

Mechanical Power of Leg Extensor Muscles in Male Handball Players

Singh¹, Baljinder, Kumar², Ashok & Ranga³ M. D.

¹PhD Research Scholar, Department of Sports Science, Punjabi University Patiala, Punjab,
E-mail: bali007@rediffmail.com

²Assistant Professor, Department of Sports Science, Punjabi University Patiala, Punjab

³Scientific Officer, Biomechanics Department, SAI NS NIS Patiala, Punjab

Abstract

The present study was conducted on eighteen male Handball players (age: 15.83 ± 0.62 years) comprising of players training under the guidance of Punjab State coaches in Patiala (India). The main objective of the study was to find the status of mechanical power variables of leg extensor muscles in male handball players and to find the relationship between them. The experimental protocol developed by *Bosco et al (1983)*, *Mcguigan et al (2006)* were used to measure the mechanical power variables of leg extensor muscles in male handball players. For the purpose of statistical analysis of the data, Karl Pearson's coefficient of correlation was calculated with the help of SPSS version 9.0. The results of this study indicate that there was a highly significant correlation exists between the squat jump flight time, squat jump height, countermovement jump height, countermovement flight time, Eccentric Utilization Ratio (EUR), Elasticity Index (EI) and peak power (0-15sec), peak power (45-60sec) and Mean Power (0-60sec).

Key words: Mechanical Power, Vertical jump test, Leg Extensor Muscles, Muscular Power.

Introduction

Vertical jump ability is of considerable importance in numerous handball events. Coaches and trainers are greatly interested in developing training techniques designed to improve power performance of the legs and vertical jump ability (*Blattner, 1980*). There is no doubt that high-level handball practice and the vertical jump is very important for the shooters or defence actions. During the last few years, performing plyometric exercises in general (*Wilt, 1978*) and drop jumps (*Komi and Bosco, 1978*), also called depth jumps (*Wilt, 1978*), in particular, has become very popular in training. Increases in vertical jumping performance after drop jump programmes have been reported in several studies

(*Blattner and Noble, 1979; Steben and Steben, 1981; Clutch et al., 1983*). Strength is the ability to produce maximal force, which is considered a basic motor ability and contributes to high performance in most physical activities and sports for prevention of injury (*Coyle et al, 1981, Pangrazi, 1999*). Numerous studies of young athletes indicate that specific training in track and field, gymnastics, swimming, soccer, basketball improve vertical jumping performance, explosive strength of upper and lower limbs. Soccer, (*Gorostiaga et al, 2002*), basketball (*Foley 1988, Klizning, 1991*), volleyball (*Mills et al. 2005*), and tennis training (*Huff, 1972, Liemohn, 1983*) improve the explosive strength of lower