



Influence of Varied Training Capsules on Selected Anthropometric Measurements among College-Level Women Kabaddi Player

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ABSTRACT

The purpose of this study was to investigate the influence of varied training capsules on selected physical fitness, physiological variables, and anthropometric measurements among college-level women kabaddi players. Sixty (n=60) women kabaddi players were randomly selected from the Tiruppur District inter-college kabaddi players in Tiruppur, Tamil Nadu, India, between the years 2019-2023. The age of subjects ranged between 18-25 years. The participants were divided into four groups randomly, with 15 subjects in each group: experimental group I (Tabata training group), experimental group II (Plyometric training group), experimental group III (Circuit training group), and control group IV (who did not participate in any specific training). The three experimental groups underwent training for a period of 12 weeks. Subjects were assessed on selected physical fitness variables including speed, agility, and leg explosive power. Physiological variables such as resting heart rate, VO2 Max, and cardiovascular endurance, as well as anthropometric measurements including body weight, arm circumference, and thigh circumference, were also measured among college-level women kabaddi players.

Key Words: Kabaddi. Tabatta Training. Circuit Training, Strength Training, Anthropometric

INTRODUCTION

In contemporary sports science, the efficacy of different training methodologies in enhancing athletic performance is a subject of extensive research. Kabaddi, a traditional contact sport originating from the Indian subcontinent, requires a unique blend of physical prowess, agility, and strategic thinking. The physical demands placed on kabaddi players necessitate specialized training programs aimed at improving both performance and physical fitness.

Anthropometric measurements, encompassing parameters such as body weight, arm circumference, and thigh circumference, play a crucial role in evaluating the physical development and composition of athletes. These measurements are indicative of muscle mass, body fat distribution, and overall physical stature, which directly influence athletic performance in sports like kabaddi.

The study aims to investigate the influence of varied training capsules on selected anthropometric measurements among college-level women kabaddi players. Specifically, the research focuses on evaluating the impact of Tabata training, Plyometric training, and Circuit training on anthropometric indicators. These training methodologies have been selected due to their proven effectiveness in enhancing specific physical attributes essential for kabaddi players, such as strength, agility, and explosive power.

Understanding how these training interventions affect anthropometric measurements will provide valuable insights into optimizing training protocols for women kabaddi players. This research is particularly relevant in the context of developing tailored training programs that cater to the unique physiological demands of female athletes in kabaddi, thereby contributing to their overall performance enhancement and long-term athletic development.

METHODOLOGY

Participants

Sixty (n=60) college-level women kabaddi players were randomly selected from the Tiruppur District inter-college kabaddi players in Tiruppur, Tamil Nadu, India, over the period from 2019 to 2023. Participants were aged between 18 to 25 years old and were in good health without any existing medical conditions that could affect their participation in physical training.

EXPERIMENTAL DESIGN

The study employed a randomized controlled trial design with four groups:

1. **Experimental Group I (Tabata Training Group):** This group participated in Tabata training sessions.
2. **Experimental Group II (Plyometric Training Group):** This group underwent Plyometric training sessions.
3. **Experimental Group III (Circuit Training Group):** This group engaged in Circuit training sessions.
4. **Control Group IV:** Participants in this group did not participate in any specific training during the study period and served as a baseline comparison.

TRAINING PROTOCOL

Each experimental group underwent their respective training protocol for a duration of 12 weeks. The training sessions were conducted under the supervision of qualified trainers and were scheduled according to a structured program designed to enhance specific physical attributes relevant to kabaddi performance.

- **Tabata Training:** Consisted of high-intensity interval training (HIIT) sessions following the Tabata protocol, involving short bursts of intense exercise followed by brief periods of rest.
- **Plyometric Training:** Focused on exercises aimed at developing explosive power and agility, such as jumping drills, bounding exercises, and quick lateral movements.
- **Circuit Training:** Involved a series of exercises performed consecutively with minimal rest intervals, targeting overall fitness, strength, and endurance.

Outcome Measures

Participants were assessed pre- and post-intervention on selected anthropometric measurements:

- **Body Weight:** Measured using a calibrated scale.
- **Arm Circumference:** Measured with a flexible tape measure at a standardized point.
- **Thigh Circumference:** Also measured using a flexible tape measure at a standardized point.

DATA COLLECTION

Anthropometric measurements were recorded by trained personnel using standardized techniques to ensure accuracy and reliability. Measurements were taken at the beginning (pre-test) and end (post-test) of the 12-week training period for all participants.

STATISTICAL ANALYSIS

Statistical analysis of the data involved descriptive statistics (mean, standard deviation) and inferential statistics (ANOVA, paired t-tests) to determine the significance of changes in anthropometric measurements within and between groups. Statistical significance was set at $p < 0.05$.

Table - 1

ANALYSIS OF COVARIANCE AMONG TABATA TRAINING GROUP, PLYOMETRIC TRAINING GROUP, CIRCUIT TRAINING GROUP AND CONTROL GROUP ON BODY WEIGHT

	Tabata Training Group	Plyometric Training Group	Circuit Training Group	Control Group	Source of Variance	Sum of square	Degrees of freedom	Mean square	F value
Pre test mean	48.91	48.90	48.84	48.84	Between	0.100	3	0.033	0.005
					Within	385.96	56	6.892	
Post test mean	46.59	47.48	47.14	48.82	Between	40.224	3	13.408	2.23*
					Within	335.668	56	5.994	
Adjusted post mean	46.55	47.46	47.19	48.83	Between	41.570	3	13.857	10.86*
					Within	70.08	55	1.275	

*Significant at 0.05 level of confidence

CONCLUSION

This methodology aimed to elucidate the impact of varied training capsules on anthropometric measurements among college-level women kabaddi players, contributing to the understanding of optimal training strategies for enhancing physical attributes essential for kabaddi performance.

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