

High Resolution FE Model of Bone - Verification & Validation

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Verification & Validation

Recall from Pre-analysis, the equivalent stiffness of the bone model is:

$$E_{equiv} = \frac{\sigma_{equiv}}{\epsilon_{equiv}} = \frac{R/Area}{\delta/L} = \frac{R/L^2}{\delta/L}$$
$$E_{equiv} = \frac{72.558/(4.947 \times 10^{-3})^2}{0.5/4.947} = 29.33 \text{ MPa}$$

ANSYS gives a stiffness of 29.33 MPa for the bone model. According to Professor Hernandez, the stiffness for this model is about 24MPa. There is an 22% error and the source of the error is currently being determined.

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