



Relationship of selected physical fitness components on shooting accuracy of women handball players

B. Chittibabu

Department of Physical Education and Sports Sciences, Annamalai University,
Chidambaram – 608002, Tamilnadu, India

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Abstract

The purpose of the study was to find out the relationship between the selected physical fitness variables such as speed, agility, explosive power and speed endurance on shooting accuracy. To achieve the purpose of this study thirty women handball players who were studying in the department of physical education and sports sciences, Annamalai university was selected as subject at randomly. Shooting accuracy of handball players was measured by 9 meters (jump and throw test). Physical fitness variables like speed, agility, explosive power and speed endurance were measured using 50 m, shuttle run test, vertical jump test and 600 yard run respectively. Pearson's product movement correlation was administered to find out the relationship. The result of the study showed the relationship between shooting accuracy and speed ($r = 0.631, p < 0.05$), agility ($r = 0.12, p > 0.05$), explosive power ($r = 0.350, p > 0.05$) and speed endurance ($r = 0.71, p < 0.05$). It is evident from the study that speed and speed endurance exhibited a significant relationship with shooting accuracy of women handball players.

Keywords : Speed, agility, explosive power, speed endurance, handball and jump shot accuracy

Introduction

Handball is a complex intermittent game, which requires players to have well developed aerobic and anaerobic capacities (Delamarce *et al.*, 1987). Motor ability, sprinting, jumping, flexibility and throwing velocity represent physical activities that are considered as important aspects of the game and contribute to the high performance of the team. Successful performance requires explosive power of the legs and arms, sprint velocity and kinesthetic feeling in ball control (Sibila, 1997). On the other hand, for a modern model of a handball player, the pronounced longitudinal dimensions such as stature, arm span, hand spread and length are necessary (Srhoj *et al.*, 2002; Skoufas *et al.*, 2003). Such an anthropometric profile plays a

supportive role in helping athletes perform under actual competitive conditions (Srhoj *et al.*, 2002). Longer upper extremities contribute to maximizing throwing velocity (Fleising *et al.*, 1999) and longer hand spread and length influence specific motor abilities such as dribble, passing, catching and ball throwing (Skoufas *et al.*, 2003).

Goal shooting is the conclusion of the attack with hopes of scoring. The aim of the attack organization is to create an advantageous position from which one member of the team can execute a direct goal shot with a good chance of scoring. Goal shooting is most commonly attempted by the players from the area between the free-throw line and the goal line in presence of defense players and particularly from the back court position (Zoltan Marczinka, 1993).

Table - 1. Correlation between shooting accuracy on selected physical fitness components

Variables	Shooting Accuracy
Speed	0.631*
Agility	0.12
Explosive power	0.350
Speed Endurance	0.71*

*Significant at 0.05 level of confidence (28df = 0.361)

The purpose of the study was to find out the relationship between the selected physical fitness variables such as speed, agility, explosive power and speed endurance on shooting accuracy.

Methodology

Subjects and variables

Thirty (30) women handball players who were studying in the Department of Physical Education and Sports Sciences, Annamalai University were selected as subject at randomly. The age of the subjects ranged between 18 to 24 years. Shooting accuracy of handball players was measured by 9 meters (jump and throw test). Physical fitness variables like speed, agility, explosive power and speed endurance were measured using 50 m, shuttle run test, vertical jump test and 600 yard run respectively.

Statistical techniques

The data were analyzed using statistical package for social sciences (SPSS) for window version 11.5. Pearson product movement correlation was administered to find out the relationship between the selected physical fitness components on shooting accuracy of women handball players. Statistical significance was accepted at $p < 0.05$.

Results

The table - 1 elicit the relationship between shooting accuracy and speed ($r = 0.631, p < 0.05$), agility ($r = 0.12, p > 0.05$), explosive power ($r = 0.350, p > 0.05$) and speed endurance ($r = 0.71, p < 0.05$). It is evident from the study that speed and speed endurance showed significant relationship with shooting accuracy of women handball players.

Discussion

According to Singh Hardayal, (1984) sports endurance ensures the optimum speed of motor actions. The ability to maintain pace or tempo of an exercise or during competition is impossible without the requisite level of endurance. Good endurance also ensures high quality of skill of movement execution, which finds expression in accuracy, precision, rhythms, consistency etc. Under condition of fatigue the sports men tend to lose motor coordination, concentration, mental alertness etc. This clearly points out the importance of endurance for tactical efficiency. From the findings of Beena Lal (1990) it was concluded that speed and speed endurance show negative correlation, which indicate that lesser the time taken better will be the performance. The findings of this study are also supported by Class and Broer (1988) who states that accuracy in basketball shooting is also determined by individual endurance level.

Conclusion

The back court players require greater amount of speed and endurance to have better jump shoot accuracy in women handball players.

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