

Bio-Physics Seminar

Craig Byron

Department of Biology
Mercer University

Wednesday 11/1/2006, 4:30pm
Willet Science Center 101

Mechanobiology of Cranial Suture Waveform

This presentation will provide an introduction to the field of mechanobiology and the unique anatomical region represented by the cranial suture. This fibrous joint found within the vertebrate skull demonstrates a characteristic "waveform" shape. This shape has special implications for the dissipation of mechanical forces as they are transmitted to these elastic zones located between rigid cranial elements. Shape-complexity studies reveal that increasing tensile forces due to the actions of an organism's chewing muscles has a positive effect on its waveform shape. These observations have been made in alligatorids, primates and lab mice. Using experimental organisms, the cell and molecular events governing this waveform-generating process are outlined. These data combined with finite element analysis allow for specific predictions to be made about how pre-osseous cells in the suture connective tissues may respond to differences in mechanical loading (i.e. compression vs. tension vs. shear).

*Please join us for light refreshments
at 4:15pm outside WSC 109.*