

Study on the Effect of Functional Training on Vaulting Table Performance of Female Gymnasts

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Abstract:

Gymnastics is a multi – disciplined sports in which artistic gymnastics has been performed since the inception of the sport in ancient Greek culture. Within artistic gymnastics men have 6 events while women have 4 events, among which vaulting table is an event that is common to both genders. Vaulting table is an event which last for few seconds of performance and is seen as a speed, power, reaction based and high precision event. In this study the researcher has attempted to study the effect of functional training programme on vaulting table performance of female gymnasts. For this study 15 sub – elite gymnasts were chosen from Mumbai Suburban District, from the age group 11 to 16 years. The study was conducted for a duration of 16 weeks (4 months), for 5 days a week (Monday, Tuesday, Wednesday, Friday and Saturday). It was conducted in three phases namely pre – test phase, training programme phase and post – test phase. The data was collected during the pre – test phase followed by the training phase during which functional training programme was administered and finally a post – test phase. The collected data was tabulated, arranged systematically and further analysed using statistical procedures. The results obtained were such that the mean score for performance on vaulting table the pre-test (9.94) and that of the post test (10.74) the SD for the pre – test (0.81) and that of the post-test (0.44) the Standard Error of Mean SEM for the pre – test (0.21) and that of post – test (0.11), where $N = 15$ and $df = 14$. The calculated t value for the pre and post – test using paired t test was 4.67, which is significant at 0.05 level. Hence, the hypothesis H_1 – There will be a significant improvement in vaulting table performance of female gymnasts due to functional training is **accepted**.

Keywords: Artistic Gymnastics, Vaulting Table, Functional Training.

Introduction:

Gymnastics is a multi – disciplined sport. Among which Artistic Gymnastics is the earliest forms of gymnastics performed from the inception of the sports in Greece. Artistic gymnastics has in all 8 events of which 4 events are for Women Artistic Gymnastics (WAG) and 6 for Men Artistic Gymnastic (MAG). Among these 8 events 2 events are common for men and women with certain technical differences they are namely Floor Exercise and Vaulting Table. Vaulting in the earlier days was performed by mounting and dismounting and jumping across bulls. later substituted by a wooden block. ^[1] During the 1800's and the 1900's the wooden pommel designed by Friedrich Jahn was used for practice by gymnasts without the pommel rings only using the flat surface. This design resembled a horse. From these prototypes came the term Vaulting Horse. In 1896, the vault was inaugurated in the Athens, Summer Olympic Games. Over a period, the number of injuries among gymnasts while performing vaulting event increased owing to the increase in the level of difficulty and complexity of skills performed by gymnasts. Hence, in the year 2001

a new vault prototype called the ‘Table’ was introduced for men and women artistic gymnastics. This was redesigned keeping in mind the safety and level of difficulty of the gymnasts.

Vaulting table is an event in which the duration of performance is the shortest as compared to all the other events. The performance of vaulting table lasts from 30 to 45 seconds from the signal of start. Over the years several training plans and methods have been designed to train and enhance the performance of gymnasts on vaulting table. With a variety of training methods used to develop and enhance the performance of gymnasts, this research attempts to understand the effect of functional training program of the performance of female gymnasts on vaulting table event. The current study is designed to “Study the Effect of Functional Training on Vaulting Table Performance of Female Gymnasts.”

Hypothesis

H₁: - There will be a significant improvement in vaulting table performance of female gymnasts due to functional training.

Methodology

From 25 sub – elite gymnasts 15 gymnasts were randomly selected for the study using purposeful sampling. The subjects were selected from Mumbai Suburban District from the age group 11 to 16 years respectively, participating in sub – junior and junior pre – competitive and competitive artistic gymnastics. A single group experimental designed was framed for this study. The selected subjects from Mumbai Suburban District were assigned to functional training for a duration of 16 weeks (4 Months). The training was given for 5 days a week on Monday, Tuesday, Wednesday, Friday and Saturday in the evenings for a period of one and a half hour (90 minutes).

The study was conducted in three phases namely pre – test, training phase and posttest. The data for the study was collected in a pre and post-test format, whereby a pre – test was conducted before the training and programme and a post – test after the completion of the training programme. The training programme was conducted on vaulting table performance of female gymnasts, by administering the performance evaluation procedure mentioned in the Code of Points prescribed by the Federation International Gymnastics (FIG). The researcher designed specific functional training programme for vaulting table performance of selected skill of handspring pike keeping in mind the safety and age group of the gymnasts for the purpose of evaluation. The selected skill was evaluated during the pre – test followed by functional training after which a post – test was conducted.

The independent variable chosen for this study was functional training, while the dependent variable was vaulting table performance.

The subjects were given thorough orientation about the purpose, aim, objectives and need of the study to the clear understanding and consent of the gymnasts. After which the pre – test data was collected, and the researcher introduced the subjects to functional training programme which was monitored and progressively changed after every 4 weeks. At the end of 16 weeks of the training a post – test was conducted. And both the pre and post – test data were tabulated and systematically arranged and further analysed using statistical analysis to draw conclusions for the study.

Results and Discussions

The data was obtained by using the evaluation criteria of the Women Artistic Gymnastics Code of Point laid by the Federation International Gymnastics. The obtained data was further systematically arranged,

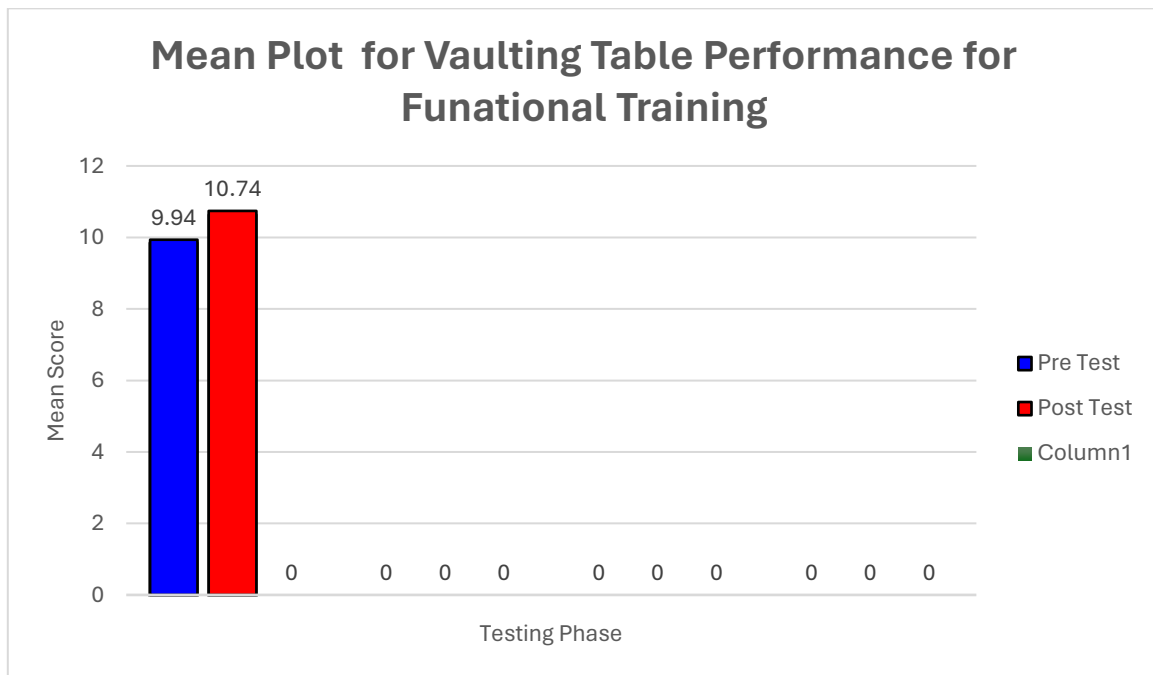
tabulated, and analysed using paired t test using the Graph Pad calculator software. The results of the analysis were as follows:

Table 1.1 Analysis of Pre and Post – Test Data of Vaulting Table Performance of Female Gymnasts for Functional Training

Group	Mean	SD	SEM	N	T	Df	Standard Error of Difference
Pre-Test	9.94	0.81	0.21	15	4.67	14	0.17
Post Test	10.74	0.44	0.11				

From the above tabulation Mean (M) of pre – test (9.94) < post – test (10.74), calculated to value 4.67 and the degree of freedom (df) 14 for N = 15. The standard deviation (SD) scores for pretest are (0.81) and that of the posttest (0.44) while the standard error of mean (SEM) for pre – test (0.21) and that of the posttest (0.11). The result is significant at 0.05 level. Thus, proving that there has been an improvement in the performance of female gymnasts on vaulting table due to functional training.

The tabulated data is graphically represented for further understanding of the study. The graphical representation depicts the mean plot of the data scores obtained after the application of the statistical procedure.



Mean Plot for Vaulting Table Performance for Functional Training

From the above graphical representation, it has been shown that there has been a significant improvement in the performance of selected subjects (female gymnasts) on vaulting table after the intervention of functional training for 16 weeks, as there is a rise in the graph of the posttest as compared to that of pretest. There is also a positive increase in the mean scores of the pre – test and post – test.

The conclusion drawn from the bases of the above graphical presentation and statistical calculations states that there is a significant improvement in the vaulting table performance of female gymnasts due to functional training.

Conclusion:

While concluding it can be stated that:

- Functional training provided a significant improvement in the performance of vaulting table of the female gymnasts.
- The research has proved to be successful both statistically and graphically.

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