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Lecture #102: OMM: Lab 11 Prep Lecture Lumbar Diagnosis, Lumbar Soft Tissue

Foundations Course

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Make.
Heal.
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Physical Examination (PE): Look at the Lumbar Spine Region

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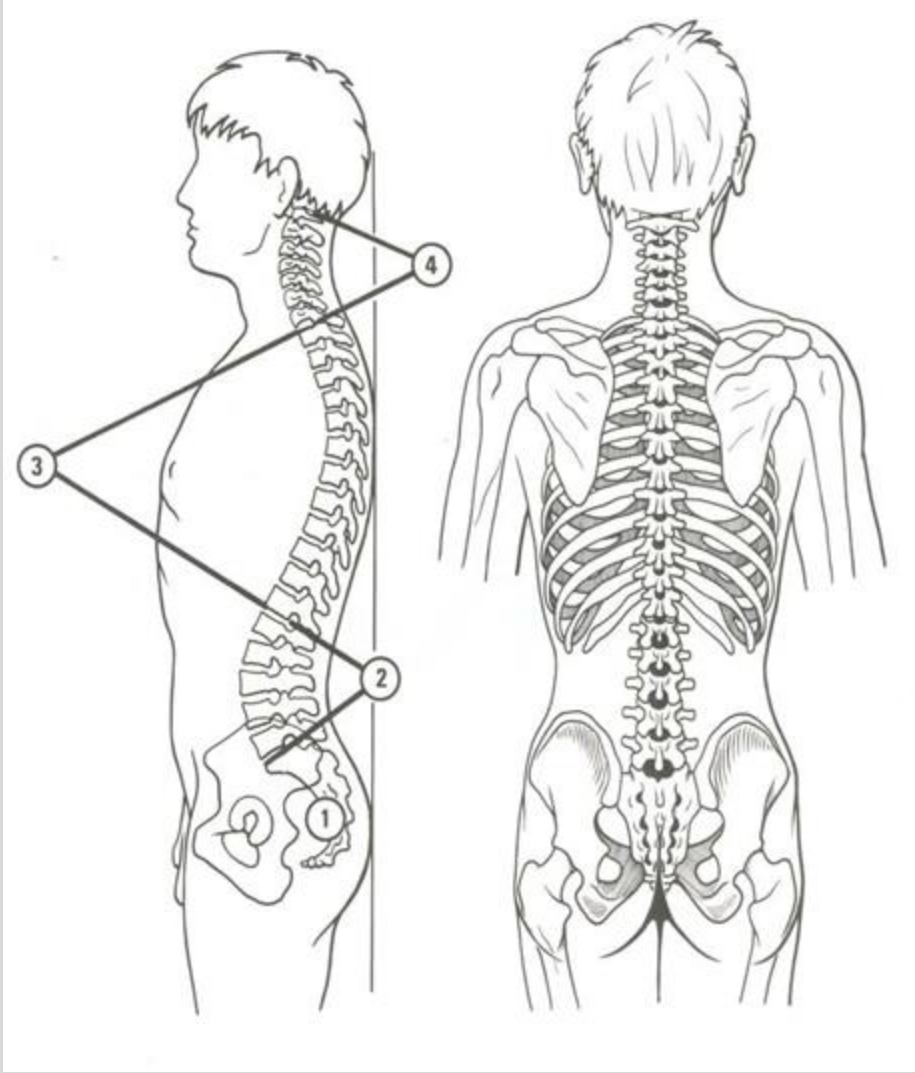
- Lumbar Spine Primary **lordotic** Curve
  Backward Bending

- Thoraco-Lumbar Junction: T10-T12 Lordotic



Osteopathic Lumbar Diagnosis of Somatic Dysfunctions

Characteristics of Vertebral Segmental Dysfunction and Adaptation

	Non-Neutral Segmental Dysfunctions	
	Flexed Position	***Extended Position***
Positional names ("-ed" endings)	**FRS L**eft **F**lexed, **R**otated, **S**idebent **L**eft	**ERS L**eft **E**xtended, **R**otated, **S**idebent **L**eft
Restricted motions ("-ing" endings)	**SRE R**ight **S**idebending,**R**otation, **E**xtension	**SRF R**ight **S**idebending,**R**otation, **F**lexion
Lesion type	Type II (non-neutral)	Type II (non-neutral)
Number	Single	Single
Cause (etiology)	Trauma	Trauma
Facet motion impairment	Right extension	Left flexion
Effect of hyperextension	Worse	Re-establishes symmetry
Effect of hyperflexion	Re-establishes symmetry	Worse
Coupled rotation – sidebending	Same side (e.g.,Lt,Lt)	Same side (e.g.,Lt,Lt)
Observed posterior transverse process(es)	Left	Left

Mitchell, Jr., FL and Mitchell, PKG, The Muscle Energy Manual: Evaluation and Treatment of the Thoracic Spine, Lumbar Spine, & Rib Cage, Volume Two, Second Edition, MET Press, East Lansing, Michigan, 2002, *Chapter 3, Biomechanics of Segmental Motion Restriction.*

PE: Palpate Lumbar spine transverse processes (TP)

- Lumbar spine Transverse processes are about 1.5 inches lateral from midline (spinous processes).
- Rotational segmental motion examination
- With Patient prone, physician places thumbs or fingers on TPs of segment to be tested.
- Apply a firm pressure **towards anterior of Patient's body**, (toward the table) *one side at a time*; Which TP does not move into rotation easily?
- (The side that resists your downward/ anterior pressure = the side of the posterior TP = the direction of that vertebra's rotation dysfunction. Named/ documented for which direction the anterior vertebral body is rotated)

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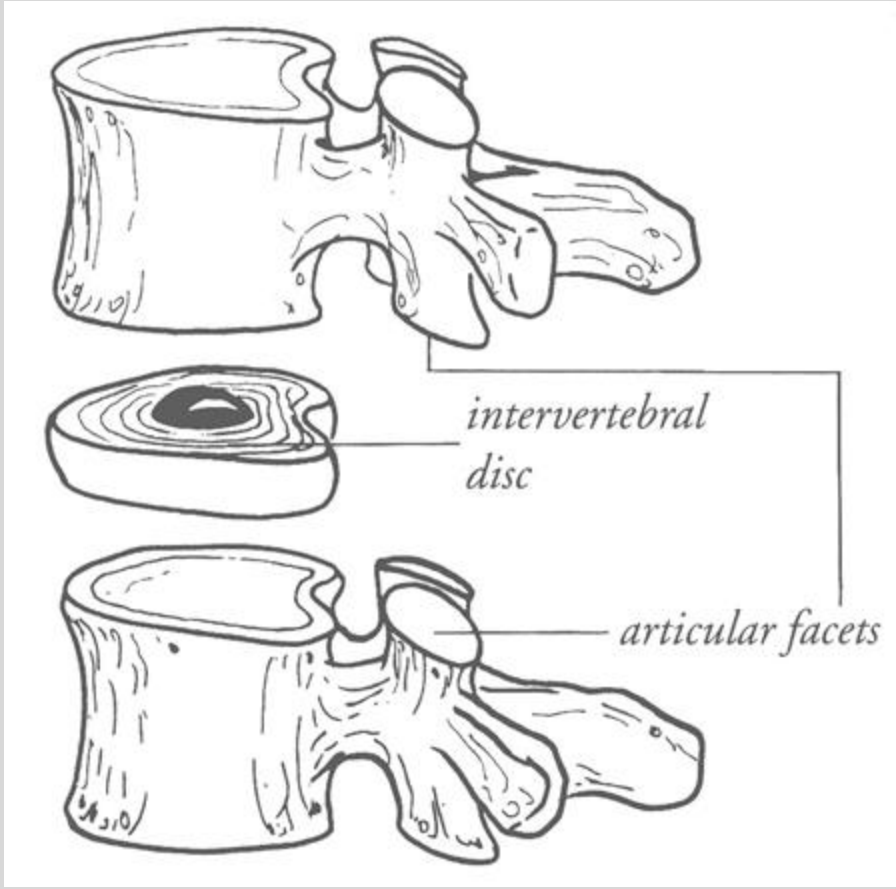
Vertebral Unit

Anterior Portion

Weight Bearing (Vertebral bodies and Discs)

Posterior Portion

- Neural Structures (Cord & nerve roots)
- Points of Articulation (Facets & Transverse Processes)
- **Motion Guiding Structures (Facets): allow for motion in only specific directions.**
- **Ligaments, tendons, and other connective tissues limit the range of the motion**



Type 2 Somatic dysfunction

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- If a single segment (e.g. L3) is found to be restricted in motion, the **transverse process** that is **more posterior** (e.g. the right) is the **same side** that the segment would **rotate (R) more freely towards**.
- If on testing the posterior segment becomes **more symmetrical** in flexion (F) or extension (E), then it is named for this **"direction of ease" (i.e. segment became less posterior** in flexion).
- Using Fryette's laws, this somatic dysfunction is a Type II spinal segment dysfunction, and
  - assume that side bending and rotation is coupled to the same side
- Our somatic dysfunction (SD) is L3 Flexed, Rotated and Sidebent to the right on L4
  - (name the dysfunction for how it moves on L4), or L3 FRS Right, or L3 F RrSr.

Shorthand Abbreviations & Documentation of Segmental Dysfunctions for Physical Exam

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Abbreviations

- N—Neutral
- F—Flexed
- E—Extended
- L—Left
- R—Rotated
- R—Right
- S—Sidebent

Notations

- Type I dysfunction:
  - L5 neutral, rotated left, sidebent right
  - Or L5 NR_LS_R
  - Or L5 R_LS_R
- Type II dysfunction:
  - L5 flexed, rotated right, sidebent right
  - Or L5 FR_RS_R
  - Or L5 FRSR

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Type 1 Somatic dysfunction Documentation

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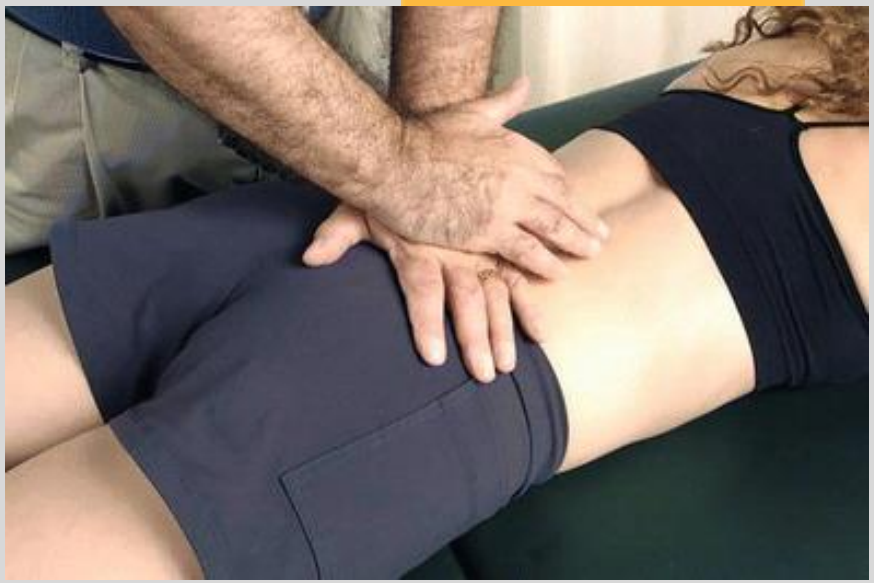
- On examination you find that the transverse processes of vertebral segments from L1 to L4 are posterior on the Left. As you motion test in flexion and extension there is no change to the posterior transverse processes.

- Your diagnosis would be notated as L1-L4 Neutral Side bent Right and Rotated Left

- Properly documented as L1-L4 N Sr Rl

Lumbosacral Spring Test



- Patient lies prone on examination table.
- Physician stands to the side with the
  - dominant eye over the midline.
- Physician places the palm of 1 hand over the
  - midline of the lumbar region, with the thenar eminence of the hand over the lumbosacral junction (L5 & base of sacrum). The fingers extend superiorly over the spinous processes & paravertebral tissue.
- Physician provides a short quick push in an anterior direction with the heel of the hand and evaluates for compliance ("springiness") or resistance of the lumbar spine.
  1. Compliance of the lumbar spine with no resistance is described as a **negative test**.
  2. Resistance (stiffness) to this springing motion is described as a **positive test**.

Link: The **Lumbosacral Spring Test** (Fig. 27.48) 27 Osteopathic Segmental Examination. Foundations of Osteopathic Medicine: Philosophy, Science, Clinical Applications, and Research, 4e, 2018

Seated Motion Examination (examine patient in 2 positions. Seated involves examination with spinal weight-bearing.)

1. While standing beside/behind patient, physician contacts the segment with the most posterior TP by placing the thumb & index finger on the lateral aspects of the patient's TP's
2. The other hand on the shoulder to induce motion of spine.
3. If the TPs are most symmetrical with the patient in extension, then the vertebra is described as extended, sidebent, and rotated to the same side, for example, L1 ER_RS_R.
4. If the TPs are most symmetrical with the patient in flexion, then the vertebra is described as flexed and will be sidebent and rotated to the same side, for example, L1 FR_RS_R.
5. If the TPs are most symmetrical with the patient in the neutral position, then the vertebra is described as neutral and will be sidebent and rotated to opposite sides, for example, L1-L3 NR_RS_L. This result also indicates that there is a group dysfunction present, and all vertebrae in this region where TART changes were found would be described in the same fashion. This may include the thoracic spine, for example, T11–L2 NR_RS_L. L2 would be the apex of a L1-L3 NR_RS_L. Whereas, L1 would be the apex of a T11-L2 group curve, since it demonstrated the most posterior transverse process or the greatest amount of restricted motion within this group of vertebrae.

27: Osteopathic Segmental Examination
https://nyit.idm.oclc.org/login?url=https://meded.lwwhealthlibrary.com/content.aspx?sectionid=209545625&bookid=2582

Nomenclature - named for the easy direction (rather than the restricted direction)

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Abbreviations are by Convention, specifying the Segment and then the Flexion/Extension, then

- For Type II Dysfunctions, Rotation and Side bending (L5 F RS_L) <i.e. F R_LS_L>
  - If ***R is written before S***, Rotation and Side bending are understood to be to the **same** side
- For Type I Dysfunctions, Side bending and then Rotation (L1-4 N S_LR_R) <i.e. N S_LR_R>
  - If ***S is written before R***, Rotation and Side bending are understood to be to the **opposite** sides (with the rotation specified by the last subscript)

Goals of Soft Tissue Techniques

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- Relax muscles and fascia
- Improve circulation to muscles:
  - Arterial: O2 and nutrition to areas of ischemia. D.O. stands for Deliver Oxygen.
  - Venous
  - Lymph drainage
  - " We suffer from two things: the want of supply and a burden of dead deposits" -Andrew Taylor Still.
- Improve mobility
- Decrease pain
- Interfere with progression to chronicity
- To relax the ***stretch reflex***
  Which is based on ***mu. spindle mechanism***

Nicholas & Nicholas:

https://nyit.idm.oclc.org/login?url=https://meded.lwwhealthlibrary.com/content.aspx?sectionid=123844137&bookid=1629#123844867

ST method:

07.26: Prone Pressure with Counterleverage

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1.

ST method:

07.28: Supine Extension

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1.

Key Points Summary Slide

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- Visually & manually identify anatomical landmarks to localize & differentiate vertebral segments T12 to S1.
- Evaluation of neuromusculoskeletal-connective tissue TART changes & diagnosis of Type 1 & 2 dysfunctions of the lumbar spine.
- Practice documentation of the biomechanical diagnoses of Type 1 & 2 lumbar spinal dysfunctions in the physical exam ("O" in SOAP note format) for professional communication.
- Identify, evaluate, and understand the physiology of the muscles & tendons of the back, abdomen & buttocks, & hip flexors & extensors.
- Understand the importance of an osteopathic examination of dysfunctions, muscle tone & function in the clinical assessment of back pain
- Assess for contraindications to soft tissue techniques, and demonstrate the soft tissue techniques for the lumbar region:
  - prone traction,
  - prone pressure with counter-leverage, and
  - supine extension