

Abstract

► **Feltner, M.E. and J. Dapena. Dynamics of the shoulder and elbow joints of the throwing arm during a baseball pitch. *Int. J. Sport Biomech.* 2:235-259, 1986.**

Fastball pitches of eight intercollegiate varsity baseball pitchers were filmed using the direct linear transformation (DLT) method of three-dimensional cinematography. Coordinate data were obtained, and the resultant joint forces and torques at the shoulder and elbow joints were calculated. Various kinematic parameters were also calculated to help describe the motions of the shoulder and elbow joints throughout the pitch. At the instant of stride foot contact, a horizontal adduction torque was present at the shoulder joint, and the shoulder was externally rotating. After the onset of the horizontal adduction torque, abduction and internal rotation torques were also present at the shoulder joint, and a varus torque was present at the elbow joint. After the instant of maximum external rotation (30 ms prior to ball release), the upper arm started to internally rotate, but it was still in a position of external rotation at the instant of release. This paper discusses the roles of the torques in producing the observed motions of the throwing arm.