Occlusal Cranial Balancing (OCB) Technique - an Update

By Dr Gerald Smith DDS
Langhorne, Pennsylvania

Gerald Smith brings us up-to-date since the first article in 2005.

Abstract: OCB is the acronym for Occlusal Cranial Balancing Technique. The OCB technique is the first comprehensive diagnostic and treatment system for balancing the occlusal cranial complex. The OCB technique is based on the research of this author who discovered four cranial indicators. These indicators provide a non-invasive, accurate palpatory, 3-dimensional diagnosis of cranial distortions and also determines where occlusal support must be placed to stabilize the craniosacral system. The OCB concept defines the true function of dental occlusion and provides a major paradigm shift in the science of occlusal revision.

The OCB concept is based on the architectural principle of a level foundation. The principles of Occlusal Cranial Balancing are a monumental discovery and if applied properly will enhance total body function. The Occlusal Cranial Balancing Technique is based on two principal paradigms. The first focuses on the accepted orthodontic model that the maxillae, represents the anterior two-thirds of the cranial base and functions as the foundation of the human skull. The second focuses on the occlusion as being the self-correcting mechanism for re-balancing the twenty-eight cranial bones. The integration of these two paradigms is profound. Imbalances in either the maxillae and/or occlusal alignment has the potential for causing structural instability throughout the entire spine and pelvis complex, muscles, ligaments and fascial systems and functional imbalance of the central and autonomic nervous systems. The effect of a distorted maxillae coupled with a malocclusion provides answers to many of the age-old questions regarding the source of chronic pain and ill health.

Mechanistic model. It is obvious to builders, carpenters, cabinet-makers and other skilled craft-persons that structures must rest on level foundations or be level to work properly. Also obvious is the idea that if structures like doors, floors, window frames or cabinets are not level they must be shimmed up. Since the maxillae represents the anterior two-thirds foundation of the human skull and the occlusion represents the self-correcting mechanism for balancing the cranium, dentists must now recognize and learn how to correct maxillary distortions and "shim" up the skull bones by correcting the bite.

Figure 1:
Major DeJarnette, founder of the Sacral Occipital Technique, always referred to the maxillae as the anvil and the

mandible as the hammer. DeJarnette stressed the concept that a level maxillae helped insure total structural stability via cranial and dural membrane balance. Conventional orthodontics recognize that the maxillae represents the anterior two-thirds of the cranial base but most dentists do not understand its impact on cranial and dural membrane stability. Since the dural membrane system extends through the foramen magnum to the sacrum, distortions from a dental origin have the potential of directly affecting spinal/pelvic alignment and all the associated structures (circulatory, lymphatic, muscular, ligamentous and fascial systems, endocrine and central and autonomic nervous systems).

to build the mandibular occlusion.

Figure 3: (see next page)

A level maxillae provides the foundation for balancing the pterygoid sling (internal and external pterygoid muscles) and realignment of the cranial bones. Humans swallow two to three times a minute during waking. Each time the teeth touch they provide the mechanical pressure to reset the maxillae. A delicate balance exists between each tooth contact and the alignment of cranial bones.

Each coupling of teeth represents a potential source for distorting the occlusal/cranial complex and the intra-cranial dural membrane system. The balance that exists is delicate and

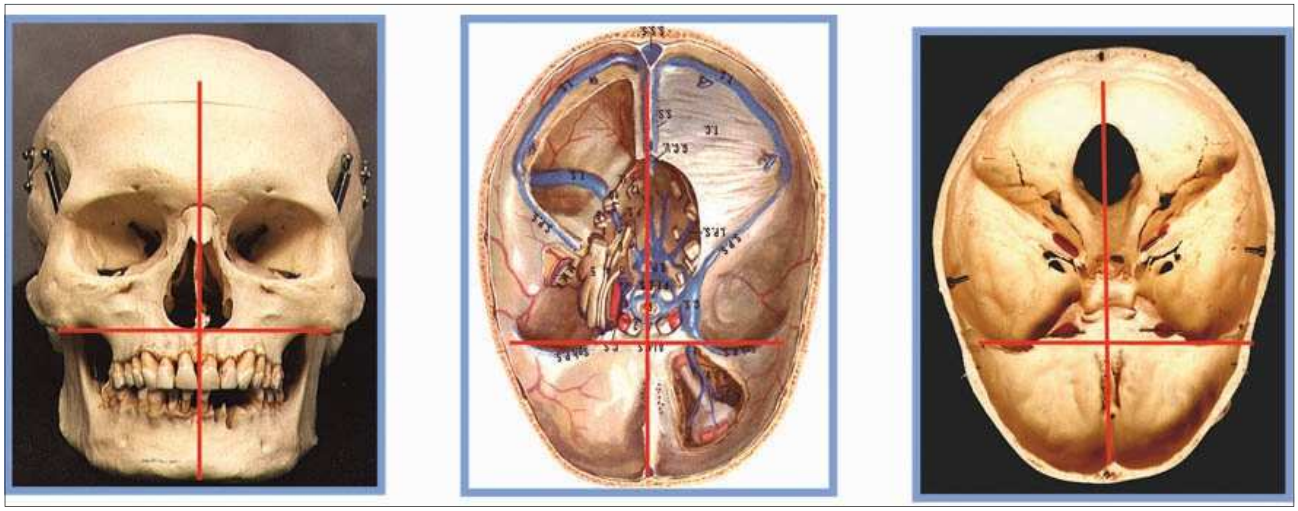

Figure 2:

The sutures between the skull bones represent expansion-contraction joints and function within a limited range to dissipate structural distress created by occlusal, spinal, pelvic and fascial distortions. Occlusal distresses beyond the adaptive functional range translate into dural membrane tension, which directly affects cranial nerves, cerebrospinal fluid transport, vascular flow and functions to hold cranial bones in distorted positions. Dural membrane tension goes beyond the cranial vault via its continuation through the foramen magnum and tenacious attachment to the upper three cervical vertebrae and slinky like reaction down the spine to the sacrum. This anatomic relationship provides the foundation for the importance for establishing a level maxillae (transversely and sagittaly) as the template

discrepancies of as little as a micron can make the difference between balance without pain and imbalance associated with chronic pain.

The pain has its origin from sensory nerves of the three branches of the trigeminal nerve, which innervate the faux cerebri and upper surface of the tentorum cerebelli. Cervical nerves 2 and 3 innervate the surface below the horizontal membrane. Dural distortions provide one of the major sources for chronic pain, structural imbalances down the entire spine to the sacrum, knees and feet and directly causing imbalances of the autonomic nervous system.

Clinical experience confirms that the occlusion functions as the self-correcting mechanism for balancing the cranial bones, sutures and dural membrane system. Occlusal cranial distortions coupled with toxic dental materials and dental pathology (cavitations, cysts, toxic root

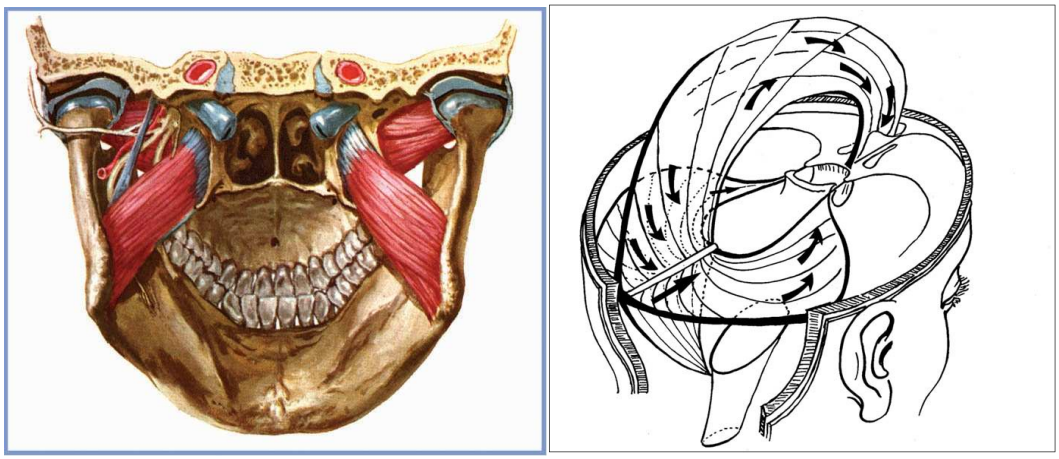

Figure 3

canal teeth) all play a major role in the etiology of approximately 70% to 90% of all medical problems.

Embryological Connection. The teeth develop from tissues that give rise to the nervous system.

Specifically the maxillary and mandibular anterior teeth develop from the neural tube, which also gives rise to the sympathetic nervous system. The posterior teeth are derived from neural crest cells, which give rise to the parasympathetic nervous system. These embryological origins provide neurological-dental connections. This is the primary reason why distortions of teeth can potentially impact the function of tissues, muscles and organs that are innervated by the autonomic nervous system. In addition, the skull and pelvis are primarily innervated by the parasympathetic part of the autonomic nervous system, while the thoracic and lumbar vertebrae of the spine represent sympathetic innervations. The dural membrane system is an anatomic tube, which physically connects the skull bones with the upper cervical vertebrae and sacrum. Anatomical research in the early 1950's by the South African anatomist, Raymond A. Dart, disclosed a double helical arrangement of muscles from the base of the posterior occiput down to the pelvis. This slinky arrangement plus dural tube provides the cranio-sacral interrelationship with reciprocal and primary changes occurring at either end and in between.

Cranial Indicators.

One of the major missing links in the diagnostic puzzle was how to accurately evaluate the exact effect of specific occlusal interferences on the cranial mechanism. This author's clinical research resulted in the development of a practical, accurate diagnostic indicator system. By establishing a baseline of the 3-dimensional positional relationship of each of the four cranial indicators without teeth contact, the clinician can then determine the direct effect of the occlusion on the cranial mechanism when the teeth are brought into contact.

The key to diagnosing the interplay between malocclusion and cranial distortions is expedited by palpatory evaluation of the cranium by means of these four basic indicators. This author has developed a diagnostic system utilizing four indicators as a means for assessing the skull 3-dimensionally.

1. Mastoids of the temporal bone.
2. Greater wing of the sphenoid.
3. Amplitude.
4. Sphenobasilar Symphysis (SBS)
5. SBS Synchronization with diaphragmatic breathing

1. The mastoid position was evaluated by bilaterally comparing the relative position of the mastoid tips in a sagittal and vertical plane. Balanced mastoid position with non-occlusal contact whereas a right anterior positioning of the mastoid was found with occlusal contact.

2. The greater wings of the sphenoid were palpated to evaluate their relative position in a sagittal, vertical and horizontal plane. Right

anterior sphenoid position without occlusal contact whereas there was increased right anterior positioning of the sphenoid was found with occlusal contact.

3. Bilateral placement of the palms over the vault (parietal) area of the skull was used to palpate CSF pulsations that are purportedly independent of cardiovascular or pulmonary influences. This specific type of CSF pulsation is called the primary respiratory mechanism (9 –14 cycles of expansion and contraction) and the pulsation's amplitude was used to assess symmetry and quality (weak or robust) of motion. Without occlusal contact the pulsation rhythm was strong and regular whereas with full occlusal contact the amplitude was weaker and irregular.

4. The cranial sidebend assessment is easily performed by placement of the palm of one hand directly under the squamal portion of the occiput while the thumb and middle finger of the other hand straddles the greater wings of the sphenoid. By means of gentle palpatory pressure the clinician can ascertain the strain pattern present within the occipital and sphenoid bones (sphenobasilar symphysis area). If the strain pattern bends toward the patient's right side, the lesion or distortion pattern is termed a right sidebend lesion. Cranial palpation revealed a right sidebending lesion without occlusal contact and with occlusal contact there was a worsening of the right sidebending lesion. Essentially once a baseline pattern is noted and maintaining the same hand position, the patient is asked to make complete contact of all teeth. If the occlusal schemed presents a malocclusion (could be a minor contact interference on one tooth), the strain pattern has been found clinically to often change and in many instances the original distortion will worsen.

5. Normal sphenobasilar (SB) motion involves a compliance (termed flexion) of the SB, which will be expressed with a slight inverted "V" shape pattern. Congruent with the SB flexion motion, the occiput exhibits a caudalward motion of the base of the occiput on inhalation. Clinically some patients who have experienced physical traumas (whiplash injuries, inappropriate orthodontic treatment, falls, etc.) will exhibit an occipital motion, which rises with inhalation signifying an extension type motion. This reverse motion places an additional tension on the entire dural tube down to the sacrum. Without occlusal contact the patient had normal occipital motion on inhalation whereas with occlusal contact this patient's occipital motion moved superiorward with inhalation, which signified an extension type motion.

The indicators are an excellent universal guide for all phases of dental revision: adjusting restorations, crowns, bridges, ALF appliances, orthodontic appliances, occlusal modifications and even setting denture teeth and assessing their position in the wax try-in stage.

Once properly trained, the clinician can determine the occlusal cranial dysfunction within 30 to 60 seconds. By using a custom designed diagnostic chart the patient's specific cranial lesions can be quickly noted for evaluation and future reference.

Once the occlusal cranial distortions are determined, the clinician can now test the occlusal couplings of all teeth. By placing a thin sheet of 24-bond typing paper between each teeth coupling, the clinician can quickly determine which teeth coupling exacerbate the cranial lesion(s) and which teeth coupling(s) when supported correct the cranial lesions. Once determined which teeth coupling need support, one must test by means of Applied Kinesiology, which teeth, upper or lower need the support. One can easily test to determine if any area(s) of somatic weakness (atlas, axis or other cervical, thoracic or lumbar vertebrae, SI joints, sacrum, knee, shoulder, etc.) are directly

Figure 5

Figure 6

Figure7

due to the occlusal cranial dysfunction. Once the cranium is balanced by means of the paper support(s), one just has to retest the other areas of weakness. If a distant area strengthens with AK/therapy localization testing then confirmation is made that the occlusion is the primary source. Reconfirmation can easily be done by removing the paper support and retesting the area. If the distant area again weakens it confirms the relationship.

Shimming Process. By establishing a baseline of the four cranial indicators, the clinician can compare the effect of maximum occlusal contact. In addition, by placing a strip(s) of 24-bond paper between each coupling of teeth its effect on the cranial indicators can be quickly assessed. By determining the exact combination for balancing the cranium, biologically compatible resin shims can easily be placed by bonding on the appropriate tooth surfaces. The process is quick and often followed by immediate dramatic results.

Case 1. Fifteen years neck, shoulder and knee pain (see Figure 4)

K.B. was a 35-year-old female who suffered with right side neck, shoulder and knee pain for 15 years. All medical and chiropractic evaluations and treatment produced no change in symptoms. Evaluation using the Occlusal Cranial Balancing Technique revealed cranial distortions, which immediately corrected when paper shims were placed between the maxillary and mandibular first and second bicuspid teeth. Treatment consisted of placement of two occlusal resin shims the thickness of two sheets of paper on the mandibular bicuspids. The patient's right sided symptoms of neck, shoulder and knee pain of 15-year duration disappeared immediately. Treatment was performed in July 1996 with no reoccurrence of pain in nine years.

Figure 5, Figure 6 and Figure 7 (above)

*Most dentists would view this patient's occlusion as being within a normal functional range. The delicate occlusal cranial balance can only be assessed by palpation of the four cranial indicators. Omitting this diagnostic test allows occlusal cranial discrepancies to go undiagnosed and patient suffering to continue. Once diagnosed treatment is cost effective, non-invasive and eas*ily performed.

Case 2. Six months low back pain

W.K. was in his early thirties when he was referred to our office in 1993. Walter presented with low back pain that prevented him from working for three months. Walter was treated with conventional medical therapy. He received three cortisone injections which served to mask the low back pain. The second cortisone injection lasted only six weeks and the third one had no effect at all. Walter was scheduled for low back sur-

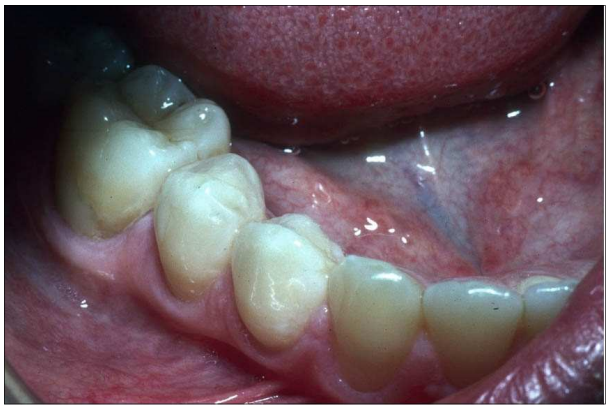

Figure 4: Patient KB. Shims the thickness of two sheets of paper placed on both mandibular right bicuspids

gery when his brother-in-law referred him to our office.

Dentally Walter presented with a malocclusion that involved a 1.5 millimeter loss of vertical height from the posterior teeth. This seemingly insignificant amount was the underlying cause of Walter's low back pain. A loss of vertical tooth height will cause compression of the spine. Such a "minor discrepancy" will be missed by 99.9% of all dentists. This functional relationship will also be missed by most orthopedic medical doctors, neurologists and even most chiropractors. The dental/low back connection involves several functional links: muscles that connect the upper cervical area and a dural tube which surrounds the brain and passes through the base of the skull and connects all the way down to the sacrum. This craniosacral system works like a slinky. Distortions from above will influence structures below and visa versa. This functional connection has been observed and documented by this author as well as such researchers as Alred Fonder, DDS, Major Bertrand DeJarnnette, DC, Philip Green, DO, George Goodheart, DC and others.

Treatment must focus on rebalancing the skull bones in conjunction with providing vertical support to the teeth in the form of resin shims. The rationale is based on the concept that the teeth are the self-correcting mechanism which resets the skull bones. Every time the teeth contact there is a rebalancing of the system. Restoration of the teeth requires a high skill level, which integrates cranial and dental concepts and the knowledge to balance both simultaneously. As a result of rebalancing Walter's craniosacral system, via correcting the dental component, the patient was able to return to work in ten days and has been pain free since 1993.

Summary:

The OCB Technique represents a major breakthrough in an integrated dental chiropractic approach to healing. The OCB system establishes the true definition of the function of occlusion and provides the first comprehensive diagnostic and treatment approach to resolving somatic structural instability.

References:

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Members interested in this treatment concept should see the information regarding Gerald Smith's course on page 6-7