Development of Dynamic Simulation Models of Seated Reaching Motions while Driving

Xudong Zhang, Don B. Chaffin and Deborah D. Thompson

A research effort was initiated to establish an empirical data base and to develop predictive models of normal human in-vehicle seated reaching motions while driving. A driving simulator was built, in which a variety of targets were positioned at typical locations a driver would possibly reach. Reaching motions towards these targets were performed by demographically representative subjects and measured by a state-of-the-art motion analysis system. This paper describes the experiment conducted to collect the movement data, and the new techniques that are being developed to process, analyze, and model the data. Some initial findings regarding the role of torso assistive motion, the effect of speed used in completing a motion on multi-segment dynamic postures, and illustrative results from kinematic modeling are presented.