

The Effect of Impact on the Knee Joint Due to the Shocks during Double Impact Phase of Gait Cycle

Authors : Jobin Varghese, V. M. Akhil, P. K. Rajendrakumar, K. S. Sivanandan

Abstract : The major contributor to the human locomotion is the knee flexion and extension. During heel strike, a huge amount of energy is transmitted through the leg towards knee joint, which in fact is damped at heel and leg muscles. During high shocks, although it is damped to a certain extent, the balance force transmits towards knee joint which could damage the knee. Due to the vital function of the knee joint, it should be protected against damage due to additional load acting on it. This work concentrates on the development of spring mass damper system which exactly replicates the stiffness at the heel and muscles and the objective function is optimized to minimize the force acting at the knee joint. Further, the data collected using force plate are put into the model to verify its integrity and are found to be in good agreement.

Keywords : spring, mass, damper, knee joint

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