

The AK Related Research Literature Compendium: Cranial Therapy and the Stomatognathic System, Winter 2006

Cranial manipulative therapy is one of the fastest growing areas of manual medicine in terms of the numbers of practitioners and therapists learning and applying different versions of its methodology.

Much recent research validates the concepts of cranial motion, originally described by Sutherland in his pioneering works on the subject from 1930s-1960s. Many of these research papers, which corroborate the presence in the human skull of a degree of cranial mobility (as well as the cranial concepts employed in AK), are included here. Numerous studies show definite evidence of osseous movement but with considerable variation between the subjects tested.

There are still determined statements from the detractors of cranial therapy that an incremental process of bony fusion occurs in the human skull. This viewpoint can, with the studies offered here, be discounted. After so many research studies showing the phenomenon of cranial motion, it is simply beyond questioning that a palpable, measurable degree of sutural pliability remains a feature in most people throughout life. In the histological studies cited here of the tissues found in the human cranial sutures it is notable that Sharpey's fibers have a wavy structure that suggests they are subject to a degree of repetitive stretching. This supports the fact of cranial motion also.

Several papers here suggest that the extracranial muscles may be responsible for the cranial rhythmic impulse, or CRI. The muscular system, contiguous with the cranial and meningeal system, is thought by various researchers to be a likely candidate for at least part of the driving force of the cranial mechanism.

Studies and measurements of human brain motion (using magnetic resonance velocity imaging) are described here, which occurs in many internal regions of the brain (particularly the diencephalon and brain stem) and is synchronous with cardiac systole. Research demonstrates an approximate 50% area change during dilatation and contraction of the lateral ventricles in the brain at a rhythm of 6 cycles per minute in a normal patient.

Human and animal studies now suggest that much CSF actually moves into the cervical lymph nodes, by way of the olfactory nerve, and around or through the sieve-like cribriform plate to the nasal submucosa. The functional integration of the CSF with the lymphatic system has been important in AK thinking for over 30 years.

In summary, these studies suggest that tension in the cranial region can contribute to impaired neural function. Restoring maximum mobility to the cranial system allows homeostatic mechanisms to restore balanced membranous tension, improve muscle innervation, enhance venous flow, reduce neural entrapment, and permit normal CRI rate, rhythm, and amplitude.

Overall the mandible is infrequently addressed in classic cranial work. In AK there is recognition of the stomatognathic system, and its importance in the evaluation and treatment of the cranial-sacral mechanism. The stomatognathic system involves the complex interaction between structures and functions of the head and neck.¹ In 1983 Walther wrote a monumental, heavily referenced text on this system and listed its components as including the bones of the skull, the mandible, the hyoid, the clavicle and the sternum; the muscles and ligaments; the dento-alveolar and the temporomandibular

joints; the vascular, the lymphatic and the nerve supply systems; the soft tissues of the head and teeth; and the dural connection between the skull to the sacrum, coccyx, and innominate bones.

Much of the AK cranial methodology has emerged from the particular personal philosophy, practice, and methods of Dr. George Goodheart and the membership of the I.C.A.K. Today however the teachers of AK methods need to base their information on as much objective fact as possible, and in the absence of research evidence, clinical experience must inform opinion. As the healing professions move toward evidence-based practice, a merging of what can be shown by research and controlled clinical audit to be safe and effective should take place.

Irvin M. Korr, the renowned researcher in the osteopathic field, suggested the best approach to experimentally testing manipulative procedures. Korr advocated treating the process (the research study) as a 'black box', where experimenters do not concern themselves with the process but only with measuring objective findings relating to the patient's condition, before and after the therapeutic input, as well as assessing the patient's subjective impression of their condition, before and after the process.

Many experts and research studies have noted the difficulty in detecting the subtle dynamics of the cranial rhythmic impulse. The ability to effectively and reproducibly demonstrate (using objective findings) the cranial faults found during examination are therefore an important consideration and limitation in cranial research and in therapy. Static palpation of the entire skull (i.e. detecting sutural anomalies), noting pain responses to light pressure, and detecting the cranial motion present has historically been the methods used to diagnose cranial faults.

The use of the AK cranial challenge procedures, producing obvious inhibition on manual muscle testing (MMT), allows cranial faults to be made physically evident to the clinician, the researcher, and the patient. The chiropractic and osteopathic professions have discovered a number of objective signs of cranial faults, but changes in muscle strength with MMT after specific vectors of challenge have been introduced into the cranial mechanism, is perhaps the most objective sign of all in the arena of cranial therapy.

AK attempts to coordinate cranial manipulation with whole body procedures, using specific vertebral adjustments, blocking procedures, muscle receptor and other soft tissue techniques, plus a range of reflex techniques including meridian patterns in order to address the complete neural, chemical, and mechanical aspects thought to be affecting cranial structures. More evidence from controlled clinical trials will be necessary to document the validity of this approach for the scientific community.

In 1991, Dr. George Goodheart stated: "We, as a profession, are divided by the dura and its attachments. We, as a profession, can be united by an understanding of the dura and its attachments."²

Hopefully, what *The AK Related Research Literature Compendium: Cranial Therapy and the Stomatognathic System* will do is begin the process that will eventually unite apparently disparate ideas and methods into an optimal system of cranial therapy for our patients.

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 - 1) Walther DS, *Applied Kinesiology Vol. II, Head, Neck, and Jaw Pain and Dysfunction—The Stomatognathic System*. Pueblo, CO: Systems D.C.; 1983.
 - 2) Goodheart, GJ, *Being a Family Doctor*, videotaped seminar, 1991.