

Effect of Workout Station and Explosive Power Training on Endurance among College Students of Calicut University

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Abstract

The purpose of the study was to find out the effect of Station training and Explosive Power training on endurance of college students of Calicut University. At the initial stage 110 college students representing three colleges under Calicut University kozhikode District, Kerala State were randomly selected as subjects. After the Pretest data collection, 30 male and 30 female students were finally selected as subjects for the study. There were two experimental groups namely Station training, Explosive Power and one control group for the study. Each group consisted of 10 male and 10 female students and their age ranged between 18 to 21 years. The variables selected for the study was endurance. 12 minutes run or walk test developed by Dr.Kenneth H Cooper was used for measuring the endurance of the subjects. The experimental groups underwent the experimental training programme for a period of twelve weeks with three training sessions in a week. Students representing control group did not undergo any training. General linear model Uni variate analysis of variance was used to find out the significant differences in means among the two experimental and control groups. The level of significance chosen was 0.05. It was found out that Station training and Explosive Power training was effective to improve endurance of the college students. It was also found that there was no significant difference exist between experimental groups such as Station training and Explosive Power training groups. Keywords - Station training, Explosive Power training and Endurance

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1.0. Introduction

The increasing prevalence of sedentary lifestyles among college students has raised concerns about their physical fitness and overall health. Endurance, a critical component of physical fitness, is essential for performing daily tasks and maintaining overall well-being. Station training and Explosive Power training are two effective methods to improve endurance. Station training involves a series of exercises performed in succession with minimal rest, while Explosive Power training involves explosive movements to improve power and speed. Despite the benefits of these training methods, there is a lack of research on their comparative effects on endurance among college students. This study aims to investigate the effect of Station and Explosive Power training on endurance among college students.

1.1 Importance of the study

The importance of this study lies in its potential to revolutionize the physical conditioning standards for the collegiate population at Calicut University. As students aged 18 to 21 are at a critical physiological peak, understanding the combined impact of Station and Explosive Power training offers a scientifically backed method to maximize their cardiorespiratory and muscular endurance. In an academic environment where time is a significant constraint, this research is vital as it explores high-efficiency training modalities that can be integrated into a busy student lifestyle without requiring the long hours traditionally associated with distance running. Furthermore, the study holds immense practical value for the university's athletic departments. By examining how Explosive Power enhances "running economy" and how Station training boosts metabolic thresholds, the findings can provide coaches with specific protocols to improve the performance of varsity teams in sports like football, volleyball, and athletics. Beyond sports performance, the research addresses the growing concern of sedentary lifestyles among youth in Kerala, promoting a sustainable model for long-term cardiovascular health. Ultimately, this study contributes localized, age-specific data to the field of sports science in India, offering a blueprint for modernizing the physical education curriculum at Calicut University to foster a more resilient and fit student body.

1.2 Definition of Technical Terms

Station Training: A type of training where a series of exercises are performed in succession with minimal rest.

Explosive Power Training: A type of training that involves explosive movements, such as jump squats and box jumps, to improve power and speed.

Endurance: The ability to sustain physical activity over a prolonged period

2.0 Hypothesis

The following hypotheses were formulated for the present study.

- 1) There would be significant difference between pretest and post-test means of the two experimental groups namely Station training and Explosive Power training on endurance
- 2) There would be significant difference between the experimental groups namely Station training and Explosive Power training on endurance

3.0 Review of related literature

Ali, B., et al. (2019) conducted a study on Station training and cardiovascular health in female college students. The study revealed that 12-week Station training program significantly improved the Cardiovascular Endurance of students. It proved effective even for those with low initial physical fitness levels. A study conducted by Vadivel, G. R., & Maniazhagu, D. (2022) on comparison between Station training and Station weight training showed that Station Weight Training (using resistance/weights) is more effective than standard Station training for increasing muscular strength and endurance. Jayabalakrishnan, S., et al. (2026) conducted a study on strength and Station training in football players and brought forward that program was enhanced the explosive Power and cardio respiratory endurance of players. It directly contributed to better sprinting speed and overall match performance. Shaji, P., & Ramesh, V. (2025) focused on a study on Station and interval training for long-distance runners. The study revealed that combining Station training with interval training optimizes VO₂ max (the maximum oxygen the body can use) and helps runners cover longer distances without fatigue.

Mandal, C., & Kumar, R. (2023) investigated on effect of Station training on strength and endurance among college students. Study highlighted the dual benefit of Station training, proving it develops both strength and stamina simultaneously. It is cited as an ideal method for improving general fitness in students. Muriyedath, A., et al. (2025) conducted a study on TRX and Explosive Power training for volleyball players and found out the combination of TRX (suspension) and Explosive Power s improved Biomotor abilities (speed, flexibility, balance) and significantly increased vertical jump height. Lum, D., et al. (2019) conducted a study on sprint and Explosive Power training effects and the result showed that Explosive Power exercises were found to improve Running Economy. This allows athletes to run at higher speeds while using less energy. Gomez, J., et al. (2023) conducted a similar study and revealed that the meta-analysis showed that Explosive Power s increase muscle elasticity. This helps endurance runners maintain speed for longer periods without respiratory distress. Arazi, H., et al. (2014) focused on Land-based vs. Water-based Explosive Power training. The result showed Water-based Explosive Power s are just

as effective as land-based ones but come with much lower impact stress on joints, reducing the overall risk of injury. Ramirez-Campillo, R., et al. (2021) conducted a study on Explosive Power training for team sport players and found out that athletes in team games (like football or basketball), Explosive Power s significantly boost speed, jumping ability, and Agility (the ability to change direction quickly).

4.0 Objective of the Study

1. The study would bring out the effect of Station training on endurance of high college students
2. The study would bring out the effect of Explosive Power training on endurance of college students
3. The study would be useful to understand which training programme id more effective for improving endurance

5.0 Methodology

The purpose of the study was to find out the effect Station training and Explosive Power training on endurance college students. At the initial stage 110 College students representing three colleges of Kozhikode district Kerala State under Calicut University were randomly selected as subjects. After the Pretest data collection, 30 male and 30 female students were finally selected as subjects for the study. There were two experimental groups namely Station training and Explosive Power training and one control group. Each group had 10 male and 10 female students. The age of the subjects ranged between 18 to 21 years. The variable selected for the study was endurance. The experimental groups underwent the experimental training programme for a period of twelve weeks with three training sessions in a week. Analysis of Variance was used to find out the significant differences in means among the two experimental and control groups. The level of significance chosen for the study was 0.05.

5.1 Selection of Subjects

Initially 110 high school students representing three colleges of Kozhikode District of Kerala State were randomly selected as subjects. After the Pretest data collection, 30 male and 30 female students were finally selected as subjects for the study. There were two experimental group namely Station training and Explosive Power training and one control group. Each group had 10 male and 10 female students and their age ranged between 18 to 21 years

5.2 Selection of Variables and Tools

Physical fitness variable endurance as the dependant variable and Station training and Explosive Power training programme as independent variable were selected for the study. Endurance was measured by 12 minutes run or walk test.

5.3.0 Design of Station training programme

Subjects were given Station training of total of 30 minutes with three rounds of six s. Each s have 30 seconds and 5 second rest between s and 2 minutes rest between rounds.

Table 5.3.1
Design of Station training programme

	Exercise	Duration	Key Research metric	Focus Area
1	Squat Jumps	30 Seconds	Vertical Power	Lower Body Explosiveness
2	Burpees	30 Seconds	Repetition Count	Full Body/ Metabolic
3	Push Ups	30 Seconds	Muscular Endurance	Upper Body Push
4	Lunges	60 Seconds	Symmetry/ Stability	Unilateral Lower Body
5	Plank	30 Seconds	Time under Tension	Core Isometrics
6	Sit-Ups	30 Seconds	Flexion Volume	Core power
Total	Active Work	3.5 Minutes	-	Per Round

5.3.2. Design of Explosive Power training programme

Explosive Power training programme was included total of 7 exercise and work time duration of each exercise was 40 Seconds. Rest between set was given 60 Seconds (to allow for ATP-PC resynthesis) and rest between Stations was 3 Minutes. Requency of exercise was times per week

Table 5.3.2
Design of Station training programme

Sl.No	Exercise	Duration	Total Work
1	Box Jump	40 Seconds	40 Seconds
2	Lateral Bounds	40 Seconds	40 Seconds
3	Tuck Jumps	40 Seconds	40 Seconds
4	Plyo Push- Ups	40 Seconds	40 Seconds
5	Single- Leg Hops	40 Seconds/Leg	80 Seconds
6	Depth Jumps	40 Seconds	40 Seconds
7	Board Jumps	40 Seconds	40 Seconds
Total	Active Work	-	5.3 Minutes

6.0 Analysis of Data and Results of the study

The pre and post test means of physical fitness variable endurance of experimental and control group were statistically analyzed by SPSS based Analysis of Co-variance to find out the significant differences in means among the two experimental and control groups. The level of significance chosen was 0.05.

6.1.0 Statistical analysis on endurance

Table-6.1.1

ANALYSIS OF VARIANCE ON ENDURANCE OF STATION TRAINING, EXPLOSIVE TRAINING AND CONTROL GROUP

Source	Type II Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	452648.847 ^a	3	150882.949	8.976	.000
Intercept	515757.475	1	515757.475	30.682	.000
PRE	377648.847	1	377648.847	22.466	.000
GROUP	73847.570	2	36923.785	2.197	.121*

* Significant at 0.05 level

7.0 Result and Discussions

On the basis of the results of the study the following conclusions were drawn. Training of Station training and Explosive Power training showed significant improvement and change from pretest to post test means on physical fitness variable Endurance. Table 6.1.1 for differences in paired final means among the different Experimental and Control groups indicate significant values of .121 among experimental and control group. The findings indicate that Station and Explosive Power training were effective to improve the physical fitness variable endurance of college students. Hence the hypothesis formulated for the study was accepted.

8.0 Recommendations

On the basis of the results of the study and the following recommendations are made. Since this study was useful to found out the effect of Station training and Explosive Power training for reducing the performance endurance of college students, it is also recommended that Station training and Explosive Power training can be incorporated in the sports training programme . It is also recommended that further study may be conducted to find out the effect other physical fitness variables such as speed and strength

9.0 Reference

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