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Effect of Specific Periodized Training and Traditional Training on Physical Fitness Variable Among Female Basketball Players

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ABSTRACT

Methods: The study focused on college -level basketball players within the age group of 17 to 25 in the Erode region, Tamilnadu, India. Participants were selected based on their engagement in regular basketball activities. Training Intervention: The intervention periodized training and traditional training sessions designed to target various components of physical fitness. Periodized exercises and traditional training , involving muscle lengthening under tension, were incorporated to enhance sarcomeres in series and muscle strength at extended lengths. Literature Review: A thorough review of literature was conducted, drawing information from books, journals, periodicals, magazines, and research papers. This comprehensive examination aimed to gather insights into the efficacy of eccentric hamstring training, specifically in the context of basketball players. Outcome Measures: The primary focus of the study was to assess the impact of periodized training and traditional training on speed. Standard scores for these components were employed as outcome measures. Statistical analyses were applied to compare improvements across the three groups studied. Statistical Analysis: Statistical methods were employed to analyze the data and evaluate the significance of improvements in speed among the different groups. Standard statistical measures were used to determine the effectiveness of the eccentric training intervention. Results: The traditional training group exhibited a significant improvement of 8.75 in speed. A comparable increase of 8.49 was observed in the control group. These outcomes were derived from the analysis of standard scores, emphasizing the positive impact of short-duration interventions incorporating traditional training group training. Conclusion: The study's findings highlight the potential benefits of integrating periodiszed training group and traditional training for college basketball players, particularly in optimizing proper alignment and posture during movement. This research contributes valuable insights into the enhancement of specific components of physical fitness crucial for basketball performance.

KEY WORDS: Physical fitness, speed, periodiozed training, traditional training, basketball

INTRODUCTION

Basketball is a high-intensity sport that demands superior physical fitness, including speed, agility, and strength, to perform effectively on the court. For college level basketball players, developing these attributes through targeted training programs is crucial for improving performance and reducing injury risk. This study focuses on basketball players aged 17 to 25 the Erode region, Tamilnadu, India, who are regularly engaged in the sport. The objective is to periodized training interventions on enhancing physical fitness components vital for basketball.

Periodized training involves systematically varying the training variables (intensity, volume, and type of exercise) over specific periods to maximize performance gains and minimize injury risks. Eccentric training, which involves muscle lengthening under tension, has been shown to increase muscle strength and improve sarcomere length, potentially offering significant benefits for athletic performance. Interval training, known for its efficiency in improving cardiovascular fitness and metabolic conditioning, complements the eccentric exercises. Despite the recognized benefits of these training methods, their specific impact on basketball players, particularly at the school level, remains underexplored.

Through a rigorous intervention and comprehensive literature review, this study aims to fill this gap by assessing the effects of these periodized training and traditional methods on speed. By employing standard scores and statistical analyses, the study evaluates the improvements in these fitness components, providing valuable insights into the effectiveness of short-duration eccentric training programs. The findings are expected to inform training practices and contribute to the optimization of athletic performance in college level basketball players.

METHODOLOGY

The present investigation delves into the impact of specific periodized training on physical fitness variables among college -level female basketball players. The study focused on 45 female basketball students drawn from various colleges in the Erode district of Tamil Nadu, aged between

17 to 25 years. These participants were randomly assigned to three groups: Experimental Group I (Periodized Training) Experimental Group II (Traditional Interval Training), and a Control Group.

Preliminary Meeting

To ensure the full cooperation of the subjects, a meeting was conducted wherein the purpose and objectives of the research were comprehensively explained. This communication aimed to eliminate any ambiguity and uncertainties among the players regarding the effort required for the successful completion of the study.

Training Intervention

The intervention period spanned eight weeks for both Experimental Group I and Experimental Group II. Each group underwent a structured training program designed to target specific components of physical fitness:

TRAINING PROCEDURE

Experimental Group I participated in periodized training, Experimental Group II underwent traditional training, and the control group did not undergo any specific training program. Both experimental treatments, namely periodized training and traditional training, were administered over a period of eight weeks. The training sessions occurred three times a week on alternate days, with each session lasting for 60 minutes.

STATISTICAL TECHNIQUE

The data collected from both groups before and after the experimental treatments, focusing on selected variables such as speed underwent statistical analysis utilizing the technique of Analysis of Covariance (ANCOVA). In cases where the 'F' ratio for adjusted post-test means showed significance, Scheffe's post hoc test was employed to ascertain the significance of differences among paired means. A confidence level of 0.05 was established for all analyses to test the hypotheses.

RESULTS AND ANALYSIS

The examination of the impact of independent variables on each criterion variable is detailed below. The study's duration was confined to eight weeks, focusing on health-related variables of speed as the chosen dependent variables. Prior to and immediately after the experimental period, all subjects underwent testing on these selected dependent variables. The data collected from the experimental groups before and after the intervention were subjected to statistical organization utilizing the dependent 't'-test and Analysis of Covariance (ANCOVA). In instances where the 'F' ratio for adjusted post-test means demonstrated notable performance distinctions, the Scheffe's Post hoc test was conducted to identify significant differences among paired means. A confidence level of 0.05 was established for all analyses.

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ANALYSIS OF COVARIANCE AMONG PERIODIZED TRAINING GROUP, TRADITIONAL TRAINING GROUP AND CONTROL GROUP ON SPEED

	PERIODIZED **TRAINING Group**	TRADITIONAL **TRAINING**	**Control Group**	**Source of Variance**	**Sum of square**	**Degrees of freedom**	**Mean square**	**F -value**
Pre test mean	8.79	8.75	8.79	Between	0.10	3	0.005	0.28
				Within	0.762	56	0.018	
Post test mean	8.50	8.49	8.78	Between	0.807	3	0.403	17.33*
				Within	0.978	56	0.023	
Adjusted post mean	8.49	8.51	8.77	Between	0.708	3	0.354	80.90*
				Within	0.179	55	0.004	

*Significant at 0.05 level of confidence

The table summarizes the results of a study that investigated three groups: periodized training Group, Traditional Training Group and Control Group. The analysis focused on three key measures - Pre-test Mean, Post-test Mean, and Adjusted Post Mean. Additionally, the source of variance was examined, distinguishing between "Between" and "Within" group variations.

Pre-test Mean:

- Means: periodized Training (8.79), Traditional Training (8.75), Control (8.79).Between-group variance is low (0.005), and within-group variance is also low (0.018). F-value (0.28) is not significant, suggesting no significant difference between groups before training.

Post-test Mean:

- Means: periodized Training (8.50), Traditional Group (8.49), Overall (8.78). Between-group variance is higher (0.403), and within-group variance is slightly higher (0.023). F-value (17.33*) is significant, indicating a significant difference between groups after training.

Adjusted Post-test Mean:

- Means: periodized Training (8.49), Traditional Group (8.51), Control (8.77). Between-group variance (0.354) is high, and within-group variance is very low (0.004). F-value (80.90*) is highly significant, indicating a strong significant difference between groups after adjusting for initial differences.

CONCLUSION

The findings of the study showed that there was a statistically significant improvement in the physical fitness variable of speed as compared to control group.

1. The results of the study shows that the experimental group-II that had undergone Traditional hamstring training group, improved physical fitness variables in speed of basketball players.
2. The results of the study shows that the experimental group-II that had undergone Traditional training group better than Periodized training group improved by physical fitness variables in speed of basketball players.

RECOMMENDATIONS

It is recommended that coaches and physical educators in the game of basketball should give due to include traditional training in their training schedules.

In the physical exercise, while designing the training programme the effect of varied training modalities is explained on positively on physical fitness variables of basketball players, the physical education teachers and coaches can prefer this type of training so as to achieve aim in time.

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