Abstract

The available analytical models for calculating knee patellofemoral forces are limited to the standard squat motion when the center of gravity is fixed horizontally. In this paper, an analytical model is presented to calculate accurately patellofemoral forces by taking into account the change in position of the trunk’s center of gravity under deep squat (non-standard squatting). The accuracy of the derived model is validated through comparisons with results of the inverse dynamics technique.

Keywords

Patellofemoral forces, analytical model, modified squat, knee.