

# Descended Sacrum Relationships and Anatomy

by Kimberly Burnham, PhD, IMTC

The non-physiological sacroiliac lesion represented by the sacrum being inferior in relation to the ilium, has been described with a variety of terms, including **inferiorly sheared sacrum, upslipped ilium, downslipped sacrum, descended sacrum, depressed sacrum**. The term inferiorly sheared sacrum will be used throughout this paper, for the clarity it brings to the positional relationship of the sacrum and the ilium.

Inferior shearing of sacrum is very common and often found in combination with a posterior innominate.<sup>1</sup> The sacrum shears inferiorly at the sacroiliac joint, a movement which is not physiologic for that joint. This is why this lesion is considered pathologic rather than physiologic. The axis as well as the soft tissue surrounding the sacroiliac joint is disrupted by the inferiorly sheared sacrum, which can be unilateral or bilateral. **The bilaterally inferiorly sheared sacrum is especially common in post partum women.**<sup>2</sup>

Magoun also describes the inferiorly sheared sacrum as having a deep sulcus on the side of the shear and the inferior lateral angle (ILA) is inferior. He notes that this is in contrast with a sacral torsion in which the sulcus is deep on the opposite side of the ILA, which is posterior and inferior. **He notes that an inferiorly sheared sacrum often account for low back pain, which has been manipulated but not successfully.** There is also increased tension on the sacrotuberous ligament on the inferiorly sheared side. Magoun's method of correction is superior mobilization of the sacrum.

**Fred Mitchell, Jr., D.O. describes the downslipped sacrum or inferiorly sheared sacrum as being the same lesion as an upslipped ilium.**<sup>3</sup> His method of correction involves correction of the upslipped ilium thereby changing its relationship to the sacrum.

**Sharon (Weiselfish) Giammatteo, PhD., P.T. describes the descended sacrum or inferiorly sheared sacrum as lacking superior mobility on palpation. Correction includes the superior mobilization of the sacrum.**<sup>4</sup>

## Structure Governs Function

The sacrum has a primary role in terms of forces going through the body and if it's movement is restricted, it affects function throughout the body. In considering the problems that arise from subluxations of the innominate bone and sacrum, Clark notes

---

<sup>1</sup> Magoun, Harold, Jr., D.O., CCO Course. Feb 1999.

<sup>2</sup> Magoun, Harold, Jr., D.O., CCO Course. Feb 1999.

<sup>3</sup> Mitchell, Fred, Jr., D.O.. CCO Muscle Energy Course, March 2001

<sup>4</sup> (Weiselfish) Giammatteo, Sharon, PhD., P.T. DCR Muscle Energy Course. 1994.

that innominate lesions are one of the most common of all bony lesions. **“The reason is; (1), the large size of the bone and the small size of the articulation, which increases the lever power; (2), the many powerful muscles attached to it, which when brought into use, increase the lever power mentioned above; (3), the exposed position of the bone, it bearing the brunt of lifting and other muscular exertions and (4) transmitting at an angle the pressure exerted from below, as in jumping, or that from above, as in carrying of weight. <sup>5</sup> “Many subluxations of this bone [ilium] come from falls, muscular exertion or other conditions that exert a marked strain on the articulation. Parturition is an important cause. Straining while in a stooping posture is another important one,” according to Clark.<sup>6</sup>**

“The sacrum,” say Clark, “has a possible movement; that is, one of anterior-posterior rotation around the sacroiliac articulation as a pivot. It is subject to displacement downward, forward, backward, or a combination of two or more of these; that is rotation and torsion. It is placed at quite an angle with the spinal column, an angle of about 50 degrees. **In subluxations of the sacrum this angle is changed, there is tenderness at its articulations and possible irregularity....Descent is diagnosed by height of the innominata as compared with the spines of the lower lumbar vertebrae... In making a diagnosis of a lesion of the sacrum consider (1) tenderness at the sacro-lumbar, sacro-iliac and sacro-coccygeal articulations, and (2), irregularity at one or all of these joints, height of innominate and angle or position of the sacrum. In addition to this consider the character of the symptoms, location of pain and history of injury to part.** The lesions of the sacrum come from causes that ordinarily produce innominate lesions and in addition, lumbar disturbances such as curvature; falls in the standing posture, the superimposed weight of the body driving the sacrum downward; and direct injury or certain occupations that necessitate the patient’s sitting bent over a desk or working in a stooped posture.” <sup>7</sup>

**Clark points out how the structural displacement of the sacrum can affect the function of giving birth, “The downward displacement of the sacrum or a forward rotation of its upper part lessens the size of the inlet of the true pelvis, that is the true internal conjugate diameter of the inlet, is lessened so that parturition is difficult on account of delayed engagement.”<sup>8</sup>**

---

<sup>5</sup> Clark, Marion Edward, DO. Applied Anatomy. Tradition and Research in Osteopathy Editions Spirales. 1906. Pg 305.

<sup>6</sup> Clark pg 307

<sup>7</sup> Clark pg 327-328

<sup>8</sup>Clark pg 329

## Primary Respiratory Mechanism Relationship of Structure to Function

William Garner Sutherland, D.O. considered the Primary Respiratory Mechanism (PRM) to be a unit of physiologic function, including 5 aspects.<sup>9</sup>

- A. The inherent motility of the brain and spinal cord.
- B. The fluctuation of the cerebrospinal fluid.
- C. The mobility of the intracranial and intraspinal membranes.
- D. The articular mobility of the cranial bones.
- E. The involuntary mobility of the sacrum between the ilia.

The correction of sacral and iliac restrictions are intimately connected with these concepts since the spinal nerves are protected by the bony structure of the sacrum. A restriction of the sacral hard frame and its attachments to the dural covering of the spinal cord will interfere with the inherent motility of the brain and spinal cord as well as affect cerebrospinal fluid flow.

Magoun also noted “the continuity of the falx cerebri, tentorium cerebelli, falx cerebelli and dural membranes, all a unit of function in the cranio-sacral mechanism. Also the associated cranial anchorage of the ligamentum nuchae and other spinal supportive tissues.”<sup>10</sup>

The relationship of structure and function is also illustrated by the structural connection between the cervical dura and cervical muscles with a myodural bridge. **“A connective tissue bridge between the rectus capitis posterior minor muscles and the dorsal spinal dura at the atlanto-occipital junction was observed in every specimen. The fibers of the connective tissue bridge were oriented primarily perpendicular to the dura. This arrangement of fibers appears to resist movement of the dura towards the spinal cord. This connective tissue bridge may help resist dural infolding during head and neck extension.”**<sup>11</sup>

In a further study, Hallgren, Hack and Lipton, found a relationship between the myodural bridge in the cervical spine and idiopathic head and neck pain.<sup>12</sup> They noted that “the dura is intimately attached to the foramen magnum of the occiput, to the upper two or three cervical segments, and by fibrous slips to the posterior longitudinal

---

<sup>9</sup>Magoun, pg. 23

<sup>10</sup> Magoun pg 29

<sup>11</sup> Hack, G., R. Koritzer, W. Robinson, R. Hallgren and P.E. Greenman. Anatomic Relation Between the Rectus Capitis posterior minor Muscle and the Dura mater. Spine. Volume 20, Number 23 pp 2484-2486. 1995, lippincott-Raven Publishers.

<sup>12</sup> Hallgren, R., G. Hack, J Lipton. Clinical implications of a cervical myodural bridge. AAO Journal. Winter 1997.

ligament. It forms a tubular sheath around the spinal cord, terminating at the level of the second sacral vertebra with additional connections to the coccyx. While the role of spinal dura as a source of pain at levels below the craniocervical junction is still not clear, there is no doubt that the dura mater at the level of the craniocervical junction has all of the necessary components of pain-sensitive structure.”<sup>13</sup> **Halgren continues to say, “because of the continuity of the dural attachment between cranium and sacrum, influences such as trauma and postural strain that affect one component of the reciprocal tension membrane system have an affect upon the entire system.”**<sup>14</sup>

Cervical range of motion is assessed in this thesis, in order to consider the relationship between the sacrum and spine in regards to cervical range of motion and head and neck pain.

### Lines of Gravity

An inferiorly sheared sacrum compromises sacral and iliac mobility and interferes with the body’s ability to accommodate gravity. Harrison Fryette noted, **“One of the important factors which impedes circulation is gravity. Gravity kills your patient. Gravity is the inexorable factor. It is the factor which places a constant load on the supporting structure.”**

The significance of an inferiorly sheared sacrum in relation to the central line of gravity is seen in the changes in cervical rotation and head forward posture in relation to a plumb line. Sacral biomechanical problems affect the entire spine and beyond. A normalization of tensions on the dura and improved biomechanical stability at the sacrum and pelvis are particularly relevant to L3, since L3 is the first lumbar vertebrae not strongly connected to the sacrum by ligamentous attachments. If the sacrum is not as mobile as it should be the needed movement will be accommodated above and below, which means **L3 and the hips will be asked to compensate for a lack of movement at the sacroiliac joints.** This will have a significant impact on the central line of gravity. (see appendix for the function of the central line of gravity).

### The Role of the Artery is Absolute

“The entire body, if adequately nourished, functions to maintain, repair and heal itself to the best advantage if its structure and physiological functioning are in proper order.”<sup>15</sup> Improvements in blood flow after the correction of an inferiorly sheared sacrum will contribute to the restoration of health, decreases in pain and fatigue.

If the sacrum is inferiorly sheared, this part of the body will not be functioning in

---

<sup>13</sup>Becker Rf, Cranial Therapy Revisited, Osteopath Ann, 1997, 5:13-40.

<sup>14</sup> Halgren,

<sup>15</sup> Magoun, Harold Ives, A.B., D.O, F.A.A.O. Osteopathy in the Cranial Field. Pg. 1.

proper order. Sacral lesions impact on the sacrum itself, the pelvic viscera and the pelvic and lower extremity musculature as well as the whole aortic kinetic chain.

Another way that the sacrum is related to the circulatory system is its relationship with the central chain.<sup>16</sup> The sacrum is related to the pelvic floor and the perineum central tendon which are part of the central chain. Changes in the orientation of the sacrum can change the pressures within the pelvis as well as all the way up the central chain to the pericardium and the fourth ventricle.

A restriction of the sacrum can contribute to problems with the isthmus or the uterus can lead to difficult births, bladder dysfunction and reproductive issues. The fascias of Deronvilleau or the central tendon of the perineum behind the prostate can lead to prostate problems.<sup>17</sup> These will not be specifically studied in this paper but should be considered for further research.

The blood vessels in the pelvis show many variations. There are several significant arteries, veins and lymph nodes that can be impacted by trauma and biomechanical lesions of the sacrum. "The organs in the pelvic basin are subject to great stress when innominate lesions exist, and such lesions are not uncommon. **Even one innominate in lesion will draw out of line the uterus and ovaries. This unevenness of the basins' walls causes muscles and ligaments attached to the innominate bones to draw in a manner that blocks the blood vessels and lymph channels. Nodular enlargement follows and a congestion of the tissues is also noticed. If allowed to remain uncorrected marked symptoms appear, especially at the menstrual periods. Cramps, retarded flow, and sometimes flooding are the result, depending upon the age and general condition of the patient.**" As long as osseous lesions exist there will be blockage of blood and lymph vessels. Careful palpation over the ovaries will reveal the change in the tissues. **The effect upon the lymphatics in the legs will be apparent. There may be a slight edematous condition around the ankles and the popliteal spaces are sure to record the blockage that is present higher up.**<sup>18</sup>

The author goes on to say that **"to relieve pelvic congestion and lymph blockage there must be not only adjustment of the pelvic bones but correction of all lesions up to the occiput.** First, last and always in pelvic congestion, we must secure perfect alignment." He also notes that "pelvic and vertebral lesions existing before and during pregnancy cause many symptoms that would not exist had the lesions been corrected before conception. **A lesioned coccyx will cause, through pressure and traction, a series of lymph irregularities.**"<sup>19</sup>

"On the sacrum we find a few nodes which collect with the mesenteric nodes the

---

<sup>16</sup> Druelle, Philippe, D.O., DO Autoregulation Course 2001.

<sup>17</sup> Druelle, Philippe.

<sup>18</sup> Applied Anatomy of the Lymphatics. pg. 103.

<sup>19</sup> Applied Anatomy of the Lymphatics. pg 105.

lymph from the muscular coat of the rectum. **The lymph vessels follow the course of the hemorrhoidal vessels where nodes are distributed that send efferents to the mesenteric. The sacrum, if tilted in relation to the innominates, may disturb these lymph nodes.**<sup>20</sup>

The cranium and sacrum complex are also linked to the heart via a relationship between cerebral spinal fluid movement and cardiac systole. Greitz, et al., (1992) utilizing magnetic resonance imaging (MRI) techniques demonstrated brain tissue movements characterized by a caudal, medial and posteriorly directed movement of the basal ganglia, and a caudad and anterior movement of the pons during cardiac systole. The resultant movement vectors occurred in a “funnel shaped” manner eliciting a remodeling of the brain creating a “piston-like” action that the authors felt was the driving force responsible for compression of the ventricular system and thus the driving force for intraventricular flow of cerebrospinal fluid (CSF).<sup>21</sup>

The central nervous system (brain and spinal cord) has an inherent rhythmic motion. In the inhalation phase of primary respiration there is a very slight coiling (roughly mimicking its embryological development) with a shortening from top to bottom (decreased cranial to caudal length) of the spinal cord.<sup>22</sup> If the sacrum with its dural attachments at S2 is stuck inferior, it create more tension during the inhalation phase when the spinal cord would normally shorten from top to bottom.

Blood pressure will be assess before and after the correction of the inferiorly sheared sacrum to assess what impact sacral restrictions have on circulation.

#### Significance of the Fourth Ventricle

Tension caused by the sacrum and other structures being more inferior than they should be can have wide ranging affects on the body, including pain symptoms which will be evaluated in this thesis. An inferiorly sheared sacrum can cause biomechanical dysfunction and functional disturbances of the fourth ventricle, brainstem, cerebrospinal fluid. **Chronic fatigue and chronic pain have both been linked with Arnold Chiari Syndrome or inferior entrapment of the brainstem. Tension on the dura can create an Arnold-Chiari like phenomenon, implicating an inferiorly sheared sacrum as a possible cause of that tension.**

Anything that impacts negatively on the cerebrospinal fluid will affect the whole body, according to Magoun. “The cerebrospinal fluid in its dispersal effects metabolic alteration in the biochemistry and electrical potential of every cell. Perhaps no tissue so affected is of greater significance than the floor of the fourth ventricle, wherein are located all the physiological centers of the body - centers which control and regulate circulation, digestion, elimination and every other vital department of homeostasis,

---

<sup>20</sup> Applied Anatomy of the Lymphatics. pg. 108.

<sup>21</sup> Greitz, et al (1992) quoted in Research in Osteopathy James, Jones, D.O.

<sup>22</sup> Dolgin, Eric J., D.O. The Osteopathic Home Page .

including pulmonary respiration.”<sup>23</sup>

Magoun goes on to explain the effects of a drag on the dura. “All of the structures beneath the tentorium - the pons, the medulla, the cerebellum and the rest of the hind brain, the fourth ventricle - all of these can be upset by occipital lesions. Nor is the pathology limited to the inside. All of the cervical fascia attaches to the base of the skull and connects through the foramina to blend with the dura within. A drag on the fascia attached to the occiput or sphenoid means a drag on the reciprocal tension membrane within and a shift in the fulcrum. This may include the sacrum by way of the meninges of the cord or the anterior longitudinal ligament. All of the muscles inserting into the base of the skull are subject to lesions of the occiput and the sphenoid, directly or indirectly. There also can be involvement of the superior constrictors of the pharynx, the pterygoids, the tensor palati, the tensor tympani and the extrinsic muscles of the eye.”<sup>24</sup>

### Relationships Between the Pelvis and Cranium

Gendron notes the anatomic similarities and relationship between the ilium and the temporal bone, linking the pelvis and the cranium. TMJ symptoms can arise from compensations related to the iliosacral joint. She also noted that the ilium and temporals are related to the cuboid bone linking the cranium, pelvis and foot.<sup>25</sup> The ilium and temporal bones both have three ossification centers. Structural similarities are in the appendix.

Noting another relationship between the sacrum and cranium, **Mitchell observes that an oscillating sacrum is related to cranial lesions, in particular temporal lesions.**<sup>26</sup>

In this thesis changes in the cranial and cervical spine posture and range of motion as well as subjective pain changes will be examined with treatment of the inferiorly sheared sacrum.

### Auto-Regulation

Work with the reciprocal tension membrane system or core-link between the sacrum and cranium can have a significant impact on the body, especially if we considering that we are membranous beings then become osseous to support gravity and that touching one part of the fascia will affect the rest of the fascias and the fluids of the body. Shifting the dural and fascial attachments of the sacrum as well as

---

<sup>23</sup>Magoun pg 34

<sup>24</sup>Magoun pg 121.

<sup>25</sup>Gendrom, Ginnette, DO. CCO Pelvis, Iliac, Hip Joint Course 1997

<sup>26</sup> Mitchell, Fred Jr., CCO Muscle Energy Course 2001.

ligamentous and muscular attachments, can have an affect on the liquid and energetic fields in the body. It is important to allow a reciprocal balance and a dialoging between the bony structure of the body or sacrum and the fascial membranes or dura and the fluids or CSF.<sup>27</sup>

In regards to the system of auto-regulation, the sacrum has a relationship with the parasympathetic nervous system and reproductive and urogenital organs. Via its attachments to the core-link, the sacrum will also affect the fluctuation of the cerebrospinal fluid and all the fluid encompassed within the dural membranes and fascial layers covering the nerve roots and nerves throughout the body.

The proper biomechanical functioning of the sacrum and a tension free relationship with the cranium has implications for the body's ability to heal or self-correct. In 1981 in the Journal of Neurosurgery, Yamada et al found that "mitochondria in tethered cords were found to exhibit impaired oxidative metabolism. In animal studies they determined that this impairment was reversible immediately after release of mild or medium grade traction (2 to 3 gm). When high-grade traction (5 gm) was applied, however, immediate improvement was only partial, with further recovery seen within several weeks. Light microscopy evaluation failed to show cell changes in cords extended with 1 to 5 gm of traction despite metabolic and electrophysiologic abnormalities, suggesting reversibility of injury and supporting the need for early surgical correction."<sup>28</sup>

Sacral biomechanics have an impact on the nerves exiting the spinal cord in the entire spine but particularly in the lower lumbar spine and from the sacrum itself. Visceral pain can occur as a result of tension on the nerves in the pelvic area.

**A fairly dense collection of autonomic nerve fibers is found behind the cervix and forms the uterovaginal plexus. This plexus and the deeper plexus from the bladder and the rectum receive parasympathetic fibers from the pelvic nerves, which originate from the second to the fourth sacral roots. Visceral sensory pain fibers also reach the spinal cord by the route.**<sup>29</sup>

Gendron noted<sup>30</sup> several symptoms related to sacroiliac joint dysfunctions. If there is an impact on the sacral plexus and sciatic nerve the result can be pain in folds on hip, buttock, genital area. There can also be limitations of internal and external rotators and the adductor muscles. Vascular spasms can induce muscular spasm leading to contracture and fibrosis. The body will create an iliac lesion in order to protect that vascular spasm. Gendron also noted that anterior groin pain can result from ilial lesions, psoas bursa compression or compression on the L2 genital femoris nerve.

Gendron describes the **hypogastric plexus as a type of primitive brain for the**

---

<sup>27</sup> Druelle, Philippe, D.O., CCO Course March 2001.

<sup>28</sup> Surgical Disorders of the Sacrum. pg 112.

<sup>29</sup> Atlas of Gynecological Surgery pg 200

<sup>30</sup> Gendron, CCO Course 1998.

**pelvic region. It is responsible for parasympathetic function in the pelvis while vagus nerve is responsible for the upper organs of the abdomen and pelvis. Sacral lesions impact on the parasympathetics through direct disturbance of the environment of the hypogastric plexus. Sacral lesion also impact on the vagus nerve via a tension on the dura and tension of cervical musculature that can compress the occipitomastoid and craniocervical space. The parasympathetics have a close relationship with the sympathetics in the pelvic region and should be considered when doing work on the sacrum. Proper autonomic function allows the visceral system to function properly.**

The implications of sacral dysfunction could be far reaching and could be implicated in heart related pathologies. McConnell notes that a fundamental osteopathic tenants “a compromise of nervous integrity will disturb function and eventually lead to organic involvement.” Many of the changes, according to McConnell, relative to the spinal pathology are on a reflex basis. There is some disruption of the integrative action of the local nervous mechanism.”<sup>31</sup>

### The Three Diaphragms and The Sacrum

The three diaphragms (pelvic, thoracic and cranial) are related to the sacrum in several ways. The diaphragms themselves are interconnected via fascial chains. On inspiration each of the diaphragms should tighten and descend, on expiration the diaphragms relax and move superiorly. This rhythmical movement is disturbed if the pelvic diaphragm is held inferiorly, by sacral lesions restricting the pelvis.

The sacrum is connected to the cranial diaphragm via the dural attachment at S2, C1-3, foramen magnum, the ethmoid and the cranial membranes that make up the cranial diaphragm. During cranial flexion the sacral base goes posterior and superior (inspiration) and during cranial extension the sacral base goes anterior and inferior (expiration/retraction). This respiratory movement is disturbed when there is an inferior traction on the dura at S2. Any sacral lesion which tractions the dura and causes a tension on the tentorium cerebelli will also have a significant effect on the straight sinus.<sup>32</sup>

The thoracic diaphragm with its central and peripheral portions arises from L1 to L4 anterior surfaces and intervertebral discs and the anterior longitudinal ligament of the spine. The anterior longitudinal ligament attaches from the basilar occiput to the anterior sacrum and to the anterior vertebrae and discs. Thus connecting the sacrum with the thoracic diaphragm.

The iliopsoas, with its connections to the thoracic diaphragm and attachments at the lower margin of T12 and upper margin of L5 can also be restricted by a lesion involving the L5 / S1 junction. Iliopsoas sits anterior to the sacro-iliac joints, which are disrupted by an inferiorly sheared sacrum. A lesion affecting iliopsoas will influence

---

<sup>31</sup> McConnel. Selected Writings of C.P. c. Sqiiirrel’s Tail Press. Columbus, Ohio, 1994

<sup>32</sup>Laflamme, Diane. CCO Course 1999.

circulation and mobility of the whole fascial system as well as affect the kidneys which slide on the rail of the psoas. The vena cava passes the sacro-iliac joints after bifurcation, while the ureters pass in front of psoas, over the renal artery and vein.

The levator ani which forms the pelvic diaphragm has attachments to the pubis, vagina, urethra, perineal body and rectum. It also blends with the obturator fascia between the ischial spine, the obturator canal and the coccyx. The obturator internus muscle and fascias also connects with the piriformis fascia and the anterior sacrococcygeal ligament. The pelvic diaphragm is connect with the abdominal fascias and attaches near piriformis. The sacrum is also connected with the uterus in the pelvic bowl via the broad ligament attachments to the innominate line, which is continuous with S2.

### Gynecological Star

The gynecological star consists of the coccyx and sacrum posteriorly and the pubis anteriorly and all the structures between. A restriction in pelvis can contribute to an uneven gait, shifts in the central line of gravity and pressure changes which can lead to organ inflammation or osteoarthritis.

**Richard Raymod, D.O. talks about the depressed sacrum in relationship to post partum depression.<sup>33</sup> “This lesion is more common among atypical sacral lesions than may have been thought. Credit is due to Dr. W. G. Sutherland for having drawn attention to it. ....the depressed sacrum often owes its existence to some trauma, a fall on buttocks or on the feet, for example. As Dr. W.G. Sutherland has pointed out, this lesion can be produced during delivery when the pelvic diameters are increased and the ligaments of the pelvic girdle are relaxed.; the displacement downwards of the sacrum follows the efforts during expiration with expulsion made by the woman in labor while bearing down, against resistance, with her knees or feet. Sometimes the depressed sacrum can occur with a sudden strong effort when the subject is bent forwards, as when an attempt is being made to retrieve some heavy object that has been dropped. This lesion occurs much more readily during expiration and , in fact, it can be brought about by relatively single effort during expiration, such as cough or sneeze. In the latter event, the factors to which reference has already been made will play a decisive role. The sacrum leaves its physiological position and is displaced downwards between the ilia. When the downward force on the base of the sacrum compels it to turn anteriorly beyond its physiological limits, the sacro-sciatic ligaments become tensioned. The movement, which starts on the mean transverse axis, then proceeds on an atypical axis and no longer forms part of the sacral physiology. It occurs at the point of attachment on the sacral apex of the sacro-sciatic ligaments. The sacrum moves antero-inferiorly around the new axis in relation to the wings of the ilia. Hence the sacrum is lowered completely,**

---

<sup>33</sup> Pg. 222. Richard, Raymond, D.O. Osteopathic Lesions of the Sacrum. Thorsons Publishing Group. Wellingborough - New York. (1978).

with the exception of its apex. The consequence of this dislocation is to lower the pivot of the mean transverse axis that is physiologically situated at the junction of the two branches of the auricular "L". As Dr. W.G. Sutherland has stated and as practical observation shows, the consequences of a lesion of this type are often very serious. The sacral displacement is not always as painful as might be expected, but it does involve combined circulatory, lymphatic and visceral disturbances with important consequences for the fascias. One of the most spectacular repercussions of his lesion is the appearance of neurosis or psychosis. Dr. W. G. Sutherland has carefully described this association of cause and effect in post-partum cases, and attributes it to a lesional alteration of the dural membranes in their relationship to the base of the cranium and cranial dura mater. He reminded us that the cranial dura mater and its subdivisions - the falx cerebri and the tentorium cerebelli - are continued downwards in the form of the spinal dura mater as far as the sacrum.<sup>34</sup>

### Conclusion

As can be seen in this literature review, correct biomechanical functioning of the sacrum and iliums can impact on the ability of the person to move and function pain-free as well as fluid flow in the body, visceral integrity and nervous system function. All of these things are necessary for good health and an ability to maintain homeostasis and promote healing.

---

<sup>34</sup> Pg. 222. Richard, Raymond, D.O. Osteopathic Lesions of the Sacrum. Thorsons Publishing Group. Wellingborough - New York. (1978).