Clinical Research on Foot & Ankle

Mini Review Open Access

# Knee Replacement Implant of Joint Contact Forces

can provide useful information on interactions between implant components and also on the bone-implant surface. It is important to note that the Knee Challenge was created to open up a new dimension in muscle and contact force prediction in the body. Almost all available measurements ranging from medical imaging data to gait analysis and experimental contact forces have been made available to enhance research activities related to prediction of these forces.

Previous studies used only a simpli ed representation (e.g. point contact or button surface contact) of the contact surface between implants. In addition, the material properties of the implant are usually provided by the manufacturer. However, assumptions are o en made for the musculoskeletal model. erefore, these properties must be calibrated and adjusted according to modeling assumptions to accurately predict the knee contact force. In practice, the predictive bias of numerical models is limited to clinical applications [10]. erefore, the objective of this study is twofold: the development of an integrated Hertzian contact model based on global surface-surface interactions and using in vivo contact forces and developed contact modeling to reliably determine elastic properties and modi ed implant for modeling purposes.

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Reliable elastic properties of TKR implants were determined using an integrated hertzian contact model and in vivo contact force. e availability of contact zone information allows in vivo prediction of Foo655r7(Anklevs. Nn-40004405kidney04ologies2Tjo48