

Effect of Gymnastics Training on Balance of Secondary School Boys

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Abstract

The study was conducted on selected balance components of sixty boys (N= 60) of school level (7th to 9th standard) with a purpose to determine the effect of gymnastics training on balance. 30 subjects were selected for each group i.e. experimental and control. The variables selected related to balance were dynamic test of positional balance, kinesthetic obstacle test and cable jump test. In order to find out the effect of gymnastics training on balance, the analysis of co-variance was applied at 0.05 levels of significance. It was concluded that gymnastics training leads to development of dynamic test of positional balance (F-value=87.34), kinesthetic obstacle test (F-value=11.43) and cable jump test (F-value=32.79).

Key words: Gymnastics, balance, dynamic, kinesthetic, cable jump.

Introduction

Gymnastics is an activity and sport involving performance of exercises requiring physical strength, flexibility, agility, co-ordination, balance, and grace. It is a well known exercise and game in the world. It affects the whole body system of individual and is necessary to keep our body healthy especially of growing children. Gymnastics is a game of concentration and practice. Regular practice of gymnastic improves concentration of individual. The objective of present study was to find out the effect of participation in gymnastics training programme on balance.

Experimental

Variables selected

From scholar's own understanding of the problem and as gleaned through the literature, following variables related to balance were selected.

1. Dynamic test of positional balance,
2. Kinesthetic obstacle test
3. Cable jump test.

Subjects

The subjects for present study were selected on the basis of their interest in gymnastics and their willingness to participate in the 12 weeks training programme prepared by the scholar. Students of 7th, 8th and 9th standard were selected as subjects for the study keeping in mind their ready availability and trainability in gymnastics. The average age of the subjects was 15 years ranging from 13 to 16 years. All the subjects were studying in various schools of Ujjain. Though coming from different family backgrounds, all the subjects were fairly homogenous in almost all aspects.

Training Programme

The investigator prepared a suitable training programme for the subjects. The training program was prepared with the help of the experts in gymnastics and includes the following exercises:

1. General warming-up including jogging, running, jumping, stretching, and rotation of different body parts.
2. Basic fundamental gymnastics skills of following apparatus.
 - (a) Vaulting horse skills - Straddle vault
 - (b) Pommel horse skills - Holding of palm, shifting the body weight, one leg circle and undercut circle.
 - (c) Roman rings skills - Inverted hang, in location, dislocation, swing forward, swing backward and back upraise.
 - (d) Parallel bars skills - waking on the bar, simple swing, shoulder stand, back upraises and L position holds.
 - (e) Horizontal bar skills - simple swing one leg circle forward and backward, swing changing and back upraise.
 - (f) Floor exercises - forward roll, backward roll, cart wheel, hand stand, arch, handstand forward roll, side roll, balancing movements and dive roll.



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Duration of the training programme

Duration of the training programme was 12 weeks, starting from 1st January and continuing up to 31st of March. Training was given three days a week, on Mondays, Wednesdays and Fridays. Duration of each training session of the experimental group divided into three sub-groups of ten subjects each for the purpose of training. The scholar and two of his colleagues administered the training programme; all were qualified and experienced gymnastics coaches. Training was given at the Maharajwada Gymnasium, Ujjain (M.P.)

Experimental design

The present study utilized a modification of the random group design whereby the thirty subjects for the experimental group were volunteers who has agreed to participate in the training and testing for the study. The thirty subjects for the control group were selected randomly from the same age and grade levels as those of the experimental group subjects. In as much as the training was to be quite rigorous, it was considered more appropriate to have volunteers in the experimental group rather than selecting the subjects randomly.

Results and Discussion

Data presented in Table 1 clearly show that the pre test, post test and adjusted post test mean values for Test of position balance (DTPB), Kinesthetic obstacle test (KOT), and Cable jump test (CJT) were higher in experimental groups compared to control which may be explained on the ground of improvement in balance of subjects. Further, the analysis of covariance for balance indicated that the resultant F -ratio of 87.34, (dynamic test of positional balance), F -ratio of 11.43 (kinesthetic obstacle test) and F-ratio of 32.79 (cable jump test), was found significant in case of all the selected variables for adjusted post test means.

Table 1 Analysis of co-variances of the means of the experimental and control group in selected variables of balance

| Tests | Means | Groups | | Sum of squares | DF | Mean sum of square | F ratio |
|---------------------------------|--------------------------|--------------|---------|------------------------|-------|--------------------|---------|
| | | Experimental | Control | | | | |
| Test of position balance (DTPB) | Pre test means | 9.33 | 8.83 | A = 3.75, W= 322.84 | 1, 58 | 3.75, 5.56 | 0.67 |
| | Post test means | 13.10 | 10.10 | A= 135.00, W= 269.40 | 1, 58 | 135.00, 6.64 | 29.09* |
| | Adjusted post test means | 12.29 | 10.29 | A= 100.45, W= 65.61 | 1, 57 | 100.45, 1.15 | 87.34* |
| Kinesthetic obstacle test (KOT) | Pre test means | 25.33 | 24.00 | A= 26.67, W= 8666.67 | 1, 58 | 26.67, 149.42 | 0.17 |
| | Post test means | 42.00 | 33.66 | A= 1014.67, W= 8176.67 | 1, 58 | 1041.67, 140.97 | 7.38* |
| | Adjusted post test means | 41.55 | 34.10 | A= 823.20, W= 4105.49 | 1, 57 | 823.20, 72.02 | 11.43* |
| Cable jump test (CJT) | Pre test means | 2.23 | 1.73 | A=3.75, W= 45.24 | 1, 58 | 3.75, 0.78 | 4.80* |
| | Post test means | 3.70 | 2.26 | A= 30.82, W= 52.17 | 1, 58 | 30.82, 0.89 | 34.62* |
| | Adjusted post test means | 3.52 | 2.44 | A= 15.74, W= 27.75 | 1, 57 | 15.74, 0.48 | 32.79* |

A= Among groups, W= Within groups; *= significant at 5% level of significance

Conclusions

It was concluded that gymnastics training lead to development of dynamic test of positional balance (F-value=87.34), kinesthetic obstacle test (F-value=11.43) and cable jump test (F-value=32.79). On the basis of above findings, it is also concluded that participation in gymnastics training programme lead to development of balance.