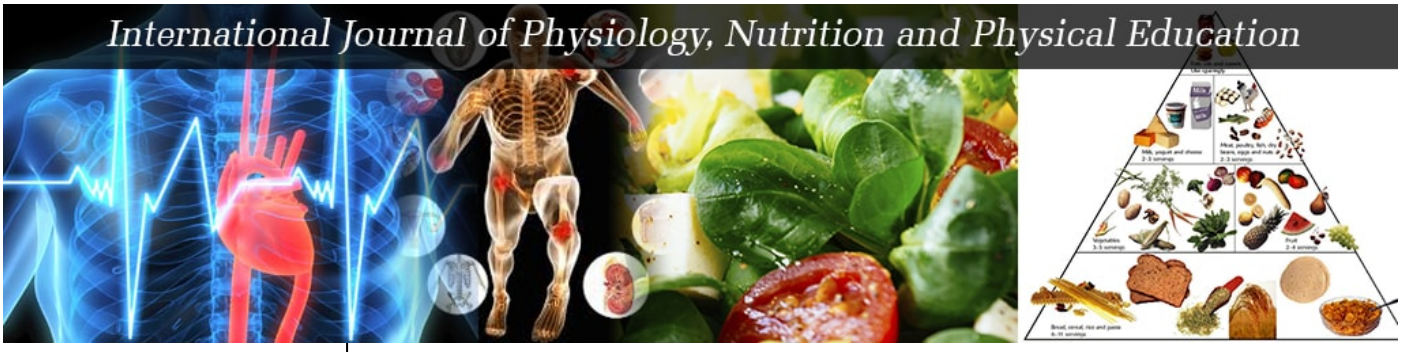


**ISSN:** 2456-0057
IJPNPE 2023; 8(2): 430-432

www.journalofsports.com
Received: 08-08-2023
Accepted: 15-09-2023

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# Effect of strength training program on motor fitness development among college level volleyball players in north Telangana region in relation to their performance

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**Abstract**
Strength training, also known as resistance training or weight training, is a form of physical exercise focused on improving muscular strength and endurance by challenging the muscles against external resistance. The objective of the study is to investigate the effect of a structured strength training program on the motor fitness development of college-level volleyball players in the North Telangana region and determine its relationship to their performance in the sport. Motor fitness Variables and Russel-Lange Volleyball Test in the age group of 18 to 22 years from 100 men North Telangana Region from Telangana state volleyball players. The experimental group showed a notable decrease in mean speed from 11.0378 to 7.6422, Agility significantly improved in the experimental group, with the mean values decreasing from 14.374 to 10.9592, indicating more agile performance. The experimental group exhibited a noticeable increase in explosive strength, with the mean value rising from 1.9896 to 2.2616. The experimental group saw a substantial improvement in medicine ball throw performance, with the mean score rising from 13.4768 to 16.1236. The volleyball skill test showed a remarkable improvement in the experimental group, with the mean score jumping from 28.20 to 49.50. The serve test exhibited a substantial improvement in the experimental group, with the mean score increasing from 16.22 to 33.90. The results of this study strongly support the use of strength training programs as a means to enhance the motor fitness and performance of college-level volleyball players. The findings provide valuable insights for coaches, trainers, and athletes seeking to optimize their training routines and unlock the full potential of their physical capabilities on the volleyball court. Moreover, this study contributes to the growing body of knowledge in the field of sports science and underscores the importance of evidence-based training practices for athletes.

**Keywords:** Agility, explosive power, speed, arm strength and volleyball skill test

## Introduction
Sports Training methods refer to the systematic and organized techniques and approaches used to improve an individual's physical or mental attributes, skills, and performance in a particular domain. Strength training, also known as resistance training or weight training, is a form of physical exercise focused on improving muscular strength and endurance by challenging the muscles against external resistance. It is a fundamental component of overall fitness and offers numerous health and performance benefits. The primary goal of strength training is to increase the force-generating capacity of muscles. This can be achieved by progressively overloading the muscles, causing them to adapt and become stronger over time. Athletes often incorporate strength training into their training routines to enhance their sport-specific skills and overall athletic performance. Strength training exercises target specific muscle groups. Common exercises include squats, deadlifts, bench presses, bicep curls, and leg presses. The principle of progressive overload is at the core of strength training. It involves gradually increasing the resistance or intensity of exercises to challenge the muscles and stimulate growth. Enhanced Strength and Power: It improves the body's capacity to exert force, making everyday activities easier and enhancing athletic performance. Strength training is a versatile and effective form of exercise suitable for individuals of all ages and fitness levels. It offers both physical and mental benefits, contributing to improved health, performance, and quality of life.

**Objective of the study**

The objective of the study is to investigate the effect of a structured strength training program on the motor fitness development of college-level volleyball players in the North Telangana region and determine its relationship to their performance in the sport.

- To develop and implement a scientifically designed strength training program tailored to the needs of the volleyball players, considering their positions, individual fitness levels, and goals.
- To provide recommendations based on the study's findings, offering insights into the potential benefits of strength training for college-level volleyball players in the North Telangana region and how coaches and athletes can apply this knowledge to optimize their training routines.

**Statement of the study**

This research endeavors to investigate the impact of a structured strength training program on the motor fitness development of college-level volleyball players within the North Telangana region and to establish a comprehensive understanding of the program's relationship with their on-court performance. The study will focus on assessing the baseline motor fitness levels of the participants, designing and implementing a tailored strength training program, monitoring and measuring the progress of the athletes, analyzing the correlation between improvements in motor fitness and volleyball performance, assessing injury occurrence and prevention, gathering participant feedback, and providing recommendations for practical applications in the realm of sports science and athletic training. The study aspires to contribute to the broader body of knowledge regarding strength training in the context of college-level volleyball in North Telangana, with the ultimate aim of enhancing training protocols and, subsequently, the performance of these athletes in their competitive endeavors.

**Hypothesis of the Study**

- There is no significant difference in the motor fitness levels (Agility, Explosive Power, Speed, and Medicine ball) between college-level volleyball players in the North Telangana region before and after the implementation of the strength training program.
- There is no significant difference in the Russel-Lange Volleyball skill test (volley and serving) between college-level volleyball players in the North Telangana region before and after the implementation of the strength training program.

**Methods and Materials**

The following Motor fitness Variables are Agility (4 x 10 shuttle run), Explosive Power (Vertical Jump), Speed (60 yard dash), Arm Strength (Medicine Ball Throw) and Russel-Lange Volleyball skill Test consists of two items volley and serving were administrated on Strength Training group, and control group in the age group of 18 to 22 years from 100 men North Telangana Region from Telangana state volleyball players pre- test were administrated and post-test were taken after systematic training of 12 weeks training strength training program.

**Results and Discussions**

Table 1 Showing the Mean Values, SD, ‘t’ value difference between pre – test and post on effect of strength training program experimental group and control group among volley ball players in relation to their motor fitness and volleyball skill test.

**Table 1:** Showing the Mean Values, SD, ‘t’ value difference between pre – test and post on effect of strength training program experimental group and control group among volley ball players

| S. No | Variables | Groups | Pre Test Mean | Post Test Mean | SD | ‘t’ ratio |
|---|---|---|---|---|---|---|
| 1. | Speed | Experimental Group | 11.037 | 7.642 | 0.388 | 14.15 |
| | | Control Group | 11.186 | 10.801 | 0.764 | 4.64 |
| 2. | Agility | Experimental Group | 14.374 | 10.959 | 0.731 | 18.83 |
| | | Control Group | 14.385 | 14.131 | 0.925 | 10.63 |
| 3. | Explosive Strength | Experimental Group | 1.989 | 2.261 | 0.061 | 6.14 |
| | | Control Group | 1.991 | 2.047 | 0.291 | 10.88 |
| 4. | Medicine Ball Throw | Experimental Group | 13.476 | 16.123 | 0.541 | 18.96 |
| | | Control Group | 13.711 | 14.221 | 0.977 | 6.93 |
| 5. | Volley test | Experimental Group | 28.20 | 49.50 | 4.962 | 24.58 |
| | | Control Group | 27.94 | 31.32 | 3.000 | 14.80 |
| 6. | Serve test | Experimental Group | 16.22 | 33.90 | 3.059 | 33.99 |
| | | Control Group | 16.56 | 17.46 | 1.705 | 6.397 |

**Finding of the study**

The table presents a comparison of mean values, standard deviations (SD), and 't' ratios depicting the differences between pre-test and post-test measurements for the experimental group (participants who underwent a strength training program) and the control group (participants who did not participate in the program) among volleyball players in the North Telangana region. The variables under consideration include speed, agility, explosive strength, medicine ball throw, volleyball skill test, and serve test. Let's discuss the implications and findings for each variable:

**Speed**

- The experimental group showed a notable decrease in mean speed from 11.0378 to 7.6422, while the control group's speed remained relatively stable, moving from 11.1866 to 10.8010. The 't' ratio of 14.155 indicates a highly significant change in the experimental group's speed. This could be due to the specific speed-enhancing aspects of the strength training program.
- In contrast, the control group's 't' ratio of 4.643 shows a less significant change, suggesting that their speed wasn't affected as much.

**Agility**

- Agility significantly improved in the experimental group, with the mean values decreasing from 14.374 to 10.9592, indicating more agile performance. The 't' ratio of 18.83

signifies a highly significant change in agility.
- In the control group, agility improved less markedly, with a 't' ratio of 10.639, still indicating significance.

**Explosive Strength**
- The experimental group exhibited a noticeable increase in explosive strength, with the mean value rising from 1.9896 to 2.2616. The 't' ratio of 6.149 suggests that this change is highly significant.
- The control group also experienced an increase in explosive strength, as indicated by a 't' ratio of 10.882, although the change was not as significant as in the experimental group.

**Medicine Ball Throw**
- The experimental group saw a substantial improvement in medicine ball throw performance, with the mean score rising from 13.4768 to 16.1236. The 't' ratio of 18.968 indicates a highly significant change in this variable.
- The control group's performance improved to some extent as well, but the 't' ratio of 6.932 suggests less significance.

**Volleyball Skill Test: Volley Test**
- The volley skill test showed a remarkable improvement in the experimental group, with the mean score jumping from 28.20 to 49.50. The 't' ratio of 24.588 indicates an extremely significant change.
- In the control group, there was a less substantial improvement in this test, with a 't' ratio of 14.800, still indicating significance.

**Volleyball Skill Test: Serve Test**
- The serve test exhibited a substantial improvement in the experimental group, with the mean score increasing from 16.22 to 33.90. The 't' ratio of 33.990 signifies an extremely significant change.
- The control group also demonstrated a significant improvement, with a 't' ratio of 6.397.

**Discussion of the study**

The results of this study provide strong evidence that the strength training program had a significant positive impact on motor fitness and volleyball performance among college-level volleyball players in the North Telangana region. The experimental group, which participated in the program, exhibited substantial improvements in speed, agility, explosive strength, medicine ball throw, volleyball skill test, and serve test. These improvements were statistically significant, with highly elevated ’t’ ratios in most cases.

In contrast, the control group, which did not partake in the strength training program, also displayed improvements in certain areas, but the changes were not as significant as those in the experimental group. This suggests that while some natural progression in motor fitness and performance can occur over time, targeted strength training yields more substantial and rapid improvements. Overall, these findings underscore the importance of structured strength training programs for enhancing the physical and performance attributes of volleyball players, including speed, agility, strength, and specific volleyball-related skills. Coaches and trainers working with college-level volleyball players in the North Telangana region should consider incorporating such programs to optimize their athletes' performance on the court.

**Conclusion**

The study on the impact of a strength training program on motor fitness development and volleyball performance among college-level volleyball players in the North Telangana region has yielded significant insights. The strength training program had a substantial and highly significant positive impact on various aspects of motor fitness, including speed, agility, explosive strength, medicine ball throw, volleyball skill, and serving ability. These improvements in motor fitness are closely associated with enhanced volleyball performance. The study underscores the holistic nature of strength training. It not only improved physical attributes like speed and strength but also had a positive influence on sport-specific skills, including volleyball skills such as serving and performance in the medicine ball throw.

In summary, the results of this study strongly support the use of strength training programs as a means to enhance the motor fitness and performance of college-level volleyball players. The findings provide valuable insights for coaches, trainers, and athletes seeking to optimize their training routines and unlock the full potential of their physical capabilities on the volleyball court. Moreover, this study contributes to the growing body of knowledge in the field of sports science and underscores the importance of evidence-based training practices for athletes.

**References**

1. Vivekanth B, Vallimurugan V. Effect of strength training on physical fitness variables of intercollegiate volleyball players. International Journal of Applied Research. ISSN Online: 2394-5869. Impact Factor: 5.2. IJAR. 2019;5(6):442-444.
2. Ibrahim AAL. The Impact of Weight Training on the Defensive Performances for the Sitting Volleyball Players (Amputees) World Journal of Sport Sciences 3 (S): 1146-1150, 2010. ISSN 2078-4724. © IDOSI Publications; c2010.
3. Shobana R, Shelvam PV. Effect of Interval Training On Selected Physical Fitness Variables among Hockey Players. Journal of Xi'an University of Architecture & Technology. Issn No: 1006-7930. 2020;12(3):5737-5745.
4. Kumar S, Kannur NG. Effect of Fitness Training on the Sports Performance of Volleyball Players. Aayushi International Interdisciplinary Research Journal (AIIRJ). UGC Approved Sr.No.64259. ISSN 2349-638x Impact Factor 4.574. 2018;5(3):242-244.
5. Rebelo JR. Pereira. Effects of a preseason triphasic resistance training program on athletic performance in elite volleyball players-an observational study. German Journal of Exercise and Sport Research. 2023;53:163-170.