such as flexibility, strength, stamina, balance and rhythm. Yoga has received much attention from the sciatic community over the last 20 years due to its usefulness in enhancing muscular strength, endurance, body flexibility (Woodyard, 2011), Yoga has received a lot of awareness from the sciatic community over the past two decades because of its efficiency in improving muscle strength, endurance, body flexibility (Woodyard, 2011), Yoga can be as useful or superior as physical work out in enhancing various measures of fitness outcomes (Ross & Thomas,2010). Asana is useful for tightening the nervous system, improving blood circulation, relieving tension and increasing flexibility. Asana is supposed to promote a state of mental and physical health. In present research it is found that yoga has positive effect on the development flexibility of football players. The positive effect of yoga is also observed on case of muscular endurance, cardiovascular endurance and BMI rest components ,of physical fitness

5. CONCLUSIONS

1. Inter-collegiate level Football players of control group were found similar in all the components of physical fitness i.e. muscular strength, muscular Endurance, cardiovascular endurance, flexibility and BMI
2. Inter-collegiate level Football players of treatment group were also found similar in muscular strength, muscular Endurance, cardiovascular endurance, and BMI components of physical fitness.
3. Inter-collegiate level Football players of treatment group were also found dissimilar in flexibility component of physical fitness only..
4. The effect of yoga on flexibility was observed among Inter0collegiate level football players.

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REVIEWING THE KENYAN PHYSICAL EDUCATION CURRICULUM THROUGH A DE-COLONIZATION EFFORT

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ABSTRACT

Physical education is an educational process that uses physical activity as a means to help individuals acquire skills, fitness, knowledge, and attitudes that contribute to their optimal development and well-being. The history of PE in Africa dates back to pre-colonial times. In the pre-colonial period, the traditional African physical activities and recreation were characterized by being local and community based. The recreational and physical activities reflected the lifestyle of the said community paying attention to the specific needs of that particular community. People engaged in traditional games and sports activities such as wrestling, racing exercises, stick fights, hunting with use of spears and arrows, board games, bull fights, dances, rustling among others. These activities were mainly driven by the need for survival and prestige. At the advent of colonization the Europeans introduced western and European education systems in Africa and most of their colonies. Western oriented physical education was also introduced and this opened the door to European games and competitive and team sports. This was propagated at the expense of local and traditional African physical activities which were perceived as barbaric. Consequently, physical education as a subject attracted a cold reception right from the onset. However, even though viewed negatively, the same aspects physical education aspects introduced by the colonialists have persisted in post-colonial Africa. Very little has changed in terms of the content as well as the approach to teaching. This has seen the subject relegated to the periphery in favour of what are considered academic subjects. In addition to its being viewed as being too much western oriented, physical education has also been criticized of having been introduced to achieve other non-educational objectives such as military training, training of lower-rank civil servants, transmission of middle-class values of conformity and also for deferred gratification and social control. Consequently, to date despite numerous studies linking physical education participation and cognitive development, it has been difficult to show that link in Africa. The emphasis on competitive team sports that were introduced by the colonialists has also seen the subject being viewed as of no value beyond the school especially for those with no interest in sports. This paper argues that for physical education to play its rightful role within the education sector, there is need to decolonize the teaching of the same. Teachers need to contextualize the games and sports so as to make them more relevant to the participants. They also need to emphasize on the how the skills learnt and knowledge gained can be useful beyond school life and this will make the subject more meaningful for the participants.

Key word: Physical Education, Curriculum, Colonization , African, Acivities

1. INTRODUCTION

According to Wuest and Bucher (1999), physical education is an educational process that uses physical activity as a means to help individuals acquire skills, fitness, knowledge, and attitudes that contribute to their optimal development and well-being. Conversely Kirk (1999) views physical education as one of the components that make a physical culture, which in total includes sport and health or physical activity. As a physical culture, physical education involves the use of the body and physical activities or exercises to keep fit for leisure and sport. He argues that physical education is the systematic teaching of school children to acquire knowledge and skills for long-lasting and enjoyable participation in safe physical activities to be able to lead active lives. Further, Kirk (2010) adds that, what teachers and pupils mainly do in the name of physical education is teaching and repetitious practicing of the techniques of a wide range of individual and team games, aquatic activities such as swimming, gymnastics, athletics exercise for fitness and various forms of dance. However, Torres (2014), is of the opinion that physical education is different from games, which are goal oriented and have rules and also differs from sports which possess all the characteristics of games and in addition require physical skill or prowess. Thus, it is important to understand at what point physical education started being viewed as synonymous with games and sports.

The current trends in physical education teaching and learning in Africa can be traced back to the advent of colonialism in the continent. Prior to the coming of the colonialists, most indigenous African communities had their own forms of physical activities. Most of these physical activities did not only keep them fit but were also goal and purpose oriented. For instance, they would throw spears during hunting and fishing, they would engage in dance to commemorate specific occasions, they would run after small game during hunting, they would walk in search of food for themselves and pasture and water for their animals among other physical activities. Sometimes they would even engage in wrestling for entertainment. In pre-colonial Africa, physical activities were indispensable.

Over the years, physical education has been referred to as comprehensive education content covered using physically active approach that involves teaching social, cognitive, and physical skills and achieving other goals through movement (National Academy of Sciences, 2013). However, it has faced numerous challenges in its endeavor to achieve its lifelong benefits of health-enhancing physically active lifestyles. These include limited budgetary allocations, low priority when compared to other disciplines covered in schools, negative attitudes from policy makers and implementers, its colonial legacy, pedagogical challenges, among others. The implication of these is that only a small number of people are physically active to the recommended level, and a much smaller minority continues to play the games, sports or activities that they experienced at school (Jeffrey et al., 2016). This paper attempts to trace the history of physical education in Africa and analyses how its colonial legacy has affected its implementation in schools in post-colonial Africa.

2. HISTORY OF PHYSICAL EDUCATION IN AFRICA

The traditional African man was unknowingly involved in physical education. This simply means that physical education was not thought of as an organized activity as we know it today. Traditionally, man did not set aside a fixed time for particular physical activities (Zimbabwe Open University 2000). Much of what he did was in the form of physical activities such as walking long distances in search of food, erecting shelters, protecting himself against fierce wild animals, foes, and the adverse environment and climbing trees or mountains to view faraway places or even swimming across rivers and streams (Wuest & amp; Bucher 1999). The physical

activities were mainly performed for the purpose of survival and transmitting cultural knowledge. In essence these activities were indispensable since they fulfilled very vital functions in society.

During the pre-colonial period, the traditional African physical activities and recreation were characterized by being local and community based. The recreational and physical activities reflected the lifestyle of the said community paying attention to the specific needs of that particular community. For instance, people around lakes, rivers and oceans had activities that differed from highland communities. In Kenya, physical activities for recreational and health pursuits have been part of communities traditional lifestyle dating back to the period before the country of Kenya came into being as it is known today. According to Wanderi (2006), various indigenous traditional sports have prevailed in Kenya as part of the communities' culture since the history of mankind. In the traditional era (pre-colonial era), people engaged in traditional games and sports activities such as wrestling, racing exercises, stick fights, hunting with use of spears and arrows, board games, bull fights, dances, rustling among others. Survival and prestige were the main drivers of the activities, and the same evolved with the changes of the dynamic culture.

According to Shehu (2001), recreational and physical activities were part and parcel of the religious and secular life of the people and served to fulfill social functions for centuries. This implies that, even before the coming of the colonizers, African societies had their way of involving the young people in physical activities and recreation. Activities such as archery, wrestling, canoeing, tugs of war, javelin and stone throwing or bao[1] (a board game) were tiedto the historical needs of the community and thus came to characterize traditional physical activities and recreation. Ndee (2010a) adds that, prior to colonization, many tribes in Africa played some form of team or group games, both as recreation and as training for hunting and war. Nevertheless, activities performed during this period were gender and age-discriminatory and also varied according to the values of ethnic groups. Boys engaged in games such as plays of attack, spear-throwing, hoop-and hope, hunting, chase and escape, and games for defense, while girls were more occupied with domestic activities such as fetching water, firewood and home caring, which in one way or another helped them to be active (Shehu, 2001; Ndee,2010a; Chepyator-Thomson, 2014).

Physical education and physical activities were also used to mark specific stages in a person's life. For instance the youth would be engaged in specific physical activities to prepare and initiate them into adulthood. In their study of the history of physical education in Africa, Bressan and Van Der Merwe (1992), found that games were used as opportunities for young people to practice the skills and attitudes needed for successful participation in society. These activities in the forms of games were conducted during initiation ceremonies commonly known in Kiswahili as Jando (for boys) and Unyago (for girls) with the aim of promoting general fitness and developing specific skills necessary for specific tasks in the future lives of the youth. Boys were trained on aspects that would help them protect the community in times of adversity and attacks while girls were equipped with home caring and management skills that would enable them effectively manage their households once married. Further, Mligo (2013) argues that a young person did not become a full member of the community unless he or she had undergone ritual training, called Jando and Unyago[2], which prepared him or her for guardianship of the

[1]Bao is a game played with pebbles, beads or large seeds on a regularly patterned playing wooden board consisting of a number of pits arranged in two or four rows.

[2] Jando and Unyago are rituals or initiation schools, which involve teaching young people the cultural norms of

society, parenthood and leadership. Therefore, rituals were taken as seminars that prepared young people for maturation and transition from childhood to adulthood.

According to Fafunwa (1974), even before the coming of the British, Nigeria had a traditional educational system that recognized the elements of physical activities. He further observes that, though Nigeria consisted of many ethnic groups, each with its own culture and tradition, these groups had common educational aims and objectives. However, the teaching methods differed from place to place largely due to social, economic, and geographical imperatives. He further opines that, traditional Nigerian education emphasized training the child in toileting, eating, socialization, and general behavior. Physical training was also a significant aspect of this traditional education. The African child, like his European or Asiatic counterpart, enjoyed exploring his environment and observing adults and imitating them. Physical activities, such as running, jumping, wrestling, tree climbing, and swimming provided a ready opportunity for all-round development. Omolewa (1996) concurs and acknowledges that jumping, wrestling, climbing, dancing, and swimming were all forms of traditional sports in colonial Nigeria, and were part of the inhabitants' lifestyles.

In pre-colonial Zambia, education remained mainly unguided with young boys and girls learning from their fathers and mothers respectively. This was mainly accomplished through observation, imitation, and repetition. Sometimes, they also learnt through direct instruction. Physical education was mainly in the form of the physical activity of daily life. It was essential and utilitarian in the indigenous period because it was simply part of the lives of the people at that time. People lived in clans and moved from one place to another. They were involved in activities such as swimming, hunting, fishing, gathering, walking, running dancing, climbing trees, erecting shelters and many other forms of informal physical activities (Snelson 1974). Physical education was indispensable. The children engaged in physical activities as part ofplay. They wrestled, raced, or chased each other and played hide-and-seek and tag(Zimbabwe Open University 2000). The traditional African man also engaged in recreational activities like dances on occasions that marked important events such as successful hunting expeditions, post-war victories, religious rites and initiations (Kakuwa 1999). Mufalali (1974) has attested to the fact that long before the Europeans set foot in Northern Rhodesia the natives were involved in activities such as swimming, wrestling, climbing, ox-racing, and traditional games.

Eventually, the demand for education grew and many subjects were added including physical education. With this addition, other forms of physical education activities were also introduced that took the form of games. Traditional games came into being, such as nsolo[3], tindi[4] and many others still known today (Mufalali 1974; Kakuwa 2005). However, while many subjects have enjoyed immense popularity in the country's curriculum, physical education has suffered marginalization. Although the subject was taught in schools supported by the mining companies and in private schools with facilities and infrastructure as well as teacher training institutions, it was not examined. The history of physical education in Zambia shows to a large extent that physical education has barely survived the times. In the indigenous period it thrived because it was utilitarian in nature. It was essential to man; therefore man could not do without it. The indispensable character of physical education at this time was what kept it alive. The introduction of formal education killed the utilitarian aspect of physical education. It came to be

gender roles, family life and sexuality.

[3] A kind of checkers common in most parts of the country.

[4] A spear-throwing game popular in the western part of Zambia.

seen as leisure, recreation, diversion, and fun. In essence, physical education ceased and was merely sports at this point.

3. PHYSICAL EDUCATION IN COLONIAL AFRICA

Over the years the coming of the colonialists has been attributed to many of the challenges and problems that Africans continue to suffer to date. For instance, the colonialists have been blamed for introducing western culture on African societies at the expense of African cultures and led to underdevelopment of the African continent. Ndee (2010b), argues that, the coming of colonialists (Germans and British)in Tanzania is linked to the distortion of the usual routines of indigenous life. The colonialists paid little or no attention to what existed before their coming. Their arrival affected the nature and kind of physical activities that people engaged in. According to Shehu (2001), the colonialists labelled the existing local games and sports as crude, wild and primitive. They further claimed that the games and sports were callous, monstrous and unpleasant to watch. African dances in particular were described as satanic and sinful to even watch. Shehu (2001) further argues that these labels and claims were intended to discourage African indigenous games and recreation activities. Additionally, the negative perceptions worked as road blocks to the transmission of the activities to future generations. This degradation and falsification slowly but surely smoothed the way for the introduction of western sports.

To further stamp their authority, the colonizers ensured that in all the colonies, western sports were canonized and constructed as obligatory activities that must be unconditionally embraced by the natives (Shehu, 2001). For instance, the Germans introduced western sports in Tanzania and ignored traditional physical and recreational activities. It was during this period that physical education was introduced into the school system. Gymnastics formed the major components of the physical education curriculum in schools. According to Ndee (2010b), the teaching of gymnastics was broadly based on gymnastics movement, order, exercise and the Swedish Ling system of free-standing exercises. Most of these activities had a broader objective in addition to aiding physical fitness of learners. Ndee (2010b) acknowledges that during the German period physical education was indeed used as a means of developing skills and instilling other values as an educational package on its own. He posits that, in Tanzania, these activities were introduced in order to train African soldiers and lower-rank civil servants particularly at the Mpwapwa Military School. He further adds that gymnastics activities played an important part in the training of lower-ranking civil servants for the colonial government and soldiers for the colonial forces, the primary task of the school system. This led to the notion that physical education was of little if any educational value. Consequently, to date physical education in Tanzania is associated with school and the skills learnt and knowledge acquired through the subject is perceived to be of no real value beyond the school setting.

Chepyator-Thomson (2014), reports that, with the departure of the Germans, the British introduced a physical education and sports syllabus with the aim of introducing British sport. They also included competitive sports which could ideally be described as physical training with the aim of making the indigenous people more physically fit for work while at the sametime teaching them discipline and obedience to the government (Ndee, 2010b). Ndee (2010a)reports that, the British introduced ball games and athletics in the 1920s and 1930s in addition to the system of gymnastics and drill that had been introduced by the Germans. He concludes that most of the modern sports played in Tanzania today are of western and largely British origin. However, the British were systematic in including indigenous traditional physical activities in the school curriculum alongside the new sports and games.

With the coming of the missionary into Southern Rhodesia, there was the introduction of formal education (Mangan 1987). Schools were built mainly to teach literacy and numeracy skills, which were meant to foster an understanding of the Bible. Snelson (1974) reports that the forms of physical activity in such schools were mainly those done through apprenticeship skills, like crafts and agriculture, or others such as blacksmithing and carpentry. Chipande (2009),notes that the missionaries also introduced organized sport to the natives. However, the education was of low quality because it was poorly funded in most cases (Hinfelaar 2007).

In the spirit of racial segregation, the colonialists had their own form of education for whites only. Whites-only schools included physical education activities that were copied from Europe. At around this time, physical education in Europe consisted of games and sports (Zimbabwe Open University 2000). According to Chipande (2009), Europeans were mainly educated in Southern Rhodesia before 1912, although there were small schools for them in Lusaka and Livingstone. From 1914, several schools were opened that offered subjects like arithmetic, science, geography and English. As part of the curriculum, physical and moral welfare was offered and included medical and dental inspections, hygiene and games. The games included football, netball, cricket, hockey, and tennis.

In mission schools and teacher training colleges, physical education was timetabled but there were no specific teachers for the subject, especially in primary schools. The subject suffered little or lack of emphasis on its teaching. The concentration was mainly on competitive sport training, which was mainly for fitness, fun and a diversion from vices.

Northern Rhodesia's Annual Report of 1948 states: "Football and athletics are becoming increasingly popular amongst Africans, who at some centres have also taken up boxing, golf and tennis. European-type indoor games spread rapidly at these centres" (Northern Rhodesia's Annual Report of 1948, p. 28).

However, as much as the Africans were involved in "European-type" sport, they did not play together or compete with the Europeans until later, as they were not permitted by legislation. In athletics, multi-racial competitions were only permitted from 1959. In football, the Africans were only allowed to compete with Europeans in 1962. Northern Rhodesia's

Annual Report of 1962 explains this dramatic turn of events: "On the home front tremendous strides were made in the soccer sphere. A multi-racial, semiprofessional National League was formed bringing together the best players of both races. The league experienced acute teething troubles of racial, administrative and political natures but came through the season none the worse and probably much better equipped to face the future" (Northern Rhodesia's Annual Report of 1962, p. 90).

During the colonial period, sport was also used to inculcate western culture. Many Africans in Northern Rhodesia mistakenly thought that taking part in sport was a way to assert their position in the newly created society. However, they just ended up losing their identity and uniqueness. On the other hand, some resisted, but were met with brutal force that they could not contend with. This led to a subservience that would last for almost a century.

In Nigeria, schools were previously run by missionaries, primarily to train their adherents and prepare clergy members for the study of sacred writings and the performance of religious duties (William Boyd in Fafunwa 1974). It was not until 1918 that physical training was included in the syllabus in Nigerian schools. This was brought about by the harmonization of educational activities of the missionaries into a single entity which brought about the adoption of a common syllabus for all schools in Nigeria (Akioye, 1978). In these schools, physical training, as it was known at the time, was primarily used to maintain discipline among the children (Fafunwa,

1974). At the advent of colonialism, school programs did not differentiate between the components of physical education, health education, and recreation (Omoruan1996). The programs were also beset by problems, such as lack of qualified staff and inadequate teaching facilities and equipment, as well as the misinterpretation of the values inherent in physical education. Physical education was regarded as a nonacademic and extracurricular activity that should take place after the normal academic work of the day.

The main method of instruction in colonial Nigeria was the command style, in which the learners listened to specific instructions from the teacher and then complied rigidly. Unfortunately, this approach in teaching physical education has persisted over the years. This has made the teaching of the subject more of rote and the learners are rarely informed of the intrinsic value of participating in the same. To bridge the gap of lacking qualified personnel, schools used retired physical training instructors from the colonial Army to teach children (Laoye and Ackland 1981). The activities in this syllabus were very rigid, military in nature and devoid of enjoyment. The rigidity of this syllabus was dueto the fact that it was prepared by the British soldiers who were discharged from the army after the First World War. The syllabus was composed of activities in which the soldiers were engaged during break in the war-front. The activities in the syllabus included running on the spot, running for direction, jumping, hopping, simple stunts, gymnastics, tumbling and calisthenics. The syllabus approach was quite formal and did not stress enjoyment. To make matters worse, teachers who taught children lacked the needed experience and methodology in presenting this subject effectively. The syllabus got a negative reception and its short comings easily accounted for the negative attitude of school children towards physical training even into the late fifties (Akioye, 1978).

However, the emphasis on military drills was discontinued and significant changes were madein the physical education programs in Nigerian schools when curriculum changes occurred in Britain and the colonies. The 1918 physical training syllabus was revised in 1927. The syllabus was sent to all schools in Britain and her colonies. However, few significant changes were made. The syllabus was still military and rigid in nature and did not give room for initiative or flexibility. Both parents and children still maintained their negative position against the syllabus. Ladani (1994) contends that, due to the rigidity of the syllabus, children saw physical training generally as a weapon of punishment. Therefore, physical training was not seen or accepted as a discipline designed for optimum development of the body. Children preferred cutting grass than taking part in physical training. Interestingly, the militaristic nature of the syllabus can be traced to the schools in Britain which McIntosh (1972) described thus:

"There were two distinct traditions in Physical Education. Outside the public schools a different type of Physical Education grew up springing from several roots - military drill, calisthenics and gymnastics. From them grew the system of physical training which at the end of the century was being adopted in public elementary schools."

The last physical training syllabus of British origin was introduced in 1933, and remained in use in some regions in Nigeria until the late fifties. In the new syllabus, the activities in the 1918 and 1927 syllabi were overhauled, fresh activities were included and revised teaching methods were introduced, stressing encouragement. The 1933 physical training syllabus was compiled by the Board of Education of Britain and it was a total departure from the two earlier syllabi which were military in nature. The new edition of the syllabus showed a notable improvement because its primary objective was to help in the production and maintenance of a healthy body and mind.

The syllabus incorporated games and exercises that stimulated the children to perform better skills. It emphasized on physical training as a vehicle for the development of a healthy physique, qualities of alertness and sound character. Unlike the previous syllabi, it stressed on physical training as a way of providing opportunity for children to enjoy and then form habits of recreation as a carryover value. The 1933 syllabus provided general guidance on methodology of teaching with specific emphasis on teacher's voice, teaching progression, class organizationin groups and teams and class supervision. The syllabus also gave lesson notes on the type of games and exercises to be taught during the lessons. However, each school was given freehand to select the type of games and exercises depending on the availability of facilities and equipment. The syllabus also provided lesson plans for the teaching of each of the content areas. The lesson plans comprised of four major components- introductory activities, class activities, group activities and games. The 1933 syllabus contained several other detailed components that characterized the physical education syllabi in the post-colonial period. The second component of the 1933 syllabus had compensatory activities and final activities. Based on these additional activities, it is safe to say that the 1933 physical training syllabus laid the foundation for modern physical education in Nigeria.

The 1933 syllabus was also more elaborate with a better focus and specific objective. It was flexible because it provided more diverse activities and there was room for initiative and enjoyment. Since there were many similarities between the 1933 syllabus and physical education syllabus of modern age, it is clear that the curriculum developers in the post-colonialera borrowed heavily from the contents of this last colonial syllabus in Nigeria. In the syllabus, activities were described along with methodology and even illustrations and pictures also describing the activities. In addition local games were included for children to enjoy and develop skills for good posture and health. The activities emphasized team spirit and development of skills required for performing both individual, dual and team sports.

However, despite the numerous improvements from the previous syllabi, the 1933 physical training syllabus had its shortcomings including: inadequate teaching facilities and apparatus; inadequate number of trained teachers to teach physical training; inadequate personnel to supervise physical training in schools; failure to make room for physically or mentally handicapped children to benefit from the program of activities; emphasis on psychomotor domain while neglecting both the cognitive and affective domains; and lack of guidance on how learners acquired the skills and lack of evaluation to determine the extent of what children had learnt. These challenges have plagued the teaching of physical education not only in Nigeria but in most countries in Africa in general to date.

4. PHYSICAL EDUCATION IN POST-COLONIAL AFRICA

While physical activities and sports have been traced to pre-historic man, modern physical education is said to have emerged as a profession in the late 1800 (Wamukoya &Hardman,1992). Several European and American personalities are credited as pioneers, and the ancient Greek traditions informing the development of the same (Tipton, 2014). Development of physical education and sports in Africa in general and in Kenya in particular was heavily influenced by colonization just like many other aspects of life, in the 19thand 20thcenturies (Odendaal, 1990). British settlers and Asian contractors established professional teams in form of clubs as early as 1922 before the establishment of formal schools. Later, sports practiced in Britain and physical training using activities with similar biasness were introduced and promoted in schools as part of extracurricular activities. Same activities were continued after colonial era where they were included in the curriculum in form of PE lessons, while a few of the sports such as soccer,

hockey and athletics were professionally organized as early as pre-independent Kenya (Njororai, 2009). At the turn of the 20thcentury, many sports were popular in Kenya, played both professionally and as recreational physical activities, including athletics(track &field and other running events), cricket, motor sports, soccer, rugby, volleyball, basketball, swimming, boxing, handball and netball. Rounders, softball, cycling, some martial arts, tennis, table tennis, squash, badminton, golf, chess, goal ball, roller sports, horse riding, polo, weightlifting, canoeing, wrestling, mountain sports among others sports are also played in Kenya, but they do not enjoy wide participation (Embassy of the Republic of Kenya in Russian Federation, 2013). It is important to note that most of these sports are team sports and some require expensive equipment and facilities to be engaged in successfully. It is difficult to engage in most of them individually and at a local level. Consequently, once students are past school it becomes very difficult to engage in many of these activities unless one joins professional clubs that require membership fees or one takes sports as a career.

In Nigeria, the first indigenous physical training syllabus was authored by the late Harding Ekperigen and Isaac Akioye in the then Western Provinces of Nigeria. This syllabus was published by the Ministry of Education, Western Provinces in 1956. The syllabus content included: specification of frequency and duration of lessons, the outfits for pupils, teaching methodology, content/teacher's notes, equipment / apparatus and lesson plans. The syllabus laid emphasis on the need to teach physical training on daily basis and the standard minimum time was five 20 minutes periods per week, three of which were devoted to formal lessons and others to more specialized activities, such as games and swimming. It was mandatory to conduct all physical training activities outdoors whenever possible, except schools which had none were expected to set aside physical training rooms for lessons during bad weather. The children were permitted to use any type of outfit that did not hamper movement during their lessons.

In Zambia, major developments have taken place in the area of physical education since 2005.President Mwanawasa declared that physical education should be taught in all schools. The subject was introduced to the primary school examination as part of Creative and Technology Studies (CTS) and later as Expressive Arts (EA). It is now also being examined at junior and senior secondary levels. Teacher education institutions have been steadfast in training students in physical education. Despite this, the teaching of the subject still leaves much to be desired. It appears that the past as well as the present are vehemently holding the subject down.

5. PHYSICAL EDUCATION IN AFRICA AND ITS COLONIAL LEGACY

For a very long time, physical education has been perceived to have a colonial heritage and legacy and hence its' low status in most of the African countries. For instance in Tanzania, despite the various syllabus versions, the contents of physical education have always been influenced by the colonial powers and by religious and traditional interests. The presence of gymnastics, hockey, cricket and ball games such as soccer and netball point to contents that were introduced into the education system during the colonial period. Ndee (2010a), argues that in the colonial times these ball games and sports were offered to the minority. For instance, hockey and cricket, were played in European and Asian schools during the colonial period. However, now that Tanzania is an independent state, these games are now part of the secondary school physical education syllabus. This has not stopped people from viewing the mass colonial sports. Consequently, many people have continued to have a negative attitude towards physical education as a subject offered in schools.

According to Musangeya et al. (2000), physical education and sport were also heavily characterized by ills of injustice, racial discrimination and prejudice emanating from the colonial

legacy. During the colonial period physical education was not valued by most Africans since it was viewed as play, controlled by whites, elitist and was based on western activities, values and beliefs. Musangeya et al. (2000), note that while it can be observed that Zimbabwean physical education activities have undergone some transformation and metamorphosis towards the better, the discipline is still being haunted by the historical influences. And in an effort to decolonize the African mind, the need to overhaul the education system including physical education contents remains imperative.

6. DEMEANING TRADITIONAL AFRICAN PHYSICAL ACTIVITIES AND CONCENTRATION ON EUROPEAN GAMES AND SPORTS

Physical education is one of the important aspects of the educational and teaching processes, especially in the current era, in which high values are set for the physical activity, as it has many positive effects on the individual. However, in many countries, teaching the physical education is facing several challenges (Hardman, 2009), such as decreasing in the teaching time, curriculum deficiencies, shortage in equipment, negative view of the teachers as well as students and guardians about physical education (Nyakweba, 2005). The physical education subject content has also been criticized for being too western oriented and therefore a continuation of colonization. Ndee (2010b) and Chepyator-Thomson(2014), contend that the physical education subject content show that there seems to be a lackof local origin. The syllabus chiefly comprises imported sports introduced during the colonial periods. Moreover, most of these are competitive sports, which seem to conflict with physical education as a promotor of health. Consequently, for those who have no interest in competitive sports especially team sports, they perceive it a waste of valuable time participating in the same.

From the foregoing, it has been observed that the Europeans did not take much account of traditional physical activities. In extreme cases, they viewed the traditional African physical activities as barbaric if not demonic. This led the colonizers to introduce western games and sports which they believed to be advanced and sophisticated as compared to the Africans' physical activities. However, this was just to ensure everything worked in their favour when it came to dominating and colonizing the African mind and psyche. Consequently, physical education got a cold reception in most African countries and societies as it was seen as a vehicle to continue the domination of the Africans by the Europeans.

7. TRAINING FOR MILITARY AND OTHER CIVIL SERVICE JOBS AT THE EXPENSE OF PHYSICAL FITNESS

Physical education as a subject has also been criticized for being non-educational and used over the years to achieve non-educational goals. Its inclusion in educational institutions hasalso been contested. For instance, Ndee (2010a), argues that in many schools physical education is being used to achieve many non-educational missions such as military training, self-sacrifice, character training, masculinity, the promotion of a healthy lifestyle and the provision of leisure pursuits. This exposes the subject to strong criticism and attacks for being a non-academic subject. Therefore, it is essential for physical education to have a precise focus andto leave other areas to other subjects. That will give the subject an educationally and academically credible identity, leading to a strong position in school curricula and providing valuable legitimate experience to students. Kirk (2014a), concurs by claiming that physical education has been used frequently in schools for non-educational and sometimes even anti-educational purposes. He concludes that despite physical education maintaining a place in the curricula of most schools throughout history, the reasons why it has been retained have rarely been educational ones. Further, he claims that physical education has been used for military training for warfare, the

transmission of middle-class values of conformity and also for deferred gratification, character, masculinity and social control.

In most countries in Africa, the initial objective of the physical education curriculum was military training as well as training civil servants to work in the colonial administration. Consequently, physical education was perceived to be of little or no education value at all to the school going children. In extreme cases like in Nigeria, physical education was actually taught by retired military officers emphasizing the military nature of the subject. This made many of students'view the physical activities included in the subject as a punishment and thus developed a negative attitude towards the subject.

8. EMPHASIS ON TEAM SPORTS AND COMPETITION RATHER THAN COOPERATION AND PHYSICALFITNESS

Most of the physical activities in African societies were meant to meet certain functions. People would walk long distances in search for food. People would throw spears when hunting or fishing and they would climb trees to pick fruits or harvest honey. However, most of the European games and sports were meant to ensure a win for the team. For instance, when playing soccer or football, people had to coordinate and work together to ensure their team won. This made physical education in the colonial era lack a local origin. People viewed the subject as not meeting any local function or obligation. Participation in the same also lacked the enjoyment that had hitherto existed and thus the attitude towards the subject became more negative.

Physical education as a subject has also faced the challenge of laying too much emphasis on competitive sports rather than physical fitness and enjoyment. In most African societies physical activities were geared towards enjoyment and achieving specific functions. The emphasis on competitive sports can be traced back to the introduction of the subject by the colonial governments. For instance, in Nigeria, the British government initiated school children to competitive track and field athletics and invited mission schools to take part in the Empire Day Celebration. They believed that this would give the primary school children the opportunity to practice and improve the skills acquired in the Physical Education lessons. When schools were invited to join the celebrations, the foundation of competitive sports was laid in Nigeria.

All schools in the same district met for athletic competition and skills already acquired from the physical education program. The events during the celebrations included: sack race, egg and spoon race, tug of war, threading the needle, catching the train, sprints, middle and long distance races, relays, long jump and pole vault. As these celebrations progressed from yearto year, shields and trophies were donated and it became rivalry among mission schools, government schools and even traditional rulers (Enahoro, 1965).

Most of the games and sports introduced as part of the physical education curriculum during the colonial period were competitive in nature. Physical education was actually used to prepare the participants for both local, national and even international sporting activities. All this was at the expense of the enjoyment that was supposed to be derived from participation, the educational value of the subject and the health benefits that have been widely documented in literature. Taking the cue from the colonial governments, most independent African states have also continued on this same trajectory and made subject content and focus of physical education more of competition rather than enjoyment, education and physical fitness. Consequently, majority of the stakeholders including parents, teachers and even the learners' themselves have continued to view physical education as being of little or no educational value at all. Therefore, in most countries where physical education is not examined students rarely participate and where it is examined, participation is normally pegged on getting the minimum score in the subject.

9. CONCLUSION

While the colonialists can be credited to the introduction and development of the discipline of physical education today, they also stand accused for the negative reception the subject has been accorded over the years. The introduction of western sports at the expense of local games and sports and the emphasis on competition has worked against the objective of the subject as far as enjoyment and physical fitness is concerned. This has led to the subject being sidelined in many African countries. The sidelining of physical education in the education system is not a phenomenon unique to any one African country. Many researchers have revealed the declining nature of physical education in schools in Africa (Akindutire & Olanipekun 2014; Nhamo & Muswazi 2014; Mulima 2010). The past has taken its toll on the present. However, the present is also to blame for the declining emphasis on physical education. The technological advancements have also made physical activity dispensable in some instances. Labor-saving devices have made man avoid even the most basic of humana ctivity. What is also appalling is that educators have joined the band wagon of those who hardly see the need for physical education. Rather than being seen as a necessity, physicale ducation has been pushed into a defensive position.

Therefore, while the distant past can be responsible for what happened in the recent past, this cannot be the basis for not changing the status quo. The question of what contemporaries have done to improve the situation that has befallen physical education in the education sector must be asked. Perhaps it is time to make physical education different from what it has been. The education sector, with the assistance of researchers, must find ways and means to improve the current status of physical education. The importance of physical education in the health and wellbeing of the people cannot be overemphasized. It is time the educators and the masses at large joined hands to put physical education in its rightful place so as to avert the huge health concerns awaiting us in its absence.

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ASSESSMENT OF KNOWLEDGE AND HYDRATION AWARENESS AMONG SWIMMERS.

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ABSTRACT

Hydration plays an important role in performance of the swimmers. Swimmers are in water hence many times they don't realize the need of water but they have massive energy expenditure and need proper intake of water and nutritional fluid to remain hydrated (Raplh Teller, 2011). The study was conducted to check the knowledge of hydration among the swimmers. Responses were collected form the swimmers of various age group who are the professional swimmers and participate in the State, National and International swimming competitions regularly. A self-administered questionnaire was shared among the swimmers to collected the responses. Based on those responses the awareness of water consumption and nutritional fluid was analysed. It was observed that the swimmers lack the knowledge of hydration they rely on coaches, media, internet to get hydration knowledge which is not sufficient. The amount of water consumption during a day was studied in which it was found that only 10% swimmers in the age group of 19 years and above consume the right amount of water (3-4 litre) as recommended by Institute of Medicine (Joe Buchanan, 2017). It was also observed that few swimmers consume excess water in a day (>5 litre) due to which the sodium present in the blood may get diluted. It was also observed that 50% swimmer of various age group never consumed nutritional fluid during the training and many swimmers face the dehydration symptoms like tiredness, fatigue, muscle pain and cramps.

Keywords: Hydration, Swimmers, Water, Nutritional Fluid

1. INTRODUCTION:

Swimming is a high endurance sport which include pool swimming and open water swimming. The duration and practice for both is different. Swimming requires developing a high aerobic and anaerobic capacity for strength and technical efficiency. Because of massive energy expenditure proper water consumption is very much essential to re-build, recovery and inhibit the performance. Apart from nutrition and dietary intake a swimmer always needs to intake sufficient water to stay hydrated. (E Jéquier and F Constant, 2009) The dehydration during pool swimming is lower than the open water swimming, but still a swimmer has to intake 2-3 litres of water in a day to stay hydrated. The Institute of Medicine has recommended 3.7 litres of water a day for men age 19-30, and 2.7 litres of water a day for women age 19-30. A common thumb rule that is often stated for remaining hydrated is to take one's body weight, divide it by two, and drink that much water in ounces.(Joe Buchanan, 2017)

The swimmers are in water hence they do not realize that they are still sweating losing fluid and as they are surrounded by water the brain is tricked as per the surrounding environment and does not signal mouth and throat to be thirsty. (Swimmo.inc)

It has been observed that intensive and long-distance swimming requires lot of fluid intake and need additional hydration, water is not sufficient to rehydrate the body. (Raplh Teller, 2011) Hence in training apart from water intake the swimmers need to be provided with replenish electrolytes, power energy drink to maintain the body fluid balance and avoid the dehydration. The swimmer during the competition day is provided with more electrolytes and sports drinks to stay hydrated (Archive team, 2011). A 2% loss in body weight due to water loss leads to dehydration a condition that can reduce strength by 2 percent, power by 3 percent and endurance in athletes by 10 percent. According to the National Academy of Sports Medicine, dehydration can affect cognition, coordination, response time, tracking, short-term memory, attention, focus and fatigue. (Orlando HeaIth,2020)

Maintaining the proper hydration is very much essential for a swimmer. Hydration helps to optimize carbohydrate and ensures best performance during competitions (Andrea Boldt, 2020). Drinking water before and after the training regulates the body temperature, delivers nutrients and oxygen to body cell and removes waste from the body. The proper fluid balance in body improves circulation, regulates body temperature and promotes proper digestion and absorption of nutrients, supplies nutrients and oxygen to body cells. There are various symptoms of dehydration commonly observed in the swimmers, reduce in energy or apathy, infrequent urination or dark urine, sudden decline in strength and co- ordination. Apart from this the dehydration also affects the muscles and joints which leads to cramps, cartilage wear and friction in the joints. (Rob S WiIIiams,2019)

2. METHOD

A self-administered questionnaire was prepared to assess the level of hydration knowledge and drinking habits of swimmers. Various swimming club were approached which were affiliated with Thane District Swimming association (TDSA) and Swimming Federation of India (SFI) in Thane region and professional swimmers were analysed who participate in the State, National and International swimming competitions regularly. The participants for this study were of various ages groups and signed consent was obtained from both the participants and their parent/legal guardian.

2.1 Procedures

A self-administered questionnaire was prepared based on the various questions which consisted of hydration knowledge and was utilized to assess the level of hydration knowledge,

drinking habits of swimmers. Various swimming club were approached in Thane region and swimmers who are the professional swimmers and participate in the State, National and International swimming competition regularly were analysed.

2.2 Data analysis

The analysis was carried out through a Statistical Package of Social Sciences (SPSS). Descriptive statistics- Frequencies, percentages, measures of variability were computed, cross tab were used to show the relationship between variables and finally the data was concluded.

3. RESULTS:

The data was analysed by circulating the self-assessed questioner and the observation were noted based on the responses provided by the swimmers. Among the total swimmers 76% were the male participants and 24% were the female participants of the various age group. The age groups and participation as per the age group are mentioned in the Table1.

TABLE 1

PROFILE OF POPULATION

	Classification	Frequency	Percentage (%)
sex	female	6	24
	male	19	76
Age range	Under 8	3	12
	9-12	5	20
	13 - 15	3	12
	16 -18	4	16
	19 and above	10	40

3.1 Nutritional Knowledge:

It was observed that knowledge of hydration is gained in various ways by the swimmers. 44% swimmers get knowledge of hydration from Coaches. 32% get knowledge of hydration from parents/relatives/friends, 16% get knowledge of hydration from Media /Internet/Websites/ Articles and only 8% get knowledge of hydration from professional consultant.

3.2 Amount of water consumed during a day:

The amount of water consumed by the swimmers throughout the day differs as per the age group hence the consumption of water is calculated as per the age groups. Details mentioned in Table 2. It was observed that in the age group of 19 years and above 70% swimmers consumed 2-3 litres of water in a day, in 16-18 years age group 50% swimmers consumed 3- 4 litres of water, in 9-12 years 60% consumed 2-3 litres of water, in under 8 years 66.70% consumed 1-2 litres of water. While in the age group of 16-18 years 33.30% swimmers were found consuming more than 5 litres of water in a day.

TABLE 2

AMOUNT OF WATER CONSUMED BY THE SWIMMERS DURING A DAY.

Amount of water consumed in Litre (L)	Age					Total
	Under 8 Years	9 to 12 years	13 to 15 years	16 to 18 Years	19 years and above	
1-2 L	66.70%	40.00%	0.00%	25.00%	0.00%	20.00%
2-3 L	33.30%	60.00%	0.00%	50.00%	70.00%	52.00%
3-4 L	0.00%	0.00%	33.30%	0.00%	10.00%	8.00%
4-5 L	0.00%	0.00%	33.30%	0.00%	10.00%	8.00%
More than 5 L	0.00%	0.00%	33.30%	25.00%	10.00%	12.00%

3.3 Amount of water consumed during the training:

The swimmers have 3-4 hours of training session during a day and the amount of water consumed during the training is described in Table 3. In all the age groups more than 50% swimmers consumed 500 ml of water, except in the age group of 9-12 years 60% swimmer consumed 250 ml of water which is very less than the recommended consumption of water during the training.

TABLE 3

AMOUNT OF WATER CONSUMED BY THE SWIMMERS DURING TRAINING.

Amount of water consumed during the training. (ml/L)	Age					Total
	Under 8 Years	9 to 12 years	13 to 15 years	16 to 18 Years	19 years and above	
250 ml	33.30%	60.00%	0.00%	0.00%	10.00%	20.00%
500 ml	66.70%	0.00%	0.00%	75.00%	50.00%	40.00%
500-1000 ml	0.00%	40.00%	66.70%	0.00%	30.00%	28.00%
More than 1 litre	0.00%	0.00%	33.30%	25.00%	10.00%	12.00%

3.4 Nutritional fluid consumed during the training:

As per the details mentioned in Table 3, It was observed that more than 50% of swimmers in the various age group never consumed any nutritional fluid except the age group of 13-15 years in which 66.70% swimmers consumed nutritional fluid.

TABLE 4

NUTRITIONAL FLUID CONSUMED BY THE SWIMMERS DURING TRAINING SESSION

Nutritional Fluid consumed during training session	Age					Total
	Under 8 Years	9 to 12 years	13 to 15 Years	16 to 18 Years	19 years and above	
Always	33.30%	0.00%	66.70%	0.00%	10.00%	16.00%
Mostofthetimes	0.00%	0.00%	0.00%	50.00%	0.00%	8.00%
Never	66.70%	40.00%	0.00%	50.00%	50.00%	44.00%
Sometimes	0.00%	60.00%	33.30%	0.00%	40.00%	32.00%

3.5 Tiredness fatigue and muscular cramps observed after training:

It was observed that most of the swimmers felt tired, fatigue and also had muscular cramps sometimes after training, 60% swimmers of age group 19 years and above,50% swimmers of age group 16-18 years, 66.70% swimmers of age group 13-15 years and 60% swimmers of age group 9-12 years sometimes feel muscle pain and cramps after the training. The observations are mentioned in the table 5 and 6.

TABLE 5

TIREDNESS AND FATIGUE OBSERVED BY SWIMMERS AFTER TRAINING SESSION.

Feel tired or fatigue after training session	Age					Total
	Under 8 Years	9 to 12 years	13 to 15 Years	16 to 18 Years	19 years and above	
Always	0.00%	0.00%	0.00%	0.00%	10.00%	4.00%
Most of the times	0.00%	20.00%	0.00%	25.00%	10.00%	12.00%
Never	66.70%	0.00%	33.30%	0.00%	0.00%	12.00%
Sometimes	33.30%	80.00%	66.70%	75.00%	80.00%	72.00%

TABLE 6
FREQUENT MUSCLE PAIN/ CRAMPS OBSERVED BY THE SWIMMERS AFTER TRAINING SESSION.

Frequent muscle pain/cramps after the training session	Age					Total
	Under 8 Years	9 to 12 years	13 to 15 years	16 to 18 Years	19 years and above	
Most of the times	0.00%	20.00%	0.00%	25.00%	0.00%	8.00%
Never	66.70%	20.00%	66.70%	25.00%	40.00%	40.00%
Sometimes	33.30%	60.00%	33.30%	50.00%	60.00%	52.00%

4. DISCUSSION

In this study it was observed that swimmers gain the knowledge of hydration from parents, friends, media, internet, 44% swimmers gain knowledge of hydration from coach and only 8% approach the professional nutritional consultant. After observing the water consumption during day and during training it was found that the swimmers have insufficient knowledge about hydration. As hydration is very important for swimmers to maintain the body fluid balance the observations indicates that the swimmer should follow proper hydration consumption. The Institute of Medicine recommend that the adult swimmers aged 19 years and above need to consume 3-4 litres of water during the day but only 10% swimmers of age group 19 years and above consume 3-4 litres of water. Drinking excess water is also not good for the swimmers as per Orlando Health (2020) after drinking excess water the sodium that is naturally found in the blood gets diluted. Sodium is an electrolyte, which helps to maintain blood pressure and helps nerves, muscles and body tissues to work correctly. In 19 years and above 10% swimmers and in 16-18 years age group 33.30% swimmers consume more than 5 litres of water, which was observed as an excessive water consumption during a day. During training 500- 1Iitre amount is recommended for swimmers of all age group as per the Orlando Health (2020). It was observed that in age group of 9-12 years 60 % swimmers consumed only 250 ml of water during the training, which was less than the recommended water consumption.

The swimmers need to be hydrated during training; hence consumption of nutritional fluid is very much essential. Nutritional fluid helps to balance the electrolyte contents in the body and keeps body hydrated for longer durations. During training 50% swimmers of age group 19 years and above and 16-18 years never consumed any nutritional fluid/energy drink. Due to low or never consumption of nutritional fluid the swimmers may lose the electrolytes and face the dehydration symptoms like tiredness, fatigue, muscle pain and cramps. 25% swimmers in age group of 16-18 years most of the time face muscle pain and cramps and 60% swimmers of 19 years and above face the muscular pain and cramps sometimes. This frequent muscle pain and cramp is observed due to lack of electrolytes (sodium, potassium, magnesium, calcium, and chloride) in body which supports the normal muscle contraction. The consumption of nutritional fluids helps the body to replenish the electrolytes.

5. CONCLUSION:

The swimmers strive hard to perform the best at competitive level and they undergo tremendous pressure for best performance hence they should be always supported and guided with the proper knowledge of hydration and intake of water. The proper hydration plays a crucial role in the swimmer's performance hence apart from water they should also regularly consume nutritional fluids and juices. It will help swimmers to balance the electrolyte and avoid muscle pain, cramps during and after training and tiredness and fatigue after the training session.

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The abstract should be self-explanatory, of about 150 words; suitable for use by the abstracting journals, without rewording and should state what was aimed, what was done, what was found and what was concluded. For the review article, the abstract should be a concise summary.

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