Research Paper Physical Education

Comparison of Leg Explosive Power Between Volleyball And Handball Players

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ABSTRACT

The purpose of the study was to compare the leg explosive power between volleyball and handball players of Annamalai University. We have selected thirty (30) male students who play either handball or Volleyball from Department of Physical Education and Sports Sciences, Annamalai University. These subjects were equally classified into two groups (Volleyball = 15 & handball = 15). The selected subjects were tested on leg explosive power by vertical jump test which was selected as criterion variable. The collected data was analysed using independent t test to find out the significant difference between handball and volleyball players. The result of our study showed that volleyball players have greater leg explosive power than handball players ($p < 0.05$). It is concluded that leg explosive power plays a vital role in both game, however volleyball players showed greater leg explosive power than handball players may be because of repeated jumping during the game.

KEYWORDS Handball, Volleyball, leg explosive power, vertical jump test

Introduction

In volleyball attacking and blocking skills constitute approximately 45% of total movements and reflexes and almost 80% of points are gained through these techniques (Voigt & Vetter, 2003). Better performance of spike and Block as well as jumping service are dependent to the amount of height which players can reach (Ciccarone *et al*., 2007). Studies show that there is significant correlation between vertical jump ability with success rate of spike and block in volleyball games (Xing et al., 2006).

Similarly, in handball is a sport with great anaerobic demand. During the game, tasks such as pushing and blocking require high power and strength levels in the limbs and trunk regions (Gorostiaga *et al*. 2005; Izquierdo *et al*. 2002; Wallace and Cardinale 1997). Gorostiaga *et al*. (2005) reported that stronger players with higher body mass have an advantage in handball because the requirements of the game, such as throwing the ball with power and speed, are met through jumping and physical contact with the opponent. Since both games require jump for excellence during the game. Therefore, the purpose of the study was to compare the leg explosive power between volleyball and handball players of Annamalai University.

Methods

Subjects and Variable

Fifteen (15) volleyball and fifteen (15) handball players were selected as subjects from Department of Physical Education and Sports Sciences, Annamalai University, Chidambaram, Tamilnadu. There ages ranged from 19 to 25 years and had minimum four years of playing experience. The selected subjects were tested on leg explosive power by vertical jump test which was selected as criterion variable.

Vertical jump test

The athlete stands side on to a wall and reaches up with the hand closest to the wall. Keeping the feet flat on the ground, the point of the fingertips is marked or recorded. The athlete then stands away from the wall, and jumps vertically as high as possible using both arms and legs to assist in projecting the body upwards. Attempt to touch the wall at the highest point of the jump. The difference in distance between the reach height and the jump height is the score. The best of three attempts is recorded.

Statistical technique

The collected data was analysed using independent t test to find out the significant difference between handball and volleyball players on speed and agility. SPSS statistic software package (SPSS Company, America, version 17.0) was used. The α value of 0.05 was set for statistical significance.

Results

Table 1 clearly show that mean value of leg explosive power for volleyball and handball players were 61.51 and 54.25 respectively. The obtained t ratio on leg explosive power is 6.67 (p = 0.004). This shows that volleyball players show greater leg explosive power character than handball players. The differences in leg explosive power are presented in the figure 1.

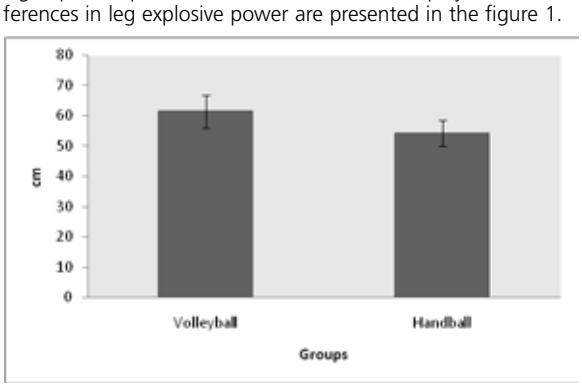

Figure 1
Leg explosive power of volleyball and handball players

Discussion

The present findings of the study showed that leg explosive power differs significantly between volleyball and handball players. Volleyball, as a power sport, demand high number of jumps for players to perform spikes and blocks, so the ability of jumping is introduced as an important factor determining physical fitness of volleyball players through assessing lower extremity explosive power. The main purpose of volleyball players is achieving greater height on the net (Stec & Smulsky, 2007). Nowadays players who are able to achieve greater height during performing spike and block, as the most valuable skills in volleyball have the advantages comparing to other players which is possible with the ability of higher jumping (Ciccarone *et al*., 2007). The anthropmetric differences and

other differences might have influenced the difference in leg explosive power between volleyball and handball players.

Conclusion

It is concluded that leg explosive power plays a vital role in both game, however volleyball players showed greater leg explosive power than handball players may be because of repeated jumping during the game. Maximum vertical jump is one of the necessary components in performing spike and block skills in volleyball.

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