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Effect of SAQ training on selected bio-motor variables such as speed, agility and quickness among female kho-kho players

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Abstract
The purpose of the study was to determine the effect of SAQ training on selected bio-motor variables such as speed, agility and quickness among female Kho-Kho players. In this study 20 female players from GDC for Women, Baramulla were selected as subjects and their age ranged from 18 - 23 years. These subjects were divided randomly into two groups of ten each (n=10). Group-1 underwent SAQ exercises followed by varied intensities for three alternative days per week for six weeks and Group-2 acted as control group who did not participate in any training during the training period other than their daily schedule in the curriculum. The data pertaining to this study were collected by administering 50 meter dash test, Shuttle Run Test and Hop test and was statistically analyzed by t-test and to find out the significant difference on adjusted posttest among the groups, analysis of co-variance (ANCOVA) was used. The level of significance to test the hypothesis was kept at 0.05. On the basis of the findings it was concluded that there was significant improvement on speed, agility and quickness due to the effect of SAQ training among female Kho-Kho players when compared to control group and also significant difference towards improving the selected bio-motor variables such as speed, agility and quickness among female Kho-Kho players than control group.

Keywords: bio-motor variables kho-kho players

Introduction
The word training has been a part of human language since ancient times. It denotes the process of preparation for some task. This process invariably extends to a number of days and even months and years. Systematic nature of the training process is reflected adequately by the fact that the various means and methods, load dynamics, training tasks etc. are planned in order to achieve short or long term goals, keeping in view the inter-relations of various training elements and cyclic nature of performance development.
Training is not a recent discovery. In ancient times, people systematically trained for military and Olympic endeavors. Today athletes prepare themselves for a goal through training. Training represents a long term endeavor. Athletes are not developed overnight and a coach cannot create miracles by cutting corners through overlooking scientific and methodical theories.

Statement of the Problem
``Effect Of SAQ Training On Selected Bio-Motor Variables Such As Speed, Agility And Quickness Among Female Kho-Kho Players``.

Purpose of the study
The purpose of the study was to find out the effect of SAQ training on selected bio-motor variables such as speed, agility and quickness among female kho-kho players**.**

Significance of the study
1) The ultimate goal of research in physical education is to help coaches and physical educators to train their athletes and players based on new concepts to improve their performance.
2) The findings of the study would reveal the extent to which the SAQ training improves the speed parameters.
3) SAQ training is one of the very important training regimens to improve reaction-time, co-ordination, balance and speed which are basic for athletic performance.
4) The result of the study may be useful to the professional colleagues of physical education and sports to prepare training schedule for specific event.
5) The result of the study would add to the quantum of knowledge in the area of sports training.

Hypotheses
It has been scientifically accepted that any systematic training over a continuous period of time would lead to produce changes on athletic qualities. Based on the study conducted and reviewing the related literature available in the area, the investigator framed the following hypothesis:
1) There would be a significant improvement on selected bio-motor variables due to the effect of SAQ training when compared to control group.
2) There would be significant difference on the selected bio-motor variables between the experimental and control groups.

Delimitations
The study was delimited in the following aspects.
1. 20 female kho-kho players from GDC for Women, Baramulla were selected as subjects. All subjects were informed about the nature of the study and their consent was obtained to cooperate till the end of the experiment.
2. The age of the subjects ranged from 18- 23 years.
3. The subjects were assigned at random into two groups of ten each (n=10). Group-1 underwent SAQ training and

Group-2 acted as control group who did not participate in any training during the training period other than their daily schedule in the curriculum.

4. The duration of the training period was restricted to six weeks and the number of sessions per week was confined to three which was considered adequate to cause changes in fitness component.
5. The dependent variable speed, agility and quickness were selected for this study.

Limitations

The following were the limitations of the study:-

1) The previous experience of the subjects in the field of sports and games, which might be influencing on the training and data collection were not considered.
2) Psychological factors, food habits, rest period and life style etc., factors were not under control.
3) The weather conditions such as atmospheric temperature, humidity and meteorological factors during testing and training periods were also not considered.
4) Though the subjects were motivated verbally, no attempt was made to differentiate the motivation levels during the period of training and testing.

Design of the study

20 female players from GDC for Women, Baramulla were selected as subjects and their age ranged from 18 to 23 years. These subjects were divided randomly into two groups of ten each (n=10). Group-1 underwent SAQ exercises followed by varied intensities for three alternative days per week for six weeks and Group-2 acted as control group who did not participate in any training during the training period other than their daily schedule in the curriculum. The data from the two groups were collected before and after the experiment by administering 50 meter dash test to measure speed in seconds, Shuttle Run Test to measure agility in seconds and Hop test to measure quickness in seconds and was statistically analyzed by t-test and to find out the significant difference on adjusted posttest among the groups, analysis of co-variance (ANCOVA) was used. The level of significance to test the hypothesis was kept at 0.05.

Findings

The data collected on 20 subjects were statistically examined for significant improvement by dependent `t` test and *to find out the significant difference on adjusted posttest among the groups, analysis of co-variance (ANCOVA) was used. The level of significance to test the hypothesis was kept at 0.05*. The result pertaining to these data have been depicted in the following tables.

Table 1: Summary of mean and dependent `t`-test for the pre and post tests on speed of SAQ training group and control group

Tests		Pre test	Post test	`t`- value
SAQ Training Group	Mean	7.34	7.19	3.65*
	SD	0.32	0.21	
Control Group	Mean	7.57	7.62	1.83
	SD	0.29	0.29	

*Significant at 0.05 level. Tabulated $F_{0.05}$ (9) = 2.26

The table-1 shows that the pre-test mean value of SAQ training group and control group are 7.34 and 7.57 respectively and the posttest means are 7.19 and 7.62 respectively. The obtained dependent t-ratio values between the pre and posttest means of SAQ training group and control group are 3.65 and 1.83 respectively. The table value required for significant difference with df 9 at 0.05 level is 2.26. Since, the obtained `t` ratio value of SAQ training group are greater than the table value, it is understood that SAQ training group had significantly improved the speed. However, the control group has not improved significantly. The obtained `t` value is less than the table value, as they were not subjected to any specific training.

The analysis of co-variance on speed of SAQ training group and control group have been analyzed and presented in table-2.

Table- 2: Analysis of co-varience on speed of SAQ training group and control group

Adjusted Post Test Means		Source of variance	Sum of squares	df	Mean square	F-ratio
SAQ Training Group	Control Group					
7.28	7.53	Between	0.28	1	0.28	28*
		within	0.14	17	0.01	

*Significant at 0.05 level. Tabulated $F_{0.05}$ (1, 17) = 4.45

The table-2 shows that the adjusted post-test means of SAQ training group and control group are 7.28 and 7.53 respectively. The obtained F-ratio value is 28, which is greater than the table value 4.45 with df 1 and 17 required for significance at 0.05 level. Since, the value of F-ratio is greater than the table value, it indicates that there is significant difference among the adjusted posttest means of SAQ training group and control group.

Table 3: Summary of mean and dependent `t`-test for the pre and post tests on agility of SAQ training group and control group

Tests		Pre test	Post test	`t`- value
SAQ Training Group	Mean	39.53	39.04	6.83*
	SD	0.35	0.27	
Control Group	Mean	39.71	39.80	2.07
	SD	0.28	0.24	

*Significant at 0.05 level. Tabulated $F_{0.05}$ (9) = 2.26

The table-3 shows that the pre-test mean value of SAQ training group and control group are 39.53 and 39.71 respectively and the posttest means are 39.04 and 39.80 respectively. The obtained dependent t-ratio values between the pre and posttest means of SAQ training group and control group are 6.83 and 2.07 respectively. The table value required for significant difference with df 9 at 0.05 level is 2.26. Since, the obtained `t` ratio value of SAQ training group are greater than the table value, it is understood that SAQ training group had significantly improved the agility. However, the control group has not improved significantly. The obtained `t` value is less than the table value, as they were not subjected to any specific training.

The analysis of co-variance on agility of SAQ training group and control group have been analyzed and presented in table-4.

Table 4: Analysis of co-varience on agility of SAQ training group and control group

Adjusted Post Test Means		Source of variance	Sum of squares	df	Mean square	F-ratio
SAQ Training Group	Control Group					
39.10	39.74	Between	1.87	1	1.87	79.97*
		within	0.40	17	0.02	

*Significant at 0.05 level. Tabulated $F_{0.05}$ (1, 17) = 4.45

The table-4 shows that the adjusted post-test means of SAQ training group and control group are 39.10 and 39.74 respectively. The obtained F-ratio value is 79.97, which is greater than the table value 4.45 with df 1 and 17 required for significance at 0.05 level. Since, the value of F-ratio is greater than the table value, it indicates that there is significant difference among the adjusted posttest means of SAQ training group and control group.

Table- 5: Summary of mean and dependent `t`-test for the pre and post tests on quickness of SAQ training group and control group

Tests		Pre test	Post test	`t`- value
SAQ Training Group	Mean	13.64	13.10	7.34*
	SD	0.60	0.48	
Control Group	Mean	13.63	13.64	0.46
	SD	0.32	0.32	

*Significant at 0.05 level. Tabulated $F_{0.05}$ (9) = 2.26

The table-5 shows that the pre-test mean value of SAQ training group and control group are 13.64 and 13.63 respectively and the posttest means are 13.10 and 13.64 respectively. The obtained dependent t-ratio values between the pre and posttest means of SAQ training group and control group are 7.34 and 0.46 respectively. The table value required for significant difference with df 9 at 0.05 level is 2.26. Since, the obtained `t` ratio value of SAQ training group are greater than the table value, it is understood that SAQ training group had significantly improved the quickness. However, the control group has not improved significantly. The obtained `t` value is less than the table value, as they were not subjected to any specific training.

The analysis of co-variance on quickness of SAQ training group and control group have been analyzed and presented in table-6.

Table 6: Analysis of co-varience on quickness of SAQ training group and control group

Adjusted Post Test Means		Source of variance	Sum of squares	df	Mean square	F-ratio
SAQ Training Group	Control Group					
13.10	13.66	Between	1.49	1	1.49	65.66*
		within	0.37	17	0.02	

*Significant at 0.05 level. Tabulated $F_{0.05}$ (1, 17) = 4.45

The table-6 shows that the adjusted post-test means of SAQ training group and control group are 13.10 and 13.66 respectively. The obtained F-ratio value is 65.66, which is greater than the table value 4.45 with df 1 and 17 required for significance at 0.05 level. Since, the value of F-ratio is greater than the table value, it indicates that there is significant difference among the adjusted posttest means of SAQ training group and control group.

Discussion of findings

The result of the study indicates that there was significant improvement on speed, agility and quickness due to the effect of SAQ training among female Kho-Kho players when compared to control group.

The result of the study also indicates that there was significant difference among female Kho-Kho players towards improving the selected bio-motor variables such as speed, agility and quickness than control group.

It is inferred from the literature and from the result of the present study. That systematically designed training develops dependent variables are very importance quilts for better performance in almost all sports and games. Hence it is concluded that systematically designed training may be given due recognition and implemented properly in the training program of all the discipline in order to achieve maximum performance.

Conclusion

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

1. There was significant improvement on speed due to the effect of SAQ training among female kho-kho players.
2. There was significant improvement on agility due to the effect of SAQ training among female kho-kho players.
3. There was significant improvement on quickness due to the effect of SAQ training female kho-kho players.
4. There was significant difference among female kho-kho players towards improving the selected bio-motor variables such as speed, agility and quickness than control group.

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