

## **Study demonstrates cranial bone mobility**

Not often is evidence presented in physiology and medicine that directly challenges current beliefs and truths. However, Drs Adams, Heisey, Smith, and Briner do so. They present evidence for mobility of the cranial sutures in the mammal in their article, "Parietal bone mobility in the anesthetized cat," beginning on page 599.

The accurate measuring devices described in this article show conclusively that movement is possible between cranial bones in the living animal. These movements can be produced by intracranial pressure changes or by forces exerted on the skull. The measurements suggest that the cat's parietal bones can move around the sagittal suture both by suture opening and by rotating around the fulcrum of the suture. These movements were generally within accepted limits of what humans can feel with the hands and identify as movement.

Scientists are skeptical of accepting data acquired from sensory perception; subjective data are often influenced by the operator's judgment, beliefs, and other biases. For years, the experience of the osteopathic medical profession has indicated that the skull is not a rigid enclosure; rather the bones are mobile and do move in normal function. Most anatomists have not accepted this view, and the data available have not been sufficient to overcome this skepticism. This current article, coupled with research done by Ernest Retzlaff, PhD, and colleagues (*JAOA* 1975;74:869-873) which showed that cranial sutures are not normally fused, should prove sufficient to make anatomists accept the possibility that cranial bones do move around their sutures.

The data presented in this current study do not, of course, show that human cranial sutures move in rhythmic waves. More work

must be done to prove that human cranial sutures also move and that movement rhythms exist that cannot be attributed to simple vascular or muscular contractions subcutaneously or around the bones. Adams and colleagues' work suggests that such research is not far away. Available data indicating the mobility of cranial sutures should stimulate thought concerning suture involvement in normal and abnormal function. Students should be made aware that credible data do exist showing cranial bone mobility as a challenge to the standard solid-cranium dogma.

Such basic research is a vital outgrowth of the osteopathic clinical experience. In turn, this research fosters clinical theory, which can then be applied in practice. Additionally, this article demonstrates that new measuring techniques can be applied to a clinical observation long held by osteopathic medicine, but virtually ignored outside of the profession.

Although much work remains to be done in the area of cranial bone mobility and those forces that may drive cranial movements, the data here are a significant step toward verifying the clinical impressions that cranial mobility plays a vital part in human health and function.

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## **Education ebbs the statistical tide in cardiovascular disease**

For the second consecutive year, American women have topped men in the number of cardiovascular-related deaths. According to the American Heart Association, more than 51% of the 980,000 deaths related to cardiovascular disease occurred in women in 1988, the latest year for which data are available. Specifically, more than 48% of the approximate