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Ashish Dubey
Department of Physical
Education, Monad University
Hapur, Uttar Pradesh, India

Dr. Arun Kumar Tyagi
Department of Physical
Education, Monad University
Hapur, Uttar Pradesh, India

Impact of S.A.Q and plyometric training on speed ability for volleyball players

Ashish Dubey and Dr. Arun Kumar Tyagi

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Abstract

A contemporary ball game that is a member of the team sports family is volleyball. It incorporates the best aspects of several sports, including the advantages of technical proficiency, tactical awareness, and physical prowess. The purpose of this study was to determine how volleyball players' speed ability was affected by plyometric training and SAQ. The researcher chose thirty male volleyball players, ages 18 to 25, for this study. In addition, the subjects received 12-weeks of plyometric and SAQ training. Samples from Raghogarh College in Madhya Pradesh state were chosen at various playing levels, including AIU, SGFI, HFI, and PHA. The sample was chosen using a random sampling procedure. For this study, physical fitness variables like speed were used. The ANCOVA test was used at the 0.05 level of significance to determine the differences between each group's physical fitness levels. The findings demonstrated that each group differs significantly from the others.

Keywords: Volleyball, speed, SAQ group, training

1. Introduction

The human body is a remarkable apparatus. Skeletal muscle function is necessary for all human actions, including eye blinking and marathon running. A sumo wrestler's arduous struggle or a ballet dancer's elegant pirouette are examples of how physical activity can only be completed with muscular force. The impact of a 12-week S.A.Q. training programme on volleyball players' skill performance factors is investigated by Gill and Deol (2017) ^[4]. The findings indicated that every volleyball skill variable had a significant difference. According to Emeish (2015) ^[3], developing quickness, agility, and speed via training raises performance levels in all sports. The findings of the speed-agility and reactive agility tests demonstrated a substantial change between the pre- and post-measurements. We propose that S.A.Q. workouts can help young athletes by strengthening their muscles and enhancing their speed, agility, flexibility, and jump shooting ability. Siva and Jesudass (2015) ^[12] looked into how S.A.Q. training affected a few specific skills in male hockey players. The outcome shows that the experimental group's dribbling differed significantly from the control groups, which validates the researcher's current investigation. An attempt was made by Shivaji *et al.*, 2013 to investigate the speed, agility, and quickness (S.A.Q.) training, which is now a well-liked kind of athlete training. The results of the current study clearly show that junior volleyball players serving and passing abilities are significantly improved after 12 weeks of S.A.Q. training.

2. Materials and Procedures

The aim of the research was to determine how volleyball players' speed ability was affected by SAQ and plyometric training. A total of thirty male volleyball players, ages eighteen to twenty-five, were chosen. The source of the data was from Raghogarh College in Madhya Pradesh state.

3. Statistical analysis

To analyse the data, statistical methods were used to determine mean differences. Moreover, the "ANCOVA" test was used to determine how different groups differed from one another.

Corresponding Author:
Ashish Dubey
Department of Physical
Education, Monad University
Hapur, Uttar Pradesh, India

4. Results

Various descriptive statistics, including the mean and standard deviation, were calculated to provide a statistical

description of every variable. The significance threshold was established at .05. The results are displayed in the table below.

Table 1: Shows the covariance analysis (ANCOVA) of the speed test between the control, plyometric, and SAQ groups.

| Source | Type III Sum of Squares | DF | Mean Square | F | Sig. |
|-----------------|-------------------------|----|-------------|---------|------|
| Corrected Model | 41.40 ^a | 3 | 13.80 | 1.435E3 | .000 |
| Intercept | .02 | 1 | .02 | 2.56 | .11 |
| SPEED | 4.85 | 1 | 4.85 | 504.33 | .00 |
| Groups | .07 | 2 | .03 | 3.66 | .03 |
| Error | .82 | 86 | .01 | | |
| Total | 2684.04 | 90 | | | |
| Corrected Total | 42.23 | 89 | | | |

The F value for speed comparison between the control, plyometric, and SAQ groups is displayed in Table 1; the p-value for the F-statistics is .000, which is less than 0.05, indicating significance. As a result, the alternate theory is

acknowledged. Given the significance of the F-value, a post hoc test was conducted to determine the essential differences; the results are displayed in the following table.

Table 2: Shows Plyometric, SAQ, and Control Group Pairwise Speed Test Comparisons

| Group (Mean) | | Mean Diff | Std. Error | P-Value (Sig.) |
|--|------------------|-----------|------------|----------------|
| Control Group N= 30 (5.48 ^a) | Plyometric Group | .12 | .05 | .09 |
| Plyometric Group N= 30 (5.36 ^a) | SAQ Group | -.04 | .02 | .33 |
| SAQ Training Group N= 30 (5.40 ^a) | Control Group | -.08 | .06 | .53 |

According to Table 2, there is not much of a mean speed difference between the plyometric and control groups 12. The speed of the plyometric group (5.36) was noticeably faster than that of the control group (5.48). Plyometric group and SAQ group mean differences are determined to be minor, at -.04. The SAQ group (5.40) demonstrated considerably higher speed than the plyometric group (5.36). The SAQ group's mean speed difference from the control group is a significant -.08. The SAQ group's speed difference from the control group is not statistically significant.

5. Discussion and Findings

A statistically significant difference was discovered between all the groups when comparing the mean speed value, even though there was an increase in speed values as a result of the training. On the other side, it is claimed that young male volleyball players' sprint performance can be favourably impacted by a 12-week programme of high-intensity plyometric and SAQ training. The result could have been caused by the experimental group's twelve weeks of SAQ training, which included short sprints, high knees, butt kicks, inclined running, weighted arm swings, figure drills, and other SAQ drills designed to increase the speed component of volleyball players. During the play, the enhanced speed ability may be useful for rapid breaks and offensive and defensive counterattacks. Clark *et al.* (2014) [2] corroborate these findings by stating that SAQ drills may also be utilized to train or teach movement to athletes. Plyometric training is employed by many coaches and training specialists to increase players' speed and sprinting abilities, according to McArdle, Katch, and Katch (2001) [7]. A research on the "effect of 12 weeks of SAQ drills training programme on selected physical, physiological variables and hockey skills" was carried out by Singh & Deol (2016) [11]. Further discovered that there is a notable impact on the

speed variable following the SAQ drill instruction. In a study published in 2013, Nageswaran investigated the effects of Speed Agility Quickness (SAQ) training on intercollegiate athletes' speed, agility, and balance. The study also found that, when compared to a control group, there were notable differences and improvements in speed as a result of SAQ training. Additionally, it was discovered by Chettiamkudiyil *et al.* (2015) [1] that plyometric exercise increased speed more than SAQ training. Emeish (2015) [3] has also shown that SAQ workouts can help young athletes by strengthening their muscles and enhancing their speed performance. The findings are consistent with the research on how plyometric training increases tennis players' speed and power (Salonikidis & Zafeiridis, 2008; Villarreal *et al.*, 2009) [9, 14]. These results were further supported by Sheppard *et al.* (2006) [10]; Sivarajan (2003) [13]; Kamalakkannan and Mahadevan (2012) [6] and Gill (2019) [5].

6. Conclusion

The accompanying conclusion was reached after accounting for the study's findings. It was noted that the experimental group's rate of increase in speed performance was greater than that of the volleyball players in the control group.

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