



## 76a Orthopedic Massage: Introduction - Low Back Pain



# 76a Orthopedic Massage: Introduction - Low Back Pain

## Class Outline

5 minutes	Attendance, Breath of Arrival, and Reminders
10 minutes	Lecture:
25 minutes	Lecture:
15 minutes	Active study skills:
60 minutes	Total



# 76a Orthopedic Massage: Introduction - Low Back Pain

## Class Outline

### Early Warning:

- 85a Orthopedic Massage: Outside Massages – Begin these now!

### Quizzes:

- 78a Kinesiology Quiz (erectors, lats, quadratus lumborum, multifidi, rotatores)
- 81a Kinesiology Quiz (supraspinatus, infraspinatus, teres minor, subscapularis, flexor digitorum superficialis, extensor digitorum, flexor pollicis longus, flexor digitorum profundus)

### Spot Checks:

- 78b Orthopedic Massage: Spot Check – Low Back Pain
- **Bring your grading sheet for evaluation A: 99**
- 81b Orthopedic Massage: Spot Check – Rotator Cuff & Carpal Tunnel
- **Bring your grading sheet for evaluation A: 101**

### Preparation for upcoming classes:

- 77a Special Populations: Introduction
  - Salvo: Chapter 11
  - Packet K: 1-10.
- 77b Orthopedic Massage: Technique Review and Practice - Low Back Pain
  - Packet J: 69-76 and 77-78.



# Classroom Rules

**Punctuality** - everybody's time is precious

- Be ready to learn at the start of class; we'll have you out of here on time
- Tardiness: arriving late, returning late after breaks, leaving during class, leaving early

**The following are not allowed:**

- Bare feet
- Side talking
- Lying down
- Inappropriate clothing
- Food or drink except water
- Phones that are visible in the classroom, bathrooms, or internship

*You will receive one verbal warning, then you'll have to leave the room.*

# Quadratus Lumborum, Trail Guide Page 207

**A** Unilaterally:  
**Laterally tilt** (elevate) the pelvis

**Laterally flex** the vertebral column to the same side

Assist to **extend** vertebral column

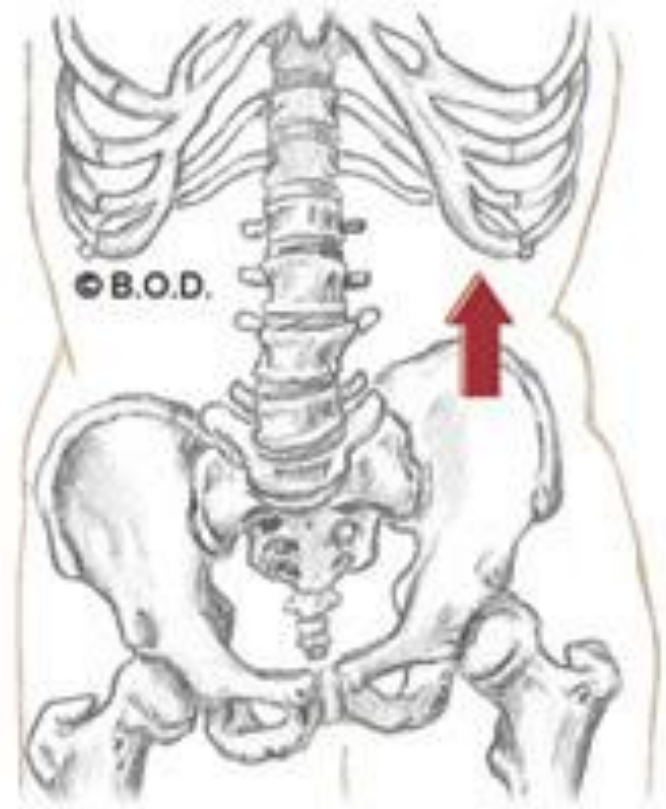
Bilaterally:

**Fix** the last rib during forced inhalation and exhalation

**O** Posterior iliac crest

**I** Last rib

Transverse processes of 1st-4th lumbar vertebrae



Anterior View

# Quadratus Lumborum, Trail Guide Page 207

**A** Unilaterally:  
**Laterally tilt** (elevate) the pelvis

**Laterally flex** the vertebral column to the same side

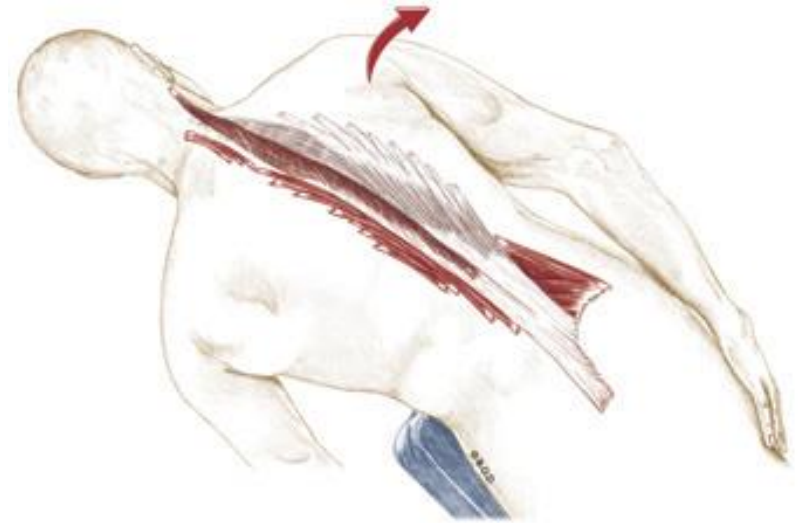
Assist to the **extend** vertebral column

Bilaterally:  
**Fix** the last rib during forced inhalation and exhalation

**O** Posterior iliac crest

**I** Last rib

Transverse processes of 1st-4th lumbar vertebrae



Posterior View

# Quadratus Lumborum, Trail Guide Page 207

**A** Unilaterally:  
**Laterally tilt** (elevate) the pelvis

**Laterally flex** the vertebral column to the same side

Assist to **extend** vertebral column

Bilaterally:

**Fix** the last rib during forced inhalation and exhalation

**O** Posterior iliac crest

**I** Last rib

Transverse processes of 1st-4th lumbar vertebrae



Posterolateral View

# Quadratus Lumborum, Trail Guide Page 207

**A** Unilaterally:  
**Laterally tilt** (elevate) the pelvis

**Laterally flex** the vertebral column to the same side

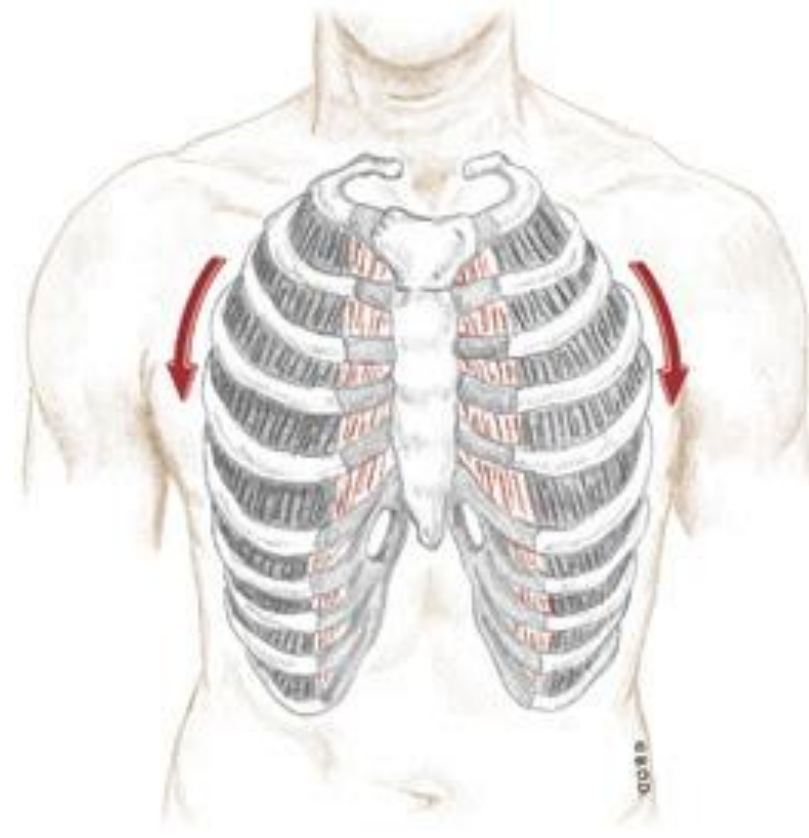
Assist to the **extend** vertebral column

Bilaterally:  
**Fix** the last rib during forced inhalation and exhalation

**O** Posterior iliac crest

**I** Last rib

Transverse processes of 1st-4th lumbar vertebrae

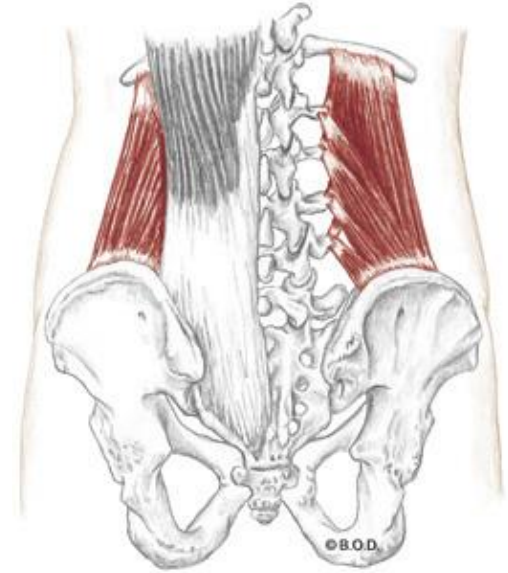


Anterior View



# Quadratus Lumborum, Trail Guide Page 207

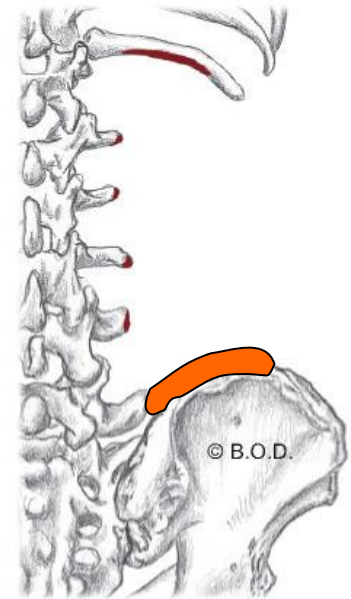
- A** Unilaterally:
- Laterally tilt** (elevate) the pelvis
  - Laterally flex** the vertebral column to the same side
  - Assist to the **extend** vertebral column
- Bilaterally:
- Fix** the last rib during forced inhalation and exhalation



**O** Posterior iliac crest

**I** Last rib

Transverse processes of 1st-4th lumbar vertebrae



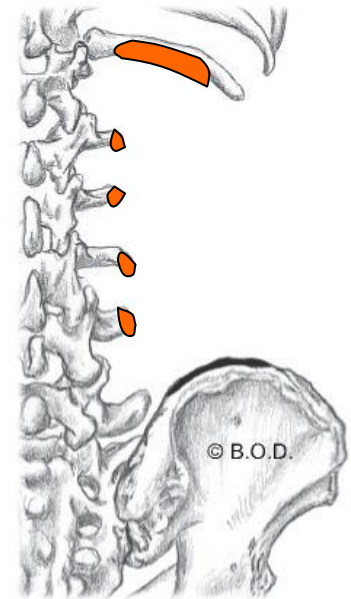
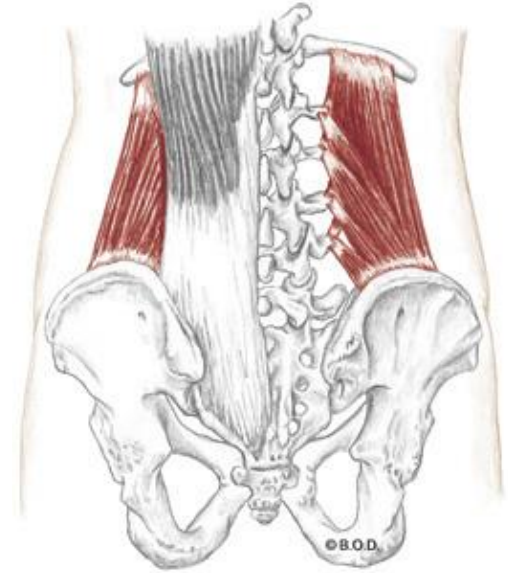
# Quadratus Lumborum, Trail Guide Page 207

- A** Unilaterally:
- Laterally tilt** (elevate) the pelvis
  - Laterally flex** the vertebral column to the same side
  - Assist to the **extend** vertebral column
- Bilaterally:
- Fix** the last rib during forced inhalation and exhalation

**O** Posterior iliac crest

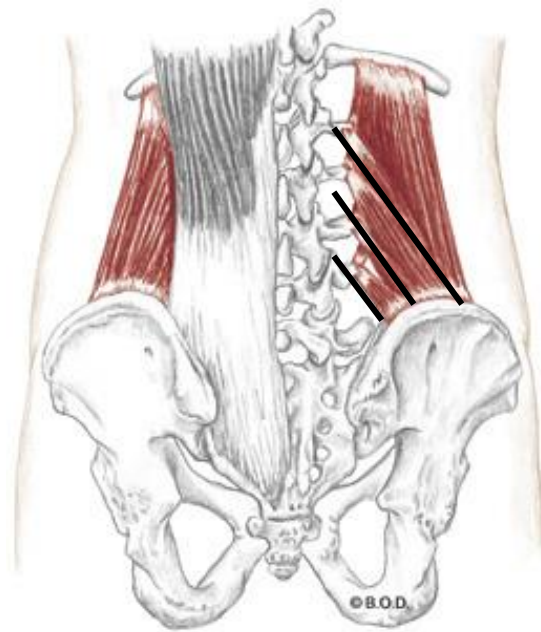
**I** Last rib

Transverse processes of 1st-4th lumbar vertebrae

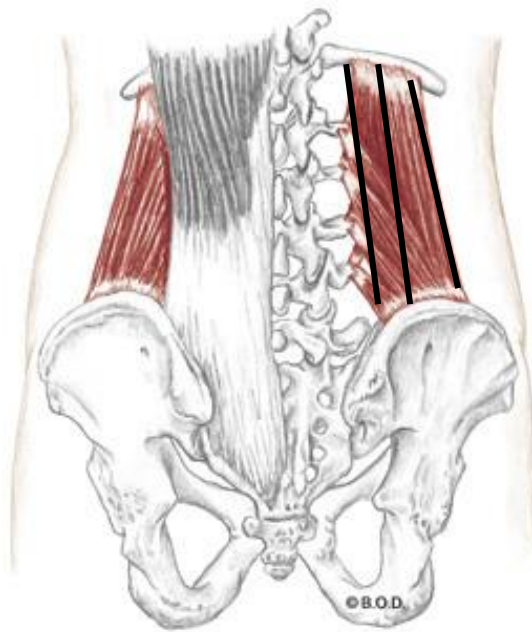


# Quadratus Lumborum, Trail Guide Page 207

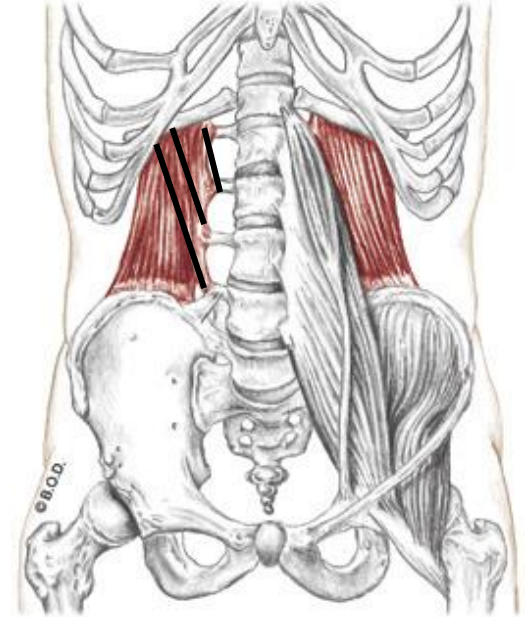
NOTE: the three lines of QL fibers correspond to the deep longitudinal stripping used in the orthopedic protocol for Low Back Pain.



Posterior View



Posterior View



Anterior View



# Multifidi, Trail Guide Page 201

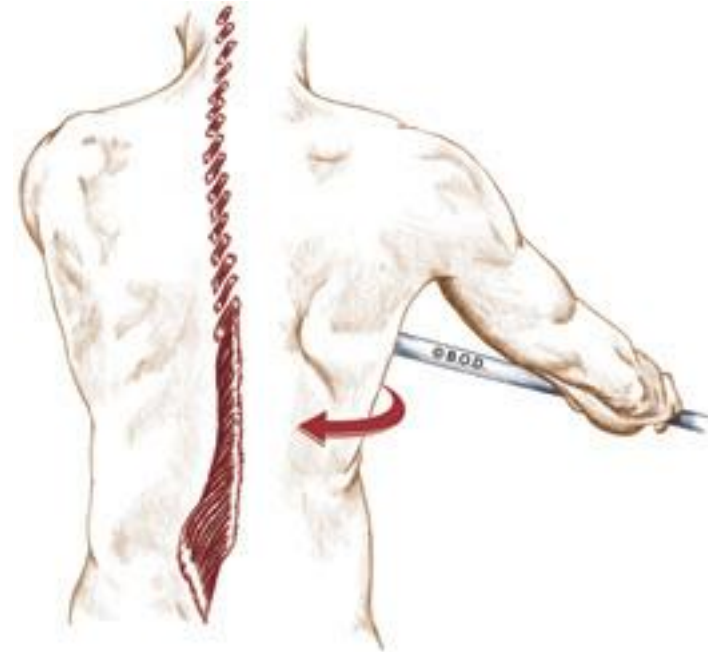
**A** Unilaterally:  
**Rotate** the vertebral column to the opposite side

Bilaterally:  
**Extend** the vertebral column

**O** Sacrum

Transverse processes of lumbar vertebrae through  
cervical vertebrae

**I** Spinous processes of lumbar vertebrae through  
2nd cervical vertebrae spanning 2 to 4 vertebrae



Posterior View

# Multifidi, Trail Guide Page 201

**A** Unilaterally:  
**Rotate** the vertebral column to the opposite side

Bilaterally:  
**Extend** the vertebral column

**O** Sacrum

Transverse processes of lumbar vertebrae through  
cervical vertebrae

**I** Spinous processes of lumbar vertebrae through  
2nd cervical vertebrae spanning 2 to 4 vertebrae



Posterolateral View

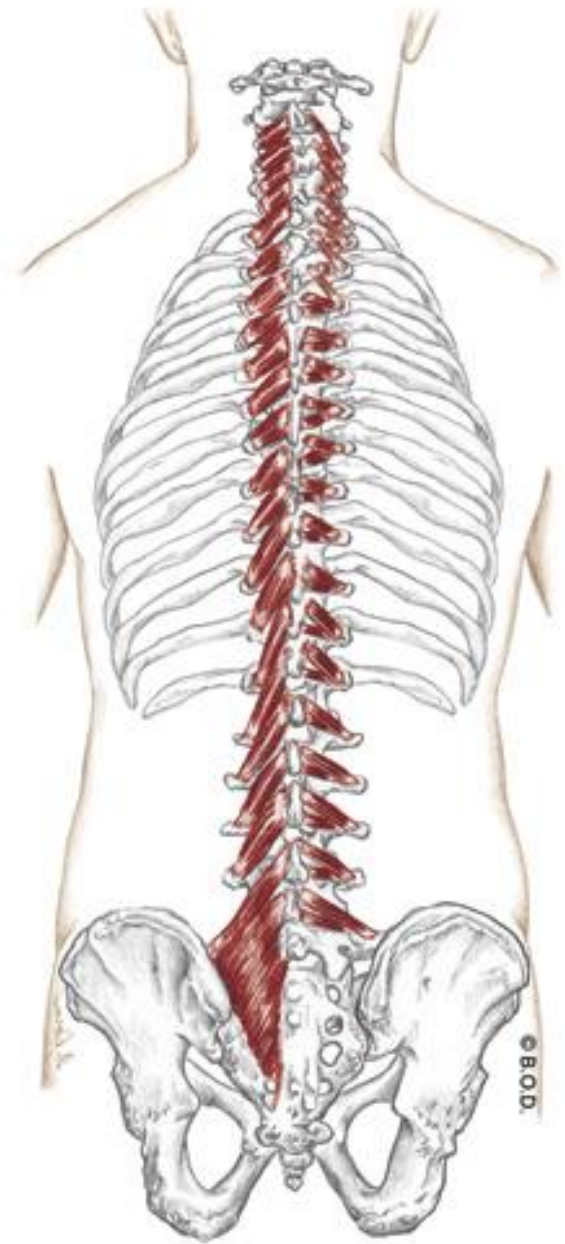
# Multifidi, Trail Guide Page 201

**A** Unilaterally:  
**Rotate** the vertebral column to the opposite side

Bilaterally:  
**Extend** the vertebral column

**O** Sacrum  
Transverse processes of lumbar vertebrae through  
cervical vertebrae

**I** Spinous processes of lumbar vertebrae through  
2nd cervical vertebrae spanning 2 to 4 vertebrae



Multifidi

Rotatores



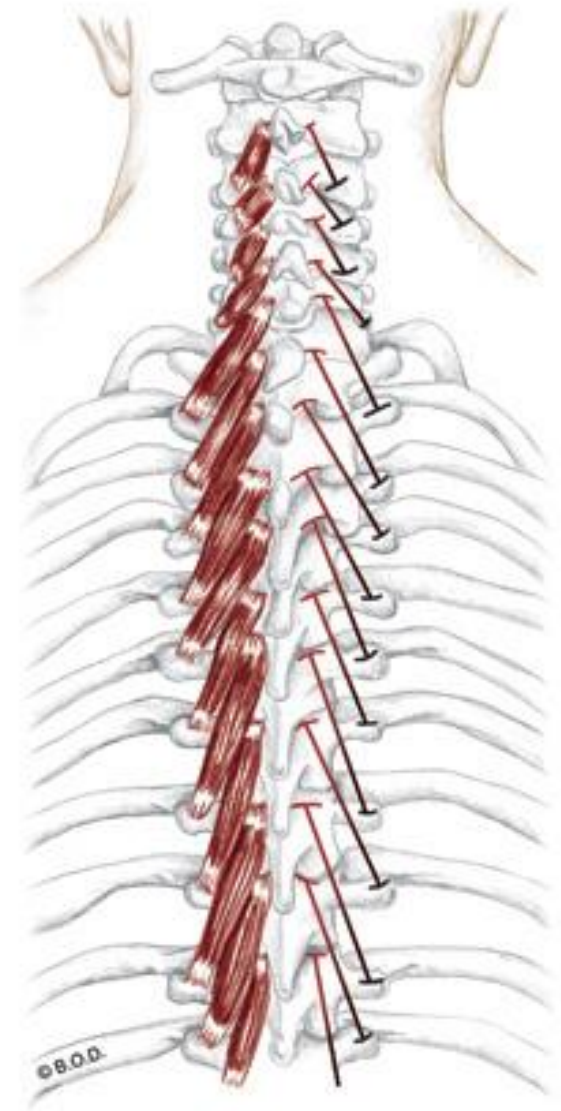
# Multifidi, Trail Guide Page 201

**A** Unilaterally:  
**Rotate** the vertebral column to the opposite side

Bilaterally:  
**Extend** the vertebral column

**O** Sacrum  
Transverse processes of lumbar vertebrae through  
cervical vertebrae

**I** Spinous processes of lumbar vertebrae through  
2nd cervical vertebrae spanning 2 to 4 vertebrae



Multifidi  
Posterior view



# Multifidi, Trail Guide Page 201

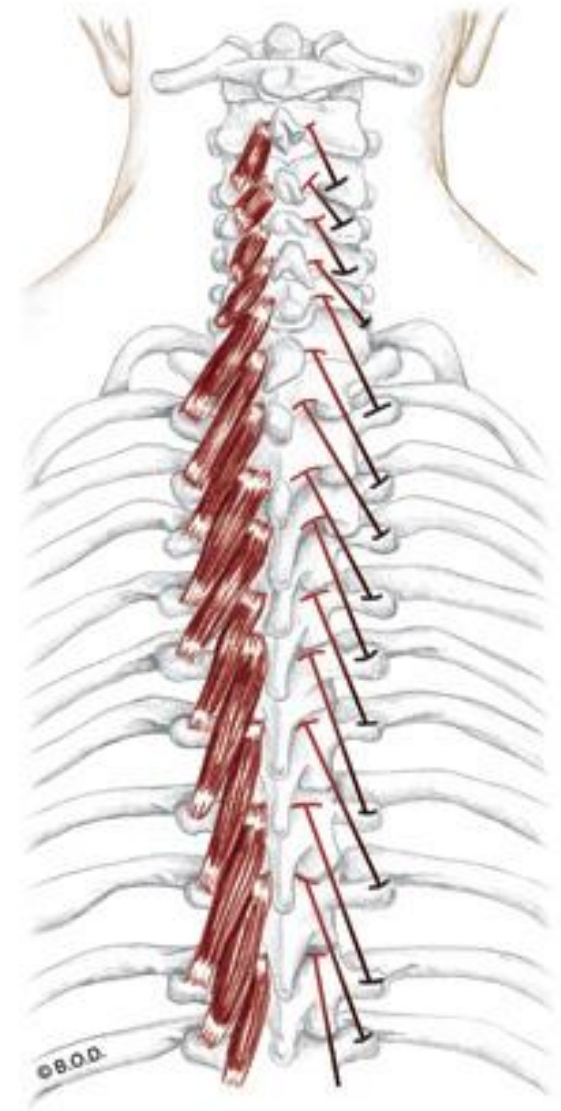
**A** Unilaterally:  
**Rotate** the vertebral column to the opposite side

Bilaterally:  
**Extend** the vertebral column

**O** Sacrum

Transverse processes of lumbar vertebrae through  
cervical vertebrae

**I** Spinous processes of lumbar vertebrae through  
2nd cervical vertebrae spanning 2 to 4 vertebrae



Multifidi  
Posterior view

**SWITCHING  
GEARS  
ABIT...**



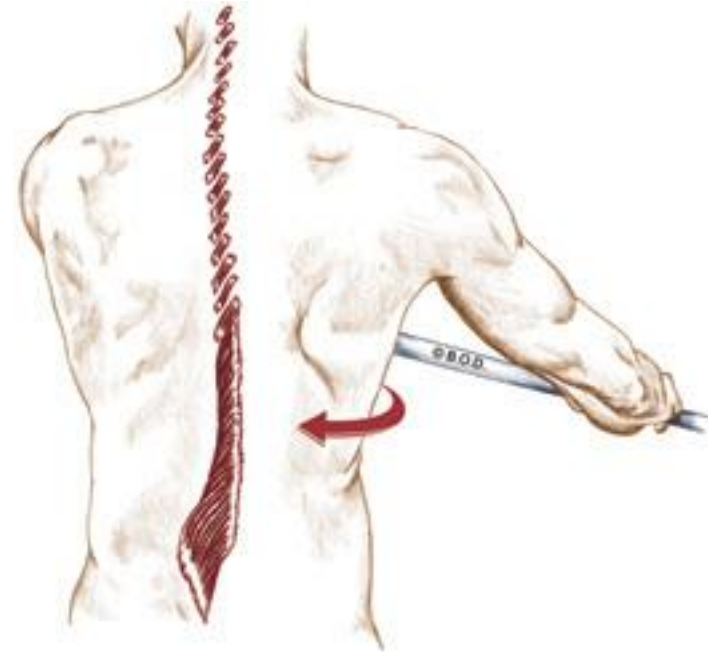
# Rotatores, Trail Guide Page 201

**A** Unilaterally:  
**Rotate** the vertebral column to the opposite side

Bilaterally:  
**Extend** the vertebral column

**O** Transverse processes of lumbar vertebrae through cervical vertebrae

**I** Spinous processes of lumbar vertebrae through 2nd cervical vertebrae spanning 1 to 2 vertebrae



Posterior View

# Rotatores, Trail Guide Page 201

**A** Unilaterally:  
**Rotate** the vertebral column to the opposite side

Bilaterally:  
**Extend** the vertebral column

**O** Transverse processes of lumbar vertebrae through cervical vertebrae

**I** Spinous processes of lumbar vertebrae through 2nd cervical vertebrae spanning 1 to 2 vertebrae



Posterolateral View

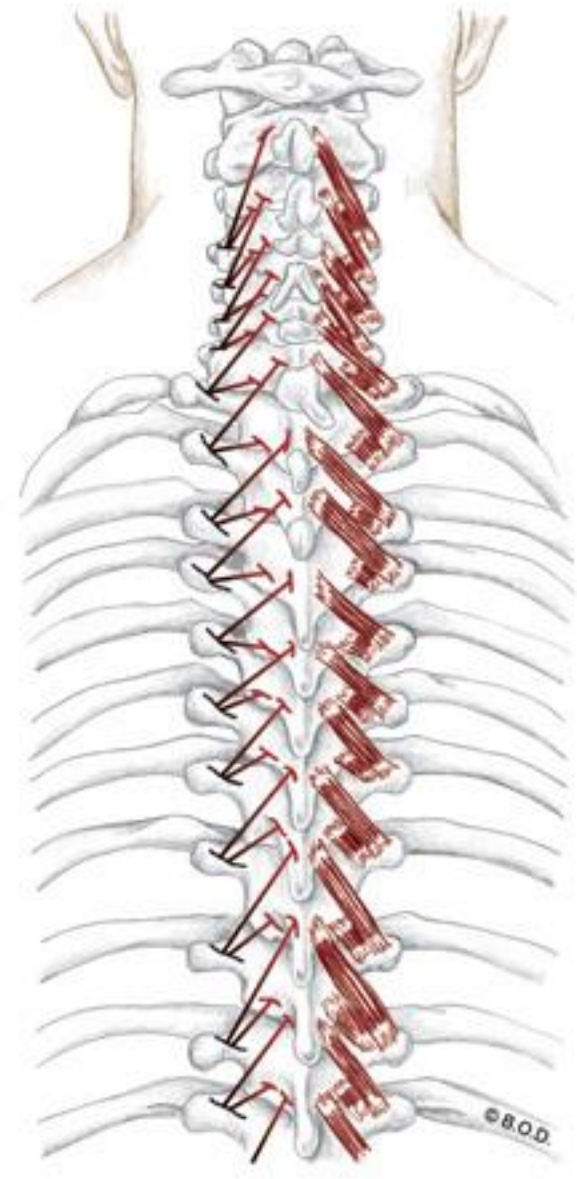
# Rotatores, Trail Guide Page 201

**A** Unilaterally:  
**Rotate** the vertebral column to the opposite side

Bilaterally:  
**Extend** the vertebral column

**O** Transverse processes of lumbar vertebrae through cervical vertebrae

**I** Spinous processes of lumbar vertebrae through 2nd cervical vertebrae spanning 1 to 2 vertebrae



Posterior View

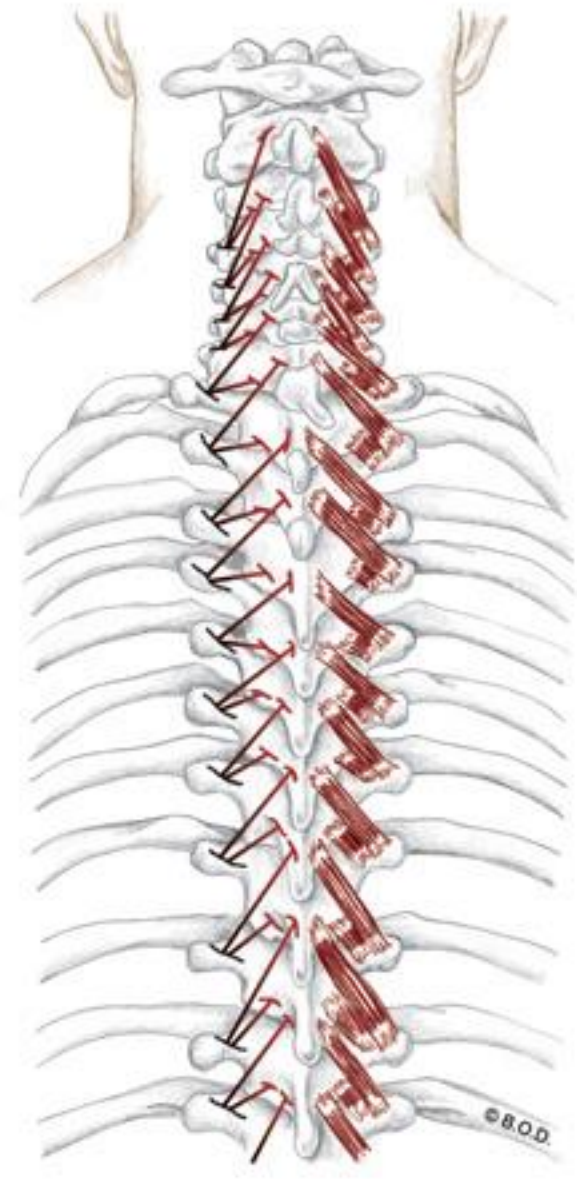
# Rotatores, Trail Guide Page 201

**A** Unilaterally:  
**Rotate** the vertebral column to the opposite side

Bilaterally:  
**Extend** the vertebral column

**O** Transverse processes of lumbar vertebrae through cervical vertebrae

**I** Spinous processes of lumbar vertebrae through 2nd cervical vertebrae spanning 1 to 2 vertebrae



Posterior View



## 76a Orthopedic Massage: Introduction - Low Back Pain

J - 65



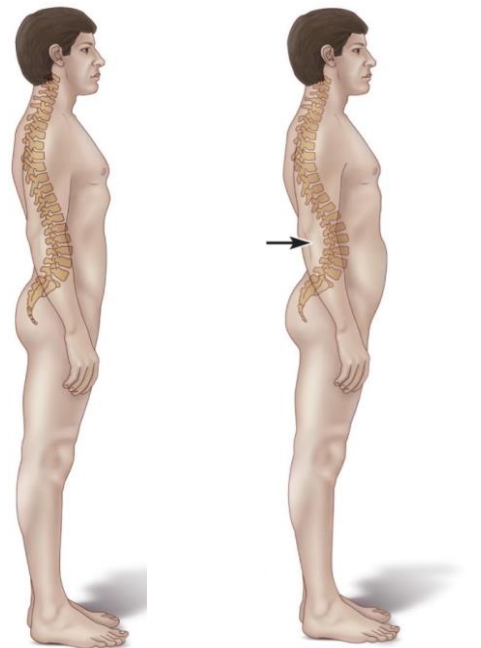
# Causes of Low Back Pain (that we will learn to address)

1. Zygapophysial joint dysfunction
2. Neuromuscular dysfunction



# Zygapophysial Joint Dysfunction

- 1. Zygapophysial joint dysfunction (Z-joint dysfunction)** Lumbar hyperlordosis overloads the Z-joints causing joint capsule and synovial inflammation, and chondromalacia.

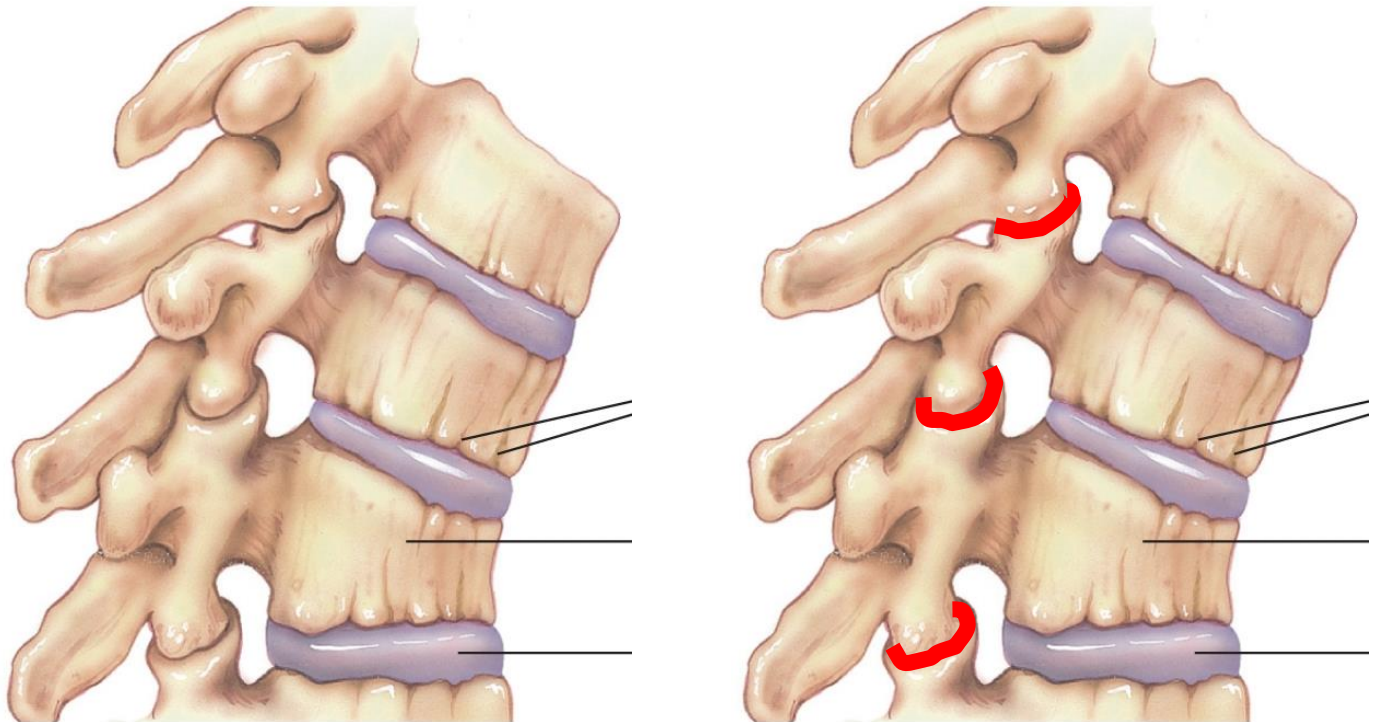


Normal

Hyperlordosis

# Zygapophysial Joint Dysfunction

**Zygapophysial joint (AKA: facet joint, or Z-joint)** Synovial joint between the superior articular process of one vertebra and the inferior articular process of the vertebra directly above it.



# Zygapophysial Joint Dysfunction

**Chondromalacia** Degeneration (softening) of articular cartilage. Most common occurrence is on the underside of the patella, called chondromalacia patellae.





## Other Causes of Low Back Pain

- Sacroiliac joint dysfunction (previously addressed)
- Herniated disc
- Systemic disorders
- Tumors or infections



## Signs and Symptoms of Low Back Pain Due to Z-joint Dysfunction

- Non-specific, deep, and achy
- Localized in a paravertebral area, unilaterally or bilaterally
- Worse in the morning
- Relieved by repeated motion
- Not worsened with coughing or laughing

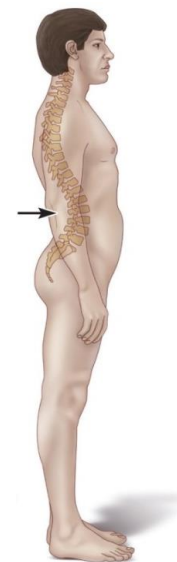
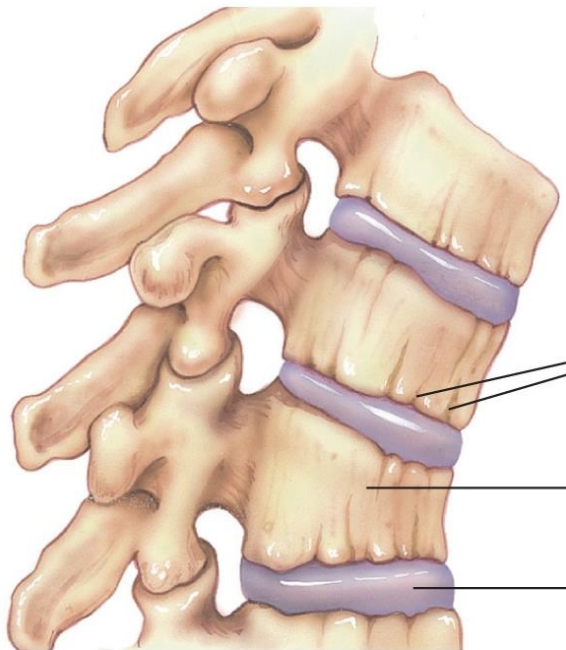


## Activities that Exacerbate Low Back Pain due to Z-Joint Dysfunction

- Rest
- Hyperextension
- Twisting
- Stretching
- Lateral bending

# Why is Z-Joint Dysfunction More Common in Lumbar Vertebrae

- Z-joints are partial load-bearing joints, and
- Vertebral extension increases the load carried by Z-joints, and
- Lumbar vertebrae are already in extension due to their lordotic curve



Hyperlordosis



# Traditional Treatments for Z-Joint Dysfunction

## **NSAIDs and cryotherapy**

- Variable effectiveness: inflammation is not always present
- Long term use may lead to GI tract and cardiovascular risks

## **Instruction in body mechanics, stretching, and strength training**

- Effective: if done regularly to reduce lumbar lordosis

## **Corticosteroid injections**

- Not effective





# Neuromuscular Dysfunction

**Neuromuscular dysfunction** Impaired or abnormal functioning of nerves that control skeletal muscles.



# Etiology of Low Back Neuromuscular Dysfunction

- Trauma
- Fatigued muscles that are suddenly and awkwardly overloaded during a combined lateral flexion and rotation motion
- Dysfunctional coordination between muscle recruitment and fascial tension



# Complications of Low Back Pain Due to Neuromuscular Dysfunction

- Postural stress in standing and sitting positions
- Altered movement patterns:
  - Restricted motion between two vertebral segments can increase or decrease motion at other segments
  - This lack of proper vertebral coordination leads to a mechanical overload and neuromuscular dysfunction of numerous muscles



# Traditional Treatments for Low Back Pain Due to Neuromuscular Dysfunction

## **Bed rest**

- Not effective: more detrimental than helpful
- Provides pain relief
- Causes muscle splinting and range of motion limitations
- May lead to deep vein thrombosis in the lower extremity



# Traditional Treatments for Low Back Pain Due to Neuromuscular Dysfunction

## **NSAIDs**

- Variable effectiveness: inflammation is not always present
- Long term use may lead to GI tract and cardiovascular risks

## **Corticosteroid injections**

- Variable effectiveness: inflammatory and pain management



# Traditional Treatments for Low Back Pain Due to Neuromuscular Dysfunction

## **Instruction in body mechanics, stretching, and strength training**

- Effective: if done properly and regularly



## Considerations and Cautions for Low Back Pain

- Restore proper joint biomechanics without increasing further trauma
- Stretching can be very helpful, especially if performed after massage
- If symptoms get worse as a result of treatment, cease that approach and reinvestigate the problem. You may need to refer the client to a more qualified practitioner for further evaluation
- Pay close attention to the pain reported by the client



## Considerations and Cautions for Low Back Pain

- When in doubt about the cause of Low Back Pain, refer that client to a more qualified practitioner for further evaluation
- This treatment can dramatically alter muscular proprioception resulting in spasms in an easily overloaded muscle. Have the client move slowly and carefully when first getting up from the massage table and for a short time afterward





## 76a Orthopedic Massage: Low Back Pain - Introduction