

A STUDY ON THE EFFECT OF PHYSICAL EXERCISES AND YOGA ASANAS ON LEG EXPLOSIVE POWER AMONG JUNIOR COLLEGE VOLLEYBALL PLAYERS

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ABSTRACT

The purpose of this study was to investigate the effect of physical exercises and yoga asanas combined with physical exercises on leg explosive power among junior college volleyball players. Sixty male volleyball players aged between 16 and 18 years from junior colleges in Visakhapatnam District were randomly selected as subjects. The subjects were divided into three equal groups of twenty each: Physical Exercise Group (PEG), Yogic Practice Combined with Physical Exercise Group (YPCPEG), and Control Group (CG). The experimental groups underwent their respective training programmes, while the control group did not receive any special training. Leg explosive power was selected as the dependent variable and measured through pre-test and post-test scores.

The pre-test mean values of leg explosive power for PEG, YPCPEG, and CG were 1.4776, 1.4526, and 1.4596 respectively, and the obtained F-ratio of 0.036 was not significant at the 0.05 level of confidence. The post-test mean values were 1.5421, 1.5536, and 1.4731 respectively, with an obtained F-ratio of 5.605, which was significant at the 0.05 level. The adjusted post-test mean values were 1.542, 1.558, and 1.472 respectively, and the obtained F-ratio of 22.158 was also significant. Scheffe's post hoc test revealed significant mean differences between PEG and CG (0.07) and between YPCPEG and CG (0.086), while the difference between PEG and YPCPEG (0.02) was not significant.

The findings of the study concluded that both physical exercises and yoga asanas combined with physical exercises significantly improved leg explosive power among junior college volleyball players. However, both experimental treatments were found to be equally effective.

Keywords: Physical Exercise, Yoga Asanas, Leg Explosive Power, Volleyball Players, Physical Fitness, Yogic Practice.

1.INTRODUCTION

Volleyball is a highly popular sport, with millions of players worldwide. Its popularity can be determined by looking at the number of members of the International Volleyball Federation. This is a more competitive game these days than your typical recreational one. In advanced level tournaments, well-executed spikes have been timed at speeds of between sixty and ninety miles per hour, which is far quicker than the ball's velocity in most other games.

Volleyball requires a great degree of development in psychological, physiological, and physical skills in order to compete at the highest level. For this game, a player needs to be the proper size and physical composition.

The practice of yoga can help one achieve ideal physical and mental well-being. Since the body is the temple of the soul, it must be in physical fitness to achieve harmony between the mind, body, and spirit.

Yoga brings one's senses under control, which leads to a well-rounded personality. Yoga can help individuals make positive adjustments to their way of life. Additionally, behaviors can be appropriately shaped to create balanced personalities. It makes it abundantly evident that only in a sound body will there be a sound mind. The many organs and systems of the body must be in good working order for the body to remain in good shape. Yoga poses are essential to the upkeep of the aforementioned system. Yoga not only strengthens the body but also improves mental abilities.

2. METHODOLOGY

2.1 SELECTION OF SUBJECTS

In order to carry out the study, sixty volleyball players at the junior college level, aged between 16 and 18, were chosen at random as subjects from junior colleges in the Visakhapatnam District. Only players who have competed for their individual college teams were included in the study, and each participant had at least three years of previous volleyball playing experience. Group I is called the Physical Exercise Group (PEG), Group II is called the Yogic Practice Combined with Physical Exercise Group (YPCPEG), and Group Control Group (CG) is called the Group II. Every group had twenty subjects. Every subject's pre- and post-test results were documented prior to and following the instruction. Exercise and yoga practice served as the study's independent variables.

2.2 SELECTION OF VARIABLES

Dependent variables

1. Leg explosive power

Independent variables

1. 12 Weeks Physical Exercise Group
2. 12 Weeks Yogic Practice Combined with Physical Exercise Group

2.3 EXPERIMENTAL DESIGN

Pre- and post-tests were included in the study, which was designed using a true random group design. Three equal groups of twenty boys each were randomly allocated to the subjects (N = 60). The groups were divided into three categories: control, combination of physical exercise and yoga practice, and physical exercise group. All sixty subjects took part in pre-tests on leg explosive power. For twelve weeks, the experimental groups engaged in their corresponding training. There was no training for the control group.

The aforementioned dependent variables were the subject of the post-test following a twelve-week training period. The training program is conducted on alternate days (Monday, Wednesday, and Friday) from 6:00 to 6:45 a.m. (yogic practices).

3.RESULT ON LEG EXPLOSIVE POWER

Table -I

EXAMINING THE CORRELATION BETWEEN THE PRE, POST, AND ADJUSTED POST TEST MEAN VALUES OF PHYSICAL EXERCISE, YOGA COMBINED WITH PHYSICAL EXERCISE, AND THE CONTROL GROUP OF LEG EXPLOSIVE POWER

Test	Physical exercise group	Yogic practice combined with physical exercise	Control group	Source of variance	Sum of square	Df	Mean square	'f' ratio
Pre test	1.4776	1.4526	1.4596	between	0.001	2	0.0000	0.036
	0.0767	0.0972	0.0815	Within	0.417	57	0.007	
Post test	1.5421	1.5536	1.4731	Between	0.077	2	0.0038	5.605*
	0.0737	0.0948	0.0770	Within	0.387	57	0.007	
Adjusted post test	1.542	1.558	1.472	Between	0.85	2	0.042	22.158*
				Within	0.108	56	0.002	

Significance level at 0.05 level of confidence

(For 2 & 57 and 2 & 56, the necessary table values for significance at the 0.05 level of confidence are 3.15 and 3.16, respectively.)

The mean pre-test values for leg explosive power in the physical exercise group, the yoga practice group in addition to the physical exercise group, and the control group are 1.4776, 1.4526, and 1.4596, respectively, as indicated in table 4.3. In terms of leg explosive power, the obtained "F" ratio (0.036) for pre-test scores was less than the table value 3.15 for df 2 and 57 needed for significant at the 0.05 level of confidence. The physical exercise group, the yoga practice combined with physical exercise group, and the control group had post-test mean values for leg explosive power of 1.5421, 1.5536, and 1.4731, respectively.

In terms of leg explosive power, the obtained "F" ratio of 5.604 for post-test scores was higher than the table value 3.15 for df 2 and 57 needed for significance at the 0.05 level of confidence. The physical exercise group, the yoga practice combined with physical exercise group, and the control group have adjusted post-test averages of 1.542, 1.558, and 1.472, respectively. The modified post-test means' derived 'F' ratio of 22.157 exceeded the table value of 3.16 for df 2 and 56 needed for significance at the 0.05 level of confidence regarding leg explosive power. The study's findings showed that, in terms of explosive strength, there was a significant difference between the adjusted post-test averages for the physical exercise group, the group that also engaged in yoga, and the control group.

In order to determine the paired mean difference, the Scheffe's test was used because the acquired "F" ratio value was significant. The results are shown in table -II

Table – II FOR THE PURPOSE OF COMPARING THE CORRECTED POST-TEST PAIRED MEANS OF LEG EXPLOSIVE POWER, SCHEFFE'S TEST WAS EMPLOYED.

Exercise group (in meters)	Experimental group (in meters)	Control group (in meters)	Mean difference	Confidence interval
1.542		1.472	0.07*	0.036
	1.558	1.472	0.086*	
1.542	1.558		0.02	

Significance at 0.05 level of confidence

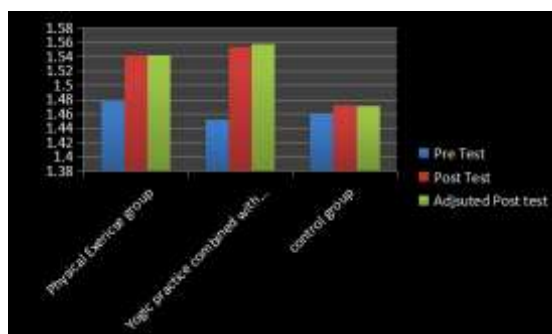
The mean differences between the physical exercise group and control group, the yogic practice coupled with physical exercise group and control group, and the physical exercise group and yogic practice combined with physical exercise group are 0.07, 0.086, and 0.02, respectively, as indicated in table II. When the experimental groups were contrasted with the control group. At the 0.05 level of confidence, the mean differences, which were 0.07 and 0.086, were significant. As a result, there was a noticeable difference in volleyball players' leg explosive power between the control and experimental groups. Nevertheless, at the 0.05 level of confidence, the mean differences between the two experimental groups were 0.02, not significant.

The study's findings demonstrated a substantial difference in leg explosive power between the physical exercise group and the control group, as well as between the physical exercise group and the yoga practice group. The results also showed that there was no discernible difference between the groups that engaged in physical exercise and those that practiced yoga in addition to exercise. The effects of both training methods on leg explosive power were comparable.

Figure I shows the pre, post, and modified post test means values for the leg explosive power of the physical exercise group, the yoga practice combined with the physical exercise group, and the control group.

Figure – I

PRE AND POST MODIFIED LEG EXPLOSIVE POWER IN METERS: POST TEST MEANS FOR PHYSICAL EXERCISE, YOGIC PRACTICE COMBINED WITH PHYSICAL EXERCISE, AND CONTROL GROUPS



4.CONCLUSION

The purpose of this study was to examine the effects of physical exercises and yogic practices combined with physical exercises on leg explosive power among junior college volleyball players. The findings revealed that both the Physical Exercise Group (PEG) and the Yogic Practice Combined with Physical Exercise Group (YPCPEG) showed significant improvement in leg explosive power when compared to the control group. The statistical analysis confirmed that the obtained post-test and adjusted post-test mean differences were significant at the 0.05 level of confidence.

Although both experimental groups improved significantly over the control group, there was no significant difference between the Physical Exercise Group and the Yogic Practice Combined with Physical Exercise Group. This indicates that both training methods were equally effective in enhancing leg explosive power among junior college volleyball players.

Therefore, it can be concluded that regular physical exercises and yogic practices combined with physical exercises are beneficial for improving explosive strength, which is an essential component for volleyball performance. Coaches and trainers may incorporate either or both methods in training programmes to improve the physical fitness and performance of volleyball players.

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