Data Sharing Plan

The proposed study will result in comprehensive specimen-specific datasets. First, magnetic resonance images will be acquired on the knees to facilitate anatomical reconstruction. Second, a large array of mechanical tests will characterize the kinetic-kinematic response of the knee joints. Third, testing of tissue samples will result in data for specimen-specific identification of material properties of cartilage, ligaments, and menisci. We believe this detailed information will be useful for biomechanics researchers, particularly due to provision of both joint and tissue level anatomical and mechanical information. In addition, it is likely that a wide variety of simulation results will be generated due to model testing, verification & validation process, and targeted investigations of knee biomechanics.

All data will initially be distributed using Creative Commons Attribution-ShareAlike 3.0 Unported (CC BY-SA 3.0) license, see http://creativecommons.org/licenses/by-sa/3.0/. This license allows anyone to share (to copy, distribute, transmit the work), to remix (to adapt the work), and to make commercial use of the work under the following conditions: i) attribution – one must attribute the work in the manner specified by the author or licensor (but not in any way that suggests that they endorse you or your use of the work); ii) share alike – if one alters, transforms, or builds upon this work, one may distribute the resulting work only under the same or similar license to this one. We anticipate that this licensing scheme will provide utmost dissemination and promote open science. We should emphasize that this license does not restrict any type of use, academic or commercial. If, this licensing scheme is found not to be desirable by users and developers during the course of the project, the research team (as the potential copyright holders), will consider different licensing, e.g., a more liberal Creative Commons Attribution 3.0 Unported (CC BY 3.0), http://creativecommons.org/licenses/by/3.0/, or the MIT license, http://www.opensource.org/licenses/MIT. It is also possible that we may adapt dual-licensing depending on the needs of users and developer.

Dissemination will be conducted on the project site, provided by SimTk (https://simtk.org), the collaboration infrastructure of Simbios, NIH Center for Biomedical Computing at Stanford. Our research group has already implemented similar data sharing procedures in our past and current projects: Efficient Methods for Multidomain Biomechanical Simulations (R01EB006735, see https://simtk.org/home/multidomain), and Predicting Cell Deformation from Body Level Mechanical Loads (R01EB009643, see https://simtk.org/home/j2c). For almost two years, we have been openly developing and disseminating a knee joint model, Open Knee: A Three-Dimensional Finite Element Representation of the Knee Joint, see https://simtk.org/home/openknee.

Please also refer to Research Strategy for detailed description of dissemination strategy implementing open science. Also check Plan for Sharing Software.