3D Biomechanical Analysis in Shot Put Techniques of International Throwers

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Abstract : Aim: The research aims at doing a 3 Dimension biomechanical analysis in the shot put techniques of International throwers to evaluate the performance. Research Method: The researcher adopted the descriptive method and the data was subjected to calculate by using Pearson's product moment correlation for the correlation of the biomechanical parameters with the performance of shot put throw. In all the analyses, the 5% critical level ($p \le 0.05$) was considered to indicate statistical significance. Research Sample: Eight (N=08) international shot putters using rotational/glide technique in male category was selected as subjects for the study. The researcher used the following methods and tools to obtain reliable measurements the instrument which was used for the purpose of present study namely the tesscorn slow-motion camera, specialized motion analyzer software, 7.260 kg Shot Put (for a male shot-putter) and steel tape. All measurement pertaining to the biomechanical variables was taken by the principal investigator so that data collected for the present study was considered reliable. Results: The finding of the study showed that negative significant relationship between the angular velocity right shoulder, acceleration distance at pre flight (-0.70), (-0.72) respectively were obtained, the angular displacement of knee, angular velocity right shoulder and acceleration distance at flight (0.81), (0.75) and (0.71) respectively were obtained, the angular velocity right shoulder and acceleration distance at transition phase (0.77), (0.79) respectively were obtained and angular displacement of knee, angular velocity right shoulder, release velocity shot, angle of release, height of release, projected distance and measured distance as the values (0.76), (0.77), (-0.83), (-0.79), (-0.77), (0.99) and (1.00) were found higher than the tabulated value at 0.05 level of significance. On the other hand, there exists an insignificant relationship between the performance of shot put and acceleration distance [m], angular displacement shot, C.G at release and horizontal release distance on the technique of shot put.

Keywords : biomechanics, analysis, shot put, international throwers

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