EFFECT OF PLYOMETRIC TRAINING WITH AND WITHOUT YOGIC PRACTICES ON BIO-MOTOR VARIABLES OF WOMEN CRICKET PLAYERS

C Gayatri, *Assistant Professor, Department of Physical Education, Sri Padmavati Mahila University, Tirupati, Andhra Pradesh, India*

G. Sarah Sarojini, *Professor, Department of Physical Education, Sri Padmavati Mahila University, Tirupati, Andhra Pradesh, India*

Abstract

The purpose of this study is to examine the effect of plyometric training with and without yogic practices on the bio-motor variables of female cricket players. To achieve this objective, ninety intercollegiate-level cricket players, aged 18 to 22, were randomly selected from the Chittoor District for the study. The total sample was divided into three different training groups of 30 players each. The study was designed as a true random group experiment consisting of pre-test and post-test assessments. The participants (N=90) were randomly assigned to three equal groups. A variety of bio-motor characteristics were assessed for all participants before the training intervention. The experimental groups underwent their respective training regimens for 12 weeks. After this period, all three groups were subjected to post-tests on the dependent variables. The effect of the experimental training was analyzed by comparing the mean values of pre- and post-tests. To determine statistical significance, Analysis of Covariance (ANCOVA) was employed.

Keywords: Plyometric training, Yogic practices, Bio-motor variables

Introduction

Sports culture provides opportunities for students and athletes to engage in physical activity, develop fitness, and learn valuable life skills through sports. It encompasses mass participation programs, daily sports activities, intercollegiate competitions, specialized training for talented athletes, external tournaments, club activities, and annual sports celebrations. The sporting culture in educational institutions is built upon four key factors: belief, values, norms, and commitment.

Cricket is a sport where fitness is often undervalued. However, the development of elite

teams, such as the Australian squad in the 1990s and 2000s, has demonstrated that physical fitness plays a crucial role in performance. Other cricket-playing nations have since placed greater emphasis on fitness, recognizing its impact on player endurance and injury prevention. The rise of One Day Internationals (ODIs) and Twenty20 cricket has further increased the physical demands on cricketers.

Fitness requirements vary based on a player's role in the team. For example, fast bowlers require higher levels of physical conditioning than opening batsmen, while one-day cricketers have greater fitness demands compared to Test match players.

Methodology

Selection of Subjects

This study examines the impact of plyometric training with and without yogic practices on bio-motor variables in female cricketers. Ninety intercollegiate-level cricket players, aged 18 to 22, were randomly selected from Chittoor District. The total sample was divided into three training groups of 30 players each.

Research Design

A true random group design was used, incorporating both pre-test and post-test assessments. The ninety participants were divided into three equal groups of thirty female cricket players each:

1. Experimental Group I – Plyometric Training with Yogic Practices
2. Experimental Group II – Plyometric Training without Yogic Practices
3. Control Group – This group participated only in their regular warm-up routine.

Pre-tests were conducted on various bio-motor characteristics for all participants before the intervention. The experimental groups then underwent their respective training regimens for 12 weeks. At the end of the trial period, all groups were subjected to post-tests to evaluate changes in the dependent variables.

Results on Flexibility

Baseline flexibility scores were collected for all groups, including the Plyometric Training with Yogic Practices group, the Plyometric Training without Yogic Practices group, and the Control group.

Table 1 presents the pre-test, post-test, and adjusted post-test scores of flexibility for the three groups, along with the results of the analysis of covariance (ANCOVA).

Table 1: Covariance Analysis of the Experimental and Control Groups' Flexibility

Test	Plyometric Training with Yogic Practices Group	Plyometric Training without Yogic Practices Group	Control Group
Pre-Test Mean	35.13	35.57	36.13
Post-Test Mean	42.40	41.60	35.97
Adjusted Post-Test Mean	42.61	41.62	35.74

ANOVA Results:

Source of Variation (SOV)	Sum of Squares (SS)	Degrees of Freedom (df)	Mean Square (MS)	F-Ratio
Pre-Test (Between Groups)	15.09	2	7.54	0.48
Pre-Test (Within Groups)	1356.30	87	15.59	—
Post-Test (Between Groups)	737.62	2	368.81	22.35*
Post-Test (Within Groups)	1435.37	87	16.50	—
Adjusted Post-Test (Between Groups)	820.76	2	410.38	30.20*
Adjusted Post-Test (Within Groups)	1168.76	86	13.59	—

*Significant at the 0.05 level of confidence
Table value for df (2, 87) at the 0.05 level = 3.10

Interpretation of Results

Pre-Test Flexibility Scores

1. Plyometric Training with Yogic Practices Group: 35.13
2. Plyometric Training without Yogic Practices Group: 35.57
3. Control Group: 36.13

For a significant difference at the 0.05 confidence level, an F-ratio of 3.10 was required. The obtained F-ratio of 0.48 indicates no significant difference in pre-test flexibility scores among the groups.

Post-Test Flexibility Scores

1. Plyometric Training with Yogic Practices Group: 42.40
2. Plyometric Training without Yogic Practices Group: 41.60
3. Control Group: 35.97

The obtained F-ratio of 22.35 exceeded the required 3.10 (df 2, 87), indicating a significant improvement in flexibility for the experimental groups compared to the control group.

Adjusted Post-Test Means of Flexibility

1. Plyometric Training with Yogic Practices Group: 42.61
2. Plyometric Training without Yogic Practices Group: 41.62
3. Control Group: 35.74

The F-ratio of 30.20* for the adjusted post-test scores was higher than the table value of 3.10 for degrees of freedom (2, 87), indicating a statistically significant difference at the 0.05 confidence level.

Scheffé's Confidence Interval test was used as a post hoc analysis to further assess these differences. The results are summarized in Table II.

Table II: Scheffé Post-Hoc Analysis of Flexibility Among Experimental and Control Groups

Group 1	Group 2	Mean Difference	Confidence Interval
Plyometric Training with Yogic Practices Group	Plyometric Training without Yogic Practices Group	0.99	2.37
Plyometric Training with Yogic Practices Group	Control Group	6.88*	2.37
Plyometric Training without Yogic Practices Group	Control Group	5.88*	2.37

*Significant at the 0.05 level.

Table II demonstrates that the adjusted post-test mean differences in flexibility between the Plyometric Training with Yogic Practices Group, the Plyometric Training without Yogic Practices Group, and the Control Group were statistically significant.

The following paired mean comparisons were found to be significant at the 0.05 confidence level:

1. Plyometric Training with Yogic Practices Group vs. Control Group: 6.88*
2. Plyometric Training without Yogic Practices Group vs. Control Group: 5.88*

These results indicate that the experimental groups significantly improved flexibility compared to the control group. However, the mean difference between Plyometric Training with Yogic Practices Group and Plyometric Training without Yogic Practices Group (0.99) was not significant, as it fell below the required confidence interval of 2.37.

Discussion on Flexibility

The results indicate that Plyometric Training with Yogic Practices and Plyometric Training without Yogic Practices over a period of 12 weeks significantly improved flexibility among the participants.

Previous research has shown that plyometric training combined with yogic practices has a greater impact on flexibility compared to plyometric training alone or no training intervention. The combination of yogic stretching and plyometric drills may enhance flexibility by improving muscle elasticity and joint mobility.

These findings suggest that integrating yogic practices into plyometric training programs may be beneficial for improving flexibility and overall athletic performance in female cricket players.

Conclusion

Within the limitations of this study, the following conclusions were drawn:

- Significant improvements in flexibility were observed among female cricket players following twelve weeks of training.

- The Plyometric Training with Yogic Practices Group showed greater improvements in flexibility compared to the Plyometric Training without Yogic Practices Group and the Control Group.
- The findings highlight the positive impact of combining plyometric training with yogic practices on bio-motor variables such as flexibility.

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