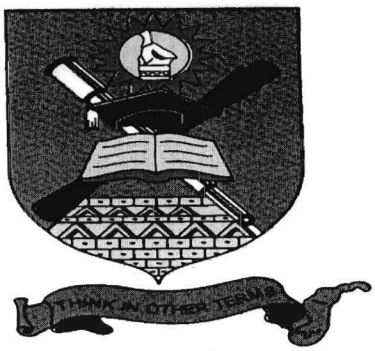

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

A BIOMECHANICAL ANALYSIS OF EXECUTING THE JUMP SHOT AMONG ELITE MALE ZIMBABWE BASKETBALL PLAYERS

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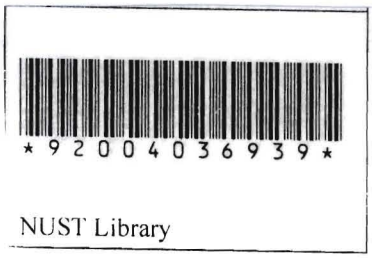

Abstract

Basketball is a popular game in Zimbabwe and worldwide. Shooting, a key skill in basketball is mostly done as a jump shot (JS). The low conversion rate of the JS in league basketball matches suggests that Zimbabwean league basketball players have problems in executing the JS. This study investigated release parameters (angle of release, velocity of release, height of release and spin of release) of JSs executed by Zimbabwean basketball players. It investigated JSs by success, outcome, playing position and expertise. The study sought to establish if any significant differences existed in release parameters a) between successful JSs and unsuccessful JS b) among JS outcomes clean shots, successful JSs and unsuccessful JSs c) among successful JSs executed by forwards, guards and centres and d) across successful JSs executed by good jump shooters, average jump shooters and poor jump shooters. Twenty six (26) players (mean age 21.3±4.4 years, mean weight 63.8±8.0 kg, mean height 176.9±6.8 cm and mean league playing experience 3.2 ±3.4years) were randomly sampled from the Bulawayo Basketball Association. They performed ten successive JSs each from the free throw line, after a warm up. Subjects were positioned at the free throw line directly in front of the basket, and 4.6m away from basket. From this position each subject received a chest pass from a feeder positioned directly in front of the player at the baseline and then executed a JS. The jump shots were videotaped, using standard videography protocols. A Panasonic VDR D1160 camera placed 10.7 m away from, and perpendicular to the plane of motion of the subjects, mounted on a tripod 1.9 m high, was used to videotape the JSs. The videos were cut using ANYCONVETER software. Quintic Coaching 4.02 v17 software was then used to compute release parameters for each of the cut videos. The study found that generally Zimbabwean players use release parameters (angle of release, velocity of release, height of release and spin of release) which are comparable to basketball players elsewhere in executing successful JSs, in making successful JSs across playing positions (forwards, guards and centres) and in making clean shots and unsuccessful JSs. The study found statistically significant differences ($p \leq 0.05$) a) in spin of release for JSs and unsuccessful JSs b) in height of release among clean shots, successful back-rim shots and unsuccessful JSs c) in angle of release, velocity of release and height of release among forwards, guards and centres and d) in angle of release among good jump shooters, average jump shooters and poor jump shooters. It was concluded that Zimbabwe basketball players need to practice JS utilizing optimal release parameters, that Zimbabwean basketball players need to practice JSs using higher velocities of release, that player height be used as one of the criteria for team selection in Zimbabwean basketball, and that leg power of Zimbabwean basketball players be improved.

Key Words: basketball, jump shot, release parameters