INFLUENCE OF PHYSICAL FITNESS TRAINING PHASES ON PHYSICAL AND PHYSIOLOGICAL PARAMETERS OF FEMALE COLLEGE ATHLETES

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INTRODUCTION:

Good physical fitness is the basis for sports. An athlete who has good physical fitness not only can increase the efficiency of learning sports skills, but also can reduce the incidence of injuries and accidents caused by the movement. The phases of physical fitness training prior to competition influences the performance of athletes under different conditions.

Application of science and technology has greatly influenced modern sports. Sports performances are reaching to newer heights and success in sports performance today is not only a chance. Based on the knowledge of modern sports sciences, scientific principles of training and coaching and application of sophisticated modern testing and measuring techniques, it has now become possible to predict performance of the athletes at different levels of competitions.

Physical exercise is planned to make proper changes in body that occur to body and organ system's metabolism so as to improve each organ system structure and functions, make it a series of higher adaptability that causes to human physical quality can strengthen (Wang et al., 2012).

Statement of problem:

Influence of physical fitness training phases on selected physical and physiological parameters of female college athletes.

Objectives of the study:

- To analyze the effect of physical fitness training preparatory phase on selected physical and physiological parameters of female college athletes.
- To assess the effect of physical fitness training competition phase on selected physical and physiological parameters of female college athletes.

MATERIALS AND METHODS:

Sample:

Total 18 female athletes were selected based on the physical fitness and physiological tests from College of Agriculture, Kalaburagi.

Selection of Parameters:

Physical Fitness measures:

- Speed
- Endurance
- Explosive strength
- Flexibility
- Agility

Physiological measures:

- Vital capacity
- Respiratory endurance
- Body Mass Index

Tests:

Tests used for Physical Fitness Measures:

- Speed: 40 meters dash
- Endurance: 12 min Run & Walk Test
- Explosive strength: Vertical jump test
- Sit & Reach test: Flexibility
- Shuttle Run Test: Agility

Tests used for Physiological Measures:

- Vital capacity: Spirometer test
- Respiratory endurance: Breath hold test
- Body Mass Index: Height and Weight

Physical Fitness Training programme in preparatory phase:

- General and Specific warming-up
- Long distance running (2-3 km)
- Short distance sprints (40-50 mtrs.)
- Interval Training
- Circuit training
- Limbering down exercises

Physical Fitness Training programme in competition phase:

- General and Specific warming-up
- Short distance sprints (40-50 mtrs.)
- Competitive distance sprints (60-80 mtrs.)
- Competitive distance running (1-2 km)
- Limbering down exercises

Data Collection:

The investigator him-self-administered the regular physical fitness training in preparatory and competition phases. The subjects were participated in physical fitness training for two months in preparatory phase and 2 weeks during competition phase. Necessary instruction was given by the investigator to the subjects before the administration physical fitness training and selected physical fitness and physiological parameters tests. All pre-training data were collected on selected physical fitness and physiological parameters of college athletes were taken during training (1 month after) and competition phase data were taken after the completion of 2 weeks training.

Statistical Procedure:

The Mean and SD was computed. To find out the effect of physical fitness training preparatory and competition phases on selected physical & physiological parameters of students, t-test was applied and level of significance was set at .05 levels.

RESULTS AND DISCUSSIONS:

Table 1
Means, SD and t-values of selected physical fitness parameters of preparatory and competition phases

Components	Phases	Mean	SD	t-value
Speed (in sec's)	Preparatory	8.24	0.92	2.83*
	Competition	6.01	0.76	
Endurance (in meters)	Preparatory	1810	4.62	24.68*
	Competition	2215	6.12	
Explosive strength (in cms)	Preparatory	15.04	2.64	2.32*
	Competition	17.02	3.06	
Flexibility (in cms)	Preparatory	10.54	1.02	5.84*
	Competition	16.03	1.74	
Agility (in secs)	Preparatory	13.06	2.14	3.98*
	Competition	10.28	1.80	

Significant at 0.05 level

Table 1 presents the means, standard deviation and t-values of selected physical fitness parameters of preparatory and competition phases. It is evident from the table that the obtained t-values of speed (2.83), endurance (24.68), explosive strength (2.32), flexibility (5.84) and agility (3.98) were significant at 0.05 level. It clearly indicates that during competition phase the performance of athletes in speed, endurance, explosive strength, flexibility and agility physical fitness parameters are better than the preparatory phase performances. Hence, it is interpreted that there is a significant effect of physical fitness training on the performance of athletes in speed, endurance, explosive strength, flexibility and agility parameters.

Table 2
Means, SD and t-values of selected physiological parameters of preparatory and competition phases

Components	Phases	Mean	SD	t-value
Vital capacity (in ml)	Preparatory	34.12	5.04	0.73
	Competition	34.46	5.01	
Respiratory endurance (in secs)	Preparatory	22.72	3.22	0.81
	Competition	23.01	3.31	
Body mass index (in kg/m^2)	Preparatory	21.53	3.42	0.79
	Competition	21.06	3.46	

Significant at 0.05 level

Table 2 presents the means, standard deviation and t-values of selected physiological parameters of preparatory and competition phases. It is evident from the table that the obtained t-value of vital capacity (0.73), respiratory endurance (0.81) and body mass index (0.79) were not significant. It clearly indicates that during preparatory and competition phase the vital capacity, respiratory endurance and body mass index of athletes is under normal and fair category respectively according to norms. Hence, it is interpreted that despite modifications in the physical fitness training, it appears that vital capacity measures, respiratory endurance and body composition status remain relatively stable between two training phases in athletes.

CONCLUSIONS:

- There is a significance difference was found in the speed, explosive strength, flexibility, agility and endurance test performances.
- No significant changes between training phases were found in vital capacity, respiratory endurance and body composition.
- Despite modifications in the physical fitness training, it appears that vital capacity measures, respiratory endurance and body composition status remain relatively stable between two training phases in female athletes.

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