

The four potential sacral misalignments involving the sacroiliac articulation are as follows:

1. Posterior Rotated Sacral Ala on the Right (P-R)
 - a. Entire spine's SPs are rotated to the Left
 - b. High TPs on the Right
 - c. Right sacral ala measures at least 6-7 mm wider than the other side
2. Posterior Rotated Sacral Ala on the Left (P-L)
3. Posterior and Inferior Sacrum on the Right (PI-R)
4. Posterior and Inferior Sacrum on the Left (PI-L)

Adjusting Sacrum to Ilium (*Sacral Ala subluxation is on the SAME side as the Ilium adjustment*)

1. If the ilium listing is AS, IN or ASIN adjust the sacrum to the ilium
2. If the listing is ASEX with the AS predominating adjust the sacrum to the ilium
3. If the listing is PIIN with the IN predominating, adjust the sacrum to the ilium
Adjust sacrum and ilium subluxation will take care of itself

Adjusting Ilium to Sacrum

1. If the ilium listing is PI, EX or PIEX adjust the ilium to the sacrum
2. If the ilium listing is PIIN with the PI predominating adjust the ilium to the sacrum
3. If the ilium listing is ASEX with the EX predominating adjust the ilium to the sacrum

Base Posterior (BP)	Spondylolisthesis
Hypolordosis	Hyperlordosis
Break in George's Line at L5/S1 only	Break in George's Line at L4/L5 AND L5/S1
L5 Disc is diminished anteriorly, increased posteriorly	L5 Disc decreased posteriorly, increased anteriorly
B/L Sciatic pain	B/L Sciatic pain
B/L Toe-In <ul style="list-style-type: none"> o Possible B/L EX 	
Apex goes anterior <ul style="list-style-type: none"> o Rectal pain/coccydynia/hemorrhoids 	

★ Anytime a patient presents with simultaneous, same symptoms, same dermatome, bilaterally Think something other than normal sciatica- think body Chemistry - Cancer, diabetes, thyroid

Misalignment of the Coccyx

Because of its location at the apex of the sacrum, the coccyx is especially subject to trauma. The direction of misalignment is usually straight anterior, but accompanying lateral deviation may also occur. The inferior misalignment is seen on the lateral film. On a clear AP film, lateral deviation may be sometimes found. The coccygeal listings are as follows:

- o Anterior (A)
- o Anterior and Right (A-R)
- o Anterior and Left (A-L)

★ *A Coccyx listing can also be representing an atlas listing
A-L and A-R could be atlas or coccyx listing*

L5-C2 the major portion of a vertebra's subluxation is **posteriority and inferiority**

On X-ray look for:

- o Increased anterior disc space
- o Posterior decreased disc space
- o Superior increased interspinous space
- o Decreased inferior interspinous space

Always looking at the vertebra in relationship to the one below it- list the superior vertebra of the motor unit

We want to set the vertebra back on top of the inferior one

2nd letter of the listing tells us what side the spinous has gone lateral to
 Large pedicle shadow is on opposite side of spinous laterality

Remember find the listing on the patient!

3rd letter of listing considers wedging- if so, note it
 We're considered only with wedging on the side of spinous laterality

Scoliosis:

- Either right or left
 - Determined by the side of convexity
- Simple or Rotatory
 - Depends on side of spinous laterality
 - If spinous is on the convex side we have a *simple* scoliosis
 - If spinous is on concave side then we have a *rotatory* scoliosis
 - Simple Scoliosis the contact will be the spinous
 - For a Rotatory scoliosis the contact will be the mammillary/transverse process
 - If the third letter is an S you have a simple scoliosis and your contact will be the spinous
 - LOD with a spinous contact will be PA and LM
 - If the third letter is an I you have a rotatory scoliosis
 - You **MUST** list the contact point
 - LOD is strictly PA
 - Open wedge on the right will always require clockwise torque to eliminate it
 - Open wedge on the left is always a counterclockwise torque

Listing also tells us right or left scoliosis as well as if it's simple or rotatory

★ *Always stand, contact and thrust on convex side*

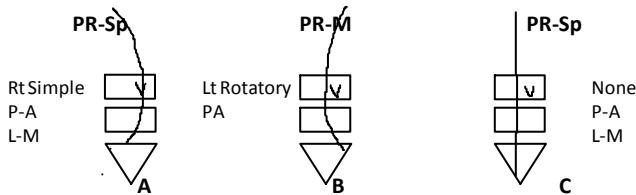
*L3 and up use superior hand
 L4-L5 use inferior hand
 LOD is through the disc plane*

3/26/09

You do not need to have an open wedge to have a subluxation

L3 will have pain radiation/paresthesia/numbness tingling in anterior part of the thigh

★ **Anytime you have a subluxation with no third letter i.e. no wedging you must list the contact point Ex. PR-Sp**



All scenarios above are PR so have to have more info
 PR-Sp is a "may be" because if you have a PR-Sp you have either scenario A or C- doesn't make a difference regarding contacts, LOD, etc
 Never thrust into concave curvature; always stand on and thrust into convex curvature

L3 often has problems with constipation, infertility, bowels

★ **Four L5 Listings**

1. PRS-M
 - a. Normally you would have a PRS-Sp
2. PLS-M
 - a. Normally would be PLS-Sp
3. PRI-Sp
 - a. Normally PRI-M
4. PLI-Sp
 - a. Normally PLI-M

★ *All L5 Listings must have the contact point attached to help the chiro determine if you're dealing with an acute or chronic problem*

★ **9 Basic Listings in Lumbar Spine
 13 L5 listings 9 basic + 4 special ones**

T/S Listings

- Contact point is TP or SP
- Mid Thoracic contact more at the base of the spinous so that you can go through disc plane line
- Keep in mind AP Curves- they will designate LOD which is always through the disc plane line
 - Lower lumbar- doctor should be standing superior to contact
 - Lower thoracics doctor should be standing inferior
 - Mid thoracics right over it
 - Lower Cervicals stand superior

Cervical Listings - C2-C7

- Take a look at the lateral film - draw vertebral body plane lines - dot at inferior anterior and posterior margin of inferior end plate
- ★ Closer the convergence point is to the posterior aspect of the spinous, the more inferiority you will have of that vertebra
- Lower cervical subluxations tend to give people frontal headaches
- A lot of time upper extremity problems, numbness and paresthesia originate with problems in upper cervical spine
 - Just because it looks bad on xray doesn't mean that's the cause of patient's upper extremity problem
- Patient complains of tiredness/fatigue because of loss of resiliency/shock absorbency due to loss of AP curve
- Cold hands and cold feet, constipated because of effect on thyroid- most likely underactive
 - Can test axilla temperature test
 - Hypothyroidism the unsuspected illness- Barnes
- If two lines converge on the anterior this is compensatory
- If whiplash is not addressed/treated that patient will consistently develop hypothyroidism in the next 10+ years
 - Also seen in midwesterners because of lack of iodine in the diet
- ★ Whenever you see an INF you're dealing with C/S C2-C7
 - Have to look at lateral film to determine if PRS vs. PRS-inf
 - Look to see if break in George's line, anteriority of disc, inferiority of interspinous space
 - INF tells us:
 - In cervical spine
 - That patient has a **reverse cervical curve**
 - LOD is P-A and I-S (drop your elbow)
 - Can take care of P, R, S and inf by your LOD and torque- do it seated and prone- supine is not effective in correcting inferiority
- PRI-Ia
 - -La stands for laminae

4/2/09

★ **Two things unique to cervical spine listings**

- -Ia
- -inf

Spinous rotation = laterality

Atlas

- Two most commonly subluxated vertebrae is C1 and L5
- ★ Causes hypersymptomatology
 - We want to "slow the patient down" by this adjustment
- ★ *The major component of a subluxation from C2 down is posteriority*
- ★ *The major component of an atlas subluxation is laterality-superiority*
- Remember: Chiropractic is an art; an artist develops, expands, and unfolds. It doesn't just happen. It takes time, commitment, and practice. Practice requires desire and determination. Practice requires a conscious effort, repetition, and a structural approach. Practice does make Perfect!
- List in relation to the one below it
- Take a look at the lateral film
 - Dots on the axis at the superior portion of odontoid and the base
 - Draw *Odontoid Line* between those two dots and a line perpendicular *Odontoid Perpendicular line* through base of axis
 - Dots on atlas at anterior and posterior tubercle
 - ★◦ Connect dots to form the *A-P Atlas Plane Line*

4/7/09

DON'T LET X-RAYS MISGUIDE YOU!! The source of the problem is found ON THE PATIENT!

- Do no mistake *Transverse Atlas Plane Line* with *A-P Atlas Plane Line*
 - Draw Transverse Atlas Plane Line from side to side on AP film
- First letter of every atlas listing is "A" - first thing atlas does is go anterior
 - First letter of a coccyx listing and anterior ilium is also "A"
- Second letter refers to what anterior tubercle has done- can do one of three things:
 - **Inferior** anterior tubercle- "I"
 - AP Atlas Plane Line and Odontoid Perpendicular line converge anteriorly
 - AP Atlas Plane Line and Odontoid Perpendicular line diverge posteriorly

- Patient presents with Nose and chin down
- **Superior** anterior tubercle- "S" is second letter
 - AP Atlas Plane Line and Odontoid Perpendicular line converge posteriorly or diverge anteriorly
 - ★▪ Most common atlas subluxation
 - Patient presents with nose and chin up
- **No letter:** "A-" is the listing
 - Two lines, A-P Atlas Plane line and Odontoid Perpendicular, are parallel
- Third letter of all atlas listings will tell us side of involvement
 - Will be R or L
 - Most important letter- tells you what side is involved
 - Third letter tells us
 - Side of involvement
 - Side of restricted lateral flexion (seen with motion palpation)
 - Side that has gone lateral and superior
 - ★○ **If the transverse atlas plane line and axis plane line are parallel you don't have an atlas subluxation-** you won't have a third letter
- Fourth letter of atlas subluxation
 - Either an A or a P
 - Rotational component
- ★• **In gonstead listing system we are only concerned with rotation as it appears on the side of third letter**
- Width of lateral masses helps with determining rotation

4/9/09

ASRA could also be AIRA or A-RA because all of these listings look the same on an A-P film- only differ in the lateral film

- ★ Determine rotation by looking at the width of the lateral mass
- ★ The wider atlas lateral mass is the side of anterior rotation

Many times with a TMJ problem, it's really an atlas problem and vice versa

Ways to determine atlas listing

1. Visual Presentation
2. Motion Palpation Findings
3. Xray Findings- AP and Lateral

ASRA:

- ★ Patient with a third letter "R" has restricted LF to that side
- ★ Always restriction in rotation to side that's gone anterior
- Lateral Film: AP atlas plane line and odontoid perpendicular with converge posteriorly
- AP Film: Larger Right Lateral Mass- has gone anterior
 - Axis Plane line and transverse axis plane line diverge on the Right
 - Nose and chin always rotated away from "A"

- ★ Have to list the last letter based on the side of involvement (LF) (third letter)

AILP:

Restricted LF to Left and restricted rotation to the Right (anterior side)
 Visual presentation nose and chin down to the left
 Right Lateral Mass will appear wider on the AP Film

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- ★ Third letter is the MOST important portion of an atlas listing- tells you the involved side of restricted lateral flexion- side of involvement and contact

Fourth letter is the rotation- is there any rotation on the side of restricted lateral flexion

ASRA:

- Nose and chin in air
- Lateral film- AP atlas plane line diverges on anterior
- Head tilted to the left
 - Atlas has gone superior and lateral on the right
 - Axis plane line and transverse axis plane line diverge on the right
- Restricted lateral flexion to right
- Restricted rotation to the side that goes anterior
 - Anterior side wider on Xray

- ★ Bend away from restricted side feels like pulling
- ★ Bend towards restricted side is painful and reproduces the pain

Clinical presentations:

- Atlas affects everything in a hyper
- Can't focus, concentrate, think well
- Diminished blood flow/lack of oxygen to the brain
- Eye twitch on opposite eye
- Trouble focusing with one eye
- Affects ear on the same side - ringing/congestion in ear
- Bells Palsy, headaches, tic deleraux on same side
- Can't sleep well at night- restless, can't fall asleep
- Tachycardia
- Acid reflux
- Indigestion
- Diarrhea

4/16/09

Occipital Condyle Misalignments

- *Foramen Magnum Line*- dots on posterior portion of occiput and back of mastoid process - on lateral film
- *Transverse Condyle Line*- dot at tip of mastoid or in mastoid groove and connect the dots - on AP film
- On Lateral Film if Odontoid Perpendicular Line and AP Atlas Plane Line are parallel we can still have an atlas problem- it would be "A-"
- On AP Film Transverse Atlas Plane Line and Axis Plane Line are parallel we do NOT have an atlas problem - there is no third letter
- Occiput can sublaxated one of two ways

- Occiput, cranium, skull, condyles, whole head has gone anterior and superior

▪ **AS**

- Visual Presentation: nose and chin up in the air
 - ◆ Atlas that's gone AS can also present like this
 - ◆ Distinguish from atlas by motion palpation
- Foramen magnum line and AP Atlas Plane line converge posteriorly
- Decreased OA (occiput-atlas) space
 - ◆ Patients with TMJ often have this problem

- ★◦ Most commonly sustained in birth canal trauma by use of forceps, suction cups, doctor's thumb in baby's mouth

- ◆ These babies will be "hyper"- never sleep, spit up, colic, cry all the time, ADD
- ◆ People "head bangs" to essentially take the pressure off the spinal cord
- ◆ Take a look at their gait- predominately walk with both toes out
 - ◇ Remember B/L toe-in can be caused by EX Ilium or base posterior

- If sustained by an adult have to be hit underneath the jaw- as in a car accident or falling on chin

- Listing has a dash in it

- ◆ Ex. AS-RS
 - ◇ Restricted lateral flexion on right between mastoid and C1
 - ★◇ PS-RS would look the same on an AP film
 - ★▶ It only differs on the lateral film

- Occiput, cranium, skull, condyles, whole head has gone posterior and superior

▪ **PS**

- Visual presentation: nose and chin tucked down
 - ◆ Atlas that's gone AI can also present like this
- Foramen magnum line and AP Atlas Plane line converge anteriorly
- Increased OA space
- Predominately sustained as an adult- blow to face, fall, etc

- Determine condyle/occiput rotation by examining the atlas lateral masses

- Occiput has gone superior on right= RS

★ **Terms Occiput and Condyle used interchangeably**

★ **4 areas in spine that tend to need trauma to be sublaxated**

1. **Condyles**
2. **Sacrum**
3. **Coccyx**
4. **Iliums**

- Atlas is anterior on the right therefore occiput has gone posterior on the right (counterrotation)=
RP
 - AS-RS-RP
 - 6 possible letters on our occiput listing
 - AS = Comes off lateral film
 - RS = Tells us what side has gone superior
 - RP = side of occiput rotation
 - AS-RS-RP and PS-RS-RP will look the same on the AP film- only tell the difference on the Lateral film and visual presentation
- ★ **2nd and 4th letter will ALWAYS be an "S"**
★ **3rd and 5th letter will ALWAYS be the same- "R" or "L"**

FINAL IS CUMULATIVE