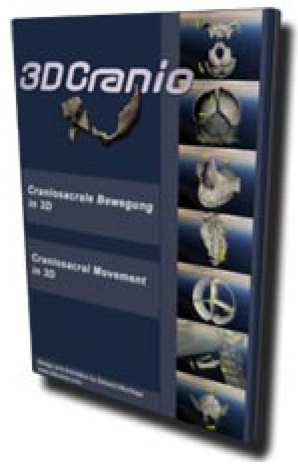
3DCranio DVD Manual



1. Introduction

3DCranio is the first product which illustrates the Craniosacral Rhythm. 3DCranio enables a three-dimensional understanding of the complex craniosacral movements.
3DCranio does not go into details on how the craniosacral movement is formed and how these patterns could be interpreted mechanically as well as psychologically. For further details refer to literature of Hugh Milne, John E. Upledger and Michael Kern. The different methods and opinions can complement each other very well.
The animations shown in 3DCranio are standardized and follow more or less two theoretical movement patterns which are widely accepted: The “Similar Motion Model” (Classical Osteopathic Model) and the “Opposite Motion Model”.
(Hugh Milne mentions a third model in his literature: The “Liquid-Electric Model”. The complexity of these movement patterns is too high, so 3DCranio doesn’t animate them.)

2. Definition of the Two Motion Models

Similar Motion Model:
This model aformentions that all central lying unpaired bones of the skull (e.g. os ethmoidale or os sphenoidale) rotate along a horizontal running axis. The lateral structures of these unpaired bones (e.g. alae majores sphenoidalis) and the paired bones (e.g. ossae parietales, ossae temporales) describe a slight rotation around a vertical axis, i.e. they rotate outwards with flexion and inwards with extension.
All movement patterns of the bones are named after the movement pattern of the sphenoid. In the Similar Motion Model, the sphenoid is being regarded as the “central” bone: With flexion, the sphenoid tilts anteriorly and slightly inferior around its horizontal axis. With extension the sphenoid tilts back posteriorly and slightly superior. Its lateral structures (alae majores et alii) rotate slightly outwards (external rotation) during flexion and with extension back inwards (internal rotation). Regarding all remaining structures the craniosacral movement is as follows:
If the sphenoid describes a flexion movement, the remaining structures of the body move also in flexion.
The left and the right side of the body move synchronously.

Opposite Motion Model:
The same conventions as with the Similar Motion Model apply to this model, with one exception: The left and the right side of the body move asynchronously. While the left side of the body describes a flexion movement (including its slight external rotation), the right side of the body moves into extension (including a slight internal rotation) simultaneously.

This movement model describes a pendulum-like movement, where the structures seem to be pulled/pushed laterally from one side to the other. All paired bones and structures describe an asynchronous, mutual movement.

3. Information about the Animations

In this chapter, each structure is described individually. In order to form a standard, certain constants were specified (in contrast to the reality, where these values constantly change slightly and one moment is never equal to another one):

> In 3DCranio, one cycle of the Craniosacral Rhythm lasts exactly 8 seconds. This means that the Craniosacral Rhythm repeats itself exactly 7,5 times per minute (in literature, the common known Craniosacral Rhythm has been measured with approximately 6-12 cycles per minute).
>
> The amplitude of the Craniosacral Rhythm is extremely increased in the 3DCranio animations. In reality, the Craniosacral Rhythm was measured with an approximate amplitude of 40 micrometers (movement measurement of the ossae parietales). This corresponds approximately to the thickness of a sheet of paper.
>
> Each animation lasts one minute and ten seconds. 6 seconds for the animation title and 64 seconds for the animation (8 cycles of craniosacral flexion/extension).
>
> During Flexion, the colour of the arrows turn yellow. During Extension, the arrows turn transparent.

4. The Animations

Brain Hemispheres
Similar Motion Model:
During craniosacral flexion, the brain hemispheres expand laterally and shorten anteroposteriorly. In the vertical plane they shorten during flexion.
Opposite Motion Model:
While the left brain hemisphere moves into flexion (as described above), the right brain hemisphere acts mutually and goes into extension.

The Core Link
Similar Motion Model:
The occiput and the sacrum are directly connected with each other via the dura mater, this complex is called “The Core Link”. During flexion, the sacrum pulls the posterior part of the dura inferiorly and the occiput pulls at the anterior part of the dura superiorly. This mechanism describes a pendular movement between sacrum and occiput.
Opposite Motion Model:
For details about the movement patterns of the sacrum and occiput please see their specific chapter.

The Cranium
Similar Motion Model:
During craniosacral flexion, the cranium expands laterally and shortens anteroposteriorly. In the vertical plane it shortens during flexion.
Opposite Motion Model:
While the left side of the cranium moves into flexion (as described above), the right side of the cranium moves into extension.

Diaphragmata:

Similar Motion Model:

During classic osteopathic flexion, the diaphragms move slightly caudal.

Os Ethmoidale:

Similar Motion Model:

The classical axis of rotation is transverse and runs directly through the middle of the ethmoid, similar to the sphenoid's axis of rotation. Looked from the left side of the head, the ethmoid moves in a clockwise direction during flexion, and at the same time the sphenoid moves counterclockwise. The two bones act as if they are geared together.

Opposite Motion Model: (no animation)

Theoretically the left portion of the ethmoidale should describe a flexion movement (external rotation), while the right portion moves into extension (internal rotation). In another movement model (Hugh Milne's "Liquid-Electric Model") the ethmoid is regarded as a "buffer zone" which adapts to the forces coming from its surrounding structures.

Os Frontale:

Similar Motion Model:

The classical axis of rotation is aligned almost vertically, from the upper part of the dome close to bregma running through each side of the frontal inferior, anterior and slightly lateral to pass through the middle of each eyeball. The frontale broadens laterally during flexion and moves slightly posterior at the metopic suture.

Opposite Motion Model:

While the left side of the frontale describes a flexion movement with a slight external rotation, the right frontal moves into extension and rotates slightly internal.

The Human Body:

Similar Motion Model:

In the classical osteopathic model, the human body as a whole expands laterally during flexion and the extremities move into a slight external rotation.

Opposite Motion Model:

Simultaneously, the left half of the body moves into flexion with a slight external rotation and increase of overall volume (expansion), and the right half of the body moves exactly in a reverse manner, i.e. in extension with a slight internal rotation and decrease of volume.

Os Hyoideum:

Similar Motion Model:

In flexion, the hyoideum widens slightly lateral.

Opposite Motion Model:

While the left part of the hyoideum moves into flexion and widens laterally to the left side, the right part of the hyoideum moves into extension. From the outside it feels as if the hyoideum performs a lateral pendular movement.

Os Mandibularis:

Similar Motion Model:

The Mandibula widens slightly lateral during flexion.

Opposite Motion Model:

While the left side of the mandibula widens laterally during flexion, the right side moves asynchronously in extension. This alternating movement echoes the opposite motion of the temporals.

Os Maxillaris:

Similar Motion Model:

The classic axes of rotation for the maxillae lie in a vertical plane, passing through the middle of the hard palate portion of each maxilla, lateral to the median palatine suture and anterior to the transverse suture. The axes diverge laterally and slightly anterior as they pass inferiorly. The maxillae diverge and widen more posteriorly in flexion. Each maxilla diverges around an axis of rotation, as described above.

Opposite Motion Model:

While the left maxilla describes an external rotation around the axis described above, the right maxilla rotates internally.

Os Nasale:

Similar Motion Model:

During classic osteopathic flexion, the os nasale widens laterally. During extension, the os nasale decreases in lateral size.

Opposite Motion Model:

While the left part of the os nasale moves into flexion (widens laterally and tilts outwards), the right part moves into extension.

Os Occipitale:

Similar Motion Model:

The classical axis of rotation of the occiput is described as lying in a horizontal and transverse plane. This is located 1/2 inch (1.3 cm) above the anterior third of the foramen magnum. The occiput circumducts in an anterior/inferior direction, in flexion. During flexion, the basilar part of the occiput moves superiorly at the sphenobasilar joint.

Opposite Motion Model:

While the left side of the head goes into flexion, expands outwards and rotates externally, the right side of the head goes into extension and rotates internally. During this motion cycle the occiput slightly shifts laterally from one side to the other, while the occiput makes its tilting motion through its horizontal axis.

Orbita Oculi:

Similar Motion Model:

The orbita oculi expand in a frontal plane, the axes of their expansion lie on the plane 45 degrees to superior-medial.

Opposite Motion Model: (no animation available)

While the left orbita oculi expands in flexion, the right orbita oculi moves into extension.

Os Palatinum:

Classic Osteopathic Model:

The palatine’s normal movement in the Similar Motion Model is a slight rocking, where the anterior margin moves first inferiorly then posteriorly. As paired bones they rotate externally in flexion, following the pattern set by their big sisters, the sphenoid and the maxillae. They move slightly posterior at their inferior and posterior margins, as the pterygoid processes retract posteriorly during flexion.

Opposite Motion Model:

While the left palatinum describes an external rotation around the axis described above, the right palatinum rotates internally.

Os Parietale:

Similar Motion Model:

The classical axes of rotation for the parietals run in an anteroposterior plane approximately 2/3 down the parietal wall. The parietale broadens laterally and displaces slightly inferior at the sagittal suture during flexion.

Opposite Motion Model:
While the left parietale describes a flexion movement with a slight external rotation, the right parietale moves into extension and rotates internally.

The Reciprocal Tension Membrane:
Similar Motion Model:
During flexion, the cranium widens laterally and shortens superoinferiorly. This outer movement gives us an idea how the falx and tentorium move. The “connection” between the falx and tentorium, the straight sinus, moves inferiorly during flexion and acts as if it pulls the falx cerebri downwards.
Opposite Motion Model:
While the left side of the reciprocal tension membrane expands laterally and pulls the sinus rectus to its side during flexion, the right side of the reciprocal tension membrane moves into extension.

Os Sacralis:
Similar Motion Model:
The classical axis of rotation runs across a transverse axis through the second sacral segment, which is also the attachment to the dura mater. The action of the spinal dura causes the sacrum to rotate around its horizontal axis, which pulls superiorly on the anterior part of the sacral canal during craniosacral flexion. This moves the sacral apex into the true pelvis in flexion. The movement of the sacrum transmits its motion directly to the occiput via the dura and vice versa. The sacrum moves synchronously on both sides.
Opposite Motion Model:
While the left side of the body goes into flexion, expands and rotates externally, the right side of the body goes into extension and rotates again back internally. During this motion cycle, the sacrum and the coccyx shift partly from side to side laterally. At the same time they rotate along their horizontal axes.

Os Sphenoidale:
Similar Motion Model:
The sphenoid’s classical axis of rotation passes horizontally and in the transverse plane through the middle of the sphenoid body. As the sphenoid rotates (“nose dives”) anteriorly into true flexion, its body moves slightly inferior, permitted and accompanied by the slight superior bowing of the sphenobasilar joint. Therefore, as the sphenoid flexes, the root of both lesser wings and the optic chiasm move anteriorly and slightly inferior. The articulation for the ethmoid also moves anteroinferiorly. This motion means that the pterygoid processes circumducts in a posterior direction. Since they are paired structures, they rotate externally in flexion. The greater wings are also considered to rotate externally in flexion. The sphenobasilar joint moves superior and the sphenoid is allowed to “nose-dive”.
Opposite Motion Model:
All paired structures (alae majores/minores et alii) move asynchronously. While the left ala major rotates externally during flexion of the sphenoid, the right ala major rotates internally. At the next craniosacral cycle, the same happens the other way around.

The Spine:
Similar Motion Model:
In flexion, the spine stretches in a vertical plane. This means that the lumbar lordosis, the thoracal kyphosis and the cervical lordosis are being reduced.

Os Temporale:
Similar Motion Model:
The classic axis of rotation for the temporals run from the anteromedial tip of the petrous portions in posterolateral directions at 45-degree angles to spots 1/8 inch (3 mm) posterior to the tympanic rings of the ear canals. Both temporals move into external rotation during flexion synchronously.

Opposite Motion Model:
Asynchronous movement: While the left temporal rotates externally (flexion), the right temporal rotates internally (extension) at the same time.

The Ventricles:
Similar Motion Model:
In the classic osteopathic model, they are said to expand during flexion. See the animations of the brain hemispheres to view the expansion process. In this animation you just see the ventricles in a rotational view.

Vomer:
Similar Motion Model:
The classic axis of rotation of the vomer has a transverse/horizontal axis running straight through the middle of its vertical plate. The vomer moves as if it is articulated with the sphenoid and ethmoid with straight-cut gears. Looked at from the left side of the head, the vomer moves clockwise during flexion, exactly synchronous with the ethmoid. As the sphenoid flexes (forward-bending), the vomer moves into a true backward-bending.
Opposite Motion Model: (no animation)
Here, the vomer seems to be pulled/pushed slightly from one side to the other.

Os Zygomaticum:
Similar Motion Model:
The classic axes of rotation run through the bones at a 45-degree angle in the horizontal plane. They rotate externally in flexion, around parallel 45-degree anteromedial axes. Both zygomae hinge at their articulations with the maxilla and the temporals.
Opposite Motion Model:
While the left zygomaticum describes an external rotation, the right zygomaticum moves simultaneously into an internal rotation.

5. Sphenobasilar Lesions:

Flexion Lesion:
A Flexion lesion exists when the sphenoid moves more easily into flexion than extension.

Extension Lesion:
An Extension lesion exists when the sphenoid moves more easily into extension than flexion.

Torsion Lesion:
Named after the motion of the ala major sphenoidalis, where one side moves more easily and further cephalad. So if the sphenoid is in a torsion lesion, one wing will be torqued more cephalad.

Side-Bending Lesion:
Named for the side of the ala major sphenoidalis that moves farther and more easily anterior on one side, creating a greater convexity on one side of the head.

Lateral Strain Lesion:
This pattern is a shearing, or strain, of the sphenoid in a lateral direction across the sphenobasilar joint. The lesion is named according to the side of the head on which the sphenoid creates a convexity.

Vertical Strain Lesion:
Vertical strain lesion is a shearing, or strain, of the sphenoid in a superior or inferior direction relative to the sphenobasilar joint.

Lateroflexion Lesion:

This lesion is named by the side on which both the sphenoid and occiput are more superior. Lateroflexion lesion is similar to a torsion lesion of the sphenoid, with an important difference: The occiput moves in the same direction as the sphenoid.

Compression Lesion:

Compression lesion is either the complete absence of the cranial wave in the head, or a severely degraded cranial wave, caused by jamming of the sphenobasilar joint so that it has no movement or severely minimized movement.

7. System requirements

- 3DCranio is Region Free
- DVD Player
- PAL compatible television
- and/or computer for DVD-Rom and DVD-Video content: Windows PC / Mac with sufficient hardware capacity for DVD and MPEG1 video playback.

8. Comments

For the most part, inspiration for 3DCranio came from Hugh Milne's literature ("The Heart of Listening", Volume I and II, Hugh Milne, North Atlantic Books). The author would like to thank Susanne and Ernst Seiler for their crucial support. Their critical approach to 3DCranio and their immense expertise on Craniosacral Therapy helped me making 3DCranio more attractive, precise and correct. The author would like to thank Christina Rosamilia, Kathia Muntinga and all other people involved in this product.

3DCranio and its animations can't be perfect. If some errors appear in 3DCranio, the author asks for understanding. You can contact the author (Edward Muntinga, contact@3dcranio.com, www.3dcranio.com) anytime per mail for suggestions.
3DCranio ought to help everyone to understand the three-dimensional understanding of this complex material.

"A true teacher is not the one with the most knowledge,
but one who causes the most others to have knowledge."