

Effect of Six-Weeks of Plyometric Circuit Training on the Jumping Performance of Female College Players

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Abstract

Effect of six weeks of two types of plyometric circuit training programmes on jumping performance of female college level players and athletes were compared. Circuit Training Programme-I used depth jumping in combination with hopping and hurdling while Circuit Training Programme-II comprised only of depth jumping from boxes varying in heights from 15-45cms. The results show that gains in jumping abilities as a result of CTP-II are much higher than the gains accruing as a result of CTP-I. The amount of gain in abilities is not uniform. The gain varies from ability to ability. CTP-II has proved more effective in improving the jumping abilities of the subjects because it is more saturated with depth jumping exercises.

Key Words: **Vertical Jump, Depth Jumping, Standing Broad Jump, Spike Jump**

Introduction:

The improvement in jumping records in various international competitions (Asian and Olympic) in the past thirty years has witnessed a dramatic change in the positive direction. This has attracted the attention of various physical educationists and sports scientists to analyse the causes for this boom. As the performance in jumping events is largely determined by ones muscular strength and also to a number of other related strength factors the training of athletes therefore, is mainly directed to improve the strength ability of the athletes. Old traditional techniques include the weight training and run jumps. These training techniques are no doubt very effective methods used world over for the training of athletes, but with the recent advent of plyometrics (depth jumps) which is based on the principle of overload, an improvement of much greater magnitude in the jumping performance has been reported by the research as is also reflected in the improvement in jumping records of athletes in the past 30-40 years.

Depth jumping (Plyometric drills) produces explosive re-active movements since it trains the eccentric part of muscle contraction. The fundamental research in the area was conducted by Russians in the mid and late 1960s. This has unveiled a great potential in the plyometrics. The scientific basis of depth jumping according to *Miller and Power (1981)* is concentric (shortening) contraction. These depth jumping exercises are based on the principle of pre-stretching of the muscles in an amortisation phase to use the kinetic energy developed in this phase in the contraction. The mechanical energy gets stored within the muscle (*Marey and Demeny, 1885*). When two jumps in succession are performed, the second jump is always higher than the first one because of the mechanical energy stored during the falling power phase of the first jump. Many researchers have advocated depth jumping as training aid for improving the jump ability of sportsmen/women (*Verhoshansky, 1967; Lenz and Losch, 1979*). Recently *Walker and Kenneson (1986)* have ascribed