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Foundations of Osteopathic Medicine - OMM Lab #13: **Lumbar HVLA, Posterior Lumbar and Quadratus Lumborum Counterstrain**

Theodore Flaum, DO, FACOFP
Jennifer Maccagnano, DO, FACOEP, FACEP
Michael Terzella, DO
Elizabeth George, DO

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Make.
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Innovate.
Reinvent the Future.

Department of Osteopathic Manipulative Medicine

Landmarks

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Remember important landmarks to aid you in your diagnosis:

- 12th rib attaches to T12
- Iliac crest heights at L4-L5
- PSIS at the level of S2

DiGiovanna, E. L., Amen, C. J., & Burns, D. K. (2021). Chapter 47: Evaluation of the Lumbar Spine. In *An osteopathic approach to diagnosis and treatment*. essay, Wolters Kluwer. Retrieved from https://login.nyit.idm.oclc.org/login?url=https://osteopathicmedicine-lwwhealthlibrary-com.nyit.idm.oclc.org/content.aspx?sectionid=248813509&bookid=2969.

Lumbar Diagnosis, Review

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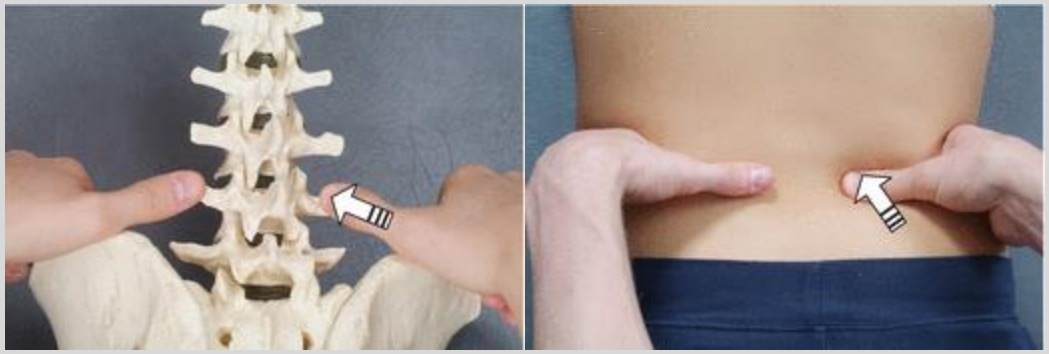
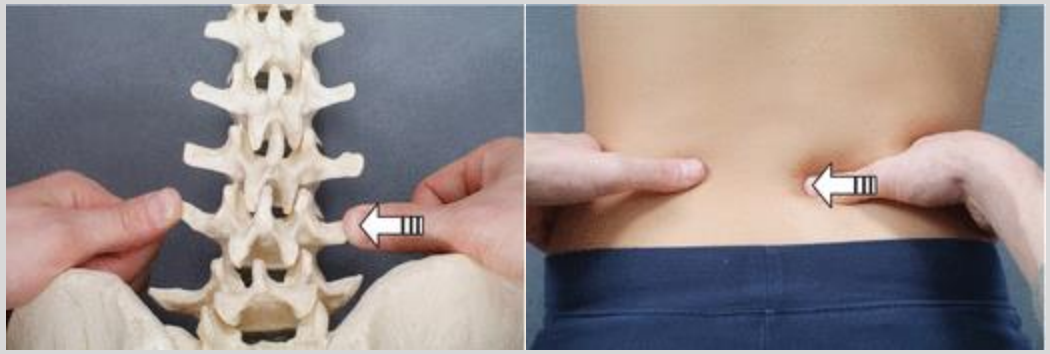
1) Screen and identify posterior transverse process of the lumbar spine (this will be the rotational freedom)
2) Use landmarks to figure out the level of the dysfunctional segment
3) Induce flexion and extension at the level of the segment to determine if the segment is a Type 1 or Type 2 somatic dysfunction
   a) If there is improvement of asymmetry with flexion/extension -> Type 2
   b) If there is no improvement of asymmetry with flexion or extension -> Type 1
4) Confirm diagnosis by inducing lateral translation of the affected segment to determine sidebending freedom



Inducing right rotation by pushing down on right TP



Inducing right sidebending by translating from right to left

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Lumbar Soft Tissue Techniques

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Remember to perform soft tissue techniques before performing any HVLA technique!!

High Velocity Low Amplitude (HVLA)

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- Passive, direct technique
- **Accurate diagnosis**, **proper patient selection**, and **correct technique *are key***. Overall a very safe technique.
- Identify restricted segment
- Prior to HVLA treatment, ALWAYS utilize a form of soft tissue technique (as you have already done in this lab)
- Precisely localize to the restrictive barrier, then a quick (high velocity) **thrust (low amplitude) force is directed to move the joint past the restrictive barrier. **Have faculty supervise your first thrust
- **Reassess**

Contraindications to HVLA Techniques

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Absolute:

- No somatic dysfunction
- No consent
- Patient intolerance or pain during set-up (unless promptly resolved with adjusting your technique set-up)
- Osteoporosis; Osteomyelitis; Fracture
- Cancer in the bone (can get pathologic fractures)
- Any “hardware” in the joint or fusion of the joint
- Severe Rheumatoid Arthritis and other inflammatory arthritis

Relative:

- Acute Whiplash or any acute lumbar pain (HVLA may be too direct)
- Pregnancy (depends on provider, trimester, etc.)
- Post –surgical complications
- Herniated Nucleus Pulposus (“herniated disc”)
- Anticoagulant use (“blood thinners”)

L1–L5 “Type I/Neutral” Dysfunctions Long-Lever, Rotational/Side bending Emphasis

Ex: L5 NSLRR

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1. The patient lies in the right lateral recumbent (side lying) position with the physician standing at the side of the table facing the patient.
2. The physician palpates between the spinous processes of L5 and S1 and flexes the patient's knees and hips until L5 is in a neutral position relative to S1 (**Fig. 11.90**).
3. The physician further positions the patient's left leg so that it drops over the side of the table cephalad to the right leg. The patient's foot must not touch the floor (**Fig. 11.91**).
4. While continuing to palpate L5, the physician places the cephalad hand in the patient's left antecubital fossa while resting the forearm gently on the patient's anterior pectoral and shoulder region.
5. The physician places the caudad forearm along a line between the patient's left posterior superior iliac spine (PSIS) and greater trochanter (**Fig. 11.92**).
6. The patient's pelvis is rotated anteriorly to the edge of the restrictive barrier, and the patient's shoulder and thoracic spine are rotated posteriorly to the edge of the restrictive barrier. The patient inhales and exhales, and during exhalation, further rotational slack is taken up.
7. If the rotational slack or motion barrier is not effectively met, the physician can grasp the patient's right arm, drawing the shoulder forward until rotational movement is palpated between L5 and S1.
8. With the patient relaxed and not guarded, the physician delivers an impulse thrust with the caudad forearm directed at right angles to the patient's spine while simultaneously moving the shoulder slightly cephalad and the pelvis and sacrum caudad (*white arrows*, **Fig. 11.93**) to impart side bending right and rotation left movement.
9. Effectiveness of the technique is determined by reassessing intersegmental motion at the level of the dysfunctional segment.

Nicholas, N. S. (1980). Chapters 11.15 Lumbar HVLA. In *Atlas of osteopathic techniques*. essay, Philadelphia College of Osteopathic Medicine. Retrieved from https://login.nyit.idm.oclc.org/login?url=https://osteopathicmedicine-lwwhealthlibrary-com.nyit.idm.oclc.org/content.aspx?sectionid=252635235&bookid=3202#252635439.

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Steps 1 and 2 (Figure 11.90)

Step 3 (Figure 11.91)

Steps 4 and 5 (Figure 11.92)

Step 8 (Figure 11.93)

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L1–L5 “Type II/Non-Neutral” Dysfunctions Long-Lever, Rotational/Side Bending Emphasis

Ex: L4 FRRSR

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1. The patient lies in the right lateral recumbent position with the physician standing at the side of the table facing the patient.
2. The physician palpates between the spinous processes of L4 and L5 and flexes the patient's knees and hips until L4 is in a neutral position relative to L5. It is not necessary to meet the extension barrier at this point (**Fig. 11.94**).
3. The physician further positions the patient's left leg so that it drops over the side of the table cephalad to the right leg. The patient's foot must not touch the floor (**Fig. 11.95**).
4. While continuing to palpate L4, the physician places the cephalad hand in the antecubital fossa of the patient's left arm while resting the forearm gently on the patient's shoulder.
5. The physician's caudad hand stabilizes L5 (**Fig. 11.96**).
6. The patient's shoulder and pelvis are axially rotated in opposite directions. The patient inhales and exhales, and during exhalation, further rotational slack is taken up.
7. If the rotational slack or motion barrier is not effectively met, the physician can grasp the patient's right arm, drawing the shoulder forward until rotational movement is palpated between L4 and L5.
8. With the patient relaxed and not guarded, the physician delivers an impulse with the forearms (*white arrows*, **Fig. 11.97**), simultaneously moving the shoulder slightly caudad and the pelvis and sacrum cephalad.
9. Effectiveness of the technique is determined by reassessing intersegmental motion at the level of the dysfunctional segment.

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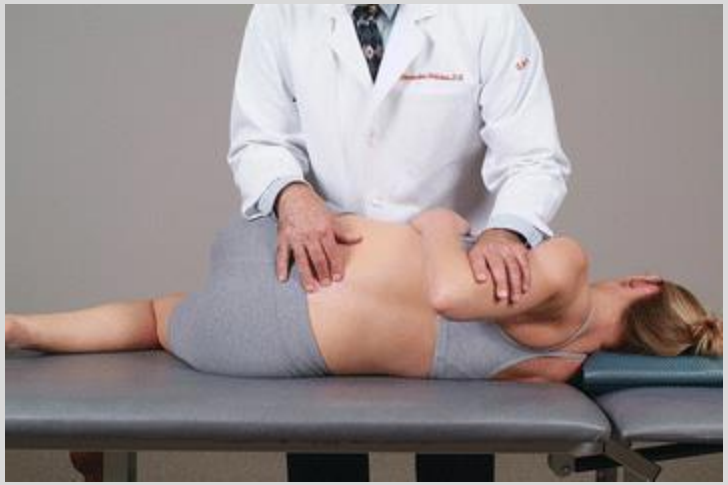
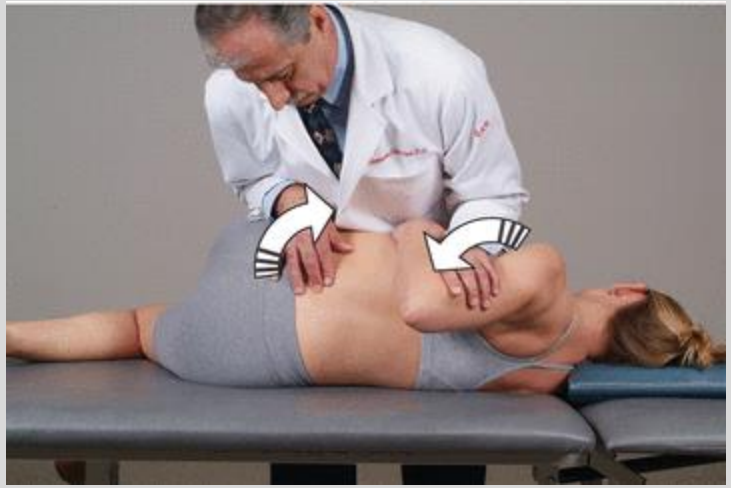
Steps 1 and 2 (Figure 11.94)

Step 3 (Figure 11.95)



Steps 4 and 5 (Figure 11.96)



Step 8 (Figure 11.97)

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Counterstrain

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- Passive, indirect technique
- Counterstrain points (also called tender points) are discrete areas of tissue texture abnormalities which a exhibit tenderness and respond to a positional release technique. The named points are found at consistent anatomical locations.
- **Indications**: Acute or chronic somatic dysfunctions with an associated counterstrain point

Contraindications to Counterstrain

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Absolute

1) Manifestation of abnormal neurological and/or vascular symptoms brought on by the treatment position
2) Exacerbation of potentially life-threatening symptomatology by treatment position (e.g., EKG changes, drop in oxygen saturation) in a monitored patient

Relative

1) Patient who cannot voluntarily relax, or severely ill patient
2) Upper cervical hyper rotation and hyperextension in patients with known vertebral artery disease and/or upper cervical ligamentous instability, dens malformation, or severe osteoporosis
3) Inability to tolerate the classic treatment position, meaning that the treatment position must be modified
4) Inability to effectively communicate
5) Patient with severe acute rheumatological flare
6) Signs of apprehension while approaching the treatment position

Posterior Lumbar Counterstrain Points

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Tender Point	Location	Classic Treatment Position	Acronym
PL1–PL5 spinous process	On the inferolateral aspect/tip of the deviated spinous process of the dysfunctional segment *Vertebral rotation is opposite the side of spinous process deviation.	Patient prone: Extend to spinal level by lifting extremity or ASIS on side of tender point, which also rotates pelvis/lower segment toward and upper segment away; side bend away (adduct lower extremity)	e-E Sa Ra
PL1–PL5 transverse process	On the posterolateral aspect of the transverse process of the dysfunctional segment	As above	e-E SA RA

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Posterior Lumbar CS Points 1-5 (Spinous and Transverse)

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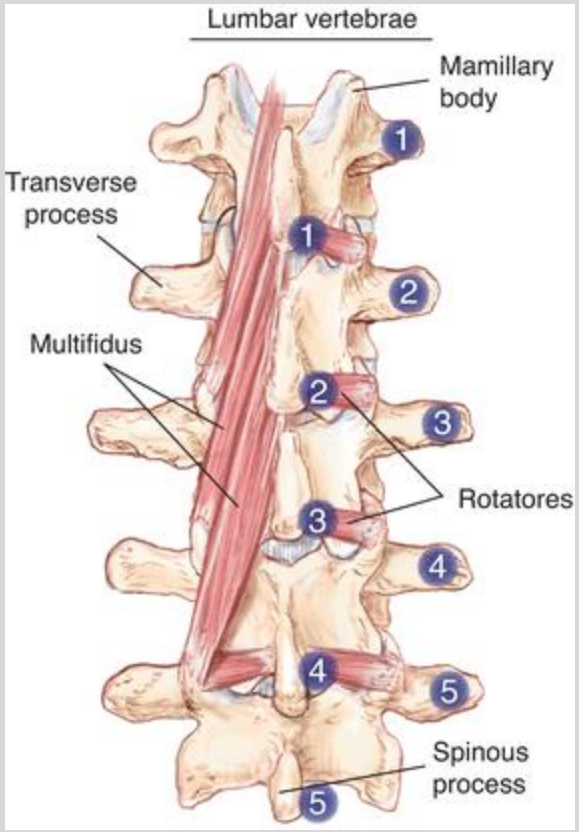
PL1–PL5 spinous process	On the inferolateral aspect/tip of the deviated spinous process of the dysfunctional segment *Vertebral rotation is opposite the side of spinous process deviation.	Patient prone: Extend to spinal level by lifting extremity or ASIS on side of tender point, which also rotates pelvis/lower segment toward and upper segment away; side bend away (adduct lower extremity)	e-E Sa Ra
PL1–PL5 transverse process	On the posterolateral aspect of the transverse process of the dysfunctional segment	As above	e-E SA RA



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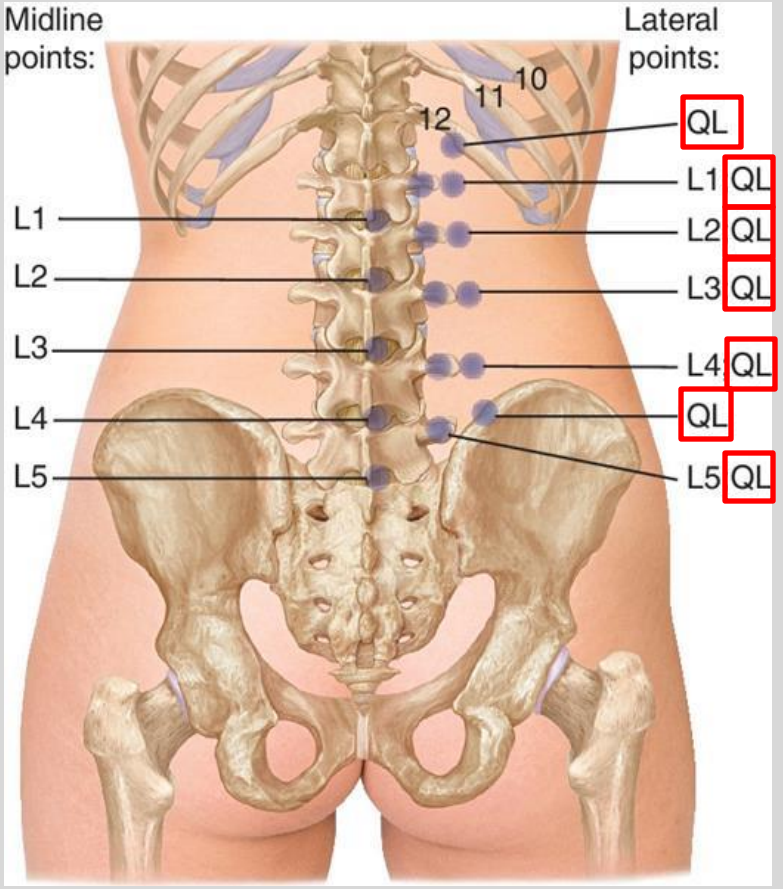
Quadratus lumborum CS

Counterstrain Point	Location	Treatment Position	Acronym
Quadratus Lumborum	- On the inferior aspect of the 12th rib - On the lateral tips of the lumbar transverse processes - On the superior aspect of the iliac crest	- Hip/thigh EXTENSION, ABduction, and External - Rotation may require side bending of lumbar spine toward.	E ABD ER



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