

The Lateralized Foot & Ankle Pattern and the Pronated Left Chest

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Pronate (pro-nate)

1. To turn or rotate the hand or forearm so that the palm faces down or back.
2. To turn or rotate the sole of the foot by abduction and eversion so that the inner edge of the sole bears the body's weight.
3. To turn or rotate a limb so that the inner surface faces down or back.
4. To place in a prone position.

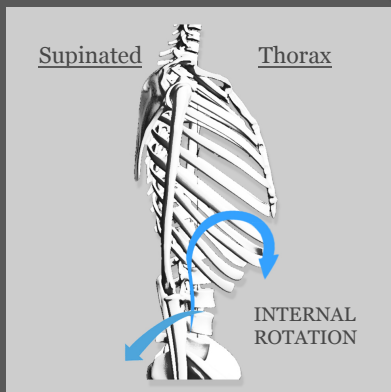
"pronate." Dictionary.com Unabridged. Random House, Inc. 13 May. 2015.
<Dictionary.com <http://dictionary.reference.com/browse/pronate>>

If you rotate the anterior ribs so that
"the inner surface" of each anterior
rib "faces down" ...
you have essentially Externally
Rotated and expanded the ribs.

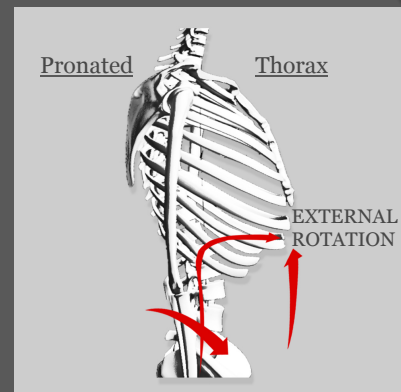
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If you "place" the thorax
"in a prone position" ...
you have essentially Externally
Rotated and expanded the ribs.

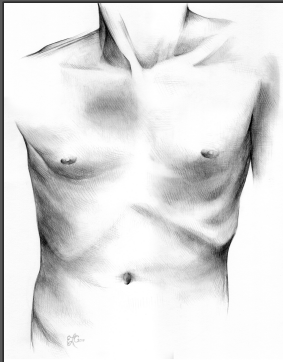
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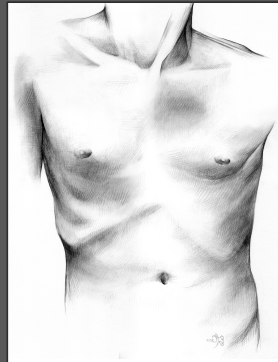
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Supinated
Right Chest

Pronated
Left Chest

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Supinated
Left Chest

Pronated
Right Chest

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In the left AIC pattern, the pelvis moves into a position that lateralizes the center of gravity over to the right side of the body by shifting and rotating in that direction.

Besides the hips moving into a position consistent with left swing phase and right stance phase of gait, the feet and ankles move into a pattern consistent with this lateral shift to the right.

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The Left AIC Foot & Ankle Pattern

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The left foot is in more of an everted and pronated position in this pattern and the right foot is in more of an inverted and supinated position in this pattern.

The right foot may collapse across the medial foot and arch to get to the floor if there is not adequate support for the medial longitudinal arch and the right calcaneus.

This may result in a right foot that looks pronated similar to the pronated left foot.

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However.....

The left foot is positioned into pronation as a result of the left AIC pattern influences.

AND

The right foot is positioned in supination as a result of the left AIC pattern influences. The right arch may collapse to the floor because of inadequate support for the inverted ankle and supinated foot position.

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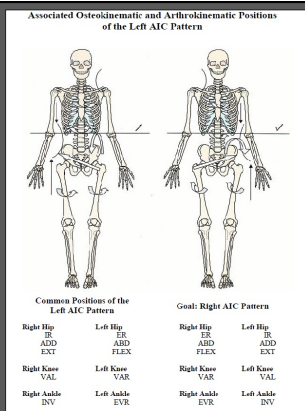
There are patterns of neurological awareness and proprioceptive stabilization used to control body posture on the right vs the left sides of the body.

There are certain neurological reference centers and patterns of muscle utilization that support the right stance phase of gait and certain neurological reference centers and patterns of muscle utilization that supports the left stance phase of the gait cycle.

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When the left foot is in this pronated foot position because of the left AIC pattern, it becomes biased towards the medial arch as a result of the everted ankle and the pronated foot position.

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We are often positionally biased towards this medial arch reference center on the left side and unable to find and feel the medial arch reference center on the right side because of the stance phase positioning of the bones, joints and muscles on the right side compared to the swing phase positioning of the bones, joints and muscles on the left side.

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On the left side it's natural to feel a neurological reference through the left medial arch, with good control of the left peroneal muscles. It is also possible to have a stronger awareness of the left gluteus maximus and left posterior gluteus medius, because of the swing phase biased position of the left half of the pelvis and hip.

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On the right side a patient struggles to reference their body weight through the floor with proper positioning of the foot and ankle and adequate control of the right peroneal muscles.

This is especially true if the supinated right ankle position has collapsed into a pronated state and the patient is wearing unstable footwear.

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Ideal support features for a collapsing foot include a stable heel counter, a stable midfoot and good forefoot flexibility.

This type of footwear provides ample control of the calcaneus in the frontal plane and support for the medial longitudinal arch, with enough forefoot flexibility for comfortable gait propulsion.

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The patient needs to “find and feel” their right arch at midstance when they are in this pattern (i.e. relative supination and inversion).

If the right foot and ankle is allowed to collapse medially to the floor without adequate footwear support, then the dominant tendency to overactivate the right adductor magnus in the left AIC pattern will be increased.

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This dominant adductor magnus pattern prevents the right gluteus maximus and posterior gluteus medius from properly controlling the right hip.

If they can “find and feel” their right arch at midstance, they will activate their right peroneals and begin to function in standing with a right medial arch neurological reference.

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This right sided reference will ensure that right single leg stance is performed with a combination of right peroneals, right gluteus maximus and right posterior gluteus medius as opposed to the right foot pronating to the floor with inadequate support and the resulting overactivation of the right adductor magnus.

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So this...



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Contributes to this...



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And this...

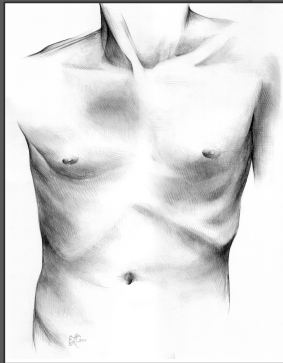


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Supinated
Right Foot
& Ankle



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Supinated
Right
Thorax

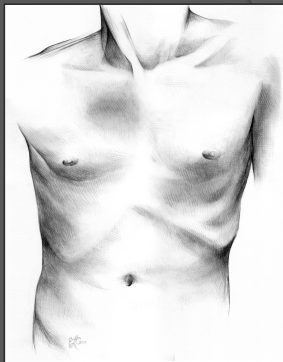


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Pronated
Left Foot &
Ankle



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Pronated
Left
Thorax

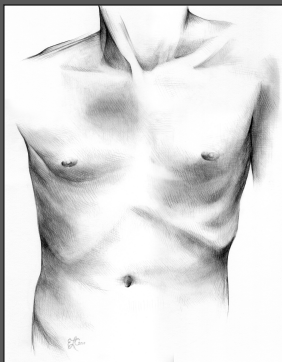


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Left AIC Foot & Ankle Pattern
and the Pronated Left Chest

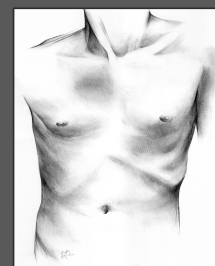
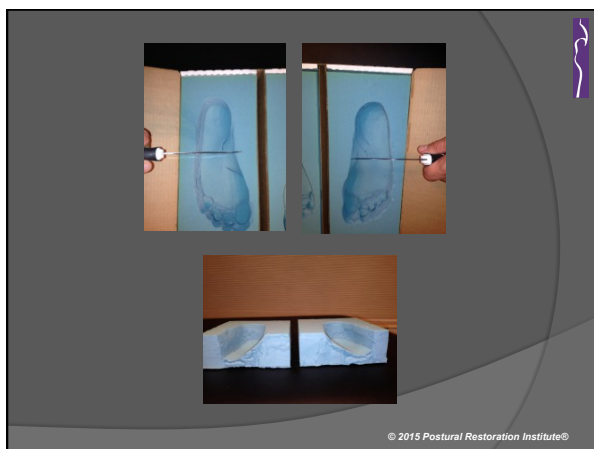
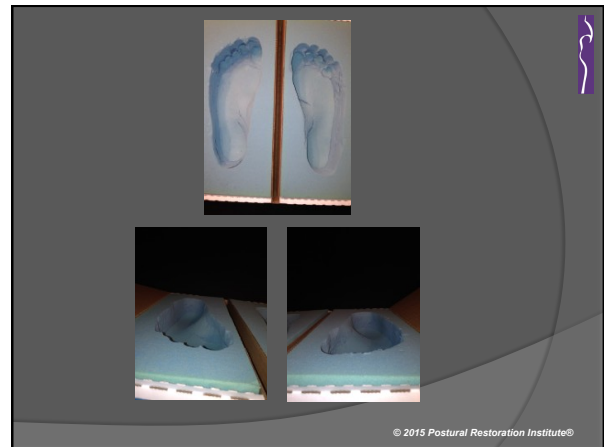
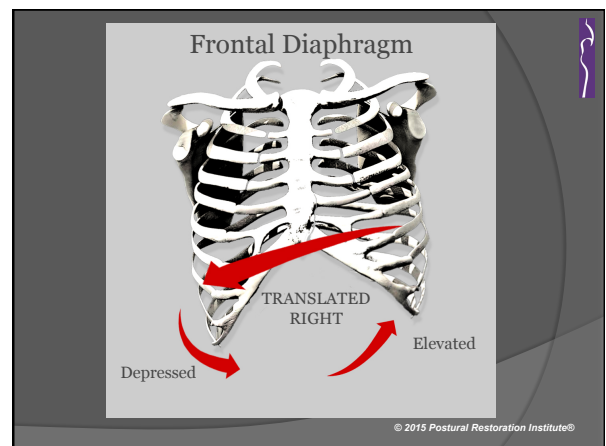
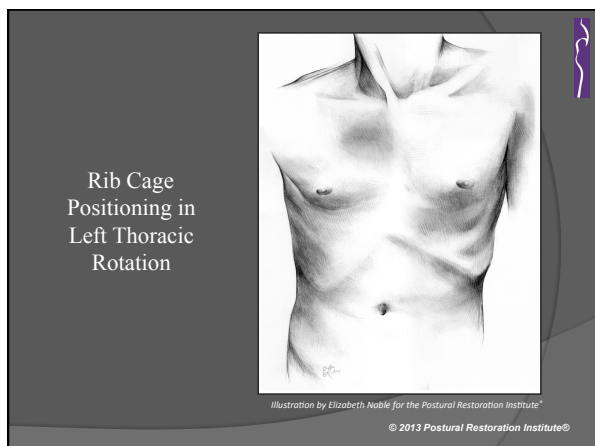
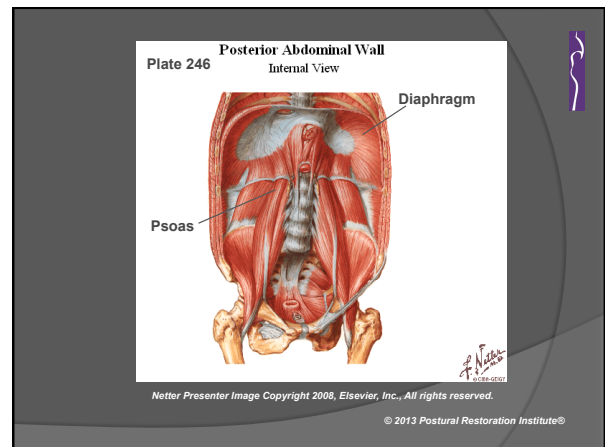
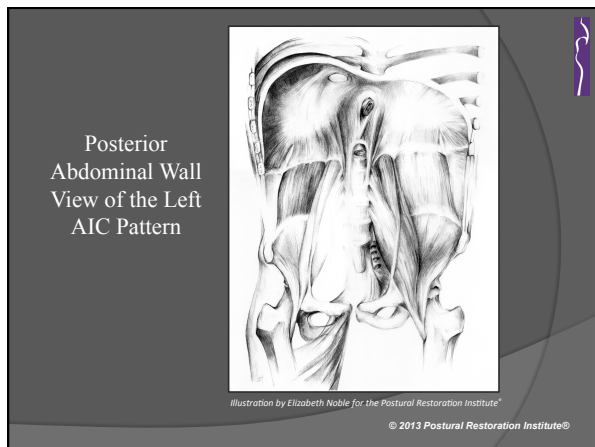
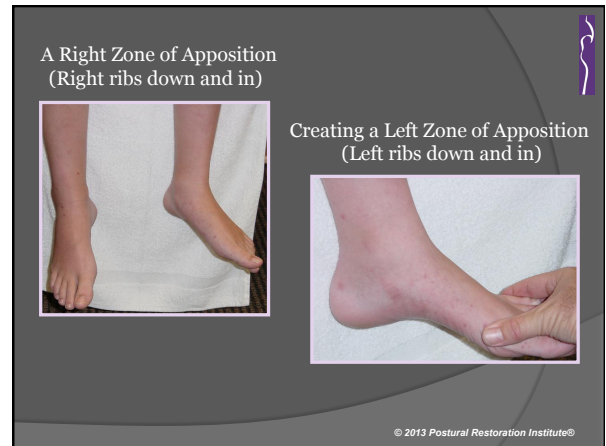
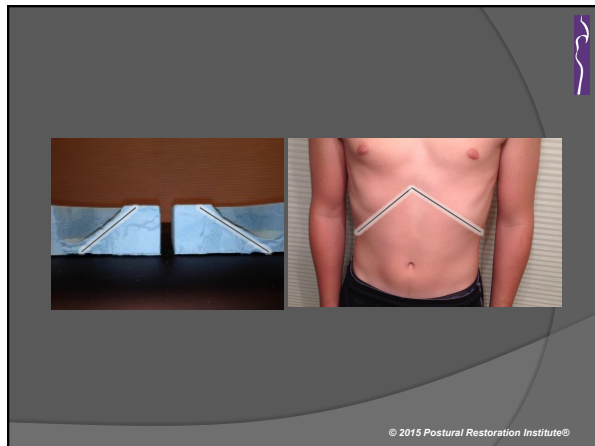
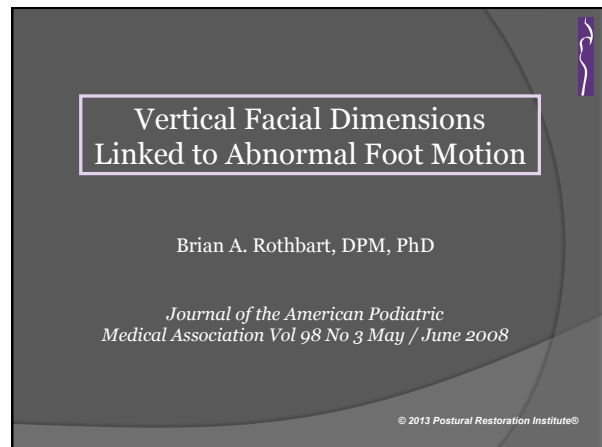
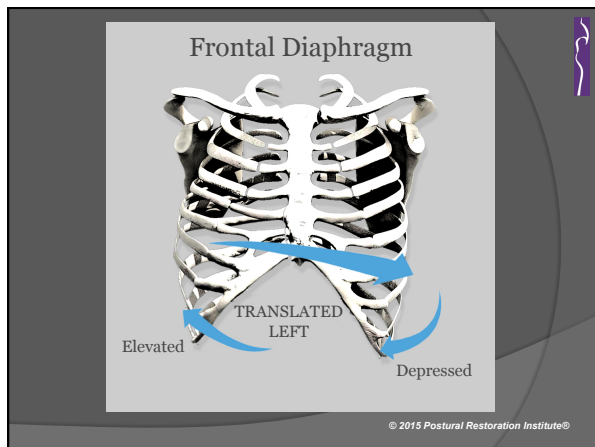
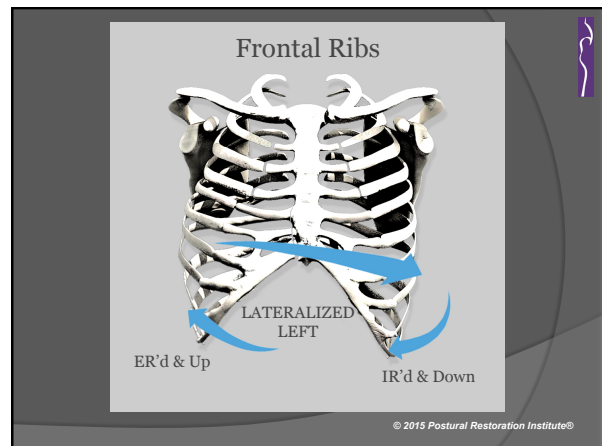
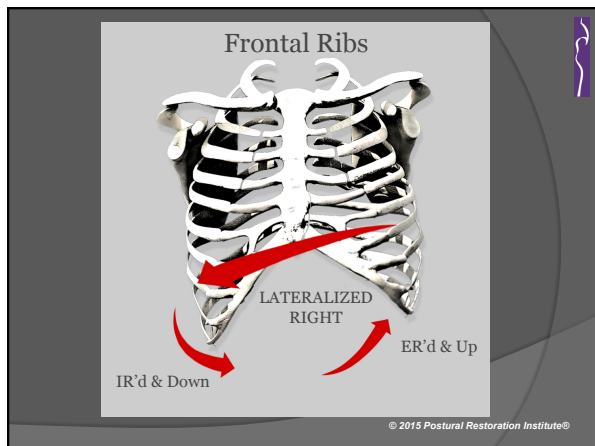


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Three null hypotheses were constructed and tested using the one-sample test.

Hypothesis A:
there is no relationship between abnormal foot pronation and hip position

Hypothesis B:
there is no relationship between hip position and vertical facial dimensions

Hypothesis C:
there is no relationship between abnormal foot pronation and vertical facial dimensions

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Results:

The three null hypotheses were rejected

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Conclusions:

An ascending foot cranial model was theorized to explain the findings generated from this study...

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- 1) Due to the action of gravity on the body, abnormal foot pronation displaces the innominates anteriorly and downward, with the more anteriorly rotated innominate corresponding to the more pronated foot

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- 2) Anterior rotation of the innominates draws the temporal bones into anterior rotation, with the more anteriorly rotated temporal bone being ipsilateral to the more anteriorly rotated innominate bone

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- 3) The more anteriorly rotated temporal bone is linked to an ipsilateral inferior cant of the sphenoid and superior cant of the maxilla, resulting in a relative loss of vertical facial dimensions

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- 4) The relative loss of vertical facial dimensions is on the same side as the more pronated foot

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Other References:

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Stephen Burkhart, Craig Morgan, Ben Kibler

Malocclusions linked to abnormal foot motion

Brian Rothbart

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