



Comparison of abdominal strength endurance between handball and volleyball players

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Abstract

The purpose of the study was to compare the abdominal strength endurance between handball and volleyball 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 (handball = 15 & volleyball = 15). The selected subjects were tested on abdominal strength endurance by sit-ups test which was selected as criterion variable. The collected data was analysed using an independent t test to find out the significant difference between handball and volleyball players. The result of our study showed no difference in abdominal strength endurance between handball and volleyball players ($p < 0.05$). It is concluded that abdominal strength endurance plays a vital role in both game remain equal.

Keywords : Handball, Volleyball, abdominal, strength endurance and sit-ups test

Introduction

Strength and endurance of the abdominal muscles are important in promoting good posture and correct pelvic alignment. The latter is particularly important in the maintenance of low back health. In testing and training the muscles of this region, it is difficult to isolate the abdominal muscles. The sit-up, which is used in many fitness tests, involves the action of the hip flexor muscles in addition to the abdominal muscles.

It is believed that a strong core allows an athlete the full transfer of forces generated with the lower extremities, through the torso, and to the upper extremities and sometimes an implement (Behm *et al.*, 2005; Cissik, 2002; McGill, 2004). A weak core is believed to interrupt the transfer of energy, resulting in reduced sport performance and risk of injury to a weak or underdeveloped muscle group. For this reason, there is an assumption that an increase in core

strength will result in increased sport performance. Therefore, training the core has become popular among strength coaches and personal trainers as a means to improve performance and reduce the chance for injury despite the lack of research to support such findings. Therefore, the purpose of the study was to compare the abdominal strength endurance between handball and volleyball players of Annamalai University.

Methodology

Selection of subject and variables

Fifteen (15) volleyball and fifteen (15) handball players were selected as subjects from Department of Physical Education and Sports Sciences, Annamalai University, Chidambaram, Tamilnadu. Their ages ranged from 19 to 25 years and had minimum four years of playing experience. The selected subjects were tested on abdominal strength endurance by sit-ups test which was selected as criterion variable.

Sit-ups test

Abdominal muscle strength and endurance is important for core stability and back support. This sit up test measures the strength and endurance of the abdominals and hip-flexor muscles. The starting position was a supine position with knees flexed to less than 90 degrees, feet on the mat, 12 inches from the buttocks. Arms remained clasped behind the neck throughout the test. A partner held the feet in contact with the ground throughout the test. To begin the test he curled up touching the thigh with chest and goes back. This sequence is continued for a minute. The score was the maximum number of sit-ups completed in one minute. One point was scored for each correct sit-up.

Statistical analysis

The collected data was analysed using an independent 't' test to find out the significant difference between handball and volleyball players on abdominal strength endurance. SPSS statistical software package (SPSS Company, America, version 17.0) was used. The α value of 0.05 was set for statistical significance.

Results and Discussion

It clearly shows that the mean value of abdominal strength endurance for handball and volleyball players were 40 and 39.10 respectively. The obtained t ratio on abdominal strength endurance is 0.12 ($p = 0.539$). This shows that no difference is elicited between handball and volleyball players on abdominal strength endurance (Fig.- 1).

The present findings of the study showed no difference between handball and volleyball players on abdominal strength endurance. In handball and volleyball while jumping and running power is generated from the ground and core stability is necessary for the transfer of force and power from the ground across the body into

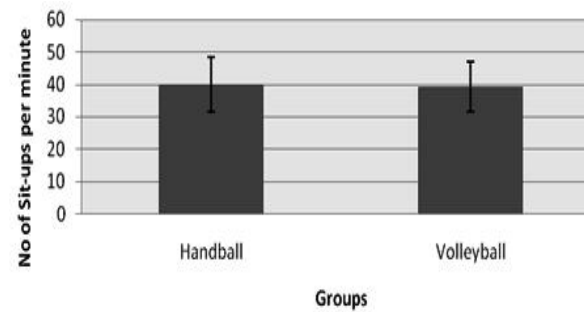


Fig. – 1. Abdominal strength endurance of handball and volleyball players

any movement. Tse *et al.* (2005), who also used McGill's tests to measure core muscle endurance and, then, compared core strength with performance variables in rowers.

Conclusion

It is concluded that abdominal strength endurance plays a vital role in both game and showed no difference between them. The activities like jump and run require greater core stability to perform.

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