

SACRAL INSTANT DIAGNOSIS & TREATMENT WITH LIGAMENTOUS ARTICULAR STRAIN (LAS)

Greg Thompson, D.O., ACOFP, ABSPOMM
Assistant Dean Clinical Medicine
Chair, Osteopathic Principles and Practice
Alabama College of Osteopathic Medicine

OBJECTIVES

Understand the ten different sacral dysfunctions

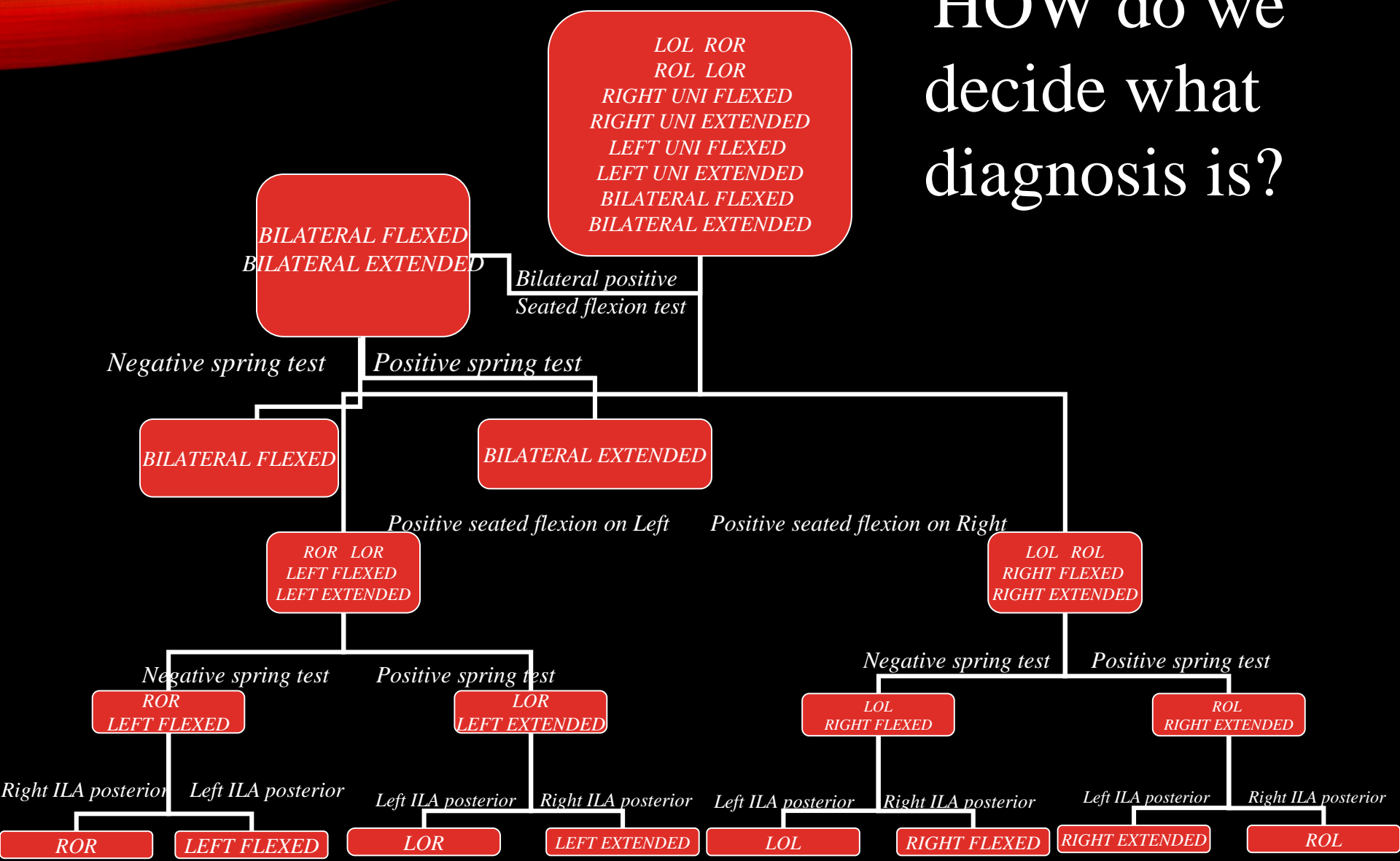
Be able to diagnose sacral dysfunction based
on landmarks and motion testing
in 20 seconds or less

Learn to *easily* treat sacral diagnoses using
Ligamentous articular strain (LAS) in the other
40 seconds



First the Bad news....

HOW do we decide what diagnosis is?



Diagnosis	Seated Flexion Test	Sacral Sulcus	ILA	Medial Malleolus	Sphinx Test	Lumbar Scoliosis	Lumbar Lordosis‡
Unilateral Flexion Right	R +	Deep Right	P/I Right	Caudad Right	Negative	Convex Right	N / Incr
Unilateral Flexion Left	L +	Deep Left	P/I Left	Caudad Left	Negative	Convex Left	N / Incr
Unilateral Extension Right	R +	Deep Left	A/S Right	Cephalad Right	Positive	Convex Left	N / Decr
Unilateral Extension Left	L +	Deep Right	A/S Left	Cephalad Left	Positive	Convex Right	N / Decr
Bilateral Flexion	Bilateral	Deep Bilaterally	P/I Bilaterally	Equal	Equivocal		Incr
Bilateral Extension	Bilateral	Shallow Bilaterally	A/S Bilaterally	Equal	Equivocal		Decr
Left on Left Torsion	R +	Deep Right	P/I Left	Caudad Right	Negative	Convex Right	Incr
Right on Right Torsion	L +	Deep Left	P/I Right	Caudad Left	Negative	Convex Left	Incr
Left on Right Torsion	L +	Deep Right	P/I Left	Cephalad Left	Positive	Convex Right	Decr
Right on Left Torsion	R +	Deep Left	P/I Right	Cephalad Right	Positive	Convex Left	Decr

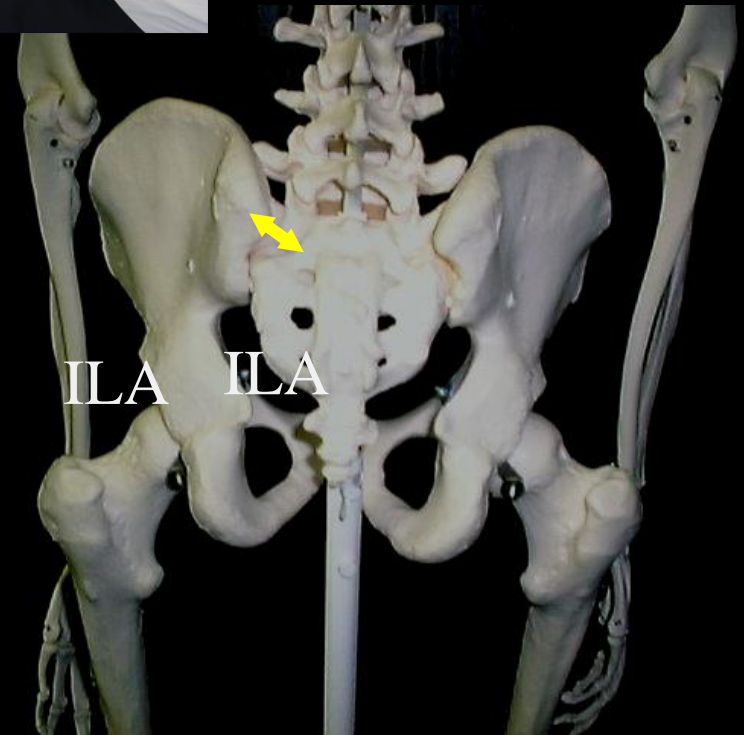
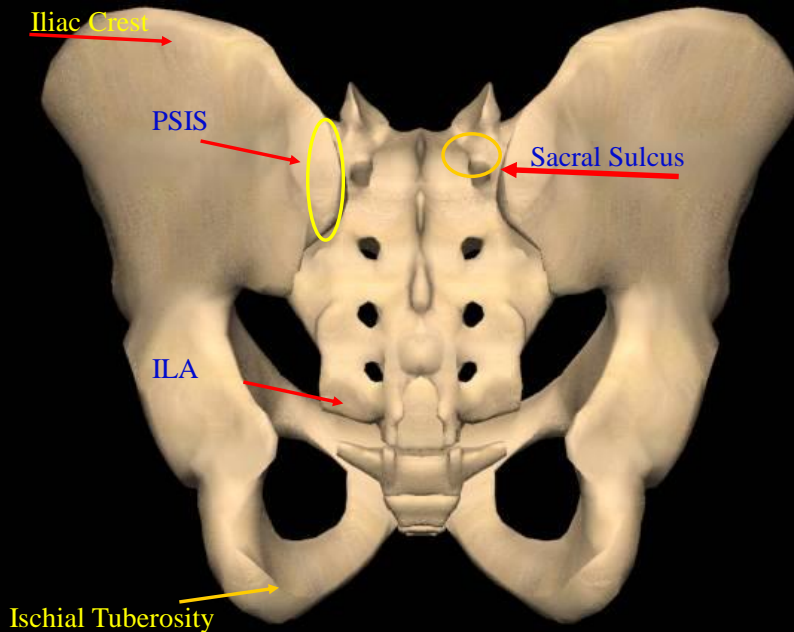


And now for something almost
completely different...

...the 'Good news'

LANDMARKS

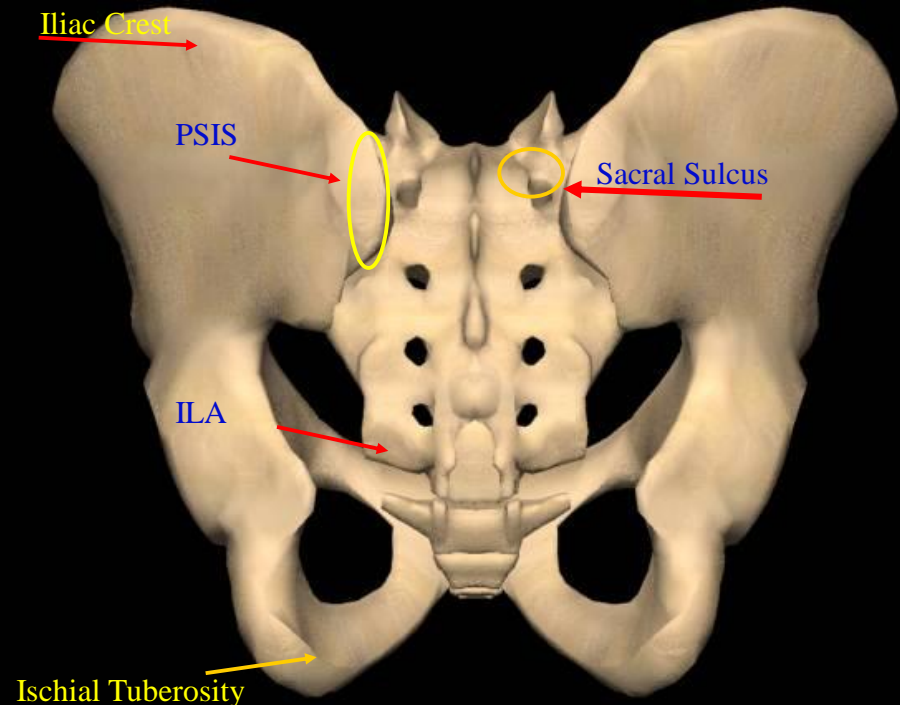
- **Inferior Lateral Angle- (ILA)** superior/anterior or inferior/posterior



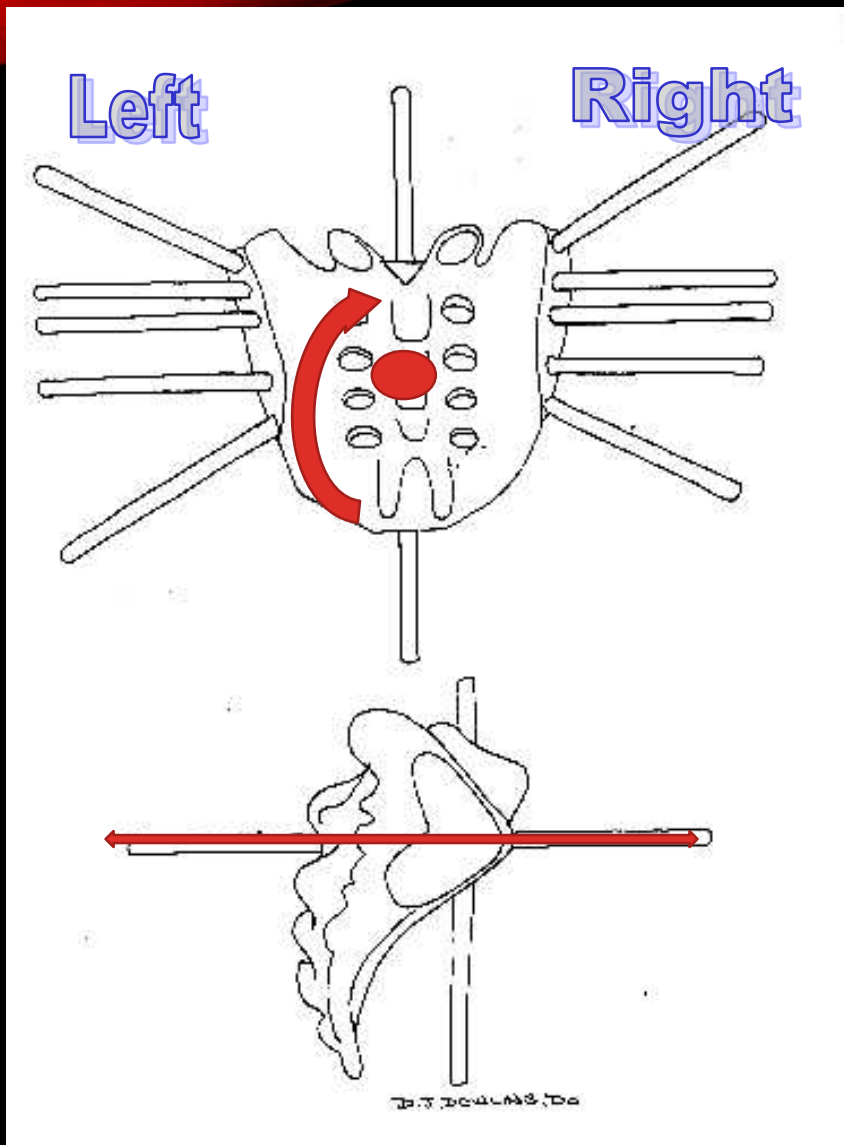
LANDMARKS



Sacral Sulcus Depth-
distance from PSIS to
sacral base- described
as 'deep or shallow', or
anterior(deep) or
posterior(shallow)



Axes of motion



‘One sided’ **uni lateral** motion or side bending can occur around an anterior-posterior axis motion (shear) results from motions occurring about this axis and causes one sulcus to be deep relative to the other, and one ILA to be low and posterior to the other.

But the deep sulcus and the low ILA on the SAME side in Unilateral flexions and extensions (shears)

MOTION

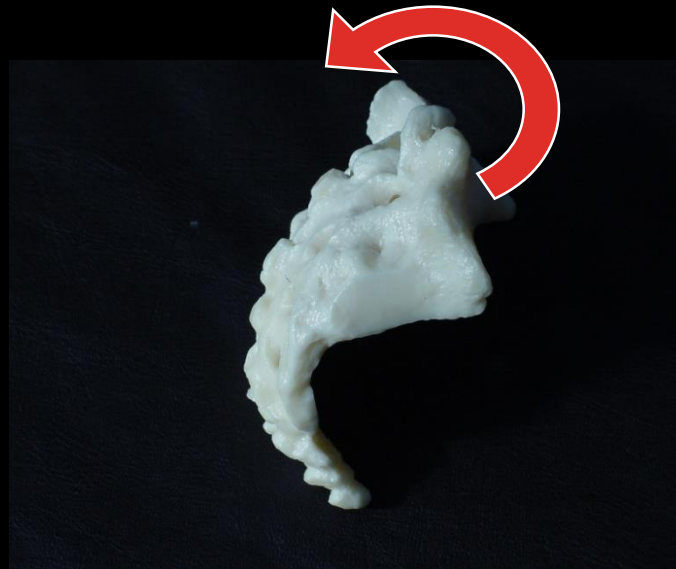
ANTERIOR ROTATION AROUND THE TRANSVERSE AXIS

- Forward rotation (Anterior) of the sacral base around the transverse axis is called Nutation, Flexion or Craniosacral Extension.

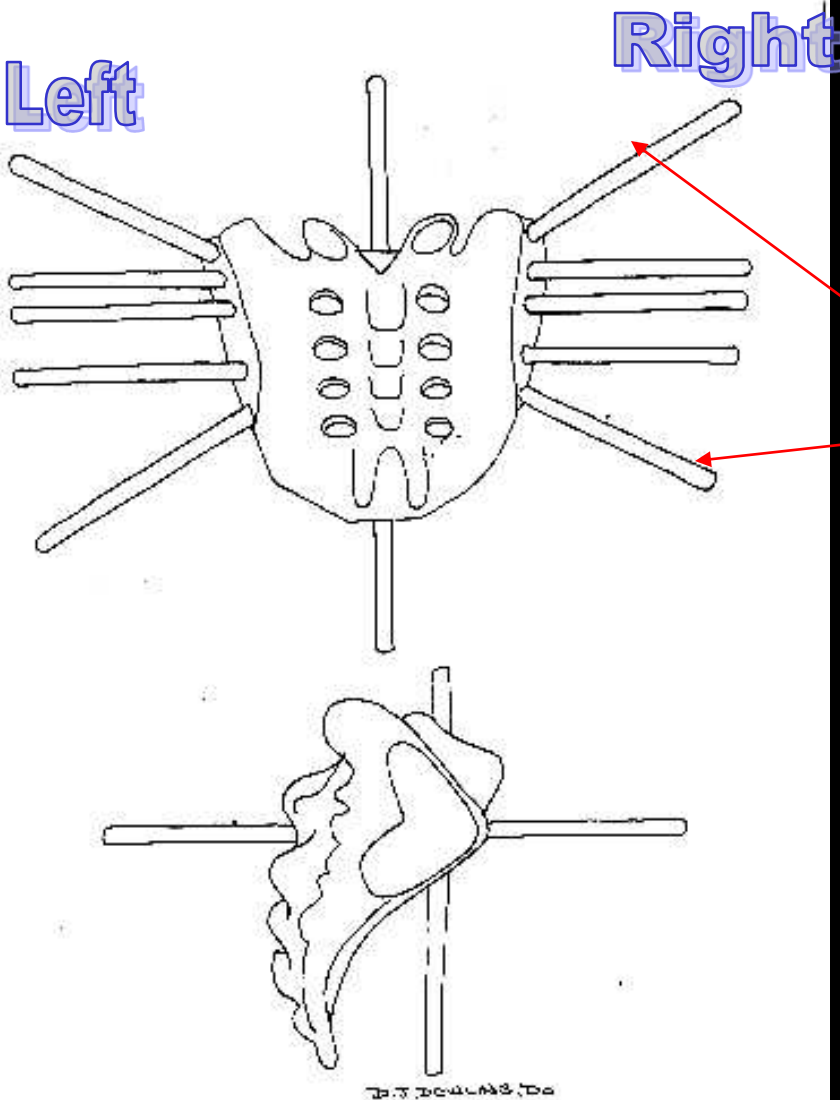


MOTION POSTERIOR ROTATION AROUND THE TRANSVERSE AXIS

- Backward rotation (Posterior) of the sacral base around the transverse axis is described as Counternutation, Extension or Craniosacral Flexion



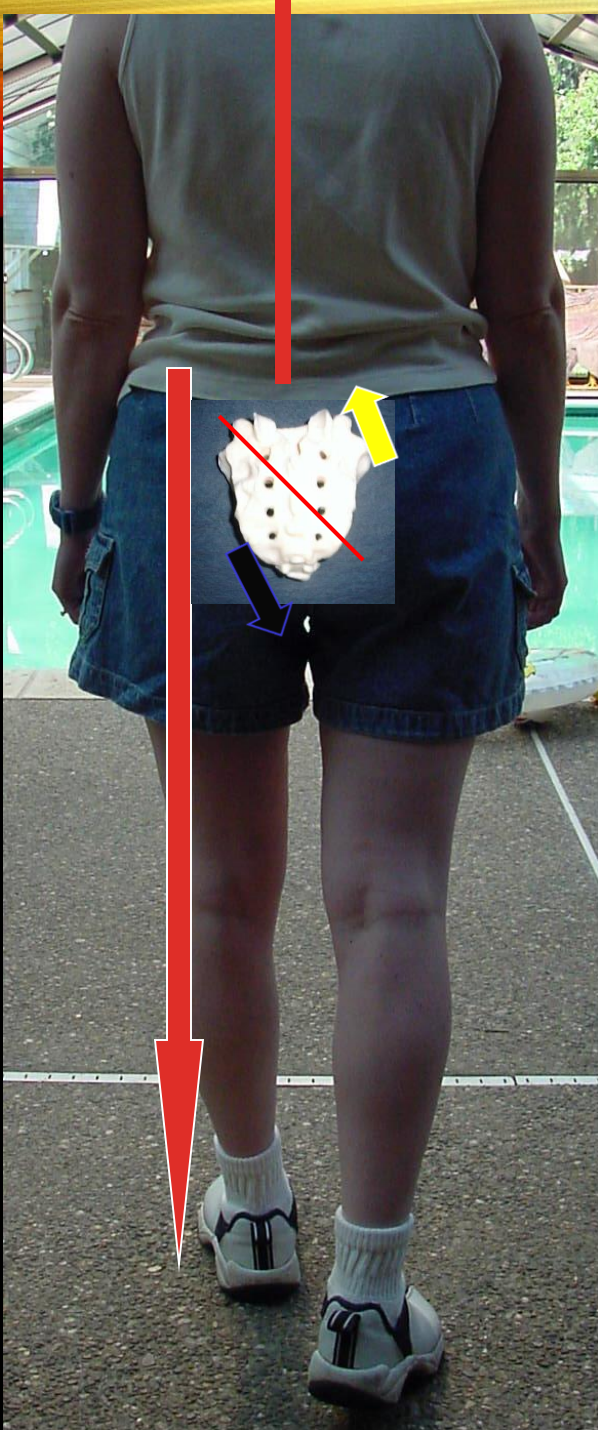
Axes of motion



Oblique axes are named for the side of the body toward which the superior end of the **oblique** axis is located.

Oblique motion (torsion) results from motions occurring about this axis and causes one sulcus to be deep relative to the other, and one ILA to be low and posterior to the other.

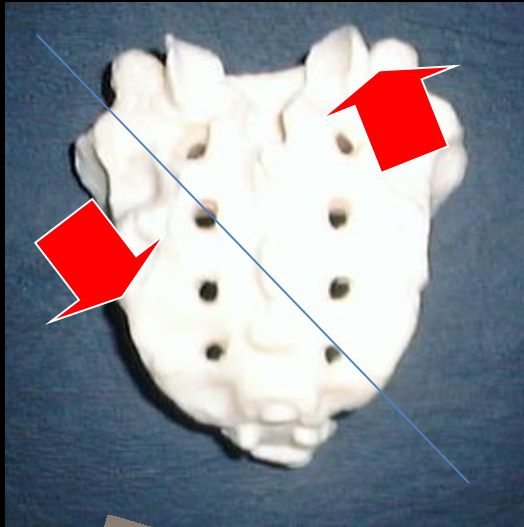
But the deep sulcus and the low ILA occur OPPOSITE to one another in all torsions



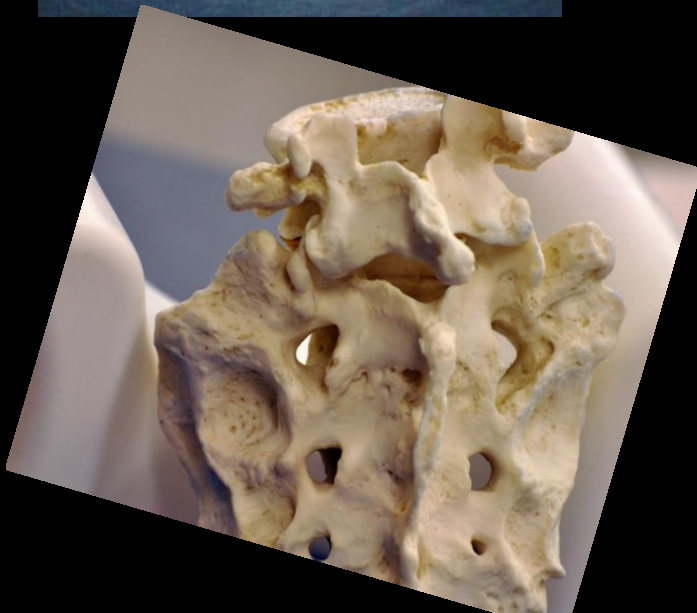
Oblique Axes and gait

- Leftward rotation of the right base about the left axis occurs during the swing phase of the right leg (L/L). Rightward rotation of the left base about the right axis occurs during the swing phase of the left leg (R/R).
- ***Normal*** sacral motion during ambulation only involves neutral to anterior positioning of the sacrum around these oblique axes. The sacrum does not go into a posterior position (no R on L or L on R) *during the normal walking cycle*

Oblique Axes

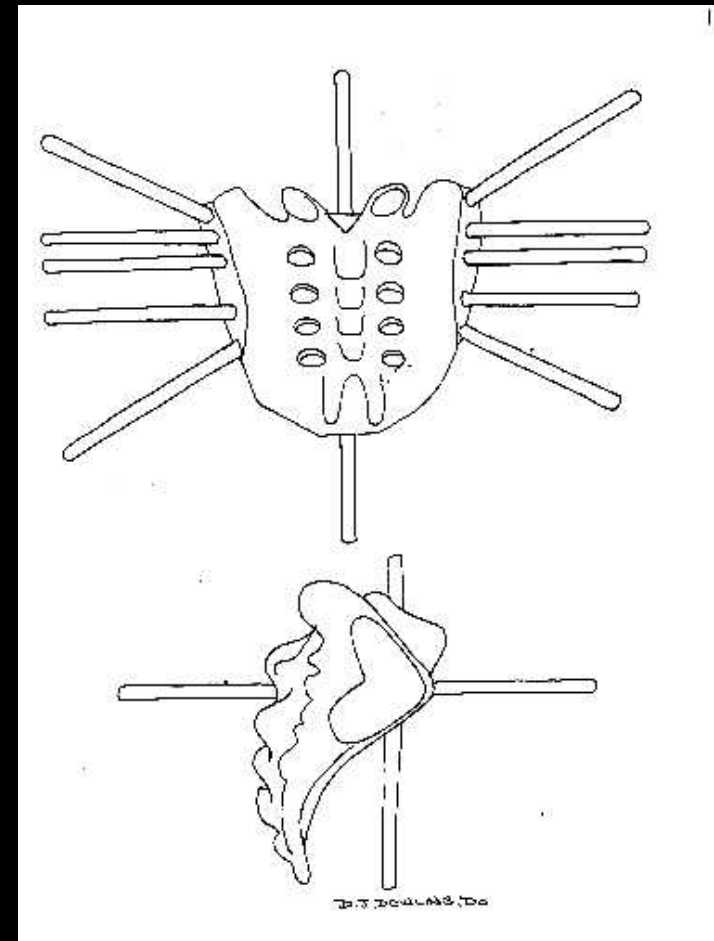


This sets the pattern so the sacrum can torsionally (**Obliquely**) turn to the left as L5 rotates right. The sacrum rotates in the opposite direction (left) of the lumbar spine.



ROTATION AROUND AN OBLIQUE AXIS

- Therefore most somatic dysfunction in the sacrum involves anterior/forward torsions about an oblique axis (L on L, or R on R)
- 'Non-physiologic' dysfunction involves posterior/backwards torsions (extension/counternutation) about an oblique axis (R on L. L on R)



POSTERIOR MOVEMENT AROUND THE OBLIQUE AXIS

- The sacral base moves posteriorly only as a response to flexion of the lumbar spine (specifically L5)
- Somatic dysfunction involving posterior torsions (and shears) are **therefore are less frequent** and usually secondary to somatic dysfunction with flexion of L5 or trauma.
- This is the “tie in the fly syndrome” or the “the well man bent over and crippled stood” syndrome.. Typical to mimic diskogenic conditions

DIAGNOSING SACRAL SOMATIC DYSFUNCTION

- The sacrum can become “stuck” in any of 10 positions causing a somatic dysfunction
- The presence of a sacral somatic dysfunction will have the four classic physical findings of :
- **T**enderness on palpation, ***A**ssymetry on static palpation, ***R**estriction of motion, and **T**issue texture changes (**TART**)

SACRAL SOMATIC DYSFUNCTION

- Once TART is found the specific diagnosis is distinguished by landmarks (sacral sulcus and inferior lateral angle of the sacrum and ILA) to determine the type of somatic dysfunction (Torsions, unilateral shears or bilateral dysfunction).
- Using motion tests to distinguish side of dysfunction (seated flexion test (SEFT)) or anterior or posterior position of the sacral base (spring/sphinx test) secures the complete diagnosis

PLANES OF MOTION , ANATOMIC TRAINS, AND AUTOMATICALLY MOBILE (LANDMARKS)

- You must keep in mind the results of the landmarks, then applying the results of the
- seated flexion (side of dysfunction)

OR

- spring/**sphinx test** (anterior or posterior base direction)

THEORY OF RELATIVITY... WHICH SIDE IS THE SACRUM FORWARD ?

- So which sulcus is deep/anterior/FORWARD and which one is shallow/posterior/EXTENDED.
- Forward (deep) on the right is Extended on the left
- Forward (deep) on the left is Extended (Shallow) on the right
- **Well almost.....**

SPHINX/ SPRING TEST

- **The Sphinx** assesses the ability of the sacral base to move forward (anteriorly)- have the patient arch their back- if the base moves forward bilaterally then negative, if unilateral or lacks symmetry, then positive (POSTERIOR)
- **Spring Test** assesses the ability of the sacral base to move forward- a negative test allows for spring while a positive test has no spring (resists anterior motion)



SPRING TEST/SPHINX

- **Positive** Sphinx /spring test-**posterior dysfunction**

L or R unilateral extension, backward torsions (L/R, R/L)

- **Negative** Sphinx/spring test-**anterior dysfunction**

L or R unilateral flexion, forward torsions (R/L, L/L)



OR....

- If during the sphinx, (done seated or prone)

The thumbs become equal → its an anterior dysfunction

The thumbs stay unequal, the posterior thumbs shows the dysfunctional side

SEATED FLEXION TEST

1. The patient is seated with the feet flat on the floor.
2. Physician at eye level palpates PSIS and place thumbs right under the PSIS.
3. The patient is then asked to bend forward slowly at the waist.
4. The physician monitors for PSIS motion with the thumbs.
5. The seated flexion test is positive on the side where the thumb rises more superiorly
6. The seated flexion test reflects restriction of motion of the sacrum between the ilia.



TEN POSSIBLE SOMATIC DYSFUNCTIONS OF THE SACRUM*

- Torsions about an Oblique Axis
 1. Left on Left (L on L) (faces left anterior dysf)
 2. Right on Right (R on R) (faces right anterior dys)
 3. Left on Right (L on R) (faces left posterior dys)
 4. Right on Left (R on L) (faces right posterior dys)
- Rotation about a Transverse Axis
 5. Bilateral Flexion
 6. Bilateral Extension

Rotation about a Transverse /Vertical Axis

7/8. Unilateral Flexion (R/L) (forward)

9/10. Unilateral Extension (R/L) (backward)

THE RAPID 3 STEP QUICK LOOK: HOW DO WE DECIDE WHAT DIAGNOSIS IS?

1) Determine the side of the landmarks-

Deep sulcus and low ILA on same side or opposite sides? WE go from 8 diagnosis to 4 (4 torsions or 4 unilateral shears)

to 2.... Using the deep sulcus to label rotation or forward or backward base

2) Determine the dysfunctional position of the sacral base forward or backward base

....Sphinx or spring test go from 2 to 1.....

....DONE

OR

Do the seated flexion test to localize the side of dysfunction...We go from 2 to 1.....

....DONE

WHICH AXIS ENGAGED? 10 TO 2

- **Transverse Axis**- Both sulci are the same (deep or shallow), and both ILA are the same
- (NO posterior/ inferior or anterior/ superior) ILA
- BILATERAL FLEXION or Bilateral EXTENSION are on a **Transverse Axis**

BILATERAL FLEXION OR EXTENSION

1) Determine the side of the landmarks..... equal sulci?
(and symmetric ILAs*)

Bilateral flexion or extension dysfunction... 10 dx to 2

Deep sacral sulci B/L and (~ or -) B/L sphinx, spring,
and seated flexion? **Bilateral sacral flexion**

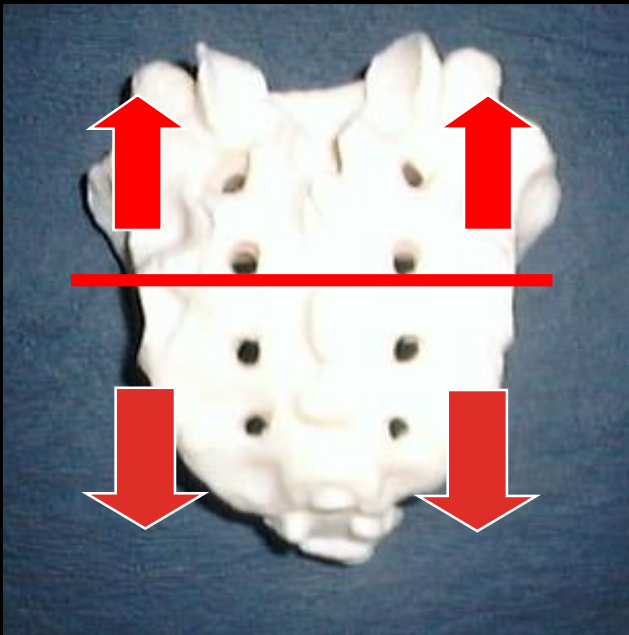
Shallow sacral sulci B/L and (+) sphinx, spring, and B/L
seated flexion? **Bilateral sacral extension**

.....DONE (but FIX it)

Bilateral Flexion and Extension of the Sacrum

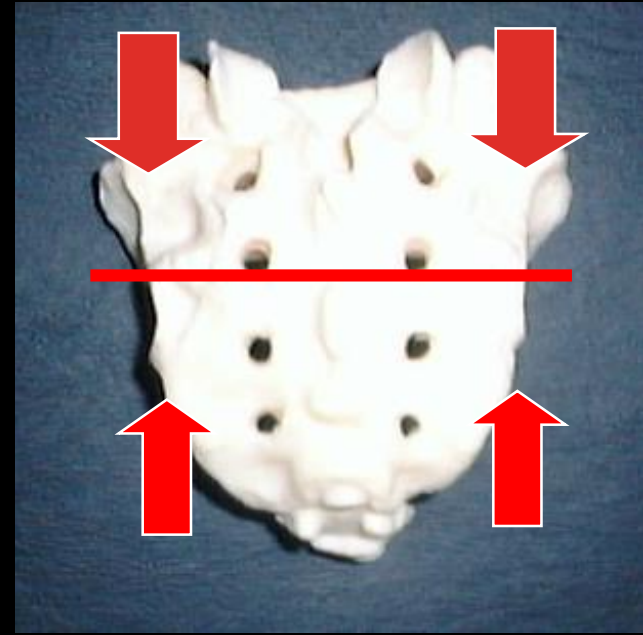
Bilateral Flexion

Deep Base



Bilateral Extension

Shallow Base



WHICH AXIS ENGAGED? 8 TO 4...

- Use the deep sacral sulcus and the posterior /inferior ILA....
- Opposite sides equals an oblique axis which means a **torsion** is present.
-and don't mix metaphors (ie., deep and posterior, shallow with anterior)

WHICH AXIS ENGAGED? 8 TO 4...

- Use the deep sacral sulcus and the posterior /inferior ILA....
- Landmarks on the same side equals a AP axis which means a **unilateral shear** (Unilateral flexion or unilateral extension is present)
-and don't mix metaphors (ie., deep and posterior, shallow with anterior)

Torsions First....

the deep sacral sulcus
and the posterior
/inferior ILA are on ?

OPPOSITE SIDES

10 to 4....

WHICH WAY IS THE SACRUM ROTATED? 4 TO 2...

- Check the sacral sulcus positions.
- Which one is **deep/anterior/forward** and which one is shallow/posterior.
- The **deep/ anterior/forward** aspect of the sacral base causes the sacrum to ROTATE to the opposite side. (ie right side deep, sacrum rotated left, left side deep, sacrum rotated right)
- **the DIRECTION of rotation is the first part of the label for a sacral torsion**

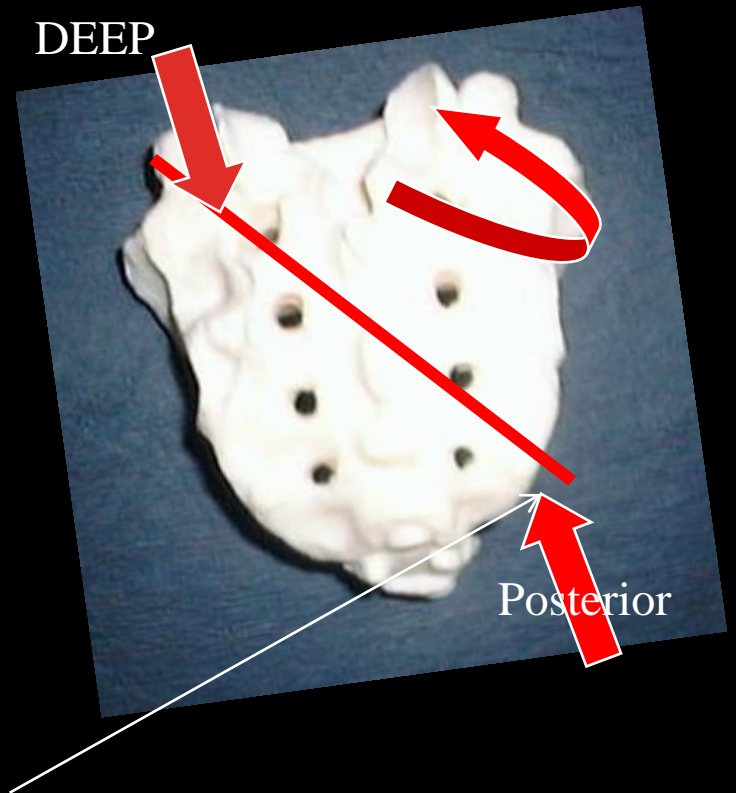
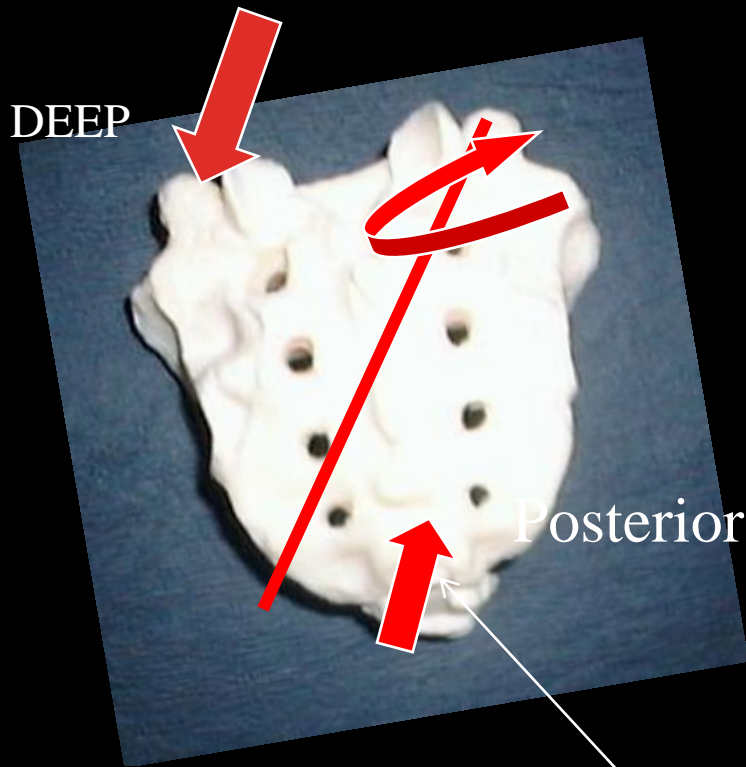
Right Rotated Torsions of the Sacrum

Right on Right Sacral Torsion

Right on Left Sacral Torsion

Forward

Backward



ILA posterior/inferior

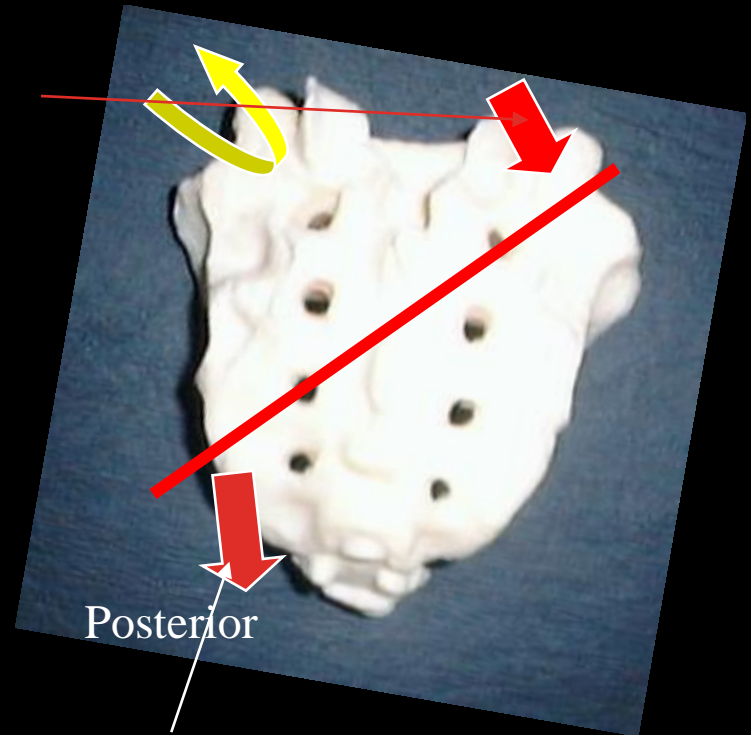
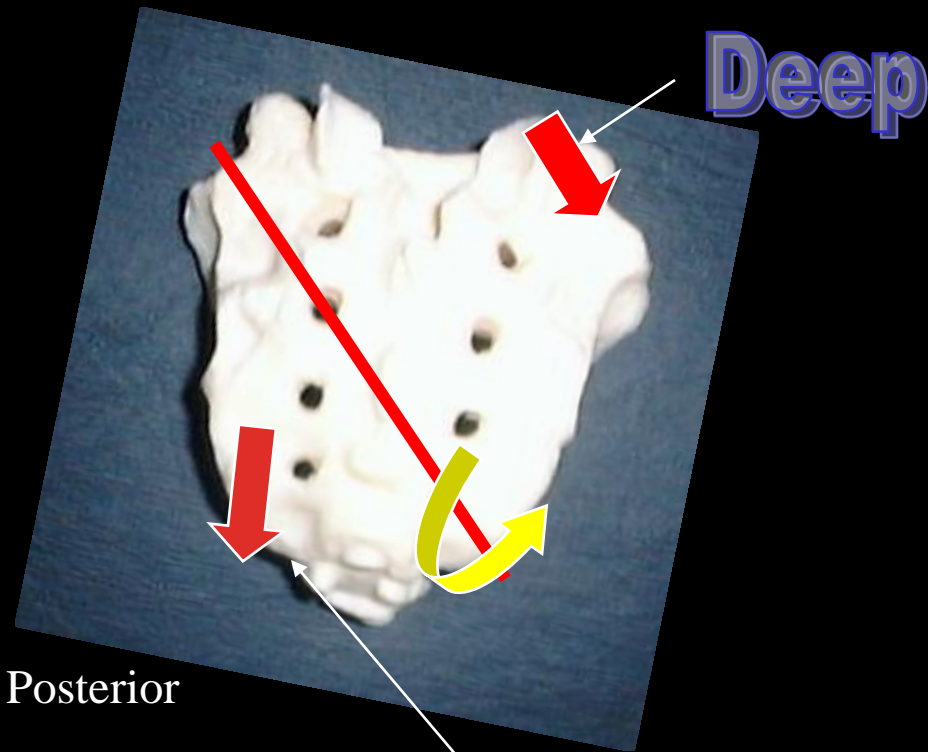
Left Rotated Torsions of the Sacrum

Left on Left Sacral Torsion

Left on Right Sacral Torsion

Forward

Backward



ILA posterior/inferior

WE GO FROM 2 TO 1.....

Determine the dysfunctional position of the sacral base.... Is the base forward or backward?
Perform the Sphinx/spring test

(+) base is backward,

(-) base is forward....DONE

OR

Do the seated flexion test to localize the side of dysfunction

(+) on the right, right side is the lesioned side

(+) on the left, left side is the lesioned side....DONE

TEST SPRING/SPHINX

- **Positive** Sphinx /spring test-*posterior dysfunction*
backward torsions (L/R, R/L)
- **Negative** Sphinx/spring test-*anterior dysfunction*
forward torsions (R/L, L/L)

For the more intellectually minded.....

Seated Flexion Test

- Distinguishes side of dysfunction with the dysfunctional side moving furthest (its 'stuck' at the SI joint, so its carried forward with forward bending).
- Unfortunately, the oblique torsions are named for the axis of rotation, not the side of dysfunction and therefore the seated flexion test is positive on the side **opposite of the axis** with L on L, R on R, L on R, and R on L somatic dysfunctions
- Or....

SEATED FLEXION TEST

- Distinguishes side of dysfunction with the dysfunctional side moving furthest (its 'stuck' at the SI joint, so its carried forward with forward bending).
- So...
- In a torsion, its stuck on the lesioned or stuck side, for instance...
- + Left seated flexion with a shallow sulcus on the left, it faces left, (its backward) it's a left on right torsion
- + right seated flexion with a deep sulcus on the right, it faces left, (its forward) it's a left on left torsion.

TORSIONS AND SEATED FLEXION

- Seated flexion is positive on the side of dysfunction...
- Positive on the right, anterior or posterior on that side?
- Anterior.. L on L
- Posterior.. R on L

TORSIONS AND SEATED FLEXION

- Seated flexion is positive on the side of dysfunction...
- Positive on the left, anterior or posterior on that side?
- Anterior.. R on R
- Posterior.. L on R

Now the Unilateral Flexion/Extension (shears)

The deep sacral sulcus and the
posterior /inferior ILA are on ?

Same SIDE

10 to 4....

WHICH AXIS ENGAGED? 8 TO 4...

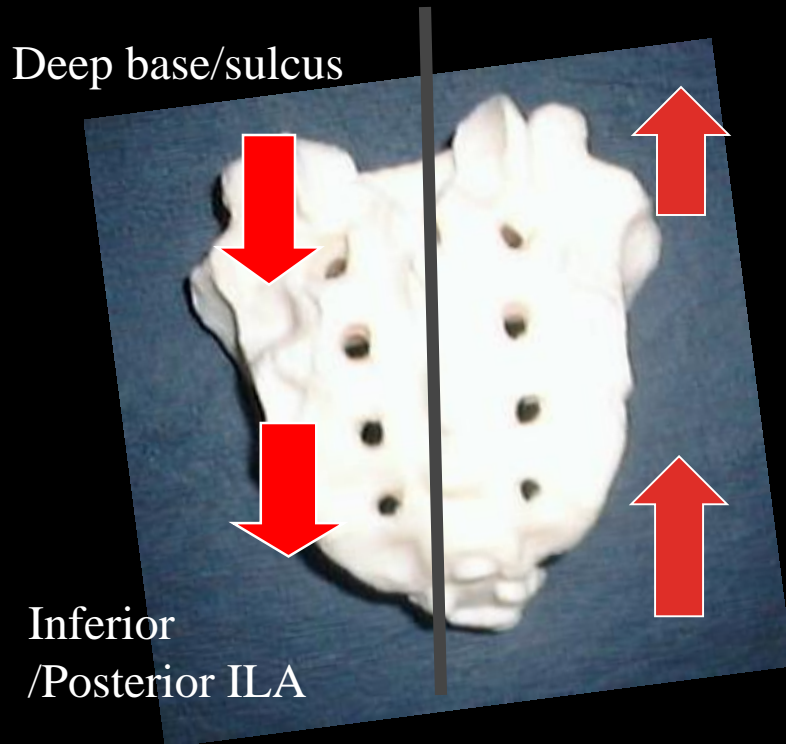
- Use the deep sacral sulcus and the posterior /inferior ILA....
- Landmarks on the *same side* equals a AP axis which means a **unilateral shear** (Unilateral flexion or unilateral extension is present)
-and don't mix metaphors (ie., deep and posterior, shallow with anterior)

SPRING TEST/SPHINX

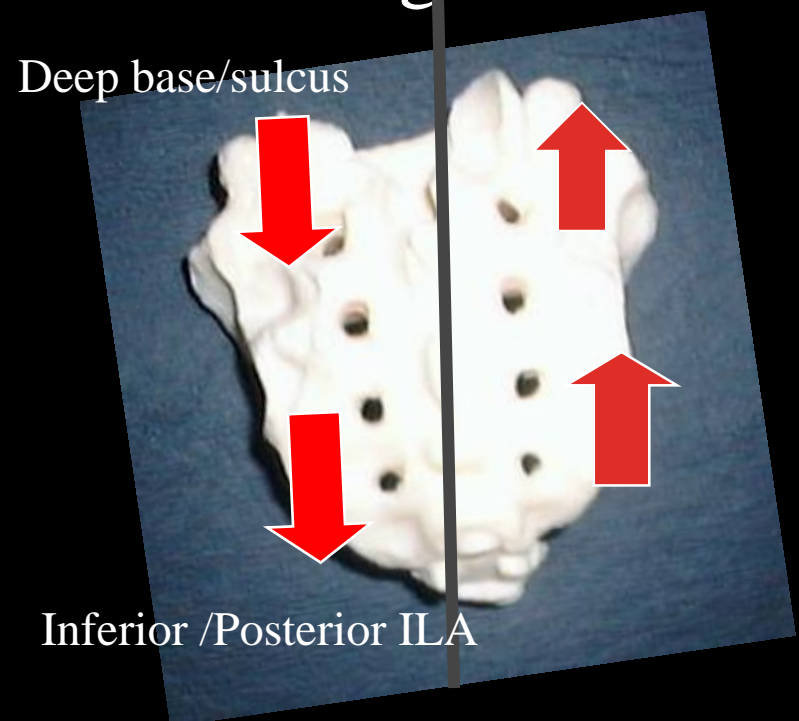
- **Positive** Sphinx /spring test-*posterior dysfunction*
 - L or R unilateral extension
- **Negative** Sphinx/spring test-*anterior dysfunction*
 - L or R unilateral flexion

Unilateral Lesion of the Sacrum

Left Flexion

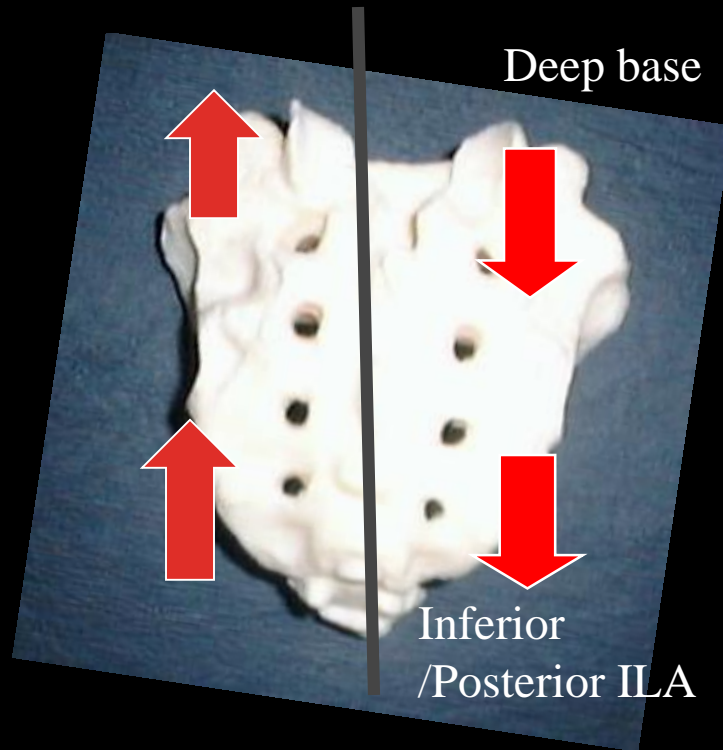


Right Extension

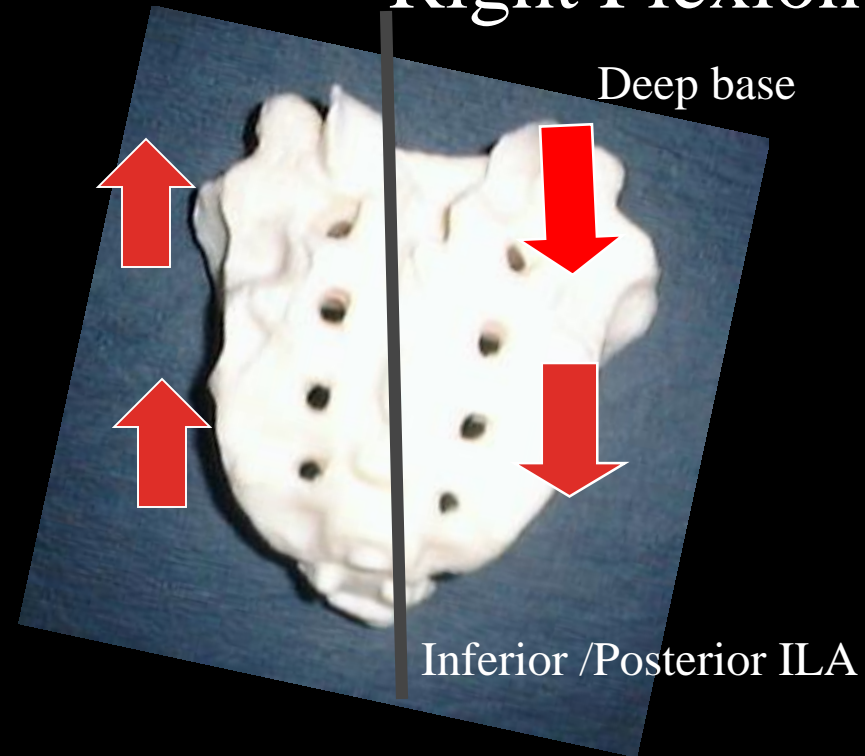


Unilateral Extension of the Sacrum

Left Extension



Right Flexion



SEATED FLEXION TEST

- With unilateral flexion or extension the seated flexion test is positive on the side which is “stuck” in flexion or extension
- If Positive on the left, Flexed (anterior/deep) or Extended (posterior/shallow) on that side?
- DEEP/Flexed... unilateral Left sacral Flexion
- SHALLOW/Extended... Unilateral Left sacral Extension



•



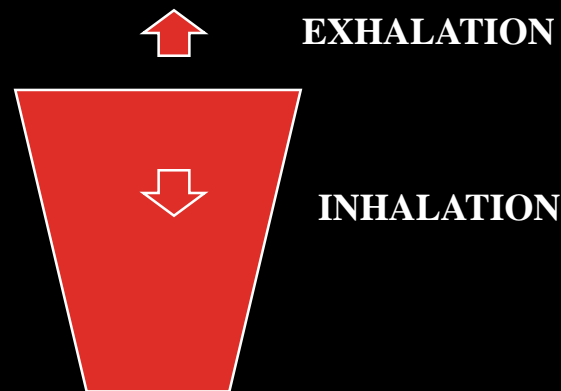
- QUESTIONS?



TREATMENT

REVIEW OF SACRAL MOTION

- Techniques use respiratory assist to move sacrum toward ease of motion
- Remember :
- normal respiration causes sacrum to move into **extension (backward/posterior) with inhalation**
- and **flexion (forward/anterior) with exhalation**



LAB

LIGAMENTOUS ARTICULAR STRAIN

For arguments sake....

- Ligamentous Articular Strain in sacral dysfunction is performed directly toward the barrier.
- The physician should pay close attention to the movement, or lack thereof, of the sacrum during respiration. A gradual return of the sacrum's inherent flexion and extension during respiration signifies the endpoint of the treatment and resolution of the dysfunction
- If you can feel the CRI, return of nutation and counternutation

LAS WITH RESPIRATORY ASSIST FOR BILATERAL FLEXED SACRAL SHEAR

The patient lies prone. The physician may stand at either side.

The physician places the cephalad hand or both hands on the sacral apex, with the heel of the palm contacting the ILAs and the fingertips at the sacral sulci. The ILAs should feel rather prominent due to the dysfunction of the sacrum.

If the physician so chooses, he/she may internally rotate both legs to create a gap at the SI joints bilaterally.

The physician should apply an anterior and cephalad force against the ILAs as he/she asks the patient to breathe in deeply and hold their breath. The physician should be sure to apply this pressure at a point below the middle transverse axis.

Once the patient exhales, the physician resists the movement of the sacrum toward flexion.

During the next inspiration, the physician adds more anterior and cephalad force at the ILAs.

This process may be continued for several respiratory cycles, until the inherent flexion and extension is restored or until patient tolerance is reached.



LAS WITH RESPIRATORY ASSIST FOR BILATERAL EXTENDED SACRAL SHEAR

The patient lies prone. The physician may stand at either side.

The physician places the cephalad hand or both hands on the sacral base between the PSISs, with the heel of the palm contacting the sacral sulci. The base should feel rather prominent due to the dysfunction of the sacrum.

If the physician so chooses, he/she may internally rotate both legs to create a gap at the SI joints bilaterally

The physician should apply an anterior and caudad force against the sacral base as he/she asks the patient to exhale completely. The physician should be sure to apply pressure at a point above the middle transverse axis.

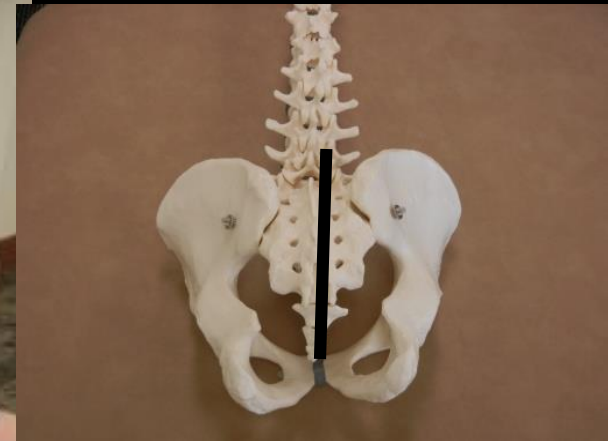
Once the patient inhales, the physician resists the movement of the sacrum toward extension.

During the next exhalation, the physician adds more anterior and caudad force at the sacral base.

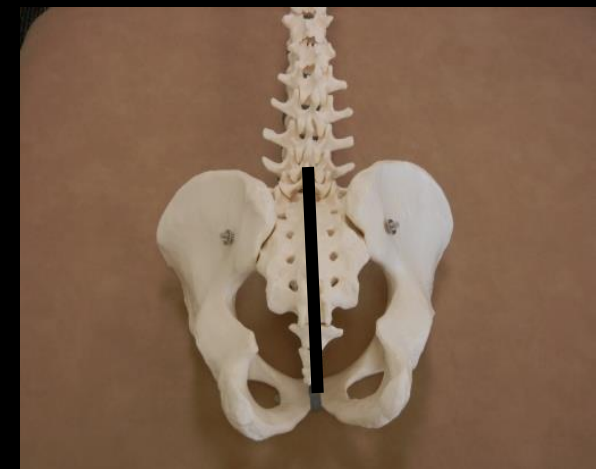
The process may be continued for several respiratory cycles, until the inherent flexion and extension is restored or until patient tolerance is reached.



LAS WITH RESPIRATORY ASSIST FOR LEFT UNILATERAL SACRAL FLEXION HAND BELOW TRANSVERSE AXIS

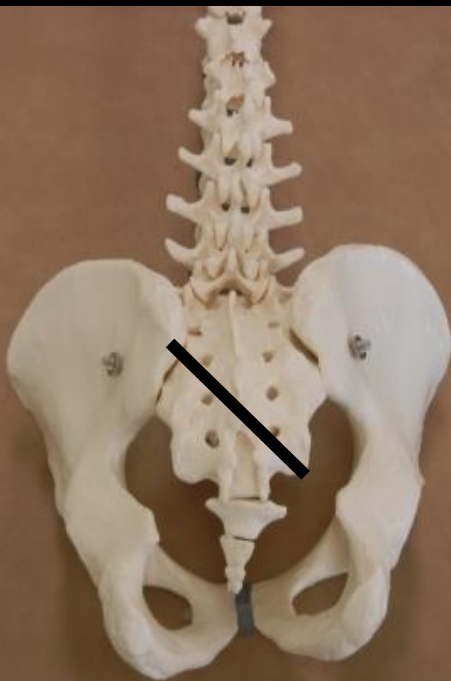


LAS WITH RESPIRATORY ASSIST FOR LEFT UNILATERAL SACRAL EXTENSION HAND ABOVE TRANSVERSE AXIS



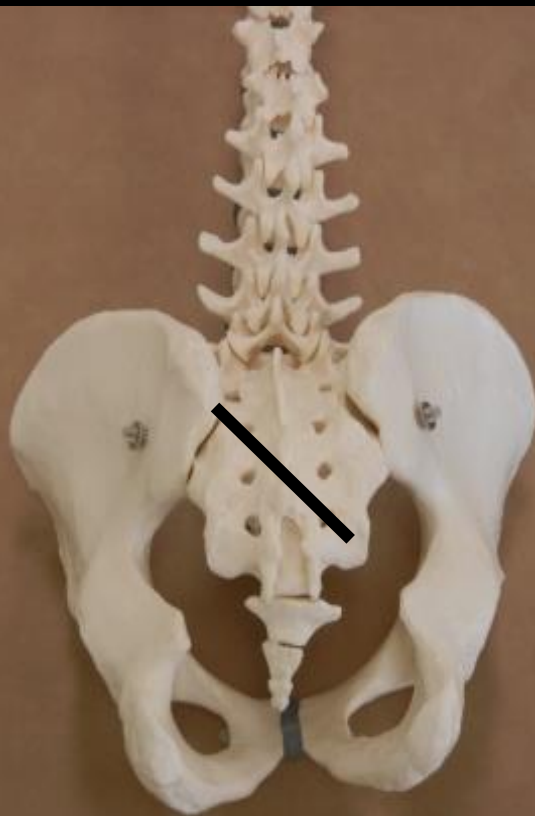
LAS with Respiratory Assist for Forward Sacral Torsion

*Think 'teeter totter' to move the stuck forward corner backward



LAS with Respiratory Assist for Backward Sacral Torsions

*Think 'teeter totter' to move the stuck backward corner forward



LAS WITH RESPIRATORY ASSIST FOR RIGHT UNILATERAL SACRAL EXTENSION

The patient is prone and/or in the sphinx position.

The physician stands at the right side of the patient.

The physician's right hand palpates the right sacral sulcus to monitor motion at the SI joint.

Abduct the patient's Right leg with your caudad hand to create gapping at the SI joint in the area of the sacral sulcus.

Internally rotate the Left hip by turning the patient's foot inward. Be sure to internally rotate the hip above knee joint to prevent stress to the knee.

The physician then places his/her Left thenar or hypothenar eminence on the patient's Left sacral base.

The patient is instructed to inhale slightly and then exhale maximally.

As the patient exhales, the physician applies pressure to the Left sacral base in an anterior and caudad direction and holds this position.

Repeat for several breath cycles or until ease of motion is felt.

Return leg to midline.

Recheck!



LAS WITH RESPIRATORY ASSIST FOR LEFT UNILATERAL SACRAL FLEXION

The patient is prone.

The physician stands at the left side of patient.

The physician's left fingertips palpate the left sacral sulcus to monitor motion of the SI joint. Abduct the patient's left leg with your caudad hand to create gapping at the sacral sulcus.

Internally rotate the left hip by turning the patient's foot inward. Be sure to internally rotate the hip above the knee joint to prevent stress to the knee.

The physician then places his/her right thenar or hypothenar eminence on the patient's left ILA, keeping his/her elbow straight.

Test for maximum motion at the sacral sulcus by putting gentle anterior and cephalad pressure on the ILA toward the table.

The patient is instructed to inhale maximally and hold breath as long as possible while the physician maintains an anterior and cephalad pressure on the ILA.

As the patient exhales slowly, the physician maintains pressure.

Repeat for several breath cycles or until ease of motion is felt.

Recheck!



LAS WITH RESPIRATORY ASSIST FOR BACKWARD SACRAL TORSIONS (THIS TECHNIQUE ELUCIDATED BELOW ADDRESSES A RIGHT ON LEFT TORSION)

The patient lies prone, the physician stands on the side of the dysfunctional SI joint (i.e. with a Right on Left torsion, the physician stands on the patient's right side).

The physician places the heel of his/her palm on the ipsilateral sacral sulcus. The fingertips monitor the contralateral ILA. This places the hand perpendicularly across the torsion's oblique angle.

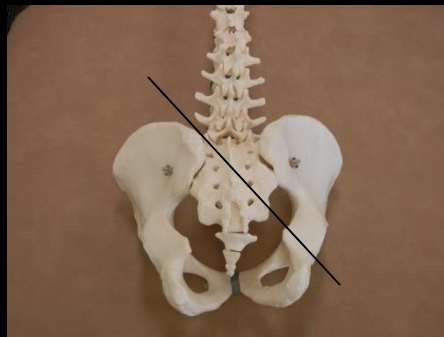
The physician should gap the SI joint by abducting and internally rotating the leg on the side of the dysfunction (i.e. the right leg for a Right on Left torsion).

The physician may use the patient's respiration to help augment the motion of the sacrum, having the patient inhale slightly then exhaling deeply, pausing before inhaling again. Doing so will encourage the sacrum to nutate, thus helping resolve the backward torsion.

The physician continues with gentle pressure, allowing the motion of the sacrum to continue toward the position of correction.

At this point, the motion will transition from the rotation about the oblique axis to flexion and extension about the middle transverse axis. The physician may think of this as "losing the oblique axis," as the physiologic respiratory motion of the sacrum is restored.

Recheck!



LAS WITH RESPIRATORY ASSIST FOR FORWARD SACRAL TORSION

TECHNIQUE ELUCIDATED BELOW ADDRESSES A LEFT ON LEFT TORSION

The patient lies prone, the physician stands on the contralateral side from the dysfunctional SI joint (i.e. with a Left on Left torsion, the physician stands on the patient's left side).

The physician places the heel of his/her palm on the ILA nearer to the side at which they are standing. The fingertips monitor the dysfunctional SI joint and the deeper sacral sulcus. This places the hand perpendicularly across the torsion's oblique angle.

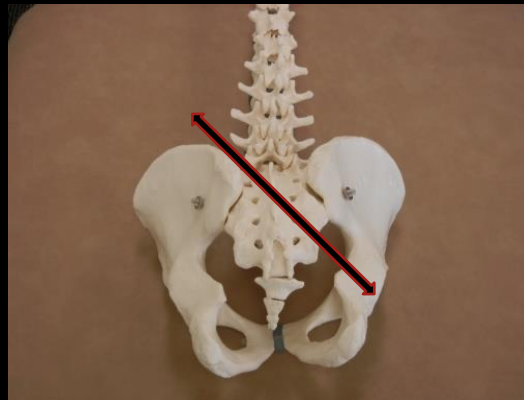
The physician should gap the SI joint by abducting and internally rotating the leg on the side of the dysfunction (i.e. the right leg for a Left on Left torsion).

The physician may use the patient's respiration to help augment the motion of the sacrum, having the patient inhale deeply and pausing before exhaling. Doing so will encourage the sacrum to counternutate, thus helping resolve the forward torsion.

The physician continues with gentle pressure, allowing the motion of the sacrum to continue toward the position of correction.

At this point, the motion will transition from the rotation about the oblique axis to flexion and extension about the middle transverse axis. The physician may think of this as "losing the oblique axis," as the physiologic respiratory motion of the sacrum is restored.

Recheck!





EXTRA RESOURCES

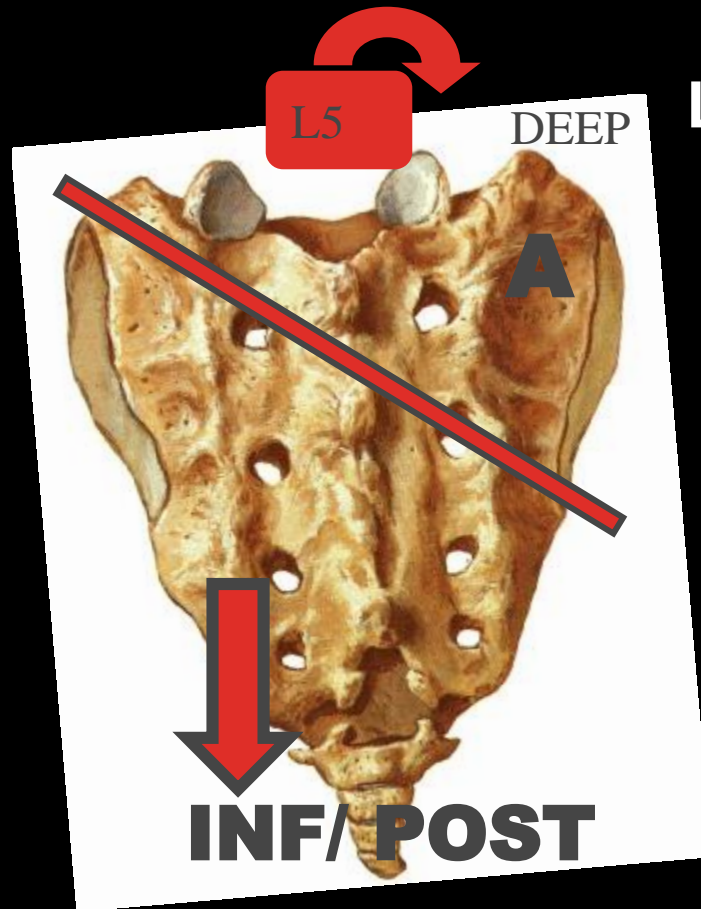
SOME OF THESE ARE JUST LIKE THE OTHER...

- For example:
- A L on L torsion and a L on R torsion both have a deeper sulcus on the right and a more posterior left ILA, but the L on R has these relationships because of a posterior left base and an anterior right ILA.
- BUT... the L/L has a - spring and + R SeFT.
- AND.... the L/R has a + spring and + L SeFT

Anterior Sacral Torsions

L/L SACRAL TORSION:

- ANT. Sacral Base (R) (deep right sulcus)
- Left ILA INF/POST



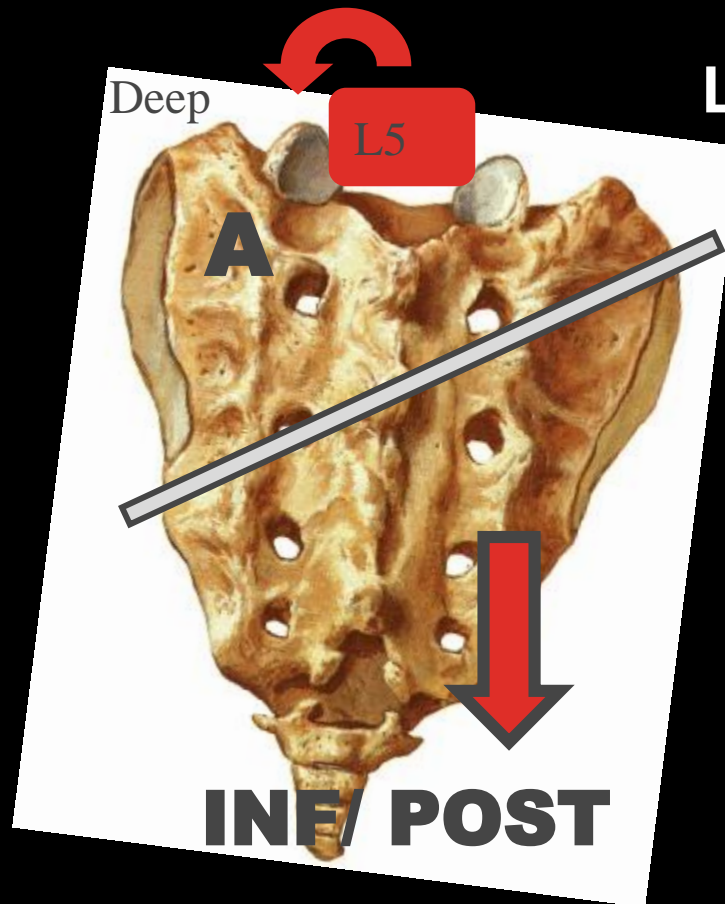
L-5 R right

- + SeF.B.T (R – dysfunctional side)
- - SPHINX TEST
- - SPRING TEST
- INC. LORDOSIS

Anterior Sacral Torsions

R/R SACRAL TORSION:

- ANT. Sacral Base (L) (deep left sulcus)
- INC. LORDOSIS



L-5 R left

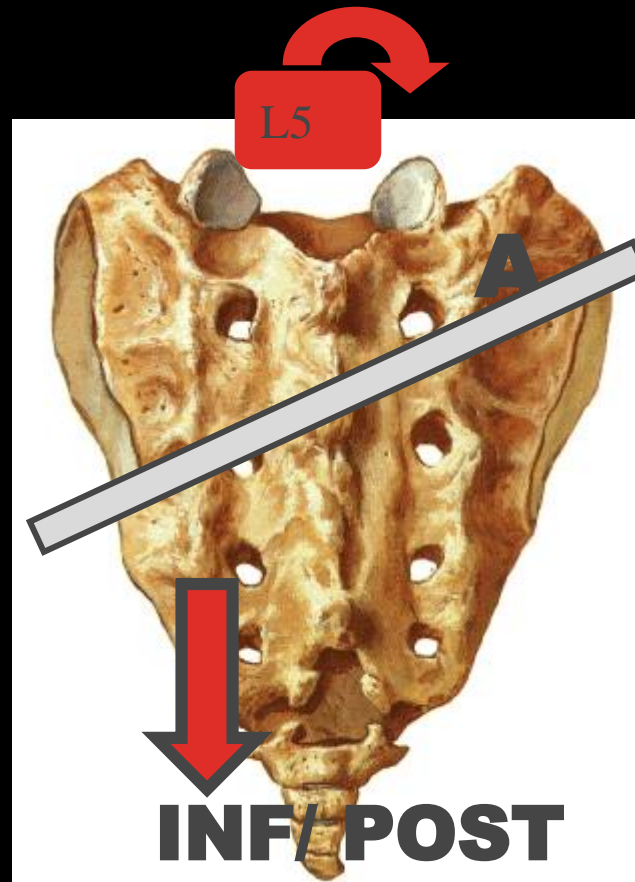
- + SeF.B.T (L - dysfunctional side)
- - SPHINX TEST
- - SPRING TEST
- R. ILA INF/POST

Posterior Sacral Torsions

L/R

SACRAL TORSION:

- ANT. S.B. (R)
- L. ILA INF/POST
- L-5 R right

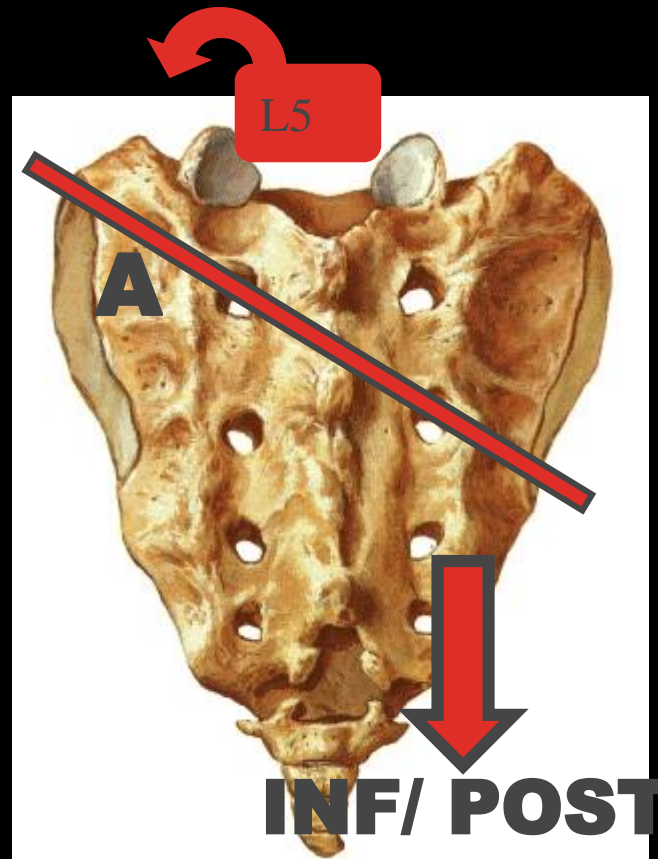


- + SeFT. (L)
- DEC. LORDOSIS
- + SPHINX TEST
- + SPRING TEST
- SHALLOW L. SULCUS

Posterior Sacral Torsions

R/L SACRAL TORSION:

- ANT. S.B. (L)
- R. ILA INF/POST
- L-5 R left



- + SeFT (R)
- DEC. LORDOSIS
- + SPHINX TEST
- + SPRING TEST
- Deep L /
- Shallow R. Sulcus

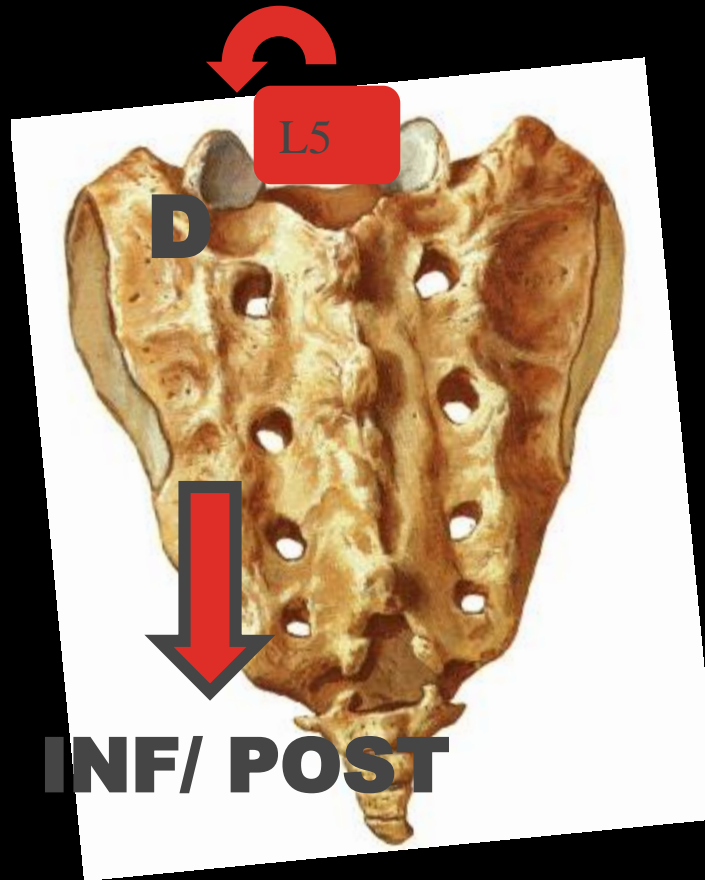
Sacral Shears

Unilateral Flexion/Extension

Left

Unilateral Flexion:

- ANT. S.B. (L)
- DEEP L. SULCUS
- L. ILA INF/POST
- L-5 R left



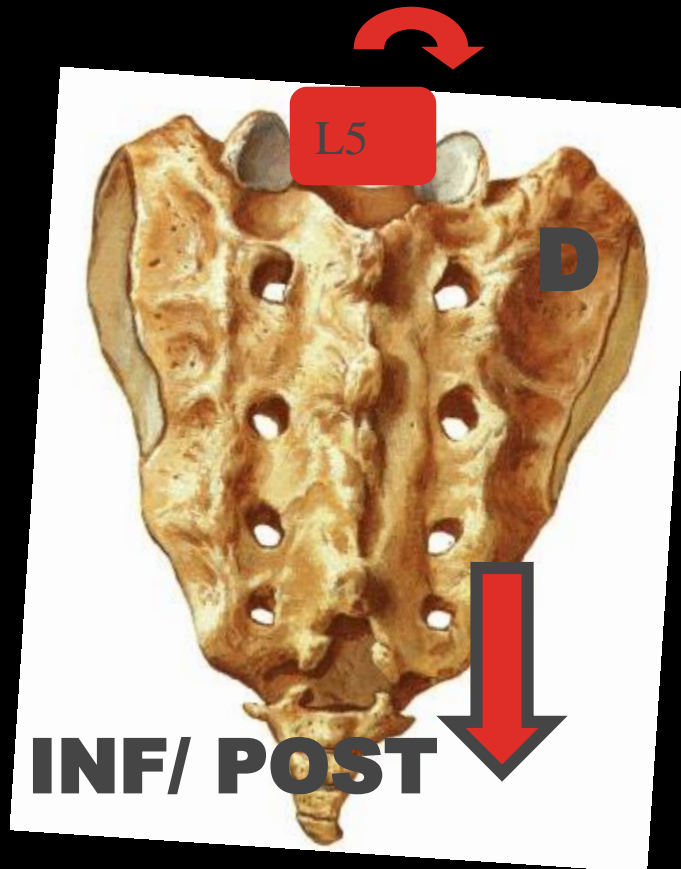
- + SeFT. (L)
- INC LORDOSIS
- - SPHINX TEST
- - SPRING TEST

Sacral Shears

Unilateral Flexion/Extension

Right Unilateral Flexion:

- ANT. S.B. (R)
- DEEP R. SULCUS
- R. ILA INF/POST
- L-5 R Right



- + SeFT. (R)
- INC LORDOSIS
- - SPHINX TEST
- - SPRING TEST

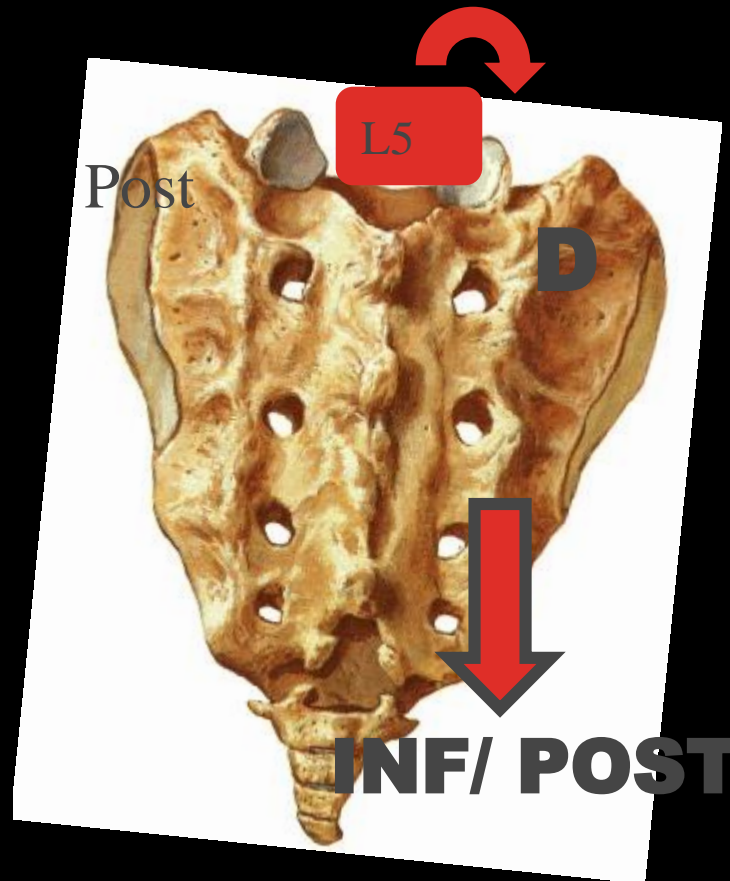
Sacral Shears

Unilateral Flexion/Extension

Left

Unilateral Extension:

- ANT. S.B. (R)
- DEEP R. SULCUS
- R. ILA INF/POST
- L-5 R Right



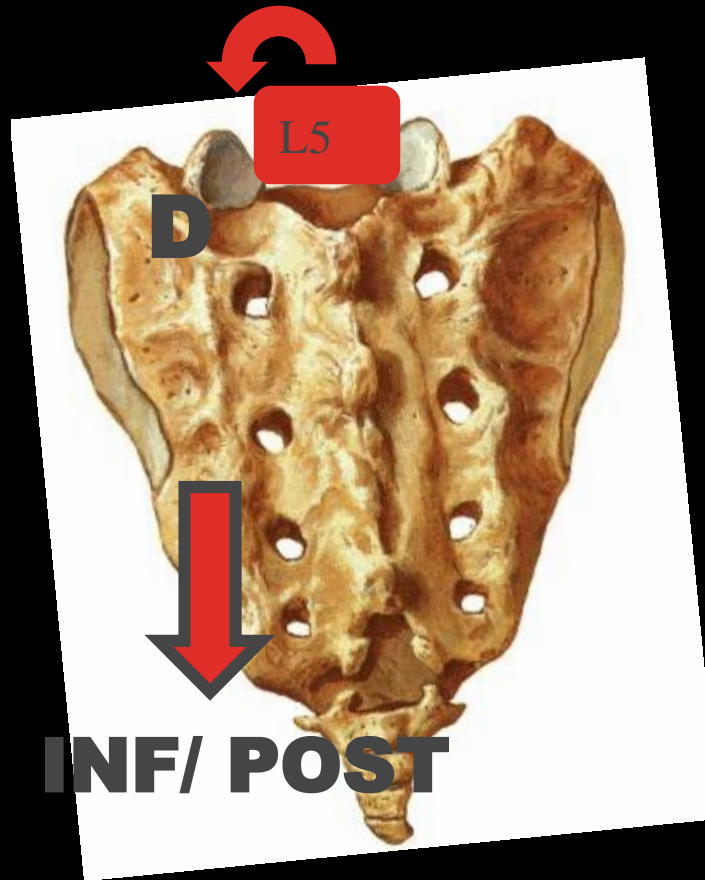
- + SeFT. (L)
- DEC LORDOSIS
- + SPHINX TEST
- + SPRING TEST

Sacral Shears

Unilateral Flexion/Extension

Right Unilateral Extension:

- ANT. S.B. (L)
- DEEP L.
SULCUS
- L. ILA INF/POST
- L-5 R left



- + SeFT. (R)
- DEC LORDOSIS
- + SPHINX TEST
- + SPRING TEST

REFERENCES:

-
- Foundations of Osteopathic Medicine 2nd edition, Lippincott, Williams and Wilkins, 2003. Pg 900, 941-943.
- Nicholas and Nicholas Atlas of Osteopathic Techniques. Lippincott, Williams and Wilkins 2008. pgs. 254-257, 266-268, 304-311
- An Osteopathic approach to Diagnosis and Treatment, Eileen Diovanna, DO Stanley Schiowitz, DO Second Edition. Lippincott Williams & Wilkins, 1997.