Pelvic torsion:
Frontal plane
Pelvic torsion:
Sagittal plane
Pelvic Torsion: Principal Contacts

- Lumbar apex
- Short lever
- Medium lever
- Long lever
A Basic Distortion
(not same as Logan’s)
PSIS palpation for torsion
Pelvic Contacts

PSIS

Sacral Notch

Sacral Apex
Side-Posture: Extension
Side-Posture: Flexion
Side-Posture Body Drop:
PSIS Contact
Modified Pettibon: PSIS Contact
The Big Ugly
How much force to cavitate?

<table>
<thead>
<tr>
<th></th>
<th>Cavitation</th>
<th>No Cavitation</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Spine Force (SD)</td>
<td>38.0 (42.4)</td>
<td>94.31 (117.2)</td>
<td>0.13</td>
</tr>
<tr>
<td>Mean Pelvis Force (SD)</td>
<td>459.8 (217.7)</td>
<td>284.9 (180.2)</td>
<td>0.02</td>
</tr>
<tr>
<td>Mean Thigh Force (SD)</td>
<td>356.1 (198.2)</td>
<td>134.3 (106.2)</td>
<td>0.0002</td>
</tr>
<tr>
<td>Mean Total Force (SD)</td>
<td>853.9 (187.3)</td>
<td>517.8 (201.2)</td>
<td>5.39 E-05</td>
</tr>
<tr>
<td>Mean Spine/Total Force (SD)</td>
<td>.048 (.0554)</td>
<td>.176 (.184)</td>
<td>0.03</td>
</tr>
</tbody>
</table>

When the majority of total force is applied directly to the lumber spine, as opposed to more peripheral sites, the probability of not achieving cavitation is greatly increased.
Side-Posture
Pelvic moves (I)

• In *extension*, eg. classic Gonstead
  –indications: disc herniation, extension restriction, loss of lumbopelvic lordosis
  –contraindicated: pain on extension, hyperlordosis, facet syndrome

• In *flexion*, modified Pettibon
  –indications: doctor arm problem, flexion restriction, hyperlordosis, facet syndrome
  –contraindications: IVD syndrome, hypolordosis

• Body *neutral*, body drop
  –most typical move used
Side-posture moves and rotation

• Seem safe, data scant
• If PI side up
  – especially well-tolerated, reduces helical distortion
• If AS side up
  – less tolerated; cf “Farfan torsion test”
• Forearm stabilization can hurt sensitive rib cages, esp. with much rotation
Sacral apex move: Special clinical applications

• Retrolisthesis, anterolisthesis
  – range: L4-5
  – mechanism: tension on PLL

• Anterior coccyx
  – side-specificity depends on AP deviation of coccyx, if any
  – global distortion not a factor
  – done in inspiration
Coccygeal subluxation
LOD for correcting anterior coccyx
Anterior coccyx: internal method

Maigne’s technique of coccygeal mobilization. The coccyx is kept in hyperextension, which stresses the sacroccocygeal and intercoccygeal joints and stretches the levator anus.
Diversified coccygeal adjustment
Sacral apex move:
Swiss army knife of moves

- Lumbar hyperextension
- Spondylolisthesis
- Retrolisthesis
- Anterior coccyx
  - side-specificity depends on AP deviation of coccyx, if any
  - global distortion not a factor

“modified Pettibon move”
Maigne’s technique of coccygeal mobilization. The coccyx is kept in hyperextension, which stresses the sacrococcygeal and intercoccygeal joints and stretches the levator anus.
Pelvic floor muscles and coccygeal movement

Active flexion (movement in a forward direction) is performed by the levator ani and the sphincter ani externus muscles. Extension (movement in a backward direction) is due to relaxation of these muscles and to the increased intra-abdominal pressure which occurs during defecation and parturition.
Spondy correction with inversion therapy

Case 1
- upright neutral 1981
- 60 sec inversion 1981
- 10 min inversion 1981
- 1983 film
- 1991 film
- 81 neutral + 81 10 min

Case 2
- upright neutral
- 60 sec inversion
Sacral base

• sacral base palpation
  – which SI joint deeper? (innom ref pt)
  – which side relatively posterior?

• posterior side pain/fixation
  • PA sacral base thrust
  – anterior side pain/fixation
    • PI “pull” move
Traditional side posture move
Side-Posture Body Drop: Segmental Lumbar Contact
Side posture pull move
Lumbopelvic decision making

pelvic state

lumbopelvic hyperlordosis (double PI)
lumbopelvic hyperlordosis (double AS)

no tension
pelvic tension

lumbar spine vs. primary sacral subluxation

social subluxation
lumbar subluxation

shallow or deep SI joint subluxated

shallow, SI fixed, pain
deep SI, fixed, pain

Adjust posterior sacrum, either side posture or drop table

Adjust lumbar spine, taking into account:
global restriction, restricted side up
lateral curvature, convex side up

Adjust anterior sacrum, adjust with pull move on PSIS of involved side

Adjust PI side, AS side, or both according to optimization criteria:
- Denfield plus or minus
- motion palpation
- reflex findings
- symptoms (pain side)
- mechanical advantage
- orthopedic/provocative testing (blocks, etc.)
- x-ray findings
- global range of motion
Lumbar spine

- lumbar spine analysis
  - global ROM, observing “kinks”
  - lateral curvature
- hand placement
  - fingers across spine
  - segmental contact: side of spine
Which side up for side-posture manipulation?
Which side up for side-posture manipulation?
Assisted/resisted example

Resisted: contact on sacral base gaps L5-S1, segment superior to contact hand

Assisted: contact on L5 introduces motion to L5-S1, below contact hand
Which lumbar motion unit is primarily affected?

• Resisted adjustment
  – Above contacted bone
  – eg, using P-A thrust on crossed elbows or shoulder

• Assisted adjustment
  – Below contact hand
  – eg, using significant body drop and lateral-medial LOD
Integrating curvature and restriction into adjusting protocol

Inconsistent criteria: thrust indeterminate. Decide which more important

Consistent criteria: thrust left to right
Which curvature is structural?

1. Erect: Lumbar curve corrects and is therefore nonstructural.
2. Bending to right: Thoracic curve persists and is therefore structural.
3. Bending to left: 

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Thoracolumbar Junction
Pre-Stressed Anterior