

Osteopathic Cranial
Manipulative
Medicine #2:
Introduction to
Diagnosis and
Treatment

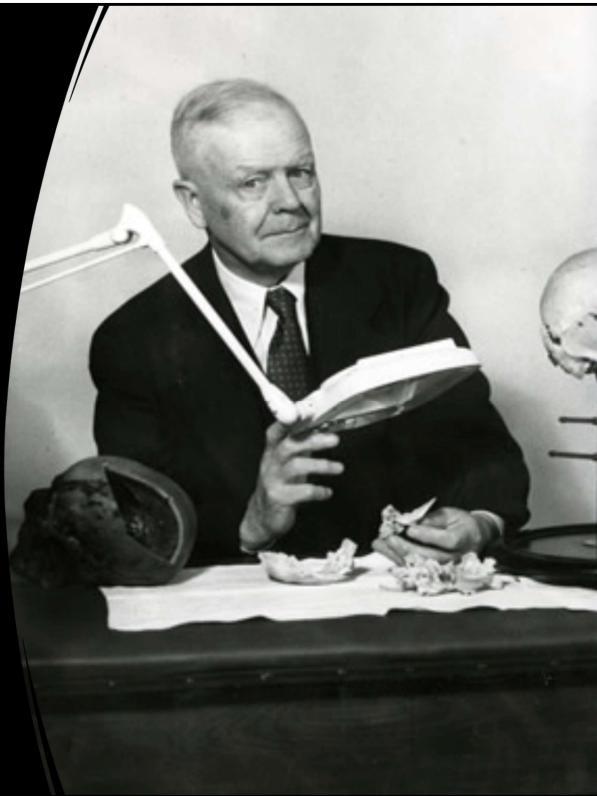
Stacia Sloane, DO



OCMM

"This microscopic study resulted in a sharply delineated lens-like mental picture of the cranium that permitted visualization by segments, by units, and as a whole."

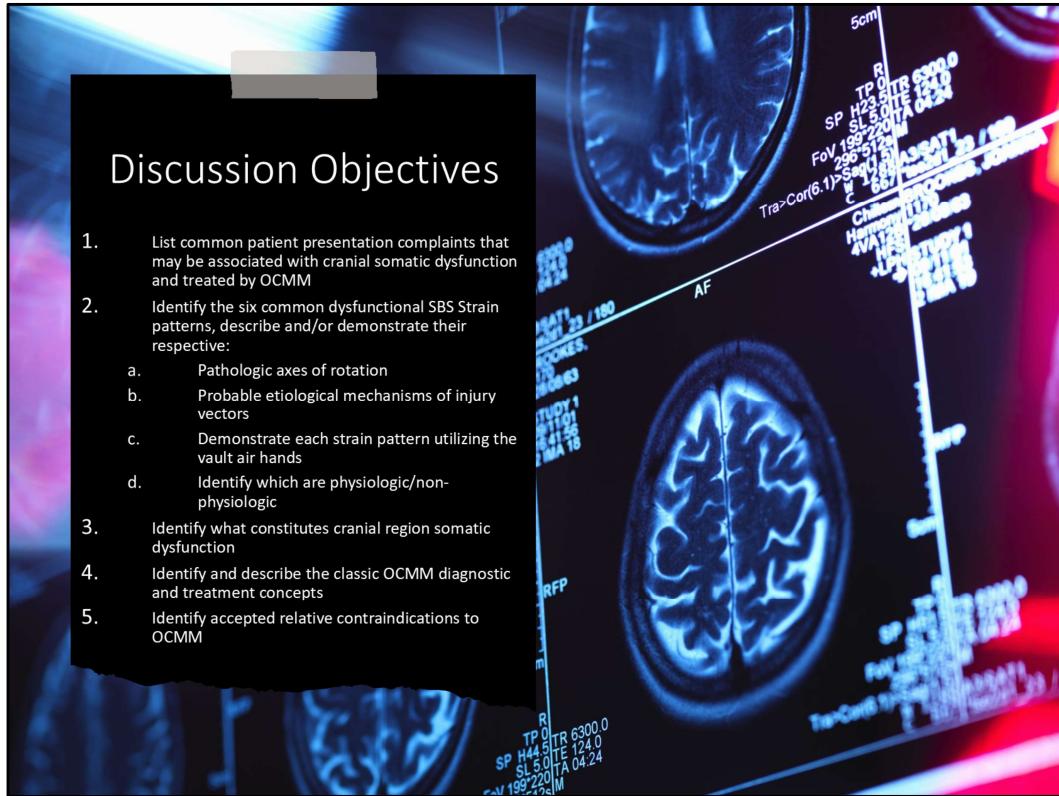
-Adah Sutherland, With Thinking Fingers, p.19



William Sutherland, DO discoverer of OCMM studying a Beauchene model

Discussion Objectives

1. List common patient presentation complaints that may be associated with cranial somatic dysfunction and treated by OCMM
 2. Identify the six common dysfunctional SBS Strain patterns, describe and/or demonstrate their respective:
 - a. Pathologic axes of rotation
 - b. Probable etiological mechanisms of injury vectors
 - c. Demonstrate each strain pattern utilizing the vault air hands
 - d. Identify which are physiologic/non-physiologic
 3. Identify what constitutes cranial region somatic dysfunction
 4. Identify and describe the classic OCMM diagnostic and treatment concepts
 5. Identify accepted relative contraindications to OCMM



OCMM 2 Intro to Dx and Tx- Outline

- Part 1:

- Common clinical presentations
- Initial diagnosis including vault contact
- Normal physiologic motion of the cranium:
 - Flexion and Extension

- Part 2:

- Sphenobasilar synchondrosis (SBS) strain patterns:
 - Physiologic strains
 - Flexion/Extension, Torsions, Sidebending rotations
 - Non-physiologic strains
 - Compression, Lateral strains, Vertical strains

- Part 3:

- OCMM- treatment principles
- Contraindications



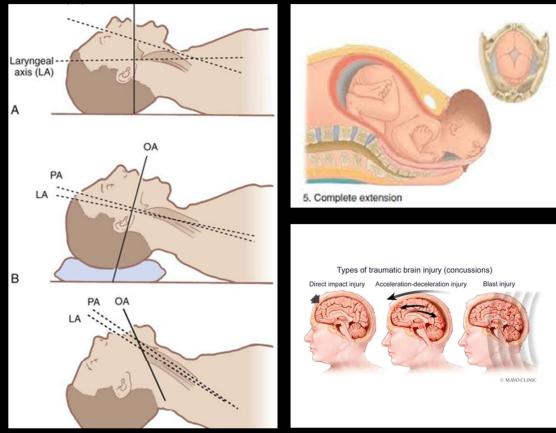
OCMM is used to treat somatic dysfunction (SD).

Examples of some clinical presentations that commonly have relevant SD include:

- HEENT dysfunction and infective complaints include but not limited to:
 - Headaches
 - Bell palsy
 - Trigeminal neuralgia
 - Cranial neuropathy-nerve entrapment
 - Otitis media
 - Sinusitis
 - Temporomandibular joint dysfunction and malocclusion
 - Tinnitus (ringing in ears – high or low pitch)
 - Vertigo/Balance/Dizziness – Vestibular effects
 - Auditory dysfunction – Cochlear effects
 - Anosmia/Dysnosmia (smell changes)
 - Optical (acuity changes, strabismus, nystagmus)
 - Plagiocephaly, feeding difficulties, torticollis, colic
- Memory, mood, and cognitive disorders (TBI/Concussion)
- Vagal dysfunction
 - Respiratory (acute/chronic infections, asthma)
 - GI (dysmotility, diarrhea/constipation, GERD)
 - Cardiac (chrono/inotropic issues)
- Somatic dysfunction in other regions of the body
 - Things that won't resolve (something else is "hanging" it up)

Recall that the indication to use OMT is not a symptom but the presence of somatic dysfunction

CRANIAL SOMATIC DYSFUNCTION



- Birth trauma
- Intrauterine position
- Falls on the buttock
- Impact/Trauma
 - Blows to the side of head
 - Blows to the top of the head
 - Blows to the front of the head
- Surgical trauma
- Extensive dental work
- Somatic dysfunction from other areas in the body
- Viscerosomatic reflexes

Intubation considerations: Visual axis diagram. **A**, Head in neutral position. None of the three visual axes align. **B**, Elevation of the head approximates the laryngeal and pharyngeal axes. **C**, Extension at the atlanto-occipital joint brings the visual axis of the mouth into better alignment with those of the larynx and pharynx.

(From Stone DJ, Gal TJ: Airway management. In Miller RJ, editor: Anesthesia, ed 5, Philadelphia, 2000, Churchill Livingstone, p 1419.)

INITIAL DIAGNOSIS

Patient History

Particularly of birth and other trauma

Visual observation

- Cranial as well postural gross or static symmetry
- Functional – speech, vision, facial expression, TMJ motion, dental occlusion, expressive appropriateness etc...



Palpation

- Vault or Bilateral Temporal or Becker contact

Static impressions: palpate for position

- Firm/Hard
- Warm/Cold
- Gross symmetry

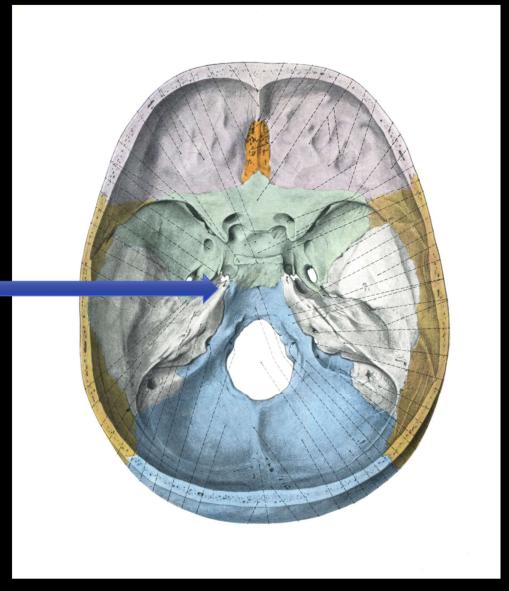
Dynamic impressions: palpate for motion

- Vitality
- Symmetry
- Rhythmicity
- Characteristic description
- SBS strain pattern(s) present
- Articular and/or dural restriction
- Fluid dysfunctions

NORMAL MOTION AT THE SBS?

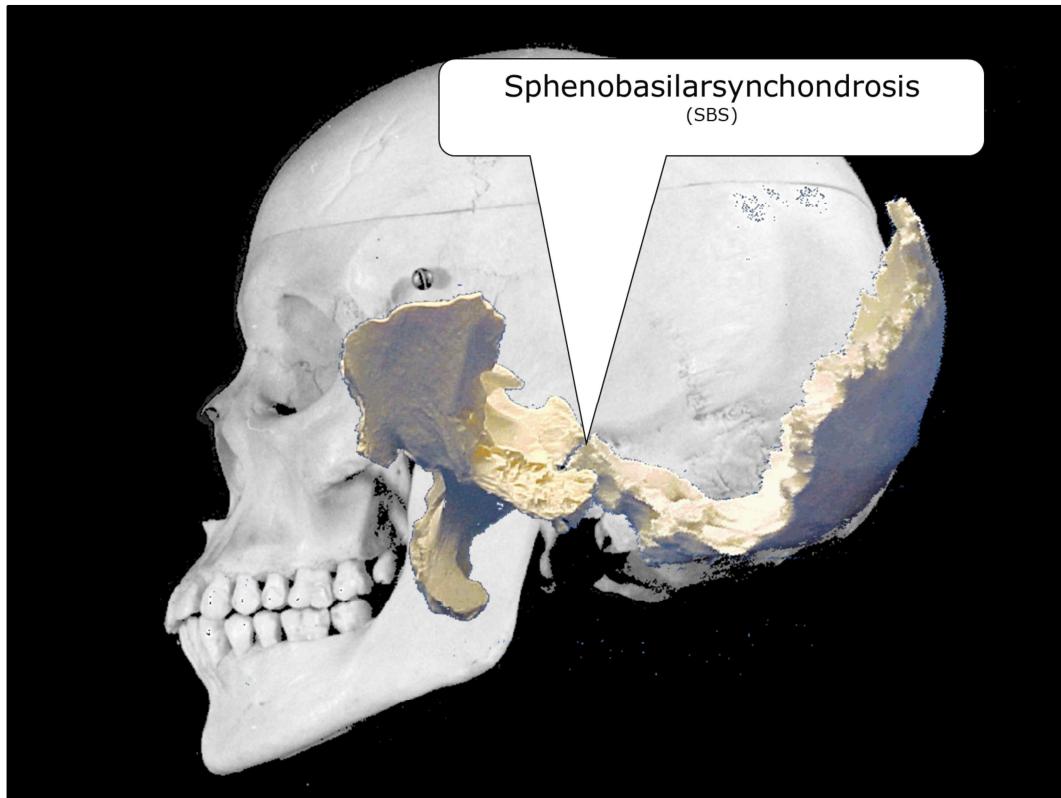
Spheno-basilar Synchondrosis

- All cranial base motion is defined by the position of the base of the sphenoid in relationship to the base of the occiput.
- *Synchondrosis:*
 - Area where two ossifying fronts are closely bound by hyaline cartilage, found at the SBS

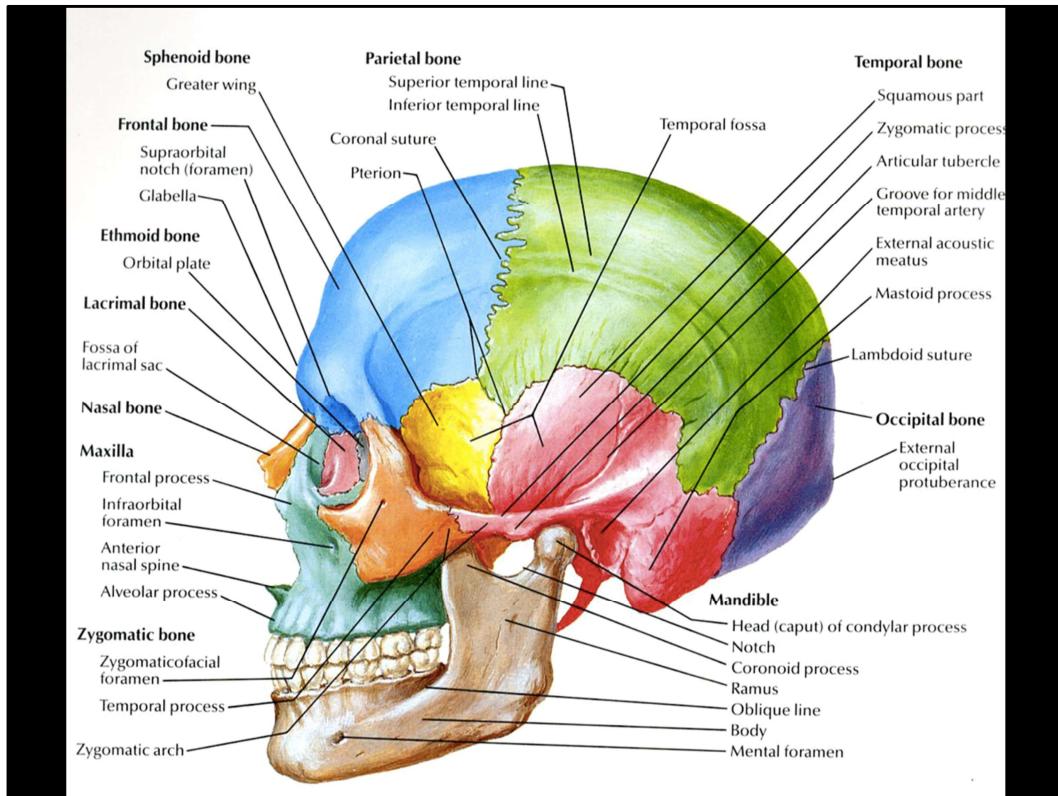


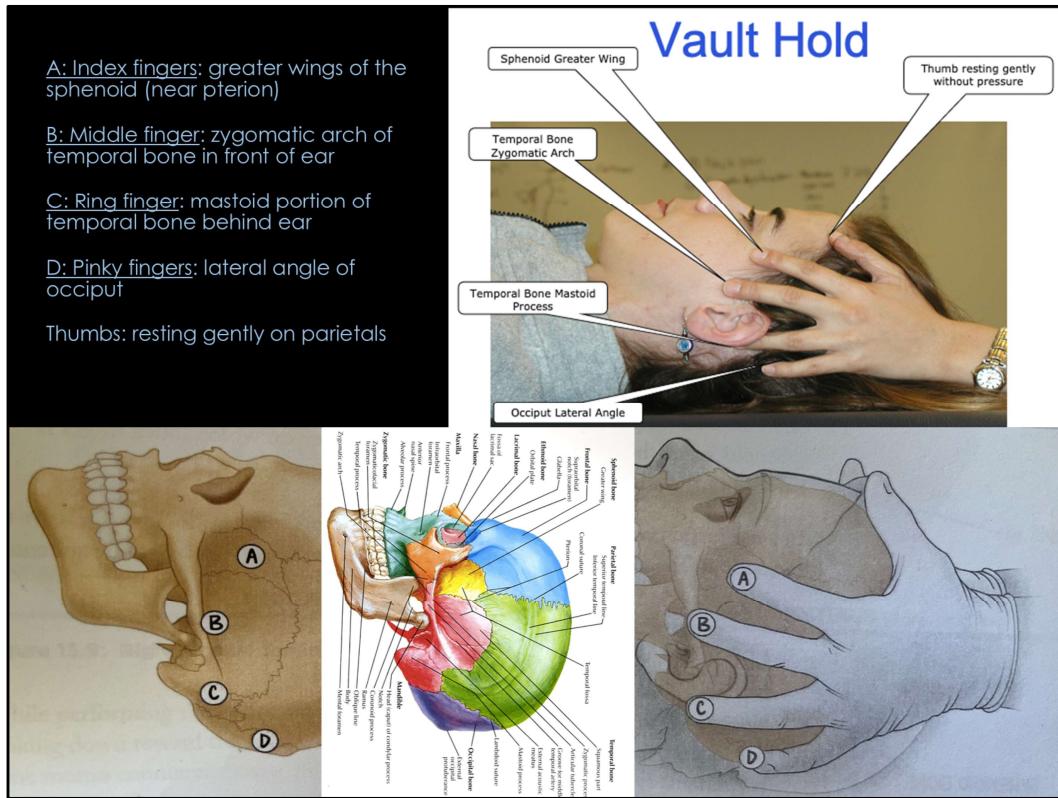
The SBS is considered the fulcrum of bony movement in the head.
We describe the movement of skull bones in terms of what is happening at the SBS.

The SBS has a cartilaginous junction until around age 25 when it starts to ossify, but it maintains flexibility and resiliency throughout life.



Flexion





Vault contact/Hold

Not a fingertip contact- will feel motion through the most proprioceptors in tendons and joints

Sit comfortably- feet on the floor- the more comfortable and stable you are the more you will be able to feel

Don't STARE so intently- let the sensations come to your hands

Contact lightly- but it's not a fingertip contact- you want your joints to sense the motion

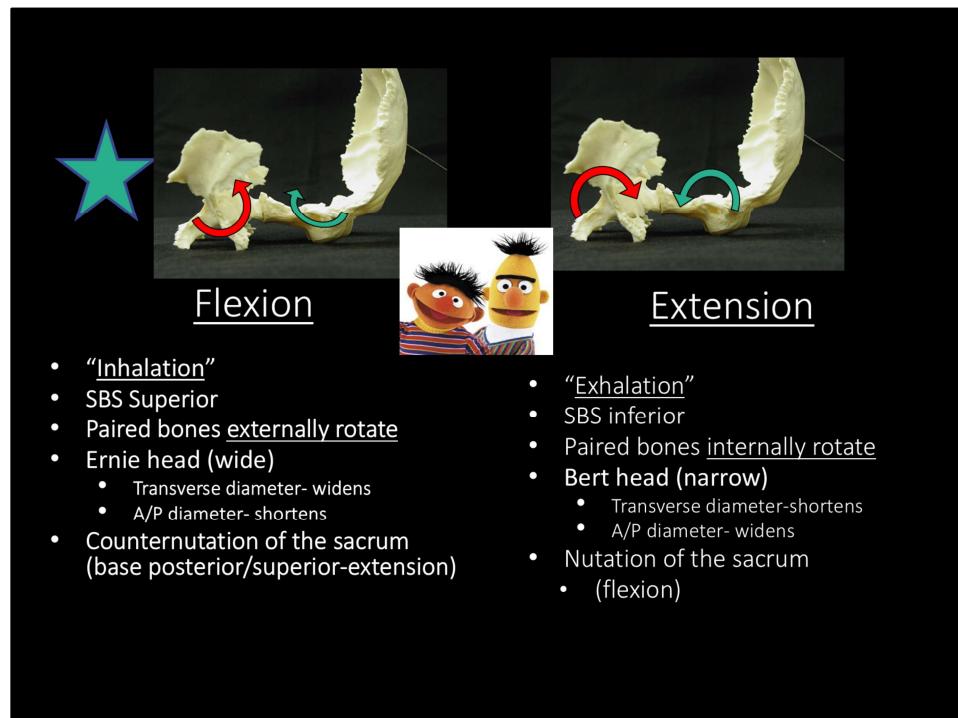
Let your mind be quiet

Visualize the structures under your hands (the better you know anatomy the better you can do this)

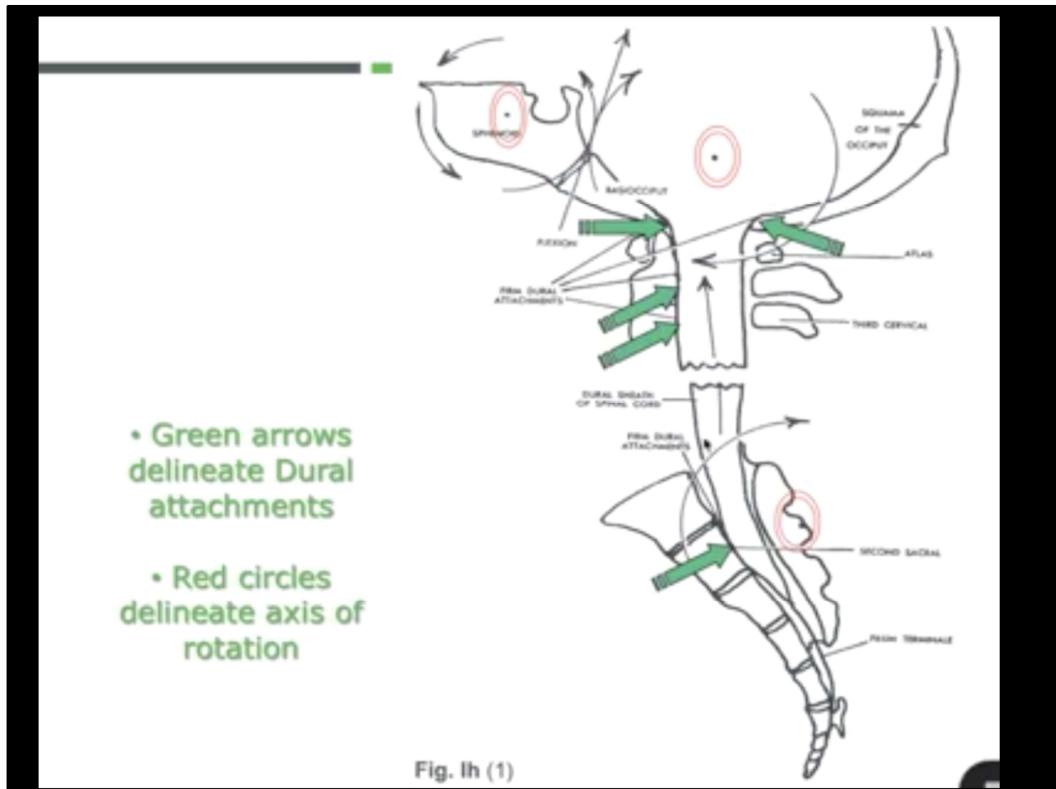
Keep trying and keep practicing- you didn't learn to feel transverse processes in a day either!

Motion can be increased with physical exercise, fevers, after OMT

Decreased with stress, fatigue, infections, mental depression, poisoning, debilitating conditions, somatic dysfunction

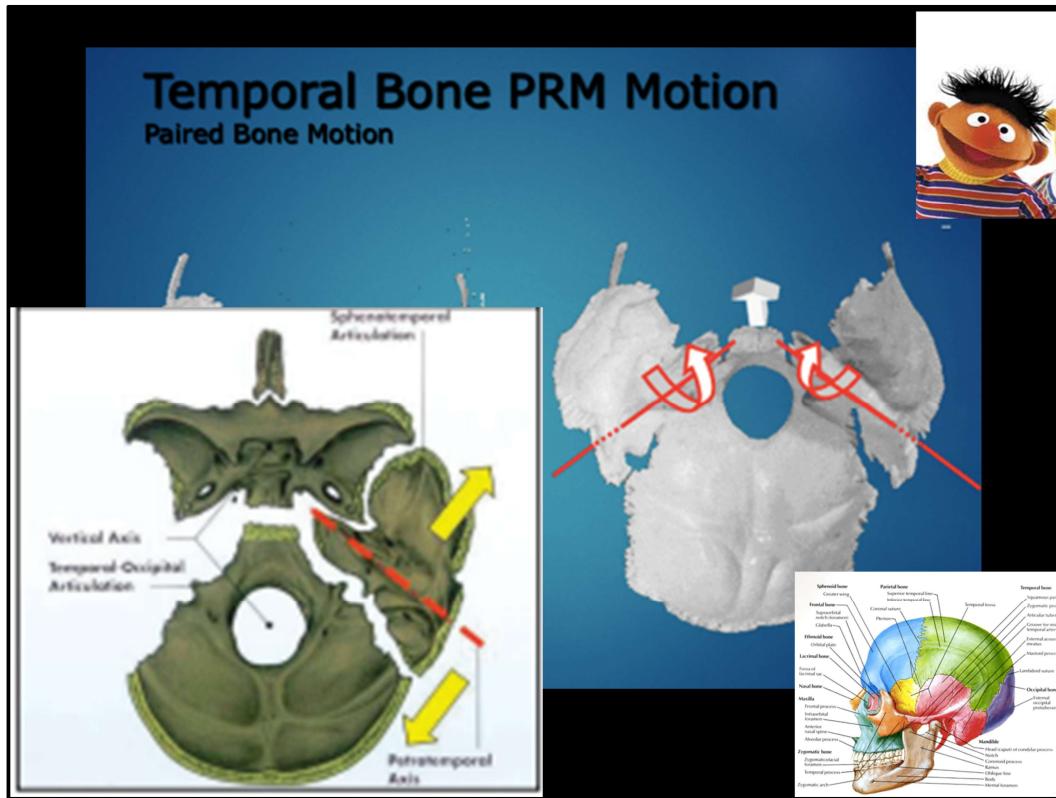


Remember that flexion of the SBS is going to draw the sacral base posterior and superior into counternutation/extension/base posterior. This is due to the core link!



Flexion/Inhalation, SBS rises (sphenoid flexes forward, occiput relatively extends),
Sacrum counternutates– base posterior and superior– extension of sacrum.

Sacrum follows the occiput



Superior view, looking down at the temporal bones (parietals and frontals removed). Appreciate the axis of rotation traversing through the petrous ridge of the bone— anteriorly converging.

On the right you can see that the basiocciput is rising— as we would see with FLEXION. The temporal bones are being driven by the occiput into EXTERNAL ROTATION— Appreciate how this would cause a relative widening of the anterior temporal area- creating an increased transverse diameter.

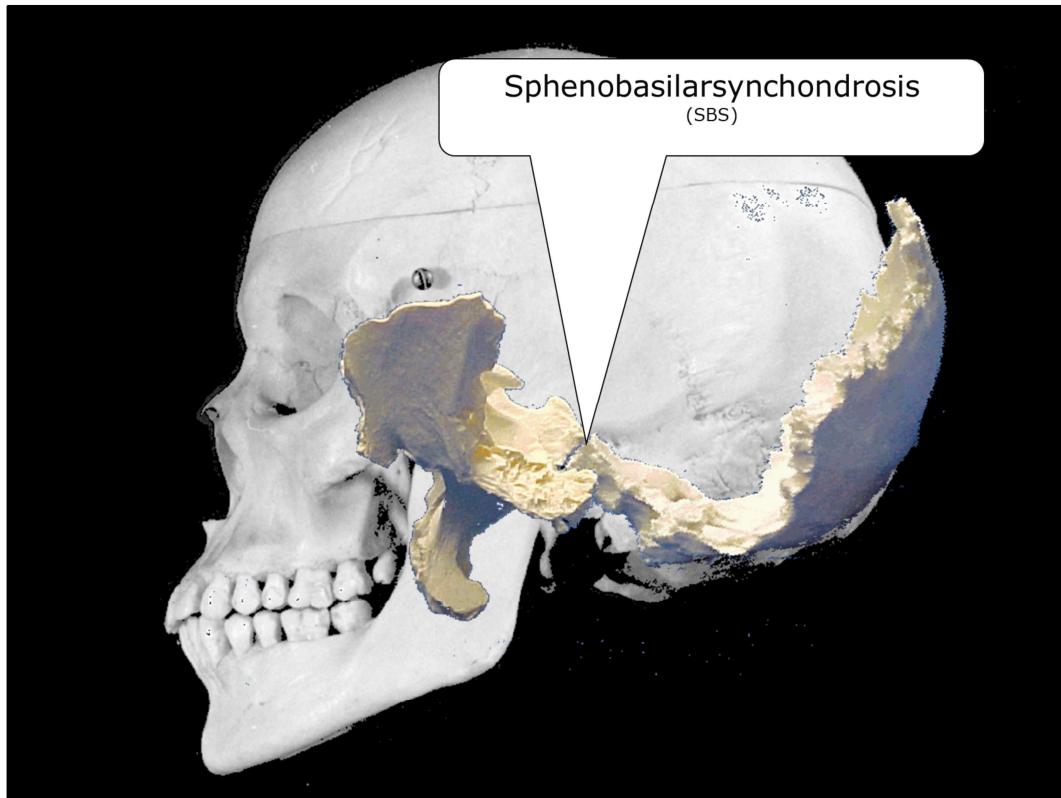
Red line shows us the axis of rotation of the temporal bone. The arrows show us the widening of the anterior-superior portion of the bone in external rotation, and the narrowing of the mastoid portion below the axis. Keep this in mind as you begin to wrap your heads around the shape of the head one would expect in flexion/extension of the midline bones. figure from “Cranial Strains and Malocclusion: A Rationale for a New Diagnostic and Treatment Approach” By Gavin A. James, MDS, FDS and Dennis Strokon, DDS from Orthopedic Gnathology, Hockel, J., Ed. 1983.

FLEXION AND EXTENSION HEAD

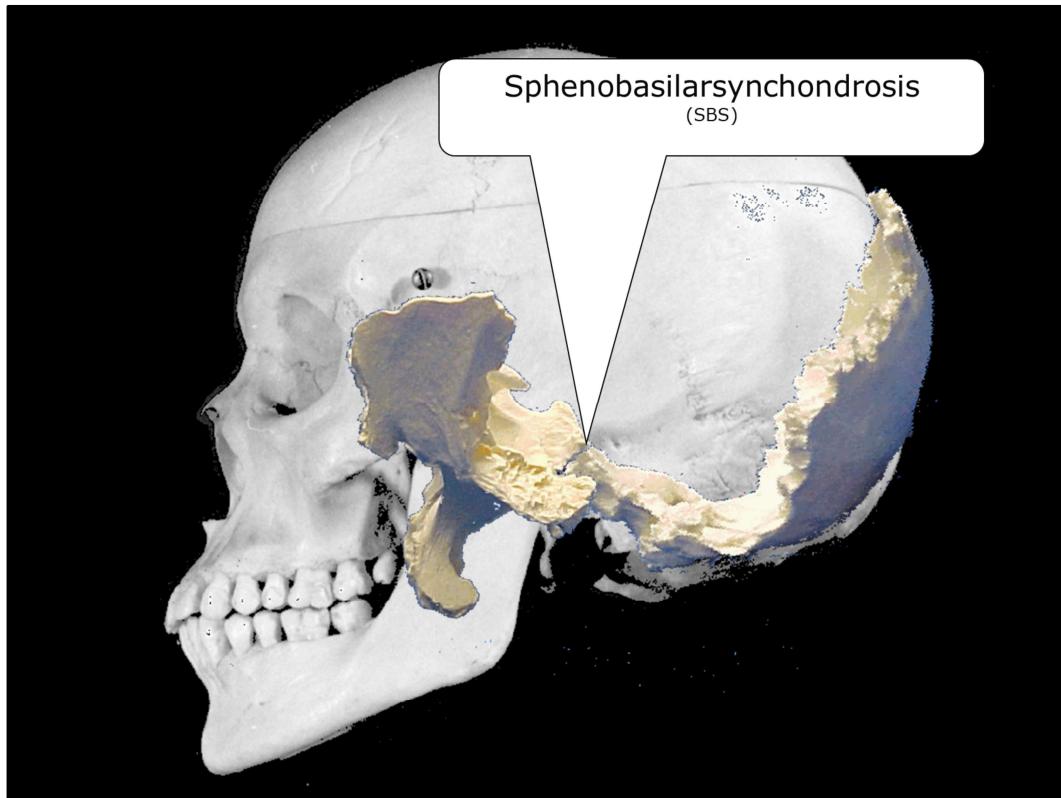


Ernie- WIDE- flexion

Bert- TALL/NARROW- extension



Flexion

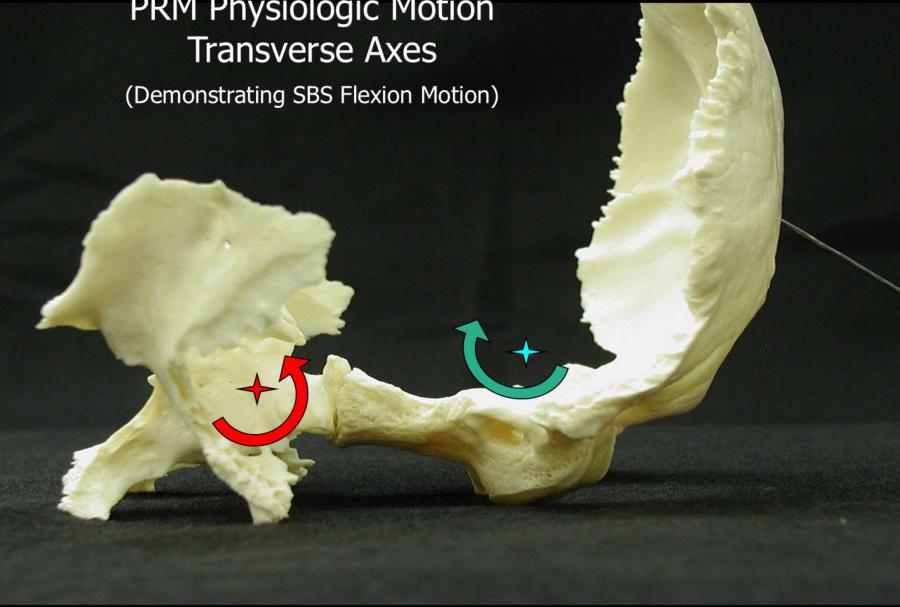


Extension

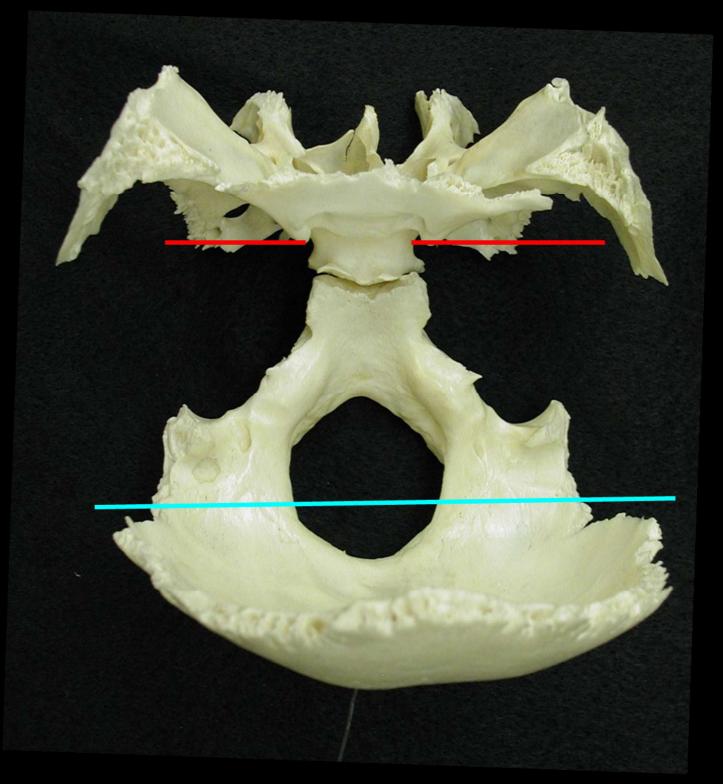
FLEXION AND EXTENSION

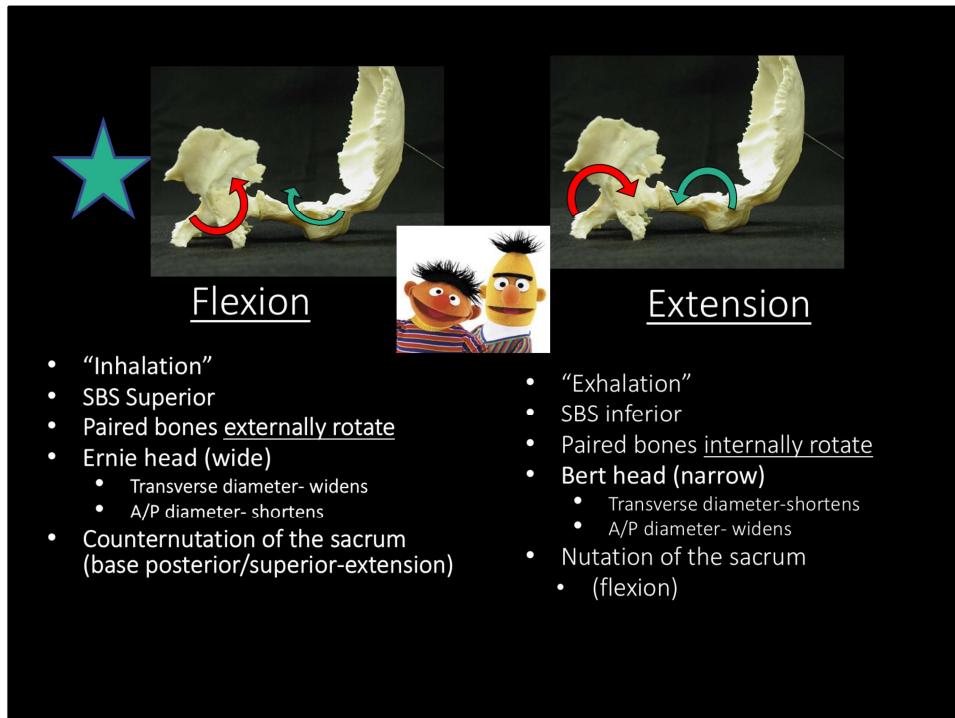
PRM Physiologic Motion
Transverse Axes

(Demonstrating SBS Flexion Motion)



Sphenoid & Occiput
PRM Physiologic
Transverse Axes

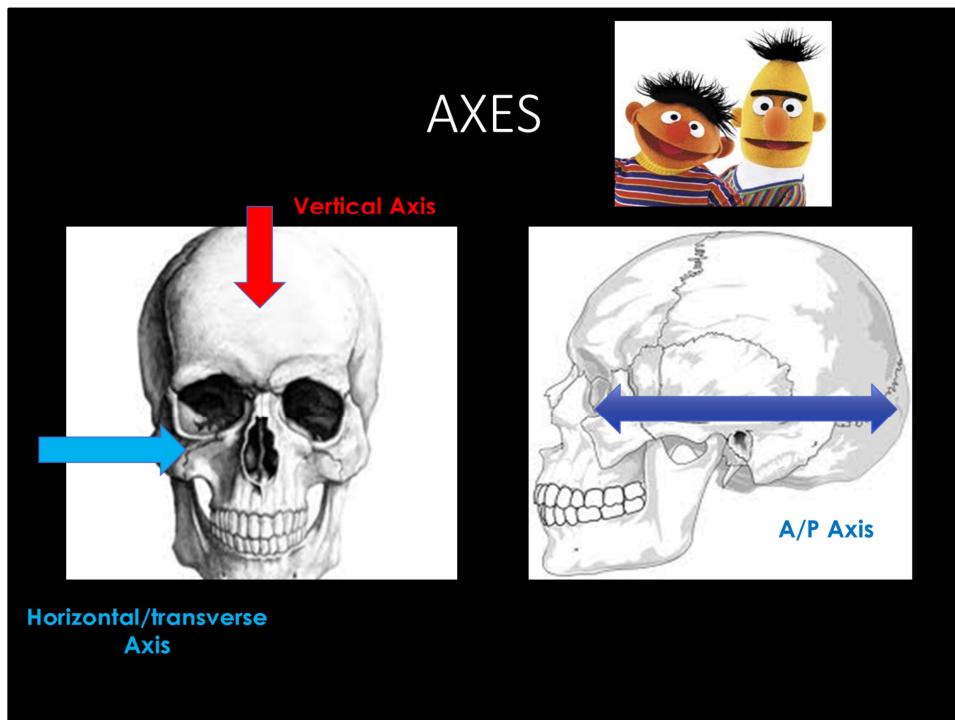




Flexion- head gets wider in transverse diameter and shortens in AP diameter- more convex, bregma descends-sacrum moves posteriorly

Extension- head narrows and lengthens- bregma ascends- paired bones internally rotation- sacrum moves anteriorly (S2 respiratory axis)

Don't confuse flexion of the SBS with flexion of the sacrum



Transverse axis/horizontal axis

AP axis

Ernie head (wide)

- Transverse diameter- widens
- A/P diameter- shortens

Bert head (narrow)

Transverse diameter-shortens

A/P diameter- widens

OCMM 2 Intro to Dx and Tx- Outline

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- Part 2:

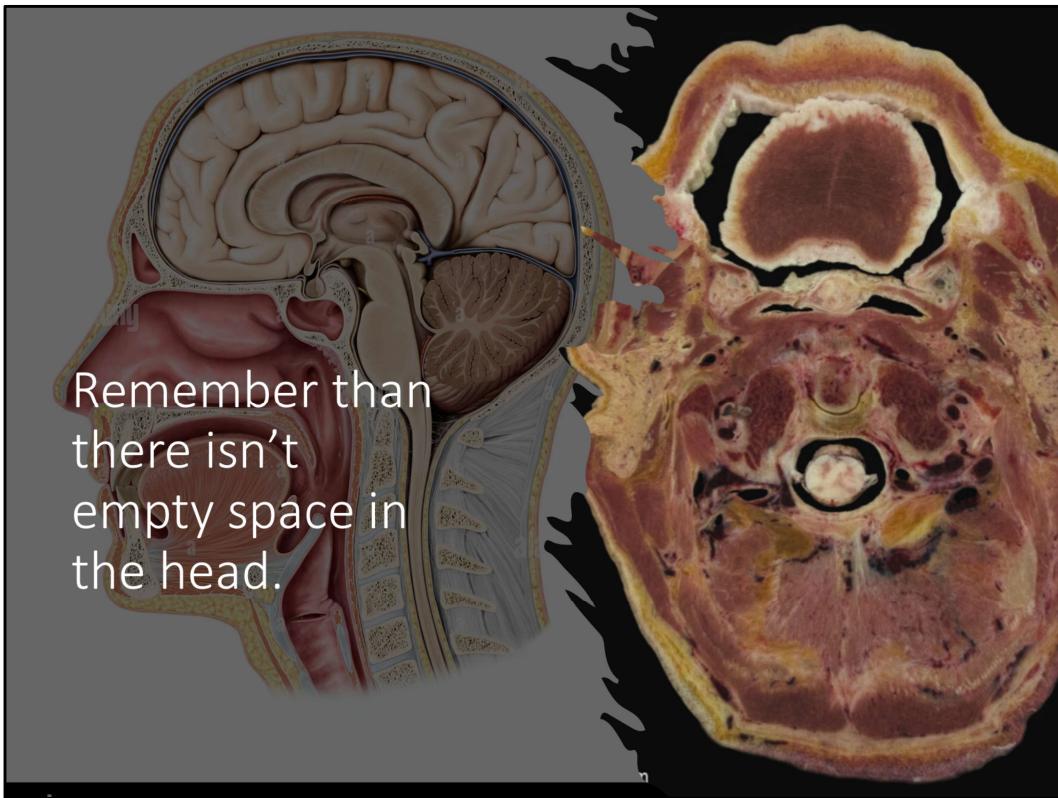
- Sphenobasilar synchondrosis (SBS) strain patterns:
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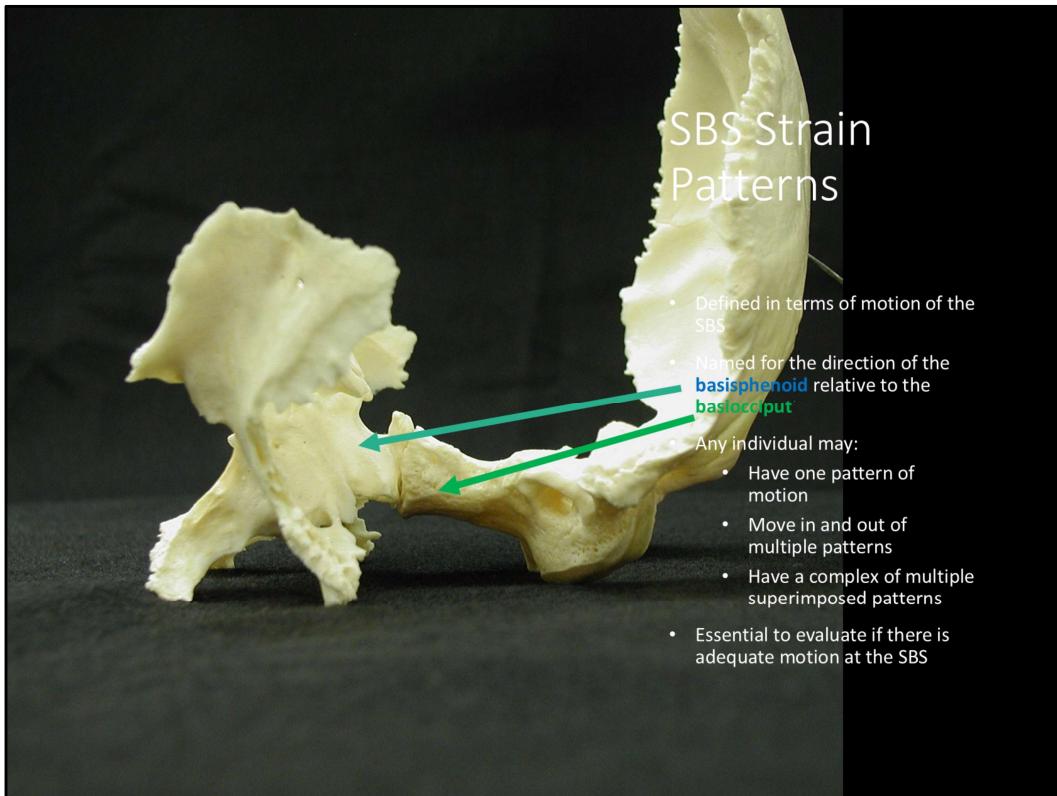
- OCMM- treatment principles
- Contraindications

What is a strain?

- Before we get lost in the weeds, lets first think about what is happening overall.
- Continuously step back and remember what is happening to the **whole** as we examine the **parts**.



Remember than
there isn't
empty space in
the head.



These strain patterns are a schematic representation of patterns of motion in the cranium– It is a complex system!

Strain patterns are used for systematic evaluation and recording– in medicine use standardized language to gain understanding into the incredibly complex body/mind/spirit of our patients. We need a common language to be able to evaluate our patients and communicate about our findings.

SBS STRAIN PATTERNS

Physiologic- Adaptive

- **Flexion/Extension**
(strain if restricted into either direction)
- **Torsion**
- **Sidebending Rotation**

NON-Physiologic- maladaptive

- Compression
- Lateral Strains
- Vertical Strains

Physiologic strains "are common and are considered physiologic if their presence does not interfere with the flexion -extension motion of the mechanism" FOM

Strains impair the PRM (primary respiratory mechanism) to work- this may affect overall health of the nervous system

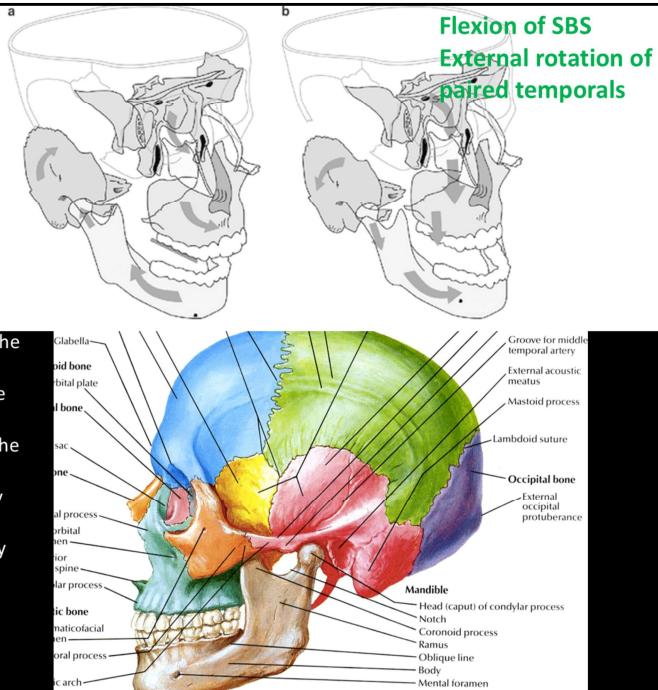
Physiologic strains- like forward sacral torsions- they can be the problem- or just a finding and not really causing any issue with the motion of the sacrum.

Notice that all the physiologic strains will rotate in opposite directions

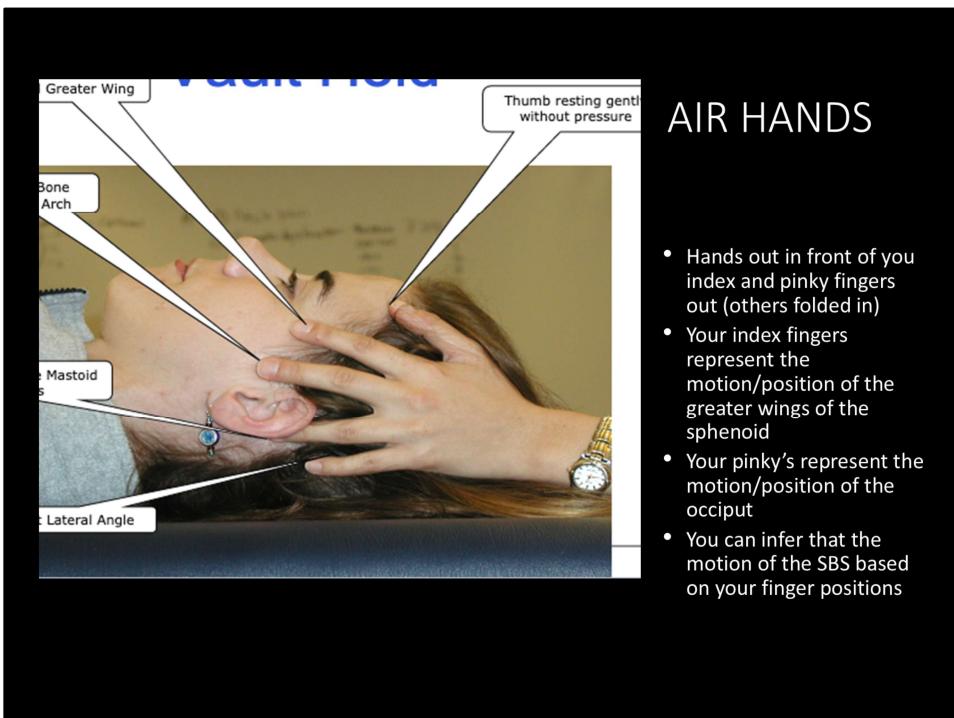
The non physiologic ones will rotate in the same direction

Characteristics

- **Axis of rotation and rotation for each bone**
- **Shape of cranium and characteristics**
 - Sphenoid drives motion of the face
 - Occiput drives motion of the temporal bones
 - Temporals drive motion of the mandible
 - Anterior on externally rotated side
 - Posterior on internally rotated side
- **Palpatory experience- Air hands**
- **Possible etiology**



Internal (a) or external (b) rotation of the temporal bones associated with Extension/flexion respectively.



PHYSIOLOGIC STRAINS

- Flexion/Extension
(Exaggerated)
- Torsion
- Sidebending Rotation

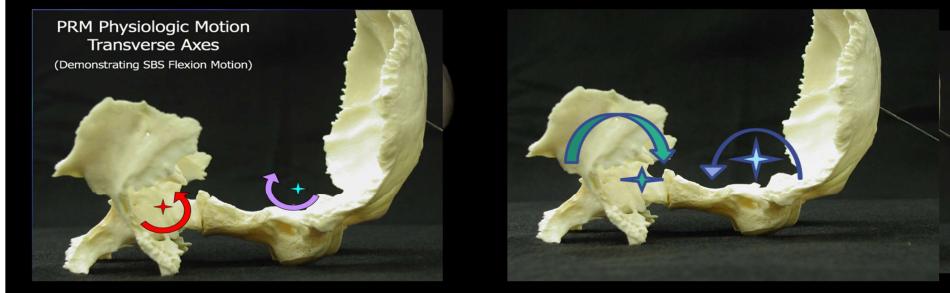
Commonalities to physiologic strains:
sphenoid/occiput rotate in OPPOSITE DIRECTIONS

Commonalities to physiologic strains: sphenoid/occiput rotate in OPPOSITE DIRECTIONS

FLEXION AND EXTENSION

- Axis

- Two Parallel transverse axes- move in opposite directions
 - Sphenoid - thru the body at the base of the sella turcica
 - Occipital - above the jugular process; at the level of the SBS



- Flexion

- Base of Sphenoid moves superiorly
- Base of Occiput moves superiorly

- Extension

- Base of Sphenoid moves inferiorly
- Base of Occiput moves inferiorly

Normally the PRM moves through flexion and extension equally and fully
When you evaluate the head – assess if motion prefers flexion or prefers extension

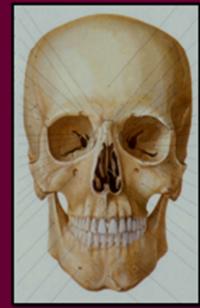
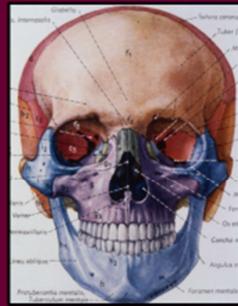
Exaggerated motion one way and/or loss of motion in the other direction is a strain pattern (asymmetry)

FLEXION AND EXTENSION VIDEO

- <https://www.youtube.com/watch?v=J2oVjn2ALLE>

FLEXION AND EXTENSION SHAPE

“Flexion Head”
(Short and Broad)



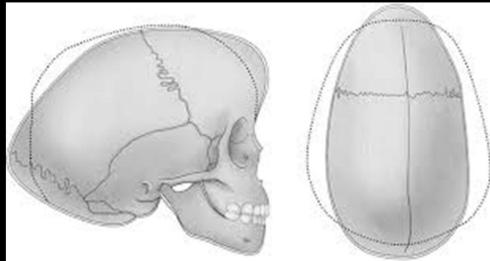
“Extension Head”
(Long and Narrow)

Ernie –short-wide- FLEXION
Burt- Tall/narrow- EXTENSION

<http://www.youtube.com/watch?v=T4gjMoDIHT8>

<https://www.youtube.com/watch?v=J2oVjn2ALLE>

Extension



"Exhalation"
SBS inferior
Paired bones internally rotate
Bert head (narrow)
Transverse diameter-shortens
A/P diameter- widens
Nutation of the sacrum
(flexion)



EXTENSION head– BURT

Internal rotation of the paired bones creates a narrow head! Imagine the superior aspect of the temporals rotating inward

Narrow, tall face

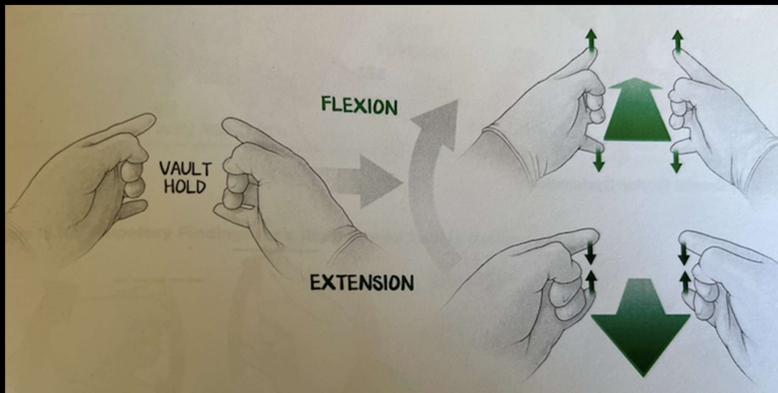
Deep eye sockets

Prominent ears (pinna flared)

Straight forehead with prominent eminences

FLEXION AND EXTENSION PALPATORY EXPERIENCE → AIR HANDS

Fingers widen and move inferiorly



Fingers narrow and move superiorly

Flexion: fingers widen and move inferiorly (towards the feet)

Extension fingers narrow and move superiorly (towards the top of the head)

Figure from onlinemeded

PHYSIOLOGIC STRAINS

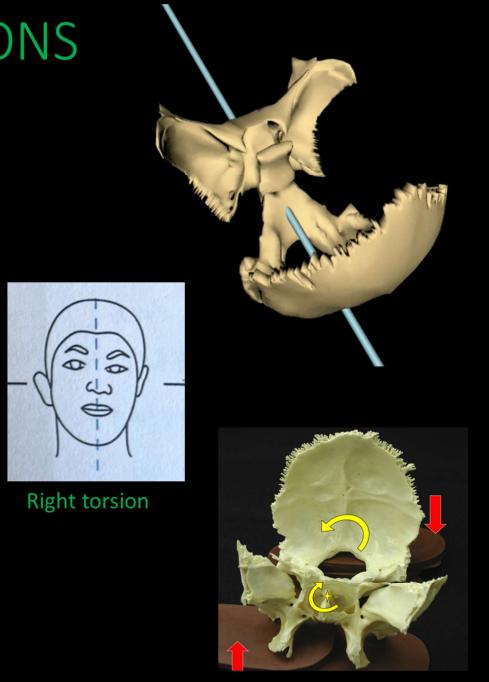
Flexion/Extension
(Exaggerated)

Torsions

Sidebending Rotation

SBS TORSIONS

- Naming:
 - Right Torsion or Left Torsion for the higher greater wing of the Sphenoid/base of sphenoid
- Axis:
 - One AP axis running from nasion, thru the SBS, to opisthion. Sphenoid and Occiput move in opposite directions
- Shape of cranium:
 - Superior greater wing/inferior occiput side
 - Orbit wide and shallow
 - Inferior greater wing/Superior occiput side
 - Orbit narrow and deep
- Palpatory experience: Hands appear to rotate in opposite directions
 - Right torsion- right index finger moves superiorly toward physician, little finger moves inferiorly toward patient feet. Left index moves inferiorly, with little finger moving relatively superiorly.

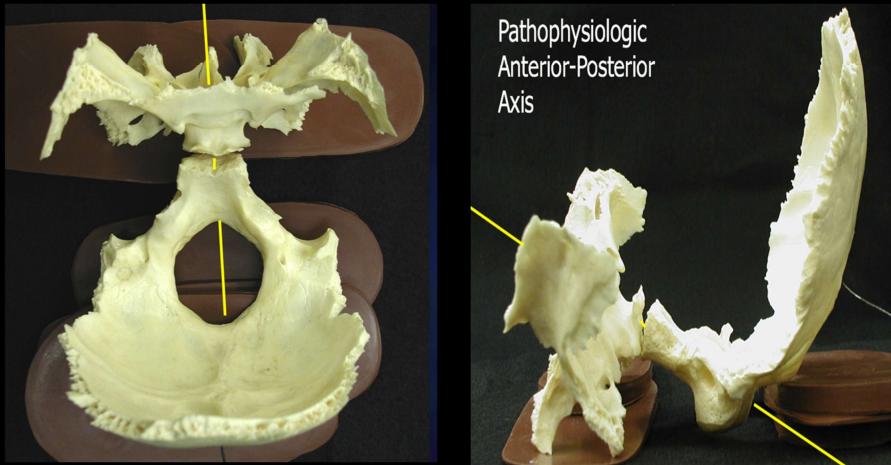


Sphenoid rotates in one direction and the occiput rotates in another

Mechanism of injury (MOI) typically is an inferior or superior force vector directed on the outer anterior or posterior quadrant of the cranium

Diagram from OCA, Paul Dart MD presentation 2014

Torsions- One A-P axis



<http://www.youtube.com/watch?v=GCmc5Ftn8QA>

Torsion video

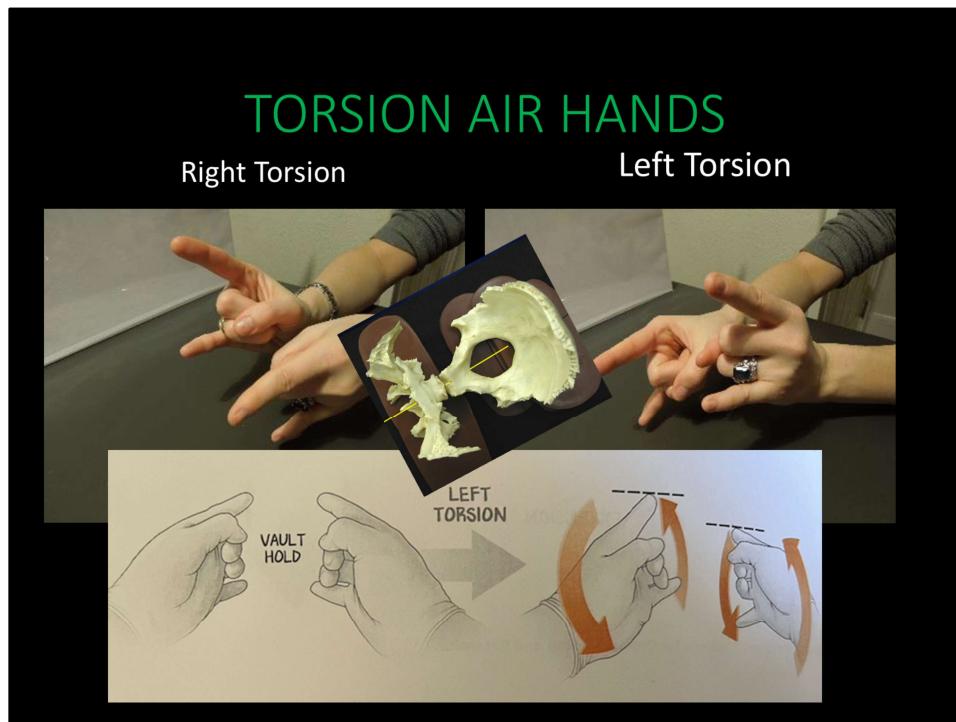
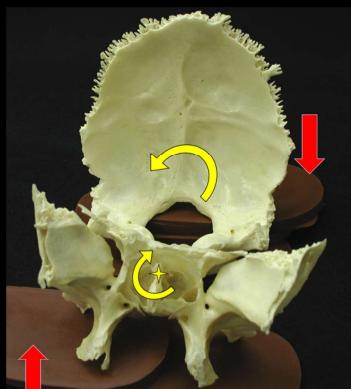


Figure from onlinemeded

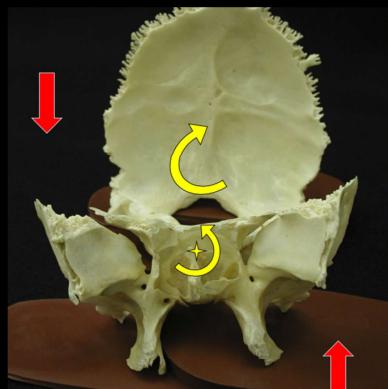
Hands appear to rotate in opposite directions
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ANTERIOR VIEW OF TORSIONS

Right Torsion

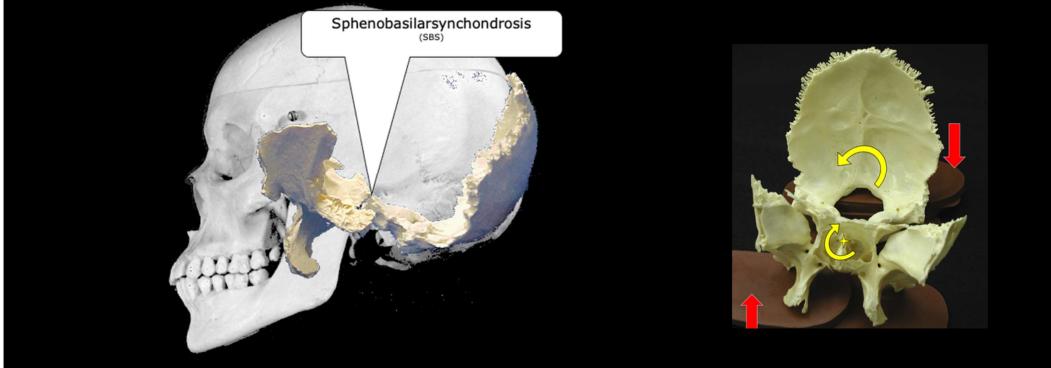


Left Torsion



Torsion Etiology:

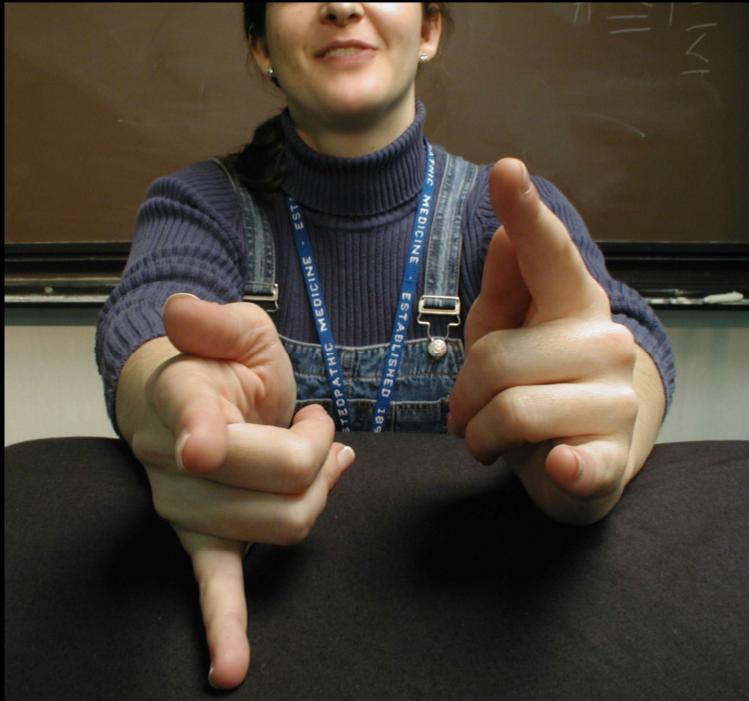
- A physiologic adaptation to a force from above down, or from below, up, on one of the four quadrants of the cranium
- A blow to one of the four quadrants



Extremely variable, often complex series of events over time.

What is this strain ?

Left
Torsion



PHYSIOLOGIC STRAINS

Flexion/Extension
(Exaggerated)

Torsions

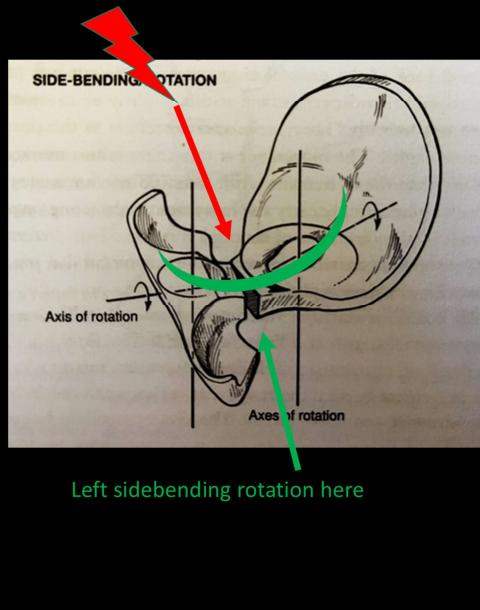
Sidebending Rotation



3. SIDEBENDING ROTATION

SBS SIDE-BENDING ROTATION

- 3 Axes of motion
 - SIDEBENDING→ Two parallel vertical axes
 - Sphenoid body
 - Foramen magnum
 - ROTATION→ One AP axis
 - Nasion to opisthion
- Named for the side of convexity/inferior basisphenoid (fullness of the head)
- Mechanism of Injury
 - Lateral force at the level of and perpendicular to the SBS
- Head may appear more full on side of convexity



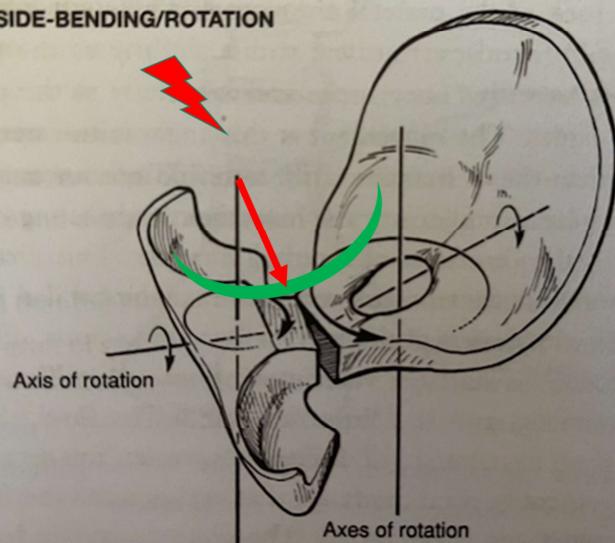
- Sidebending created by sphenoid and occiput moving in Opposite directions about the two **vertical axes**
- Rotation created by sphenoid and occiput moving in the Same direction about the **AP axis** (as opposed to torsion which has same AP axis but movement in opposite directions)

Think of this one as complex motion (like type II mechanics in the spine where motion is coupled)

TSO pg 154

Face diagram from OCA, Paul Dart MD presentation 2014

SIDE-BENDING/ROTATION



LEFT sidebending rotation– left convexity

LEFT sidebending rotation

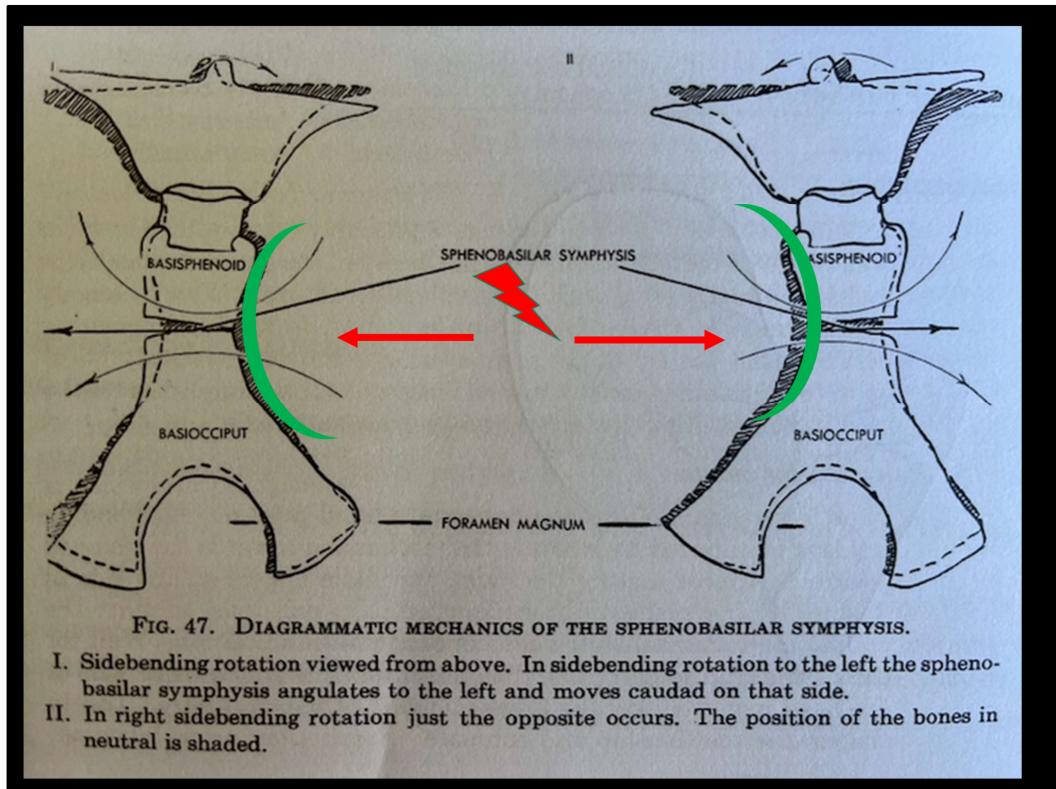


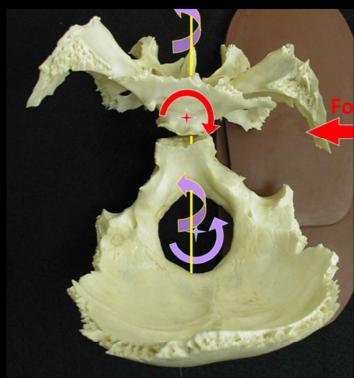
FIG. 47. DIAGRAMMATIC MECHANICS OF THE SPHENOBASILAR SYMPHYSIS.

- I. Sidebending rotation viewed from above. In sidebending rotation to the left the sphenobasilar symphysis angulates to the left and moves caudad on that side.
- II. In right sidebending rotation just the opposite occurs. The position of the bones in neutral is shaded.

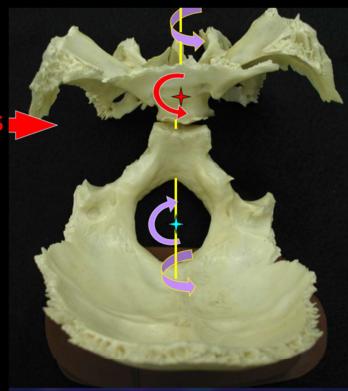
OCF p 129

SIDE-BENDING ROTATION

Left Sidebending Rotation



Right Sidebending Rotation



Red arrow shows force applied to create such a strain

SIDEBENDING ROTATION AIR HANDS

Right Sidebending
Rotation

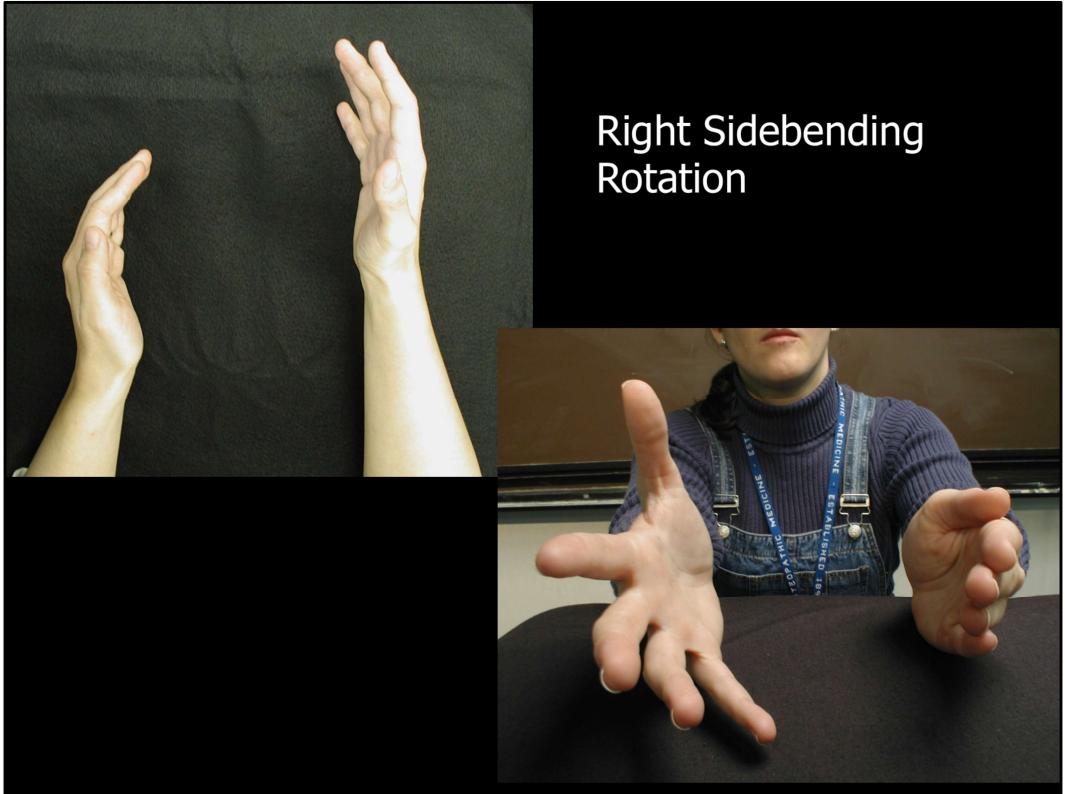


Left Sidebending
Rotation



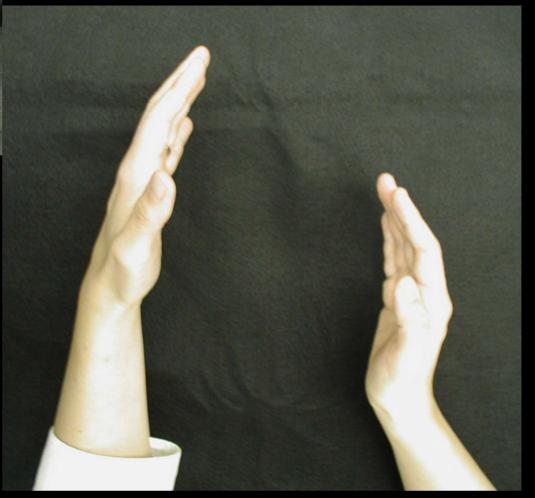
Vault palpatory experience

defined by unilateral digits #2 & #5 moving apart (convexity) and inferiorly while contralateral digits #2 & #5 move together (concavity) and superiorly





Left Sidebending Rotation

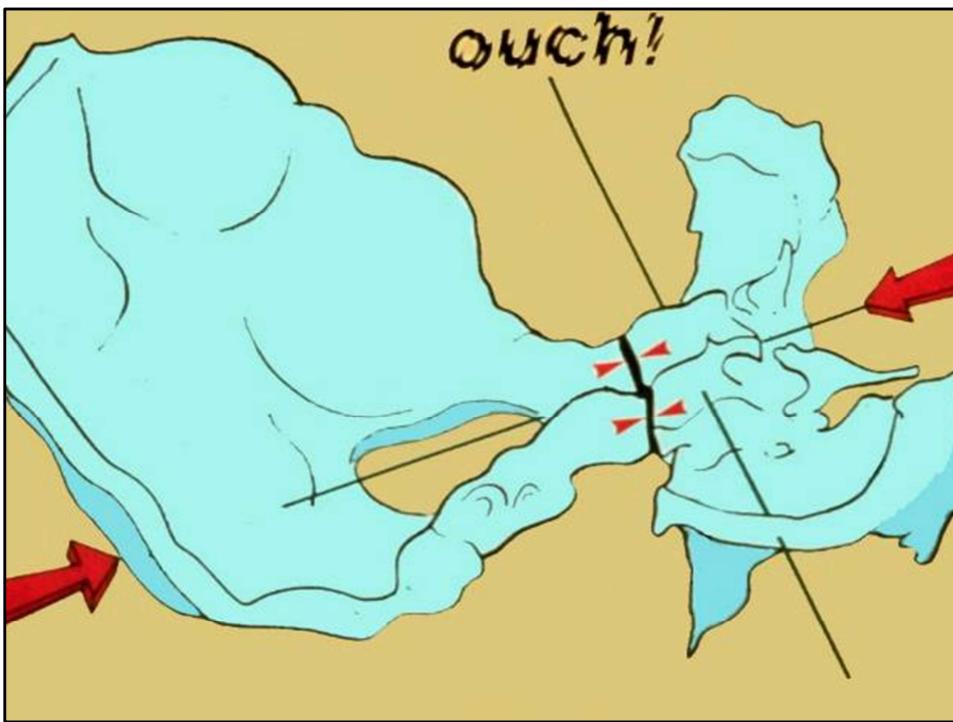


NON-PHYSIOLOGIC STRAINS

1. Compression
2. Lateral Strains
3. Vertical Strains



1. SBS COMPRESSION



Trauma (physical or psychological), severe infection (treating COVID pts at beginning of pandemic many heads were severely compressed)

BASE COMPRESSION

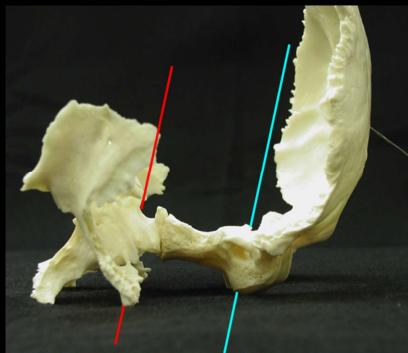




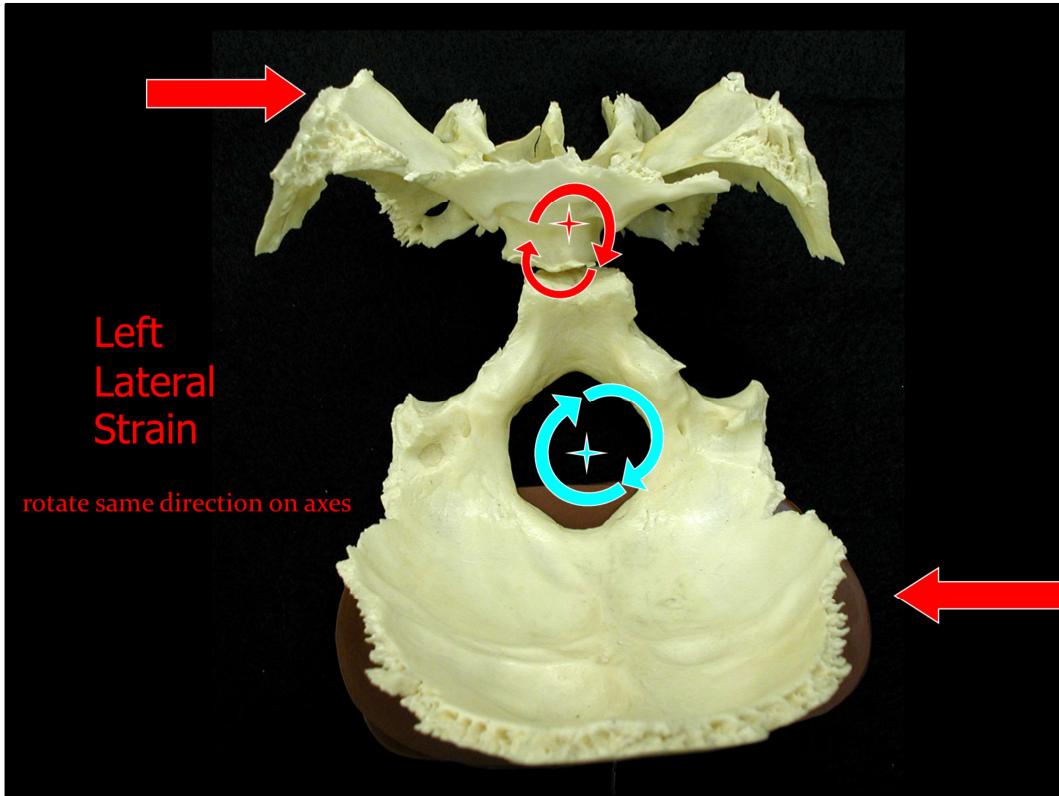
2. LATERAL STRAINS

LATERAL STRAINS

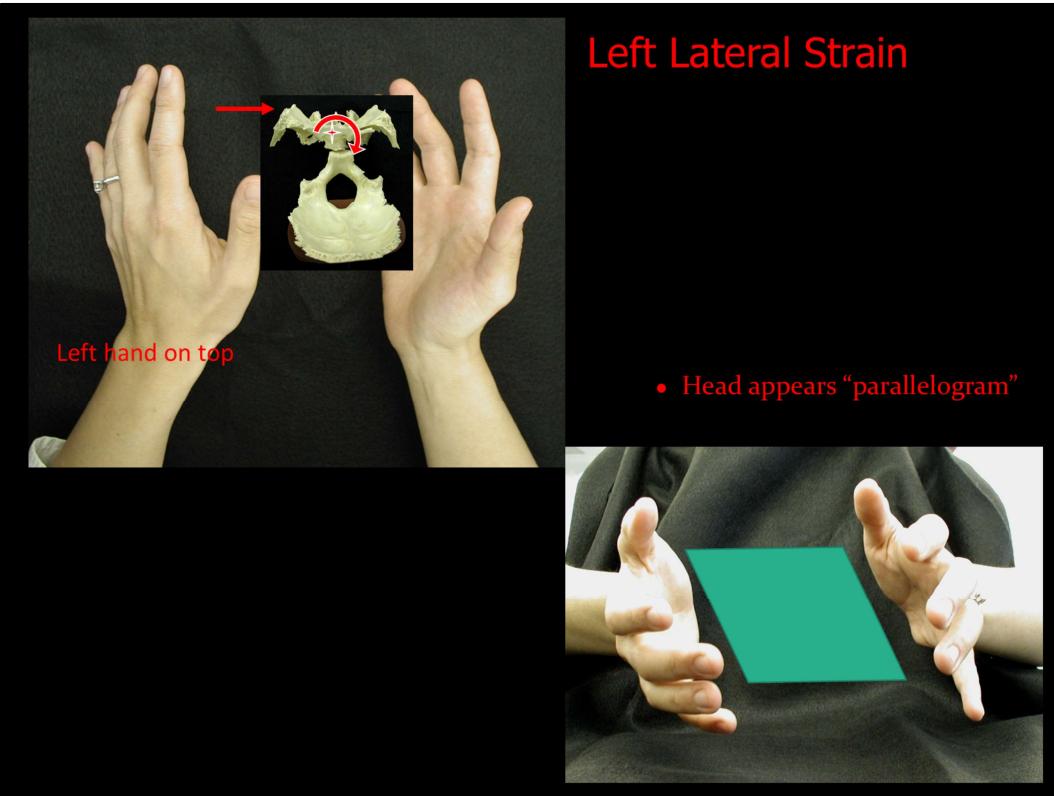
- Named
 - Left or Right Lateral Strain for position of **base of sphenoid**
- Axes
 - Two vertical axes
 - Body of the sphenoid
 - Through foramen magnum
- Rotation
 - Shearing force at SBS causing Sphenoid and Occiput to **rotate same direction on axes**
- Vault Palpatory Experience
 - B/L digits 2 moving in opposite L/R direction relative to B/L digits 5
- Mechanism of Injury
 - Plagiocephaly
 - Head appears "parallelogram"
 - Lateral force vector anterior or posterior to SBS

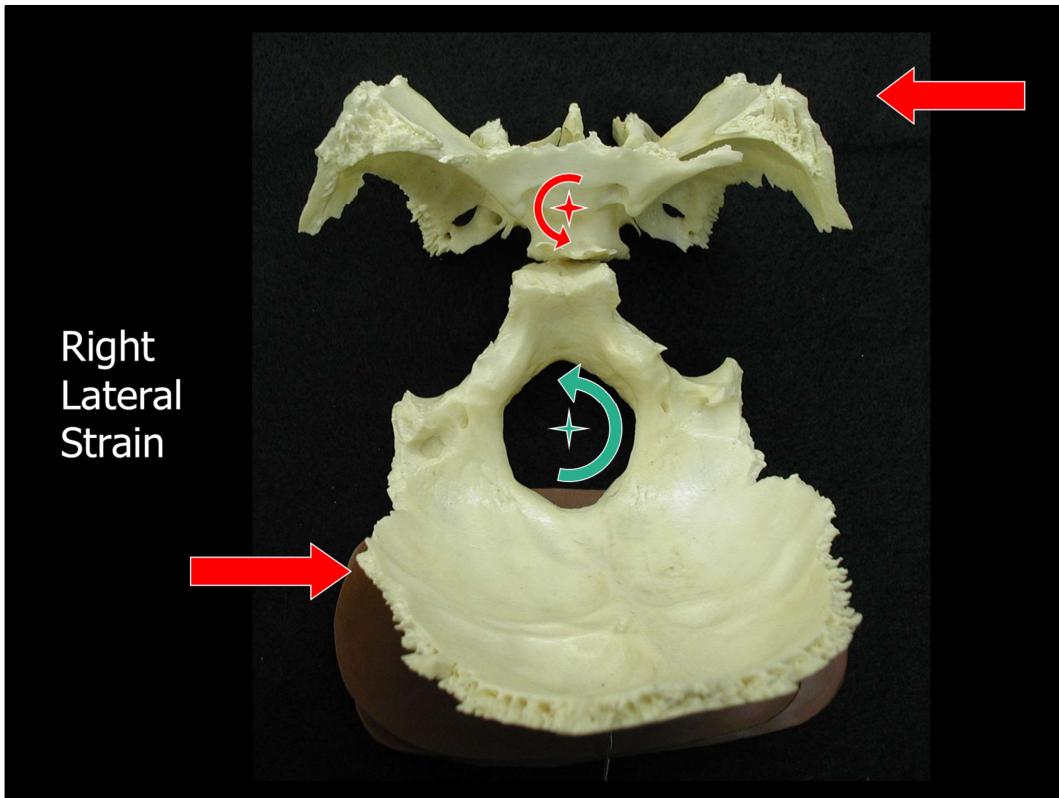


In real life there are many possible lateral strains depending on where the trauma strikes relative to the SBS—this is a simplified model to begin building a foundation of understanding.



- Two vertical axes
 - Body of the sphenoid
 - Through foramen magnum
- Rotation
 - Shearing force at SBS causing Sphenoid and Occiput to **rotate same direction on axes**

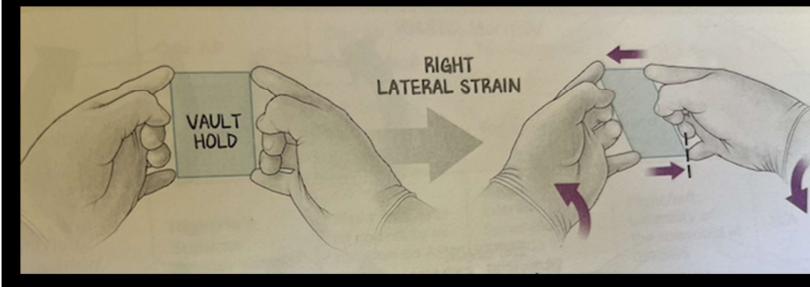
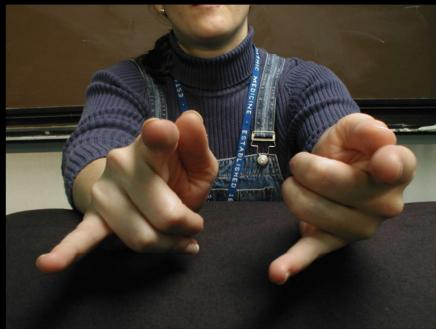


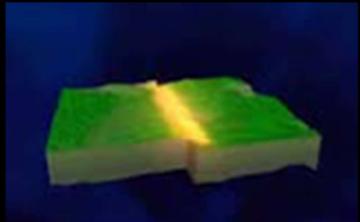




Right hand "on top"

Right Lateral Strain

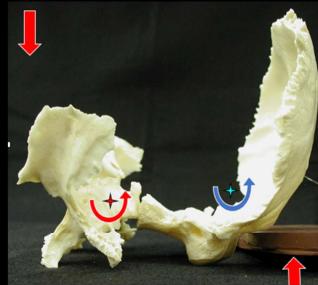




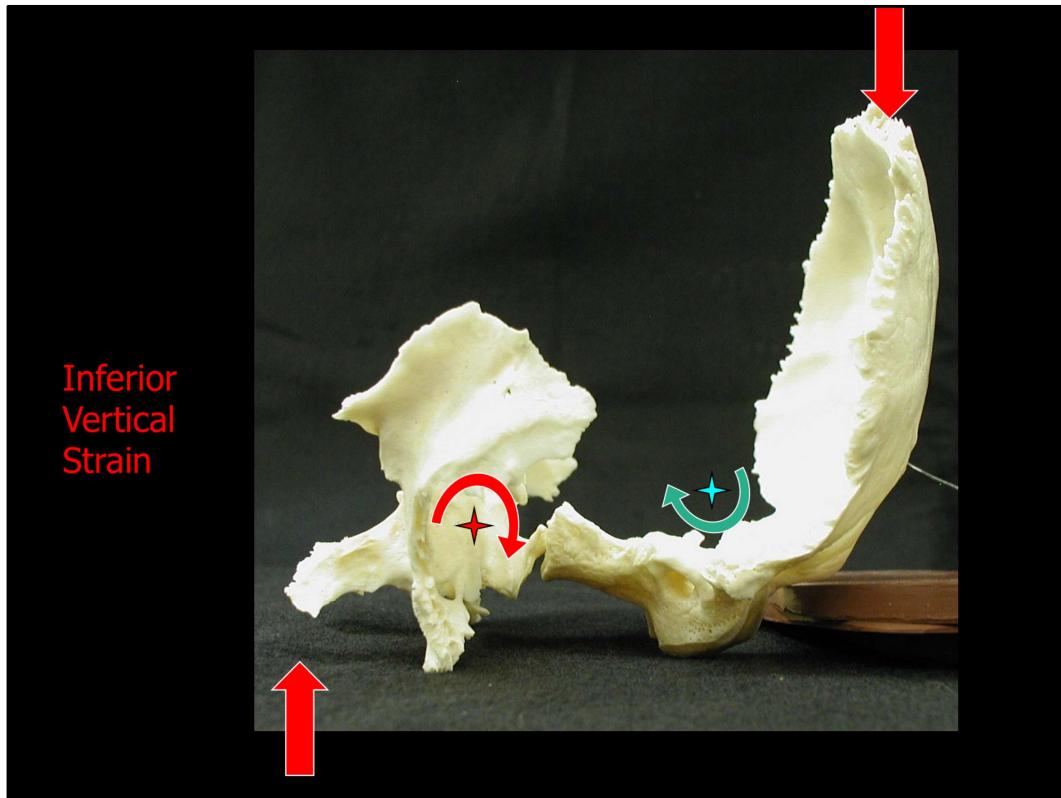
3. VERTICAL STRAINS

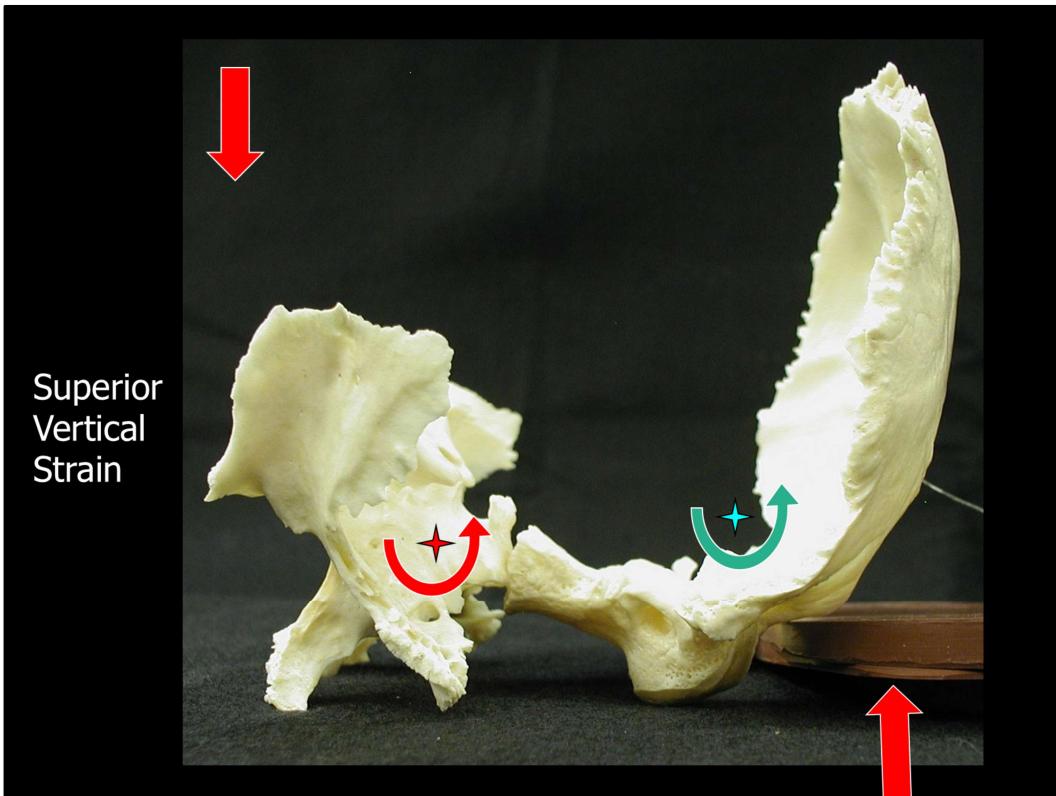
VERTICAL STRAINS

- **Named**
 - Superior or Inferior for the position of the base of the sphenoid
 - If the base rises up (superior strain) then the wings move inferiorly
 - If the base moves inferiorly (inferior strain) the wings will rise superiorly
- **Axes**
 - Two transverse (horizontal) axes
 - Body of sphenoid
 - Superior and posterior to the jugular processes of the occiput
 - Notice
 - Axes the same as flexion/extension except they **rotate in the same direction** instead of in opposite directions
- **Vault Palpatory experience**
 - B/L digits 2 moving in superior or inferior direction relative to the B/L digits 5
- **Mechanism of injury**
 - May be an inferior or superior force vector at the midline of the anterior or posterior aspects of the cranium



There is a shearing motion named for which way the basisphenoid shifts

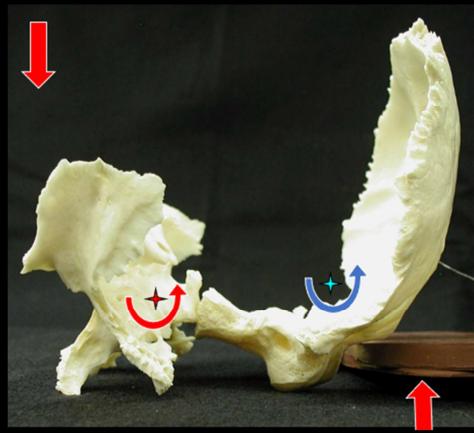




<http://www.youtube.com/watch?v=cgH9P715ugE>

VERTICAL STRAIN AIR HANDS

Superior Vertical Strain



REMEMBER it is named for the relative position of the body of the sphenoid. Because of the axis when the base of the sphenoid is superior the greater wings will feel like they are diving inferiorly.

OCMM 2 Intro to Dx and Tx- Outline

- Part 1:

- Common clinical presentations
- Initial diagnosis including vault contact
- Normal physiologic motion of the cranium:
 - Flexion and Extension



- Part 2:

- Sphenobasilar synchondrosis (SBS) strain patterns:
 - Physiologic strains
 - Flexion/Extension, Torsions, Sidebending rotations
 - Non-physiologic strains
 - Compression, Lateral strains, Vertical strains

- Part 3:

- OCMM- treatment principles
- Contraindications



Aim: to treat SD to restore normalcy in the PRM

- To normalize nerve function
- To counteract stress producing factors
- To eliminate circulatory stasis
- To normalize CSF fluctuation
- To release membranous tension
- To correct cranial articular lesions
- Integrate gross structural patterns
- Facilitate normalcy in other health concerns

"If you understand the mechanism, the technique is simple"
- W. G. S., DO

According to Magoun

HOW DO WE TREAT CRANIAL SOMATIC DYSFUNCTION?

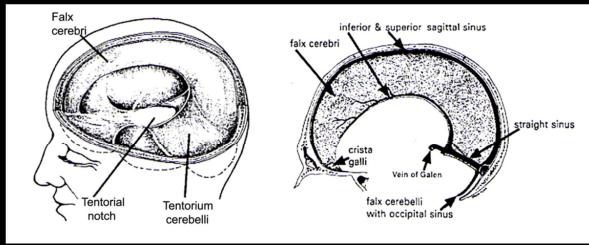
Osteopathic Cranial Manipulative Medicine

What are the principles of treatment?

- Exaggeration (indirect)
- Disengagement (direct)
- Direct articular release

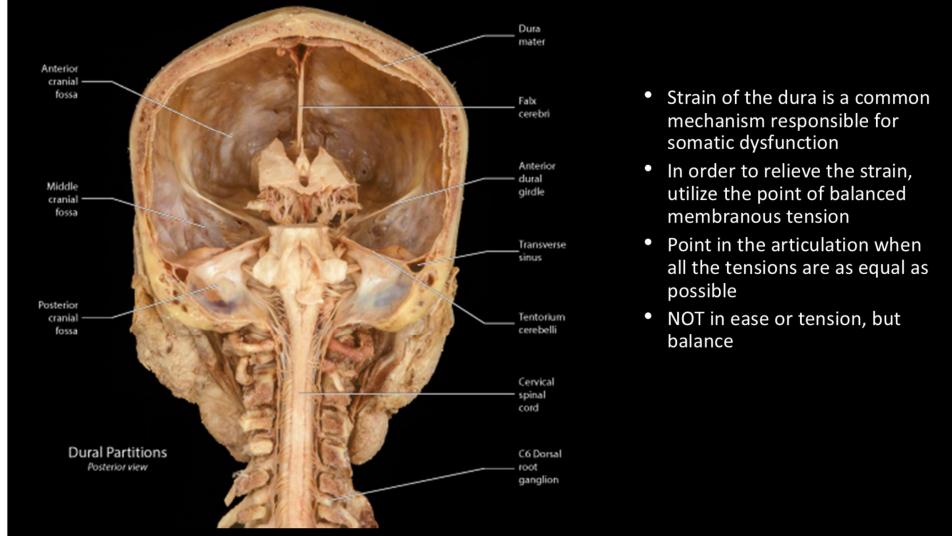
Other additional forces may be used:

- Respiratory Cooperation
- Cerebrospinal fluid fluctuation (directing the tide)



It is the most neutral position possible under the influence of all the factors responsible for the existing pattern. All attendant tensions having been reduced to the absolute minimum. This is found by palpating with “seeing, feeling, thinking and knowing fingers” –per Dr. Sutherland.

Balanced membranous tension (BMT): "The point in the range of motion (ROM) of an articulation where the membranes are poised between the normal tension present throughout the free ROM, and the increased tension (preceding the strain or fixation) that occurs as a joint is carried beyond its normal physiologic range"



- Strain of the dura is a common mechanism responsible for somatic dysfunction
- In order to relieve the strain, utilize the point of balanced membranous tension
- Point in the articulation when all the tensions are as equal as possible
- NOT in ease or tension, but balance

The principles of treatment discussed are all ways to get to balanced membranous tension, the primary technique of OCMM.

Definition of BMT taken from Magoun, *Osteopathy in the Cranial Field*. 2nd edition. 1966 and FOM

BMT is Tensegrity

omitted for the sake of clarity.

A fundamental characteristic of prestressed tensegrity structures is, as Fuller described it, “...continuous tension and discontinuous compression”.³⁵ These concepts are illustrated in Fig. 8a which shows a schematic diagram of the bones spread out in two dimensions. The bones are the compression elements which are being pulled by dural tension (only a small number of tension forces pulling in one general direction are shown in this diagram). Here they remain distinct from each other and do not make contact with each other at any point – ‘discontinuous compression’. This contrasts with Fig. 8c, which shows the compressive load of a stone

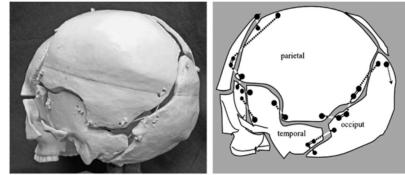


Fig. 5. Tensegrity skull model, postero-lateral view.

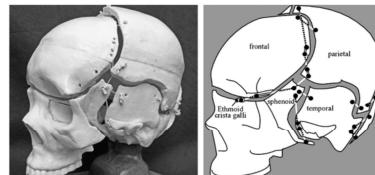
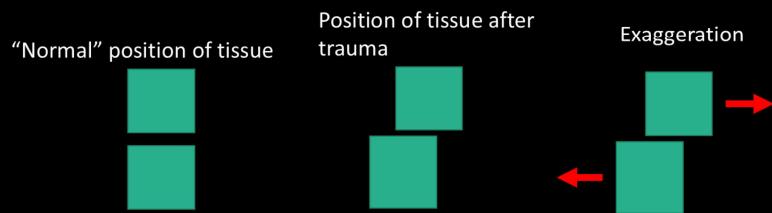


Fig. 4. Tensegrity skull model, antero-lateral view.

EXAGGERATION/Indirect Action

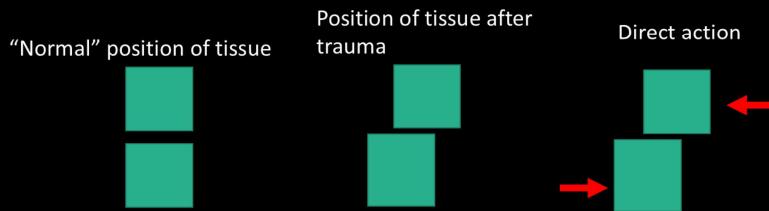
- The abnormal relationships are increased (or exaggerated), by moving the involved structures further into the direction they were lesioned.
- Hold at this point until you feel the release
- Do not use: With children under the age of five
- This is INDIRECT



FOM

DIRECT ARTICULAR RELEASE

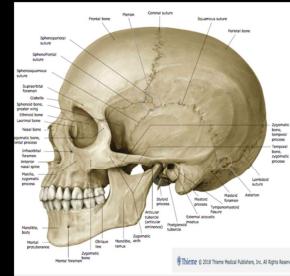
- Used when sutures are jammed/overriding
- Moves into the path of restriction, components are gently guided back toward their normal position.
- DIRECT technique



(Direct articular release) Usually sense an increase in tension as you approach the barrier

DISENGAGEMENT

- Usually used for articular restrictions
- It is the separation of opposing surfaces



"Normal" position of tissue Position of tissue after trauma



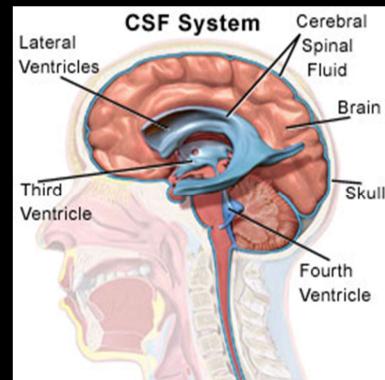
RESPIRATORY COOPERATION

- Breathing helps to release articular restrictions
 - Inhalation
 - External rotation
 - Flexion
 - Exhalation
 - Internal rotation
 - Extension
- Ex. Preference for internal rotation/extension (exhalation)
 - Have the patient hold full exhalation
 - Breathe when they need to
 - As they move into full inhalation the resistant area is guided into external rotation

Exhalation accentuates internal rotation and extension

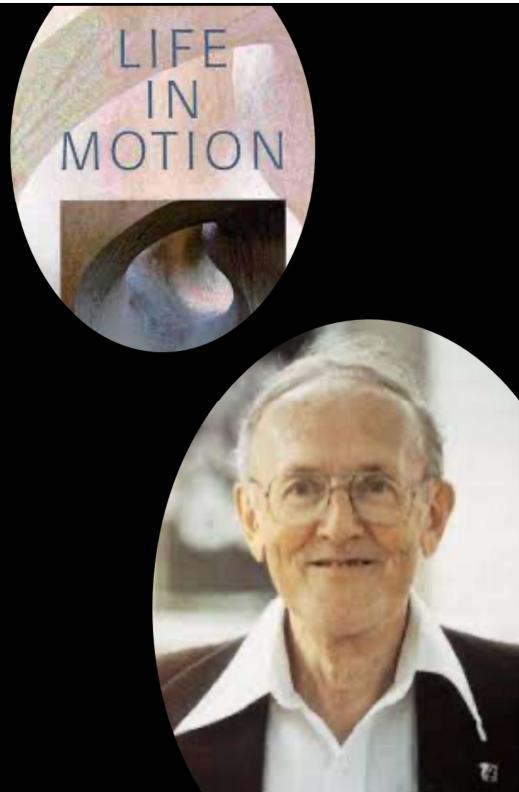
CEREBROSPINAL FLUID FLUCTUATION (directing the tide)

- Fluid motion can be directed
- Can be used to reestablish the normal fluctuation of the CSF or release membranous or articular restrictions
- Example: V-spread Technique



Rollin Becker, DO, on treatment:

- “Our hands... provide fulcrum points of reference for the... body physiology of the patient to awaken and use its motion-and-movement, internal resources to do the work of correcting its problems and guiding its mechanisms toward health. Through **conscious awareness, palpitory skills and sensitive motor skills** we seek the motion-and-movement patterns’ **points of balance for the specific strain or strains**; we **support the tissues at these points of balance**; we **feel the tissues and fluids go through a period of tensities to resolve the problem**; we become **aware of a quiet period, a still point**, a shift of the reciprocal tension balance or fulcrums specific to the problem; and we feel the gentle resolution in the tissues of restoration towards health following the correction.”



Rollin Becker, DO Life in Motion Motion: The key to diagnosis and treatment, Pg. 57 GREAT resource for your learning.

Contraindications to OCMM treatment:

- Absence of patient consent (absolute)
- Acute or progressing intracranial hemorrhage (absolute)
- Low patient vitality and clinical friability – especially hospitalized (relative)
- Significant acute cranial laceration or soft tissue injury (relative)
- Acute cranial fracture (relative)
- Significant cranial neoplasm (relative)

Cranial Mini Review

Motion	Axis	Hands	How to name?
1. Flexion	2 transverse	inferior and wider (giving a gift)	SBS -- superior
2. Extension	2 transverse	superior and inward (taking the gift back)	SBS -- inferior
3. Torsion			Sphenoid Greater wing
a. Right	AP	right superior/ left inferior (like wheels)	
b. Left	AP	left superior/right inferior (like wheels)	
4. Sidebending Rotation	Sidebending -- 2 vertical Rotation axis – AP		convexity
a. Right		right inferior and fans fingers out	
b. Left		Left superior and fingers approximate left inferior and fan fingers out	
5. Vertical	2 transverse	Right superior and fingers approximate	
a. Superior			Base of sphenoid
b. Inferior			
6. Lateral	2 vertical		Base of sphenoid
a. Right		finger tips down and wrists up/superior	
b. Left		finger tips up and wrists down/inferior	

Diagram is of a left torsion

Fig. 8 A) Normal sphenocervical relationship compared to the B) sphenocervical relationship in a Left Torsion

Fig. 14 Superior Vertical Strain

Fig. 12 Posterior View of a Left Sidebending Rotation Dysfunction

Fig. 9 EXTENSION

Fig. 10 Left lateral strain

Fig. 11 Left Sidebending Rotation viewed from above

Primary Respiratory Motion	Extension	Flexion
Respiratory Phase	Exhalation	Inhalation

<HTTP://WWW.DOCSTOC.COM/DOCS/104168858/CRANIAL-MINI-REVIEW>

The goal with your patients is to find the way to healthy function within the mechanism that they bring to you. You need the perfect mental picture to guide you, but it is not beneficial to undertake to impose the ideal upon the head as you find it.

W.G. Sutherland, DO
Teachings in the Science of Osteopathy p 7



PRACTICE 1

- Flexion-Extension

- How many axes are present in the description of this motion?
- Where are the axes?
- Do they move in the same direction or opposite?
- Physiologic or non physiologic?
- What would air hands look like?

PRACTICE 2

- Torsions

- How many axes?
 - Where are the axes?
 - Move in the same direction or opposite?
 - Physiologic or non physiologic?
 - What would air hands look like?

PRACTICE 3

- Sidebending Rotation
 - How many axes?
 - Where are the axes?
 - Move in the same direction or opposite?
 - Physiologic or non physiologic?
 - What would air hands look like?

PRACTICE 4

- Vertical Strains
 - How many axes?
 - Where are the axes?
 - Move in the same direction or opposite?
 - Physiologic or non physiologic?
 - What would air hands look like?

PRACTICE 5

- Lateral Strains

- How many axes?
- Where are the axes?
- Move in the same direction or opposite?
- Physiologic or non physiologic?
- What would air hands look like?

PRACTICE 6

- Compression
 - How many axes?
 - Where are the axes?
 - Move in the same direction or opposite?
 - Physiologic or non physiologic?
 - What would air hands look like?

PRACTICE 7

- You are treating a patient with a headache. You palpate in the vault hold:
 - Right index finger and the right pinky finger moves anterior and superiorly
 - The Left index finger and the left pinky finger move posterior and inferior
 - What is the strain?
 - How many axes?
 - Which direction do they rotate?

PRACTICE 8

- You are treating a patient with neck pain. You palpate in the vault hold:
 - Your right index finger and pinky finger approximate and move superiorly (towards you)
 - Your left index finger and pinky finger widen and move inferiorly (away from you)
 - What is the strain?
 - How many Axes?
 - Which direction do they rotate?

PRACTICE 9

- You are treating a patient with sinusitis. You palpate in the vault hold:
 - Both hands- index fingers and pinky fingers widening and moving inferiorly
 - Very little motion with fingers approximating and moving superiorly
 - What is the strain?
 - How many axes?
 - Which direction do they rotate?

PRACTICE 10

- You are treating a patient with low back pain. You palpate in the vault hold:

- Both your index fingers moving posterior and inferior
 - Both your pinky fingers moving posterior and superior
 - What is the strain?
 - How many axes?
 - Which direction do they rotate?

PRACTICE 11

- You are treating an infant with plagiocephaly and torticollis. You palpate in the vault hold:
 - Your bilateral index fingers move to the left
 - Your bilateral pinky fingers move to the right
 - What is the strain?
 - How many axes?
 - Which direction do they rotate?

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