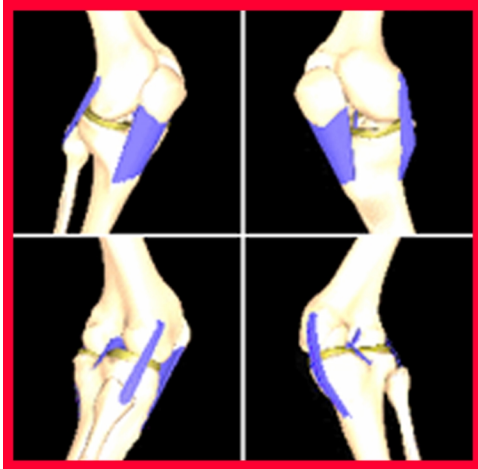


# Generic Knee Model

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The SIMM Generic Knee Model is a high resolution anatomical and kinematic model of the knee derived from plastic bone models and MRI data and designed specifically for SIMM users. The Knee Model consists of four bones (femur, tibia, fibula, and patella), five ligaments (anterior and posterior cruciate, medial and lateral collateral, and patellar ligaments), and the lateral and medial menisci. The bones and menisci are modeled as rigid polyhedra and the ligaments as deformable polyhedra.

The Generic Knee has two degrees of freedom that represent flexion-extension and varus-valgus motions. The femur is the fixed bone and the tibia moves relative to it, while the patella and the menisci move relative to the tibia.

Kinematic functions defining the varus-valgus motion of the tibia force it to rotate about the center of the lateral tibial plateau during valgus motion and about the center of the medial tibial plateau during varus motion. The kinematics of the knee can easily be modified in SIMM to include new degrees of freedom or to represent new experimental data.

