



Effect of Physical Fitness Training Phases on Selected Physical and Physiological Parameters of Male Collegiate Athletes

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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. 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.

Statement of problem : Effect of physical fitness training phases on selected physical and physiological parameters of male collegiate athletes.

Objectives of the study : To analyze the effect of physical fitness training preparatory phase on selected physical and physiological parameters of male collegiate athletes. To assess the effect of physical fitness training competition phase on selected physical and physiological parameters of male collegiate athletes.

Sample : Total 26 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

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

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

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	6.73	0.81	2.51*
	Competition	4.42	0.72	
Endurance (in meters)	Preparatory	2245	5.16	18.46*
	Competition	2832	7.24	
Explosive strength (in cms)	Preparatory	18.91	3.14	0.79
	Competition	19.72	3.49	
Flexibility (in cms)	Preparatory	11.64	0.82	0.84
	Competition	12.14	0.94	
Agility (in secs)	Preparatory	13.06	2.14	3.98*
	Competition	10.28	1.80	

Significant at 0.05 level

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	38.32	6.12	0.61
	Competition	38.06	6.01	
Body mass index (in kg/m ²)	Preparatory	24.57	4.28	0.58
	Competition	24.06	3.26	

Significant at 0.05 level.

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.

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 (2.51), endurance (18.46) and agility (3.98) were significant at 0.05 level.

It clearly indicates that during competition phase the performance of athletes in speed, endurance 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 and agility parameters.

It is also observed from the table that the obtained t-values of explosive strength (0.79) and flexibility (0.84) were not significant. It clearly indicates that during preparatory and competition phases the performance of athletes in explosive strength and flexibility parameters are similar.

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 body mass index (0.61) and vital capacity (0.79) were not significant.

It clearly indicates that during preparatory and competition phase the body mass index and vital capacity 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 and body composition status remain relatively stable between two training phases in athletes.

Conclusions

There is a significance difference was found in the speed, agility and endurance test performances.

No significant changes between training phases were found for explosive strength, flexibility and vital capacity.

Despite modifications in the physical fitness training, it appears that explosive strength, flexibility, vital capacity measures and body composition status remain relatively stable between two training phases in male athletes.

References

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2. Daniel A. Hackett (2020). Effect of Training Phase on Physical and Physiological Parameters of Male Powerlifters, *Sports (Basel)*. 8(8): 106.