



AN ANALYSIS OF MUSCULAR STRENGTH OF NORTH ZONE INTER-UNIVERSITY KHO-KHO WOMEN PLAYERS

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Abstract

It is becoming an accepted practice for physical fitness testing to emphasize certain components, which includes body composition (ratio of leanness to fatness), cardiovascular efficiency, muscular strength and endurance, and flexibility of lower back and posterior thigh area. Current discussions of physical fitness are commonly set in muscular strength context. The hypothesis set in this study was that there will not be any significant difference among the North zone interuniversity Kho-Kho women players. The purpose of the study was to compare the of muscular strength (abdominal) of Kho-Kho women players teams who were in top four ranking in north zone inter-university kho-kho women championship 2019-20. The top ranking team of this tournament was Dr. Rammanohar Lohia Avadh University, Ayodhya, Kurukshetra University, Kurukshetra, Panjab University, Chandigarh and Lovely Professional University, Phagwara accordingly. The twelve players of each team were included making the sample size of forty eight players for this study. Abdominal muscular strength has been assessed through Sit-up test. The sit-up test was scored as the number of sit-ups performed within a period of one-minute. To test the hypotheses one-way analysis of variance (F-ratio) was adopted. In the present study, muscular strength was found significant thus least significant difference (L.S.D) test were applied for pair-wise comparison of the mean values. Level of

significance was set at 0.05. The result of the study indicate that Muscular Strength (Abdominal) was higher in Kurukshetra Uni., Kurukshetra followed by Dr. R.L.A.U., Ayodhya, Panjab Uni., Chandigarh and L.P.S., Phagwara.

Key Words: Health, Muscular Strength & Physical Fitness, Kho-Kho Player

Introduction

Health promotion is a recognized component of present day in school education which is designed to prepare each youngster to deal with life's academic, cultural, and practical needs. He further mentioned that as an achievement in living, health is integrated with all aspects of schools life, which contribute to the effectiveness and enjoyment of life for each youngster. Health in the school is in an outgrowth of man's constant search for more effective and more enjoyable living. New millennium of 21st century has already been called the millennium of advancement of science, information technology, and insurgence of physical education. As a result of rapid increase in the scientific equipment, scientific methods of training and advanced research, physical education holds a major place in the society. Its aim is not only to provide recreation and enjoyment but also to give the knowledge of health and fitness, technique of playing games and sports, sense of understanding among the people of various cultures, promoting peace, security and unity



in the whole world. **Williams (1962)** specified that Physical fitness is essential not only in terms of general health but also for the special physical requirement for competitive sports and certain highly specialized and demanding occupation. It is becoming an accepted practice for physical fitness testing to emphasize certain components, which includes body composition (ratio of leanness to fatness), cardiovascular efficiency, muscular strength and endurance, and flexibility of lower back and posterior thigh area. Current discussions of physical fitness are commonly set in muscular strength context. **Mooneyhan et al. (1999)** conducted a study on the effects of frequency and duration of physical education programs on the Health-Related Physical Fitness of Sixth-Graders. The purpose of this investigation was to determine the effect if weekly physical education lesson and the number of minutes of physical education per week had any effect upon the health-related fitness of sixth-grade children. Seven hundred eighty-nine sixth-grade children (boys = 409, girls = 380) participated in the study. All were participants in the Fit for Life project that includes fitness testing at the beginning and end of the students' sixth-grade year. The fitness levels of each child were determined using the procedures and criteria established by the Physical Best Health Assessment. Fitness items included cardiovascular fitness, Body composition, muscular strength, muscular endurance, and flexibility. Additionally, height, weight, number of sit-ups and pull-ups and blood pressure were determined. Using Walks' a criterion, multivariate analysis of covariance indicated significant differences in both frequency and duration of physical education programs, subsequent analyses based on frequency revealed significant differences in flexibility,

aerobic capacity, muscular strength, muscular endurance, and body composition. In addition, analyses based on duration indicated significant differences in aerobic capacity, body composition, muscular endurance, but not flexibility, and muscular strength. Post-hoc analysis of simple contrasts determined that the 5 days week and 30 min/class groups had significantly greater aerobic capacity and muscular endurance than the other comparison groups. However, no significant practical or gender differences were noted on the other health-related fitness parameters. It was concluded, in general, the more days a physical education class meets per week the greater the level of health-related fitness, thus greater the aerobic capacity and muscular endurance. In addition, it appears that meeting 50-min per class does not yield any higher level of fitness than classes meeting 30-min.

Methodology

The purpose of the study was to compare the of muscular strength (abdominal) of kho-kho women players teams who were in top four ranking in north zone inter-university kho-kho women championship 2019-20. The top ranking teams of this tournament were Dr. Rammanohar Lohia Avadh University, Ayodhya, Kurukshetra University, Kurukshetra, Panjab University, Chandigarh and Lovely Professional University, Phagwara accordingly. The twelve players of each team were included making the sample size of forty eight (48) players for this study. Abdominal muscular strength has been assessed through Sit-up test. The sit-up test was scored as the number of sit-ups performed within a period of one-minute. The subject laid down on a mat with knees bent at right angles and hands behind the head. The ankles were firmly held by an assistant for support and maintaining the



count. The subject's head came close to the knee during the execution of the test. This action constituted one set-up. Subject returned to the starting position with the elbow on the surface before performing the sit-up again. The total sit-ups performed in one minutes were recorded as score of the individual. To test the hypotheses one-way analysis of variance (F-ratio) was adopted. In the present study, muscular strength was found significant thus least significant difference (L.S.D) test were applied for pair-wise comparison of the mean values. Level of significance was set at .05.

RESULTS

Table -1
Analysis of Variance of the Scores of the players

Source of Variation	Sum of Squares	Degree of Freedom	Mean Squares	F-ratio
Between	603.331	3	201.11	
Error	2768.038	44	62.91	3.197
Total	3371.369	47		

*Significant at 0.05 level of significance $F_{.05}(3, 44) = 2.80$

An observation of the table - 1 reveals that obtained 'F' value is 3.197, which is statistically significant as it is more than tabular value of 2.80 at 0.05 level. Thus, the hypothesis is rejected. In order to locate the pairs where significant differences exist L.S.D test has been applied. The results are presented in Table -2.

Table - 2
Means and Differences Between means among the teams

Universities				Mean Difference	CD at 0.05 level
Dr. R.L.A.U. Ayodhya	Kurukshetra Kurukshetra	Uni, Panjab Chandigarh	Uni, L.P.S. Phagwara		
23.75	26.33			2.58	5.44
23.75		19.67		4.08	5.44
23.75			17.17	6.58*	5.44
	26.33	19.67		6.66*	5.44
	26.33		17.17	9.16*	5.44
		19.67	17.17	2.50	5.44

*Significant at 0.05 level of significance

It is evident from the table-2 that the difference between the paired means for the Dr. R.L.A.U., Ayodhya- L.P.S., Phagwara, Kurukshetra Uni., Kurukshetra- Panjab Uni., Chandigarh and Kurukshetra Uni., Kurukshetra- L.P.S., Phagwarawere found to be significant as the critical difference value of 5.44 is less than these value. Whereas difference between the paired means for the Dr. R.L.A.U., Ayodhya-Kurukshetra Uni., Kurukshetra, Dr. R.L.A.U., Ayodhya- Panjab Uni., Chandigarh and Panjab Uni., Chandigarh- L.P.S., Phagwarawere not found to be significant as the critical value of 5.44 was more than these values. The L.S.D comparisons of the mean scores of the Players of Dr. R.L.A.U., Ayodhya, Kurukshetra Uni., Kurukshetra, Panjab Uni., Chandigarh, L.P.S., Phagwara are also presented graphically in figure-1.

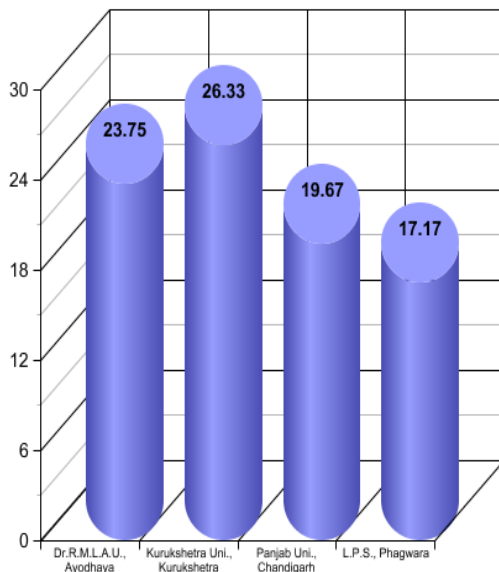


Fig. no. 01: Mean values of Mean values of University on muscular strength

CONCLUSION

The level of Muscular Strength (Abdominal) of the sample has been assessed and a comparison has been made among different universities taken two universities together. It is evident from the data that Muscular Strength (Abdominal) was higher in Kurukshetra Uni., Kurukshetra followed by Dr.R.L.A.U., Ayodhya, Panjab Uni., Chandigarh and L.P.S., Phagwara in that order.

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