

Effect of Circuit Training on Selected Motor Fitness Variables on Skill Performance of Male Mallakhamb Players

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Abstract

The study was conducted to test the effect of circuit training on selected motor fitness variables on skill performance of male mallakhamb players. 20 Male mallakhamb players were randomly selected age group below 14 years, from Raturaj Sports Academy, Chinchpokli, Mumbai. They were induced with circuit training programme designed by the experimenter for the study instead of their regular training schedule. The training was conducted for a duration of 60 minutes 3 days a week. The session included warming up, circuit training, skill training and cool down post session. The variables used for motor fitness parameters were balance and abdominal strength endurance, while those for skill performance were veerbhadrasana and potachatajawa (abdominal balance). The study was designed as a single group experimental design, an operated in three phases: pre – test before the intervention was induced, the intervention phase and lastly the post – test phase after the completion of the intervention application. The data was collected during the pre – test and post – test phases and statistically analysed using the paired ‘t’ test and the study showed a significant difference at 0.05 level. It can thus be concluded that circuit training programme improved the motor fitness variables such as balance and abdominal strength endurance as well as mallakhamb skill performance of veerbhadrasana and potachatajawa of male mallakhamb players.

Keywords: Mallakhamb, Circuit Training, Skill Performance

Introduction

Mallakhamb is an ancient sport originating during the epic period of Indian history. It is said to be the mother of ancient sports. The word “*Mallakhamb*” is derived from the Sanskrit word “*Malla*” meaning wrestling and the word “*Khamb*” meaning pole. Thus, it can be literally translated as wrestling with a pole. In Mallakhamb, the malla performs various acrobatic and wrestling moves such as balance, spinning, climbing, holds and twisting on the pole or rope, using their strength, flexibility, speed and agility to perform impressive skills. Mallakhamb requires a high level of physical fitness components such as strength, co-ordination, speed and flexibility, and is often used as a form of cross – training for other sports such as gymnastics, rock climbing, and martial arts. It is also considered a form of artistic expression and is sometimes performed as a culture showcase at festival and events.

Pole mallakhamb is performed by both male and female malla's. It is a part of competition rotation. The malla performs various skills of strength, balance, speed, co-ordination and flexibility on and around the mallakhamb, which are classified into various points categories based on their type and level of difficulty. The routines are evaluated based on what and how the malla has executed each skill on and around the mallakhamb.

As there are no much studies that have worked on the development of skill performance and motor development of mallakhamb players. Hence, the experimenter chose to treat the mallakhamb players with circuit training for selected motor fitness variables and skill performance.

Objective of the Study

To find of the effect of circuit training on performance of potachatajawa and veerbhadrasana skill performance in male mallakhamb players.

To prepare a circuit training module for improving the performance of potachatajawa and veerbhadrasana skill performance in male mallakhamb players.

To determine the effect of circuit training exercises on muscular endurance (abdominal muscular endurance) motor fitness variable of male mallakhamb players.

To determine the effect of circuit training exercises on balance motor fitness variable of male mallakhamb players.

Hypothesis

H₁: There will be a significant improvement in potachatajawa (abdominal balance) skill performance due to circuit training in male mallakhamb players.

H₂: There will be a significant improvement in veerbhadrasana skill performance due to circuit training in male mallakhamb players.

H₃: There will be a significant improvement in muscular endurance (abdominal) due to circuit training in male mallakhamb players.

H₄: There will be a significant improvement in balance due to circuit training in male mallakhamb players.

Method

A single group experimental design was designed for this study. Twenty (N = 20) male malla's were randomly selected as subjects from 75 mallakhamb players from the age group under 14 years, from a single club namely Raturaj Sports Academy, Chichpokali, Mumbai. The selected twenty subjects formed a single experimental group. A pre and post-test was conducted on selected motor fitness variables of balance and muscular endurance (abdominal) using standardized test of stork stand for balance and abdominal sit ups for abdominal muscular endurance. Similarly, skill performance of potachatajawa and veerbhadrasana skills was assessed as prescribed by the Mallakhamb Federation of India (MFI) as mentioned in the Mallakhamb Code of Points. The complete scoring pattern was applied to skill performance tests as mentioned by the code of point after the data collection of the pre and post – tests, the training was introduced during the evening session of training for the time span of 60 minutes for 3 days a week (Monday, Wednesday and Friday). The sessions included general warm up, circuit training conditioning, skill practice and cool down. After completion of every 3 weeks' modifications were made to the circuit training programme. The training was provided for a total period of 12 weeks (3 Months).

Statistical Analysis and Findings

The data obtained during the pre – test and the post – test was then arranged into appropriate tabulations and analysed by using statistical procedures of paired ‘t’ test for further understanding and interpretation of the scores obtained. The results for each of the parameters is individually mentioned below:

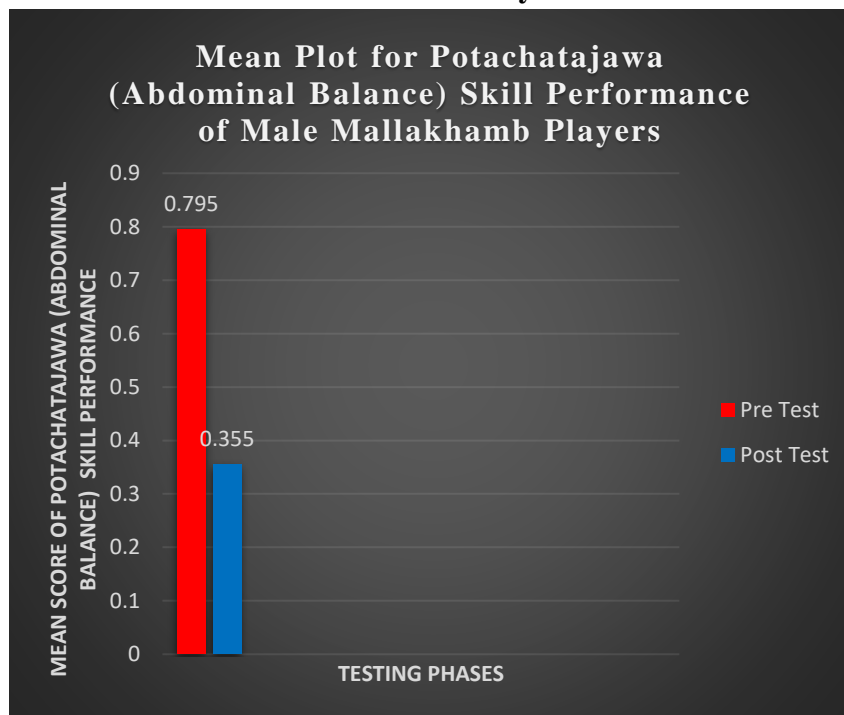
Result and Interpretation for Potachatajawa (Abdominal Balance) Skill Performance of Male Mallakhamb Players

Table 1 Mean Plot for Potachatajawa (Abdominal Balance) Skill Performance of Male Mallakhamb Players

Pre – Test		Post – Test		SEM Diff	‘t’	Df	Sig. (2 tailed)
Mean	SD	Mean	SD				
0.795	0.17	0.355	0.126	0.025	18.294	19	0.0001

It is seen from the above tabulation, that the potachatajawa skill performance as measured by the evaluation of the skill of mean score of pre and post-test of the selected subjects are 0.795 (SD 0.170) and 0.355 (SD 0.126) respectively, whereas the mean difference is 0.025 and ‘t’ value is 18.2944, which is significant at 0.05 level. Since calculated ‘t’ = 18.2944 is greater than tabulated ‘t’ value is 2.09, at 0.05 level of significance. Hence, the hypothesis, H1: There will be a significant improvement in potachatajawa (abdominal balance) skill performance due to circuit training in male mallakhamb players is Accepted. The above significant improvement is graphically represented below:

Figure 1 Mean Plot for Potachatajawa (Abdominal Balance) Skill Performance of Male Mallakhamb Players



From the above graphical representation, it is interpreted that the malla’s have shown significant improvement in the Potachatajawa skill performance due to circuit training as there is a visible reduction in the deduction scores in the post test as compared to the pre-test. Hence, **H₁**: There will be a significant improvement in potachatajawa (abdominal balance) skill performance due to circuit training in male mallakhamb players, is **Accepted**.

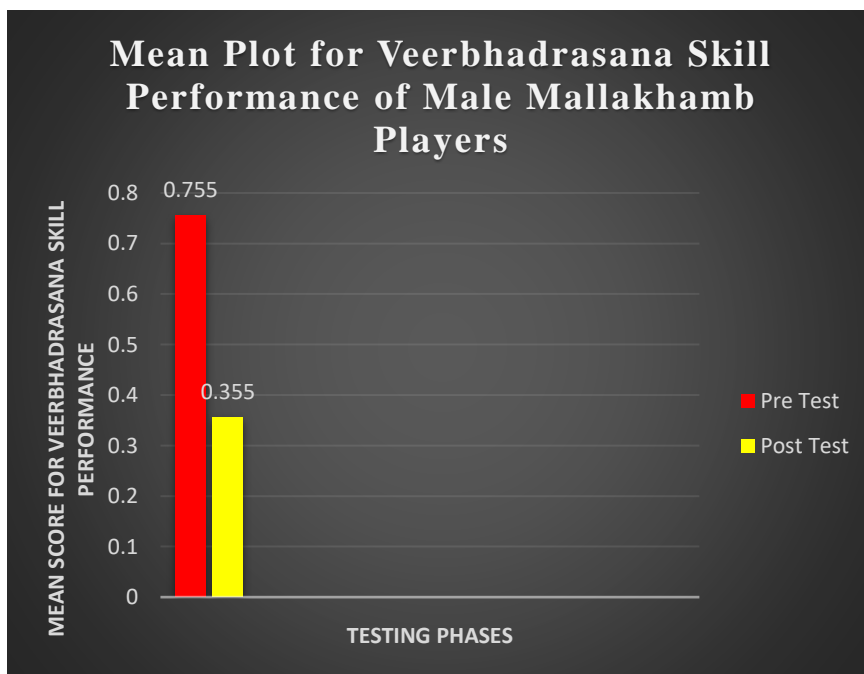
Result and Interpretation for Veerbhadrasana Skill Performance of Male Mallakhamb Players

Table 2 Mean Plot for Veerbhadrasana Skill Performance of Male Mallakhamb Players

Pre – Test		Post – Test		SEM Diff	‘t’	Df	Sig. (2 tailed)
Mean	SD	Mean	SD	0.031	12.995	19	0.0001
0.755	0.204	0.355	0.164				

It is seen from the above tabulation, that the veerbhadrasana skill performance as measured by the evaluation of the skill of mean score of pre and post-test of the selected subjects are 0.755 (SD 0.204) and 0.355 (SD 0.164) respectively, whereas the mean difference is 0.031 and ‘t’ value is 12.995, which is significant at 0.05 level. Since calculated ‘t’ = 18.2944 is greater than tabulated ‘t’ value is 2.09, at 0.05 level of significance. Hence, the hypothesis, **H₂**: There will be a significant improvement in veerbhadrasana skill performance due to circuit training in male mallakhamb players is Accepted. The above significant improvement is graphically represented below:

Figure 2 Mean Plot for Veerbhadrasana Skill Performance of Male Mallakhamb Players



From the above graphical representation, it is interpreted that the malla’s have shown significant improvement in the Veerbhadrasana skill performance due to circuit training as there is a visible reduction in the deduction scores in the post test as compared to the pre-test. Hence, **H₂**: There will be a significant improvement in veerbhadrasana skill performance due to circuit training in male mallakhamb players, is **Accepted**.

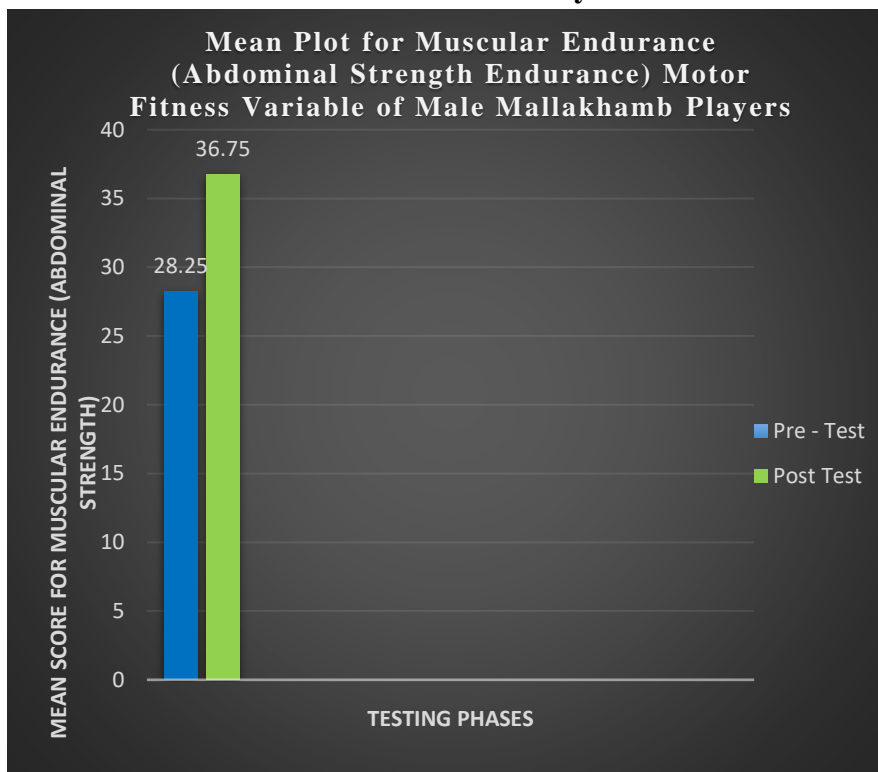
Result and Interpretation of Muscular Endurance (Abdominal Strength Endurance) Motor Fitness Variable of Male Mallakhamb Players

Table 3 Mean Plot for Muscular Endurance (Abdominal Strength Endurance) Motor Fitness Variable of Male Mallakhamb Players

Pre – Test		Post – Test		SEM Diff	‘t’	Df	Sig. (2 tailed)
Mean	SD	Mean	SD				
28.25	3.91	36.75	3.70	0.489	17.369	19	0.0001

It is seen from the above tabulation, that the Muscular Endurance (abdominal strength) as measured by the sit up test for muscular endurance the mean score of pre and post-test of the selected subjects are 28.25 (SD 3.91) and 36.75 (SD 3.70) respectively, whereas the mean difference is 0.489 and ‘t’ value is 17.369, which is significant at 0.05 level. Since calculated ‘t’ = 17.369 is greater than tabulated ‘t’ value is 2.09, at 0.05 level of significance. Hence, the hypothesis, **H₃**: There will be a significant improvement in muscular endurance (abdominal) due to circuit training in male mallakhamb players, is accepted. The above significant improvement is graphically represented below:

Figure 3 Mean Plot for Muscular Endurance (Abdominal Strength) Motor Fitness Variable of Male Mallakhamb Players



From the above graphical representation, it is interpreted that the malla’s have shown significant improvement in the Muscular Endurance (abdominal strength) due to circuit training as there is a visible increase in the mean scores in the post test as compared to the pre-test. Hence, **H₃**: There will be a significant improvement in muscular endurance (abdominal) due to circuit training in male mallakhamb players, is **Accepted**.

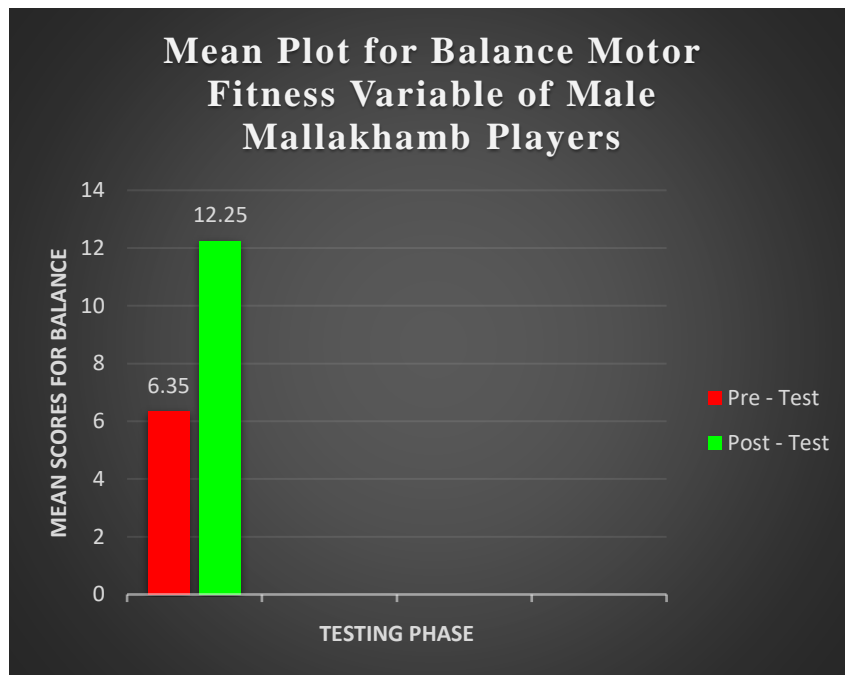
Result and Interpretation of Balance Motor Fitness Variable of Male Mallakhamb Players

Table 4 Mean Plot for Balance Motor Fitness Variable of Male Mallakhamb Players

Pre – Test		Post – Test		SEM Diff	‘t’	Df	Sig. (2 tailed)
Mean	SD	Mean	SD				
6.35	4.56	12.25	5.33	0.497	11.875	19	0.0001

It is seen from the above tabulation, that the Balance as measured by the stork stand test for balance the mean score of pre and post-test of the selected subjects are 6.35 (SD 4.56) and 12.25 (SD 5.33) respectively, whereas the mean difference is 0.497 and ‘t’ value is 11.875, which is significant at 0.05 level. Since calculated ‘t’ = 11.875 is greater than tabulated ‘t’ value is 2.09, at 0.05 level of significance. Hence, the hypothesis, **H₄**: There will be a significant improvement in balance due to circuit training in male mallakhamb players., is accepted. The above significant improvement is graphically represented below:

Figure 4 Mean Plot for Balance Motor Fitness Variable of Male Mallakhamb Players



From the above graphical representation, it is interpreted that the malla’s have shown significant improvement in the Balance due to circuit training as there is a visible increase in the mean scores in the post test as compared to the pre-test. Hence, **H₄**: There will be a significant improvement in balance due to circuit training in male mallakhamb players, is **Accepted**.

Findings and Discussions

From the above analysis and interpretation of the data, the following findings may be drawn-Circuit training programme contributes significantly towards the development of potachatajawa and veerbhadrasana skill performance of male mallakhamb players. As seen in the pre-test scores obtained by the application of evaluation procedure is score is lower than that of the post-test. Also, it has significantly

improved motor fitness variables of muscular endurance (abdominal strength) and balance of male mallakhamb players. As observed the post – test scores for motor fitness testing are higher than that of the pre - test. Thus showing significant improvement in the skill performance and selected motor fitness variables of male mallakhamb players.

Conclusion

From the statistical analysis it has been concluded that there has been a significant improvement in selected motor fitness variables and skill performance of male mallakhamb players due to circuit training.

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