Injury Models
Intervertebral Disc Model Improvements

Researchers at USARL implemented a transversely isotropic, hyperelastic, constitutive model in the Sandia National Laboratory code SIERRA/Solid Mechanics. This model enables the better representation of fibers in intervertebral discs of the human spine, and could have a critical role in predicting injuries due to burst fractures. Improved representation of the intervertebral discs in finite element (FE) models will enable more accurate modeling of the spine under blast loading conditions, and enhance the prediction of spinal injuries and the development of improved blast protection systems. This model may also potentially be applied to other biological tissues, such as brain tissue and skeletal muscles.