

Analysis of Barbell Kinematics of Snatch Technique among Women Weightlifters in India

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Abstract : India has not yet been able to produce many weightlifters in the past years. Karnam Malleshwari is the only woman to win a medal for India in Olympics. When we try to introspect, there seem to be different reasons. One of the probable cause could be the lack of biomechanical analysis for technique improvements. The analysis of motion in sports has gained prime importance for technical improvement. It helps an athlete to develop a better understanding of his own skills and increasing the rate of technical learning process. Kinematics is concerned with describing and quantifying both the linear and angular position of bodies and their time derivatives. The techniques analysis of barbell movement is very important in weightlifting. But women weightlifting has a shorter history than men's. Research on women weightlifting based on video analysis is less; there is a lack of scientific evidence based on kinematic analysis of especially on Indian weightlifters at national level are limited. Hence, the present investigation was aimed to analyze the barbell kinematics of women weightlifters in India. The study was delimited to the medal winners of 69-kilogram weight category in the All India Inter-University Competition, age ranging between 18 and 28 years. The variables selected for the mechanical analysis of Barbell kinematics included barbell trajectory, velocity, acceleration, potential energy, kinetic energy, mechanical energy, and average power output. The performance was captured during the competition by two DV PC-60 Digital cameras (Panasonic Company, Ltd). Two cameras were placed 6-meters perpendicular to the plane of the motion, 130 cm. above the ground to record/capture the frontal and lateral view of the lifters simultaneously. Video recordings were analyzed by using Dartfish software, and barbell kinematics were analyzed with the information derived with the help of software. The result documented on the basis of the finding of the study clearly states that there are differences in the selected kinematic variables in all three lifters in respect to their technique in five phases during snatch technique using by them.

Keywords : dartfish, digital camera, kinematic, snatch, weightlifting

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