Solidworks Model & Stress Analysis of Human Femur

1. Theory

Right now we are working on a solid work model of human femur and performing stress analysis of the same when it is loaded.

We have made a solid work model of the human femur bone (solid work file of the same has been uploaded), for stress analysis the model has been simulated as human femur by assigning following bone properties to the model

Density= 1900 kg/m3

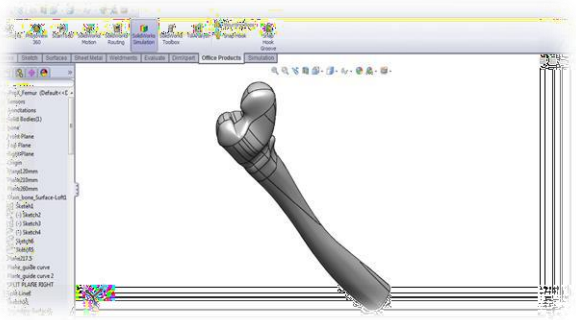
Poisson ratio= 0.3

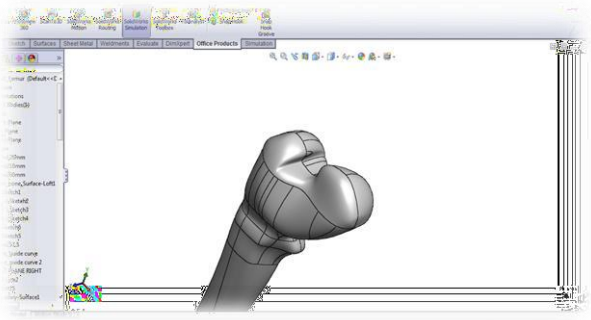
Elastic modulus: 1.86e+ 010 N/m2

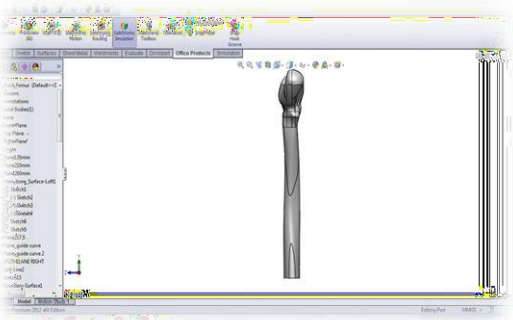
Shear modulus: elastic modulus = 20:1

Tensile strength: 6.5e+07 N/m2

2. Images







3. Plan of Action

Now we will perform stress analysis, while static loading of it axially and do a Finite Element analysis. This will help us understand loading on the knee structure such as ligaments and cartilage. Knowledge of the mechanical loading on joint tissue will help in medical device design, injury prevention and orthopaedics. A better understanding of the contact location and contact pressures of knee articular cartilage during walking or stair climbing could help guide the design of plastic and metal knee replacements