

Osteopathie Kongress


# Gelenke & Manipulation

International osteopathy conference on joints & manipulation

09.-11.06.2023

Holiday Inn Berlin Airport - Conference Centre

[osteopathy-conference.com](http://osteopathy-conference.com)



OsteopathieSchule  
Deutschland

The poster features a grayscale image of a person's back being massaged by two hands. A circular inset shows a 3D anatomical model of a shoulder joint. A decorative wavy line in shades of purple and pink runs across the middle of the poster, with a halftone dot pattern in the center.

## Osteopathic Diagnosis and Treatment of Knee, Ankle and Foot

- “An Osteopathic Approach Workshop” –William H Devine, DO

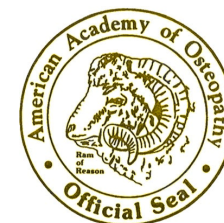


# Or... “An Osteopathic Approach to Lower Extremity Problems”



- **William H. Devine, DO**

- Clinical Professor,
  - Midwestern University, Arizona Campus, USA
- Director of Postgraduate Osteopathic Medical Education
- C- Neuromusculoskeletal Medicine and Osteopathic Manipulative Medicine
- C- Family Medicine and Osteopathic Manipulative Treatment



# Objectives

- With this workshop, there will be some **assumptions** regarding the osteopathic evaluation and treatment:
  1. Usual Orthopedic Tests as to motion will have been done. Some may be shown for demonstration, the focus is on OMT.
  2. Diagnostic Imaging and laboratory testing if indicated has been done prior to OMT.
  3. Examples given of Usual cases have been referred to you or have come to you as a DO, with a presumptive diagnoses done- case examples will be provided.
- A goal of this workshop is to give you new useful concepts and insights in the Diagnosis and Treatment of common extremity problems.
- Part of the holistic “Osteopathic Approach” such as diet, exercise prescription, metabolic problems and behavior modification, etc. will be briefly mentioned .
- **Most importantly** –to give you concepts and Osteopathic techniques that you can use for evaluation and treatment.

## History of Chief Complaint

Is Important to determine a working diagnosis and selection of OMT, but also a treatment plan later.



- Whether Injury, Arthritis, Fx, Repetitive Use, Referred or Local Pain???
- For the Diagnosis- history and physical exam are important
- Before making decision as to selection the type of OMT .





Part of the  
evaluation and  
treatment-

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The “Five Osteopathic Health Care  
MODELS” Should be considered  
always.

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The 5 models are the basis for  
Osteopathic Care.....

# 5 Models of patient assessment and treatment are necessary for upper extremity diagnosis and successful treatment:

According to Still, “**Life Essentials**” include:

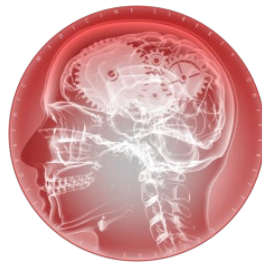
*food, air, water, light, heat, exercise, protection and rest- We need these in addition to environmental and psychological harmony.*

→ What do these translate to today?

These are the foundations of the osteopathic approach to patient health and these create our models for patient assessment and treatment.



Biomechanical



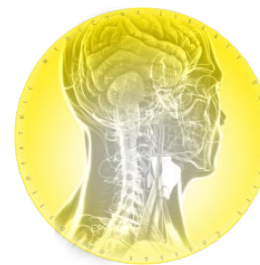
Behavioral



Metabolic - Energy



Respiratory -  
Circulatory



Neurological

# “FIVE MODELS OF OSTEOPATHY”

- **Biomechanical**
  - Optimize structure and function of the musculoskeletal system to affect the body’s homeostatic mechanisms
- **Respiratory/Circulatory**
  - Optimize respiratory and circulatory components of homeostatic responses
- **Metabolic/Energetic**
  - Optimizes the body’s biochemical processes, cellular functions, and energy consumption
- **Neurologic**
  - Normalizes nervous system function including somatic and autonomic nerves
- **Behavioral**
  - Utilizes mental, emotional, and spiritual influencers of health

# “Osteopathic” Considerations:



**Osteopathie**Schule  
Deutschland

## **Encompassing Approach- “5 Models of Osteopathy” and Tenants**

- Body Unit
  - Conditioning and range of motion
  - Stretching, then strengthening
  - Preventative mechanisms
- Structure and Function
  - Diet and nutrition
  - Ergonomics: ie workstation
  - Restoration towards “normal” – nudge the body hemostasis
    - resting tone, balance, circulation
- Healing
  - Patient specific treatment
  - Realistic goals





# “Orthopedic” Considerations

## Diagnosis

- History and Physical
- Ortho Exams and Tests will not be covered in lab
  - Use a textbook such as Hoppenfield as reference
  - Active then Passive with Provocative testing
  - X-ray
  - MRI
  - Ultrasound, real time

## Medical Management:

- Steroid injections and Anti-inflammatory Rx= Topical and/or Oral
  - Decrease inflammatory damage
  - Inhibits body's healing response

## History of Chief Complaint is important for Dx and Tx of Extremities

- Consider the onset of symptoms.
- Repetitive use injury or acute?
- Ask the patient what he/she thinks caused the problem.
- What makes it worse?
- What makes it better?
- Look at the cervical thoracic and shoulder for referral or restriction.
- Imaging tests done? More needed?
- Laboratory tests done? Systemic Disease?





We will start with Knee Problems then  
Ankle and Foot Problems:



All are Related by  
Compensatory  
mechanisms that  
involve functional  
anatomy and  
functional physiology

# Your Osteopathic Palpation Skills May Outperform Imaging

Real Time Ultrasound and Xray may help, but just biomechanical ROM and palpation of the joints give immediate information and hint as to diagnosis and treatment.

MRI is a Gold Standard, but expensive and is a static picture of bone, joint and capsule status, but your own palpatory skills can rapidly give very acute information.

14 % failure to diagnose by MRI in some studies as compared to real time ultrasound.



# Myofascial Pain Patterns, Myofascial Trigger Points and Counterstrain Tenderpoints have referred patterns.

- We plan to give you some extra tools today for diagnosis and treatment.
- Standard orthopedic examinations will not be fully covered.
- But concepts as to learning myofascial pain patterns as part of your examination as well as areas of greatest restriction will be useful.



Keep in mind that  
“Pain is a Liar”...

- May be from  
Adaptation
- Referred pain from  
the spine or  
viscera.



# “Pain is Often a Liar”

- The location of pain complaint may be just an Adaptation or Referred pain- but it must be considered before action is taken to treat.
- The pain pattern may be a clue as to origin, and other findings including palpation.





# Examples of Myofascial “Liars”:



Besides cervical radicular pain and viscerosomatic pains such as from the abdominal viscera to the lower extremity, are often missed referred Myofascial Pain from the pelvis and lumbar region pathology. The Ankle can cause lateral knee pain.



History of Chief Complaint, and palpatory findings, ROM testing will help identify the joint pains, weakness or paresthesia..



Patients can have **Both** Referred and Local symptoms. Multiple problems are common.



# Problems of the Knee, Ankle and Foot

All are often Related by  
History of injury,  
connective tissue  
disease and  
Compensatory  
mechanisms





Regardless- Injury or Repetitive Use vs Referred or Local Pain.  
The Diagnosis, history and physical exam are important for  
Osteopathic treatment and eventual healing



# Observe the Patient When IS Describing PAIN... Pay attention to the Clues

- You will lose the trust of the patient
- You will often miss the diagnosis by failing to observe the location and type of pain
- The selection of OMT that you use may depend on this brief observation
- The confidence of the patient is important for obtaining history and eventually supportive care
- Have the patient show with the hands where the pain is located... Sweeping motion or local point
- Good notes are important, but the diagnosis is more





- Break? 15 Minutes?  
.....OMT Lab is next

Now “Hands  
On” the  
Lower  
Extremities  
-The OMT Lab



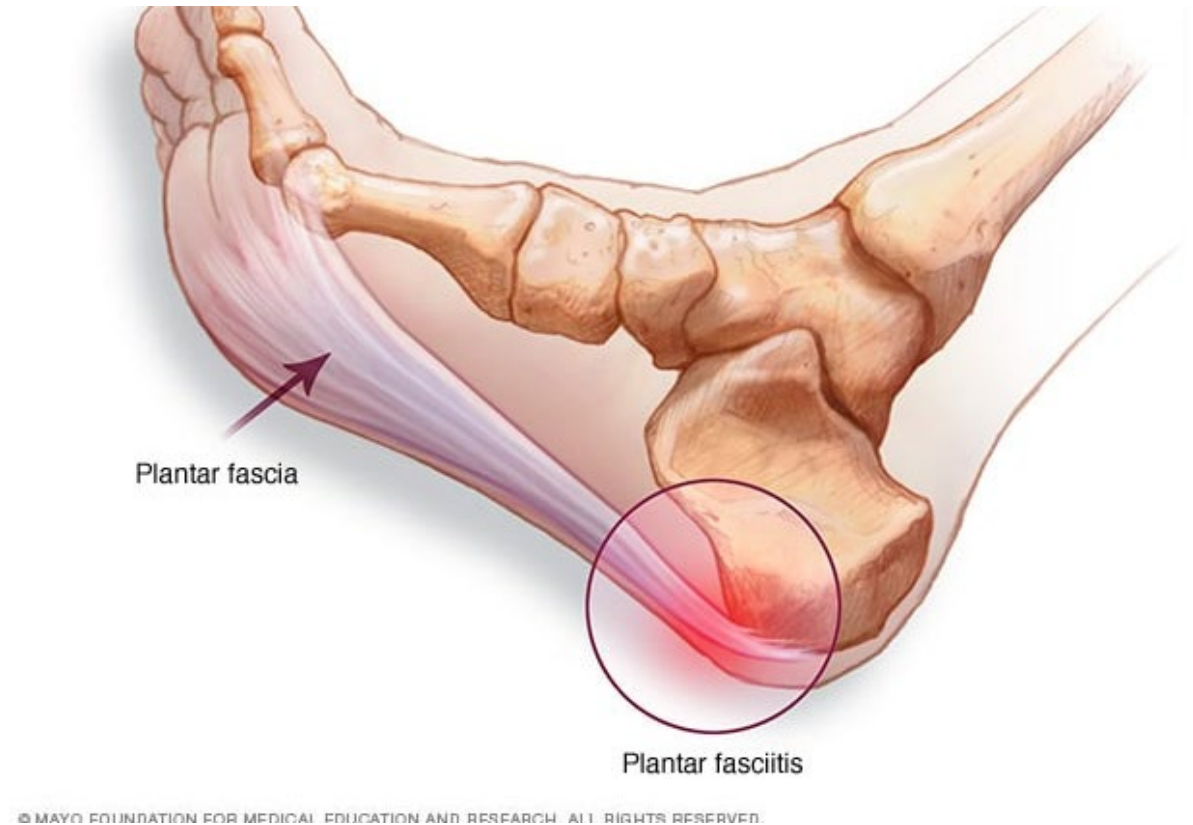
# Treatment of Lower Leg, Ankle, and Foot Pain and Dysfunction with Counterstrain:

Using Myofascial Pain Patterns and  
Dr. Larry Jones' Tender Points

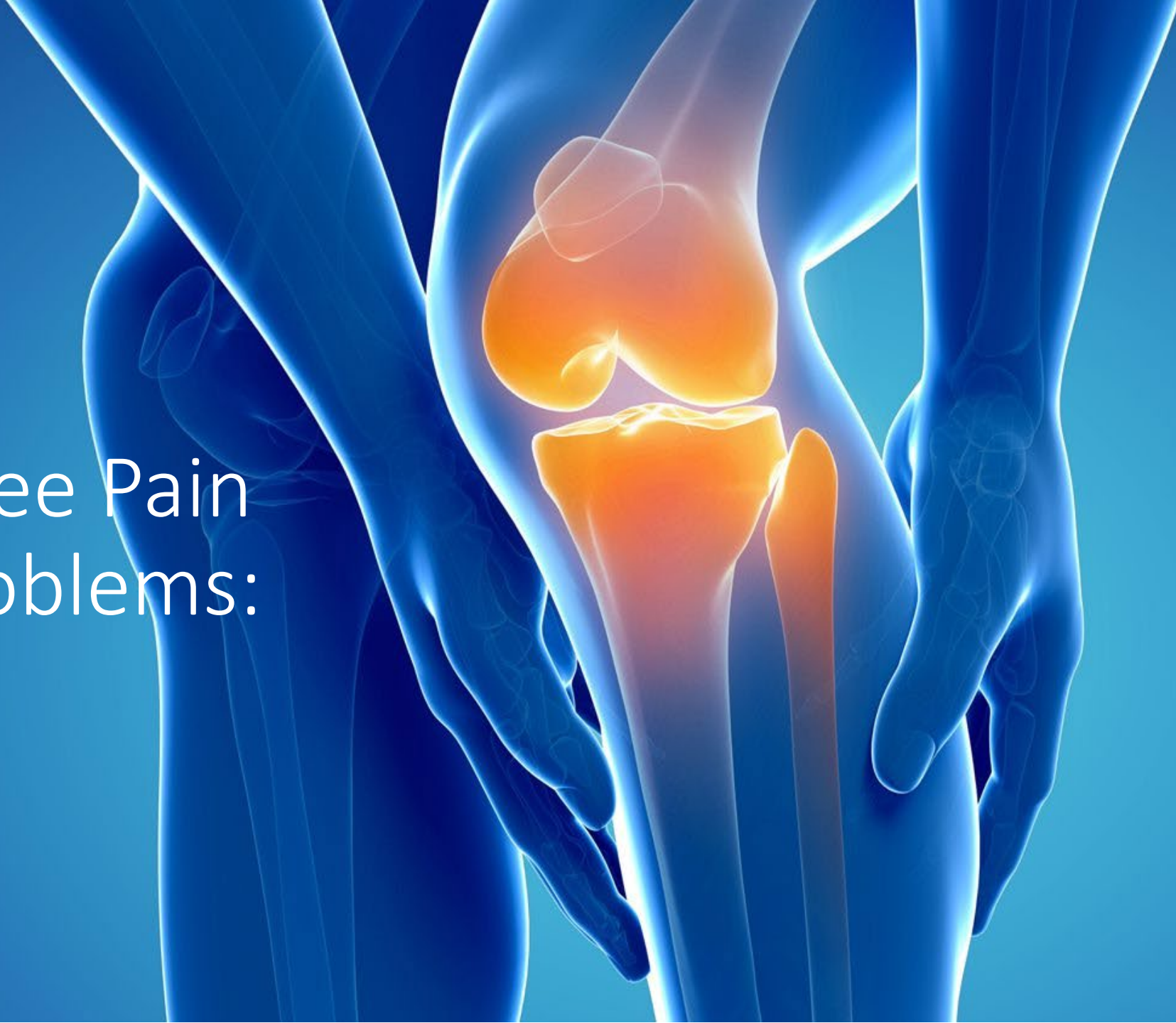




# We will start with Knee then Ankle and Foot problems:



# Knee Pain Problems:



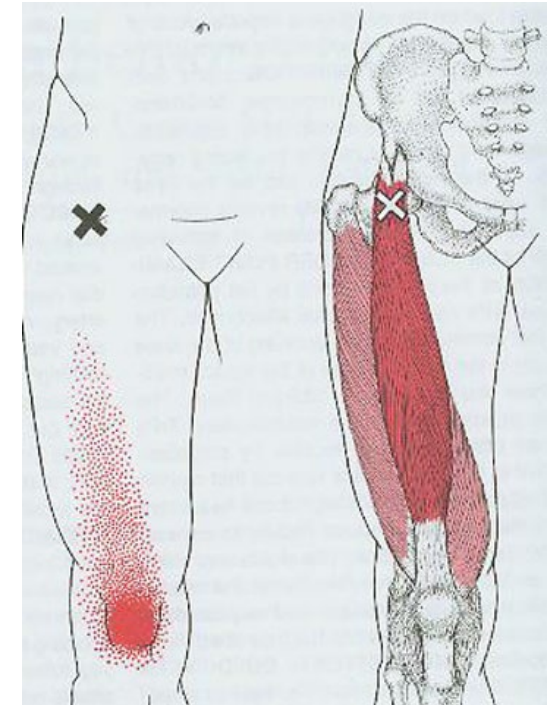
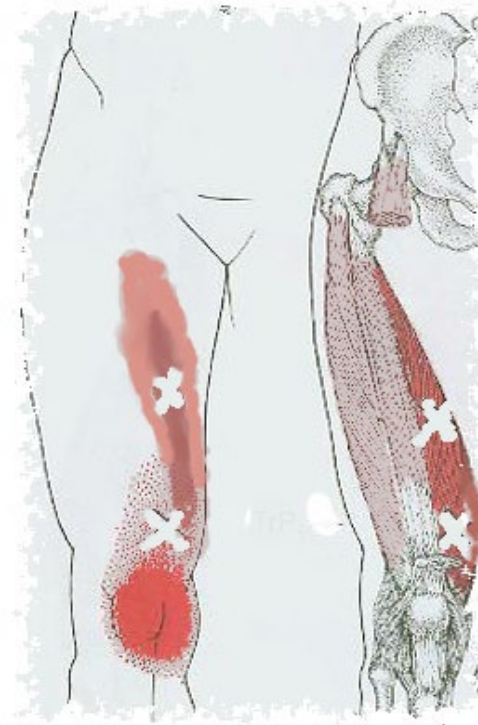
# Lower Extremities and Knee Pain

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# KNEE PAIN - ANTERIOR

RECTUS FEMORIS AND VASTUS MEDIALIS PAIN PATTERNS – ANTERIOR AND MEDIAL





## RECTUS FEMORIS

**Location of Tender Point:** Anterior to the proximal femur where it joins the acetabulum (origin of rectus femoris), or in body of rectus femoris).

**Anatomical Correlation:** As stated.

**Direction to Press on Tender Point:** Press anterior to posterior.

**Treatment Position(s):** With patient supine, stand beside the table with your foot on the table, or sit on the side of the table facing the patient's head on the same side as the Tender Point.

Rest the patient's leg on your thigh, if standing, or shoulder, if sitting. Exert pressure on the patient's anterior thigh, hyper-extending the knee while flexing the hip. In this muscle, as opposed to others where knee extension is paramount, hip flexion is also important — because of the four quadriceps muscles — only the rectus femoris crosses the hip joint.

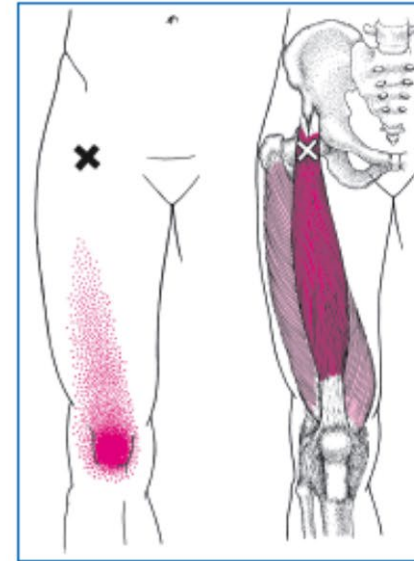
**Frequency of Occurrence:** Common.

**Clinical Correlation(s):** Pain in the anterior medial knee especially when trying to make the muscle work, as when getting out of a chair.

**Associated Pain Referral Pattern:** The same, and pain may also be in the anterior lower thigh.

**Alternate Names/Nomenclatures:** None.

**Explanatory Notes:** This knee pain pattern is most often seen in older patients who complain of pain and weakness in the knee when trying to get out of a chair. Their problem is usually attributed to osteoarthritis. Most of these patients will respond to treatment of this muscle when the Tender Point is present.



Rectus femoris muscle with myofascial pain pattern



Treatment position

## LATERAL KNEE PAIN

### VASTUS LATERALIS

**Location of Tender Point:** On the lateral thigh directly over the vastus lateralis muscle — anywhere from the inferior aspect of the trochanter to just above the lateral aspect of the knee. Because the iliotibial band is located just posterior to the vastus lateralis, avoid confusing the two.

**Anatomical Correlation:** As stated.

**Direction to Press on Tender Point:** Press lateral to medial. However, for the Tender Points lower in the muscle, the direction could be more anterior lateral to posterior medial.

**Treatment Position(s):** With patient supine, stand beside the table on the side of the Tender Point. Place your foot on the table and rest the patient's leg on your thigh. Or, place a pillow or rolled towel under the patient's lower leg to allow knee extension. Exert pressure on the patient's anterior thigh, hyper-extending the knee. Holding this position, grasp the muscle mass at the level of the Tender Point and rotate into the Tender Point to achieve a mobile point and to relieve the Tender Point.

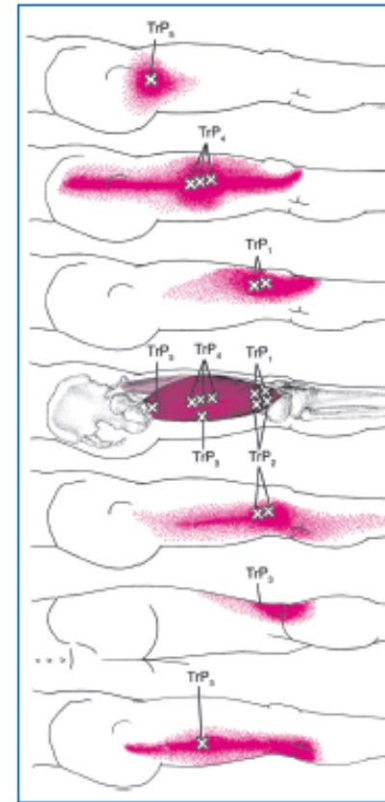
**Frequency of Occurrence:** Common to uncommon.

**Clinical Correlation(s):** Pain in the lateral hip, lateral thigh, and lateral knee, often quite severe.

**Associated Pain Referral Pattern:** Same.

**Alternate Names/Nomenclatures:** None.

**Explanatory Notes:** None.



Myofascial pain patterns for vastus lateralis



Treatment position



## ANTERIOR AND ANTERIOR-MEDIAL KNEE PAIN

### VASTUS MEDIALIS

**Location of Tender Point:** On the anterior-medial aspect of the lower half of the thigh over the vastus medialis muscle.

**Anatomical Correlation:** As stated.

**Direction to Press on Tender Point:** Press from an anterior-medial to medial direction, toward a posterior-lateral to lateral direction.

**Treatment Position(s):** With patient supine, stand beside the table with your foot on the table. Rest the patient's leg on your thigh, or on a pillow or rolled towel placed under the patient's leg, to allow knee extension. Exert pressure on the patient's anterior thigh, hyper-extending the knee. Holding this position, grasp the muscle mass at the level of the Tender Point and rotate into the Tender Point to achieve a mobile point and to relieve the Tender Point.

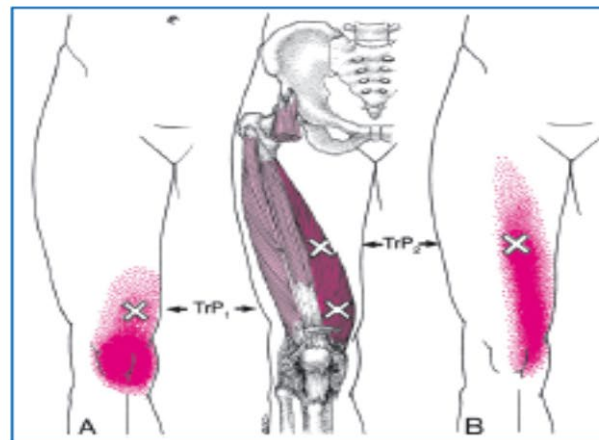
**Frequency of Occurrence:** Common.

**Clinical Correlation(s):** The most common pain is over the anterior medial knee but also can occur in the anterior medial thigh. The knee tends to buckle, according to Travell.

**Associated Pain Referral Pattern:** Same.

**Alternate Names/Nomenclatures:** None.

**Explanatory Notes:** The pain over the anterior medial knee is often mistaken for medial meniscus or medial collateral ligament pain or pain due to osteoarthritis.



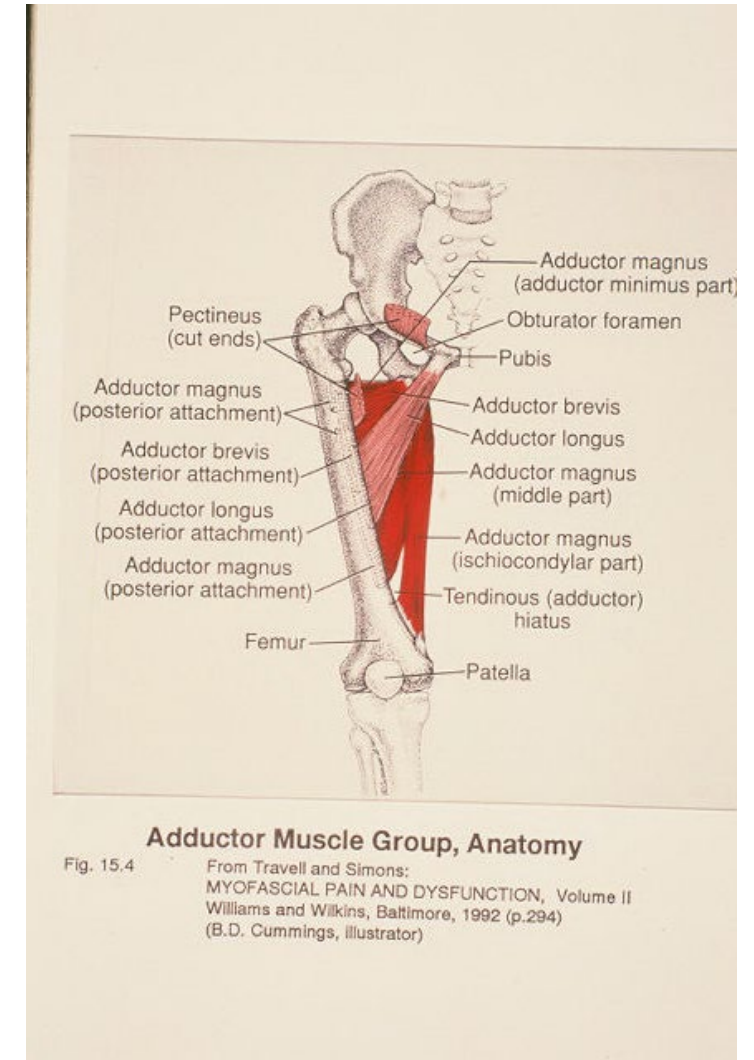
Vastus medialis muscle with myofascial pain pattern



Treatment position

# KNEE PAIN – ANTERIOR MEDIAL

ADDUCTOR BREVIS AND LONGUS  
ARE LESS FREQUENTLY THE  
CAUSE OF MEDIAL KNEE PAIN



## ANTERIOR AND ANTERIOR-MEDIAL KNEE PAIN

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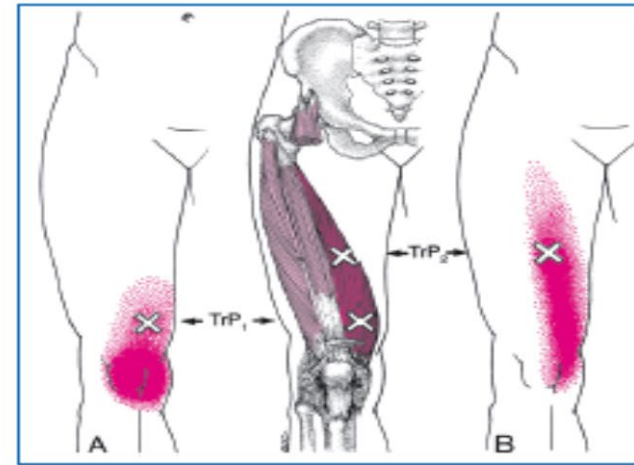
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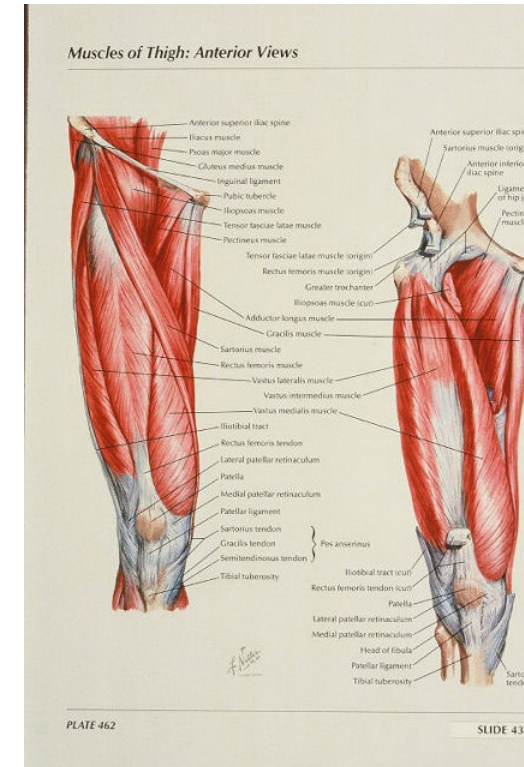
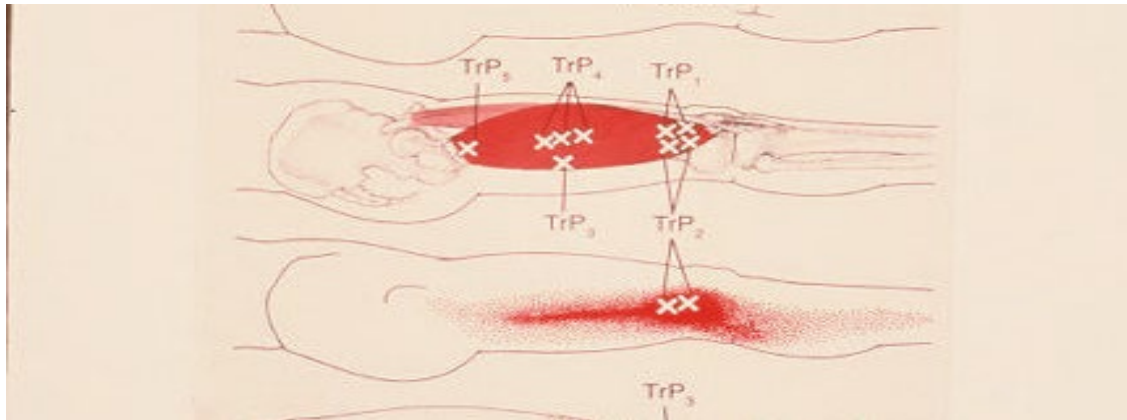


Vastus medialis muscle with myofascial pain pattern



Treatment position

# LATERAL KNEE PAIN



- VASTUS LATERALIS PAIN PATTERN CAN CAUSE NOT ONLY KNEE PAIN BUT LATERAL THIGH ALSO



Most Common SCS TP's for Ankle:

## Left Posterior Fibular Head –Lateral knee pain

### Posterior Fibular Head (L Post Fib head as example):

- Initially locate the tender point on the posterior-medial side of the fibular head and motion testing, determining that the fibular head is posterior
- W/ the thumb of your left hand, move the fibular head more posteriorly, exaggerating it position while simultaneously plantar flexing and invert the ipsilateral corresponding foot / ankle to 'see saw' the fibula anteriorly distally, but posteriorly proximally.
- The forefinger of your left hand continually monitors the patient's posterior tender point during the entire duration of treatment with minimal (approximately 1 ounce) pressure.
- Hold position for 90 second or until release felt at the tender point
- Return to neutral and reassess fibular head motion



## Talofibular Ligament SCS Tenderpoint (and TX)





## LATERAL KNEE PAIN

### VASTUS LATERALIS

**Location of Tender Point:** On the lateral thigh directly over the vastus lateralis muscle — anywhere from the inferior aspect of the trochanter to just above the lateral aspect of the knee. Because the iliotibial band is located just posterior to the vastus lateralis, avoid confusing the two.

**Anatomical Correlation:** As stated.

**Direction to Press on Tender Point:** Press lateral to medial. However, for the Tender Points lower in the muscle, the direction could be more anterior lateral to posterior medial.

**Treatment Position(s):** With patient supine, stand beside the table on the side of the Tender Point. Place your foot on the table and rest the patient's leg on your thigh. Or, place a pillow or rolled towel under the patient's lower leg to allow knee extension. Exert pressure on the patient's anterior thigh, hyper-extending the knee. Holding this position, grasp the muscle mass at the level of the Tender Point and rotate into the Tender Point to achieve a mobile point and to relieve the Tender Point.

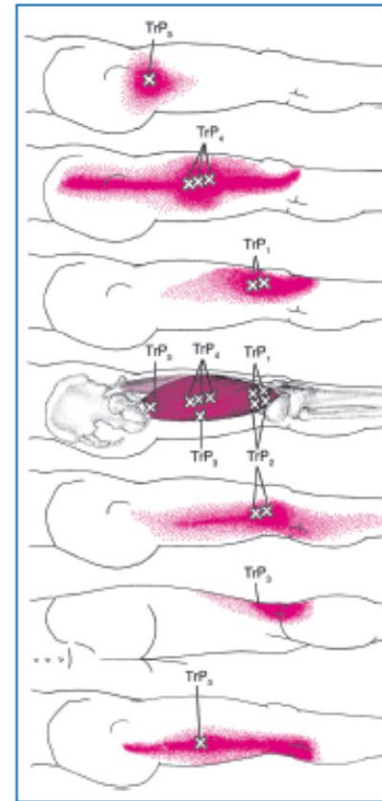
**Frequency of Occurrence:** Common to uncommon.

**Clinical Correlation(s):** Pain in the lateral hip, lateral thigh, and lateral knee, often quite severe.

**Associated Pain Referral Pattern:** Same.

**Alternate Names/Nomenclatures:** None.

**Explanatory Notes:** None.



Myofascial pain patterns for vastus lateralis



Treatment position

# Posterior Knee Pain and Sprains

- Can be from meniscus or cruciate ligament injury
- Can be Osteoarthritis
- Gastrocnemius sprain or strain
- Hip or foot and ankle injury
- OR ALL of above....



## POSTERIOR KNEE PAIN

### GASTROCNEMIUS MUSCLE

**Location of Tender Point:** The most common Tender Points are on the medial and lateral heads of the gastrocnemius muscle near the lower border of the popliteal space. Tender Points also can be found anywhere in the belly of the muscle and along the sides of the Achilles tendon near its insertion.

**Anatomical Correlation:** As stated.

**Direction to Press on Tender Point:**  
Press from posterior to anterior.

**Treatment Position(s):** With patient prone, stand at the same side of the table as the Tender Point, with your foot on the table and your knee flexed. The patient's knee is flexed with the dorsal arch of the foot resting on your thigh. Push the palmar surface of the heel toward the calf to achieve marked extension of the ankle. Rotate internally or externally to fine-tune. Move the heel toward the side of the Tender Point. •

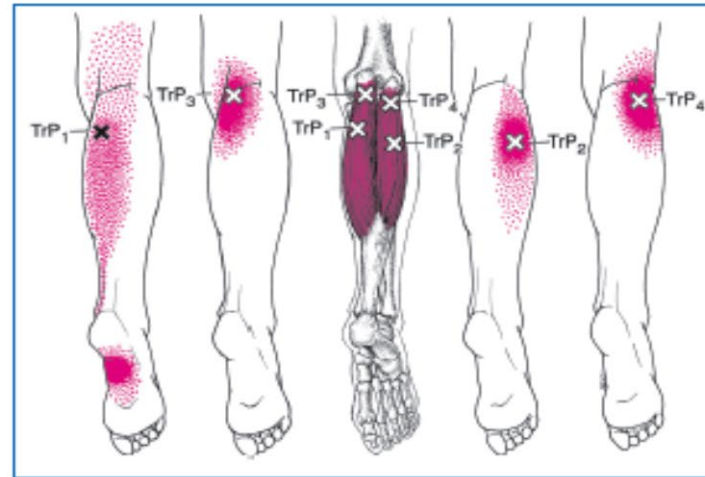
**Frequency of Occurrence:** Common.

**Clinical Correlation(s):** The most common presentation of posterior knee pain is when walking, when the ankle is flexed and the knee is extended.

**Associated Pain Referral Pattern:** Calf pain may be present and, more rarely, posterior ankle pain.

**Alternate Names/Nomenclatures:**  
Jones called this point "Extension Ankle."

**Explanatory Notes:** None.



Myofascial pain pattern



Treatment position

## MEDIAL COLLATERAL LIGAMENT

**Location of Tender Point:** Posterior and medial to patella over the meniscus.

**Anatomical Correlation:** Tibial (medial) collateral ligament.

**Direction to Press on Tender Point:**  
Press from medial to lateral.

**Treatment Position(s):** With patient supine, abduct lower limb at the hip so the lower leg hangs off the table with knee flexed to about 40°. The back of the thigh remains on the tabletop. Exert slight adduction and slight internal rotation on the lower leg to fine-tune the mobile point.

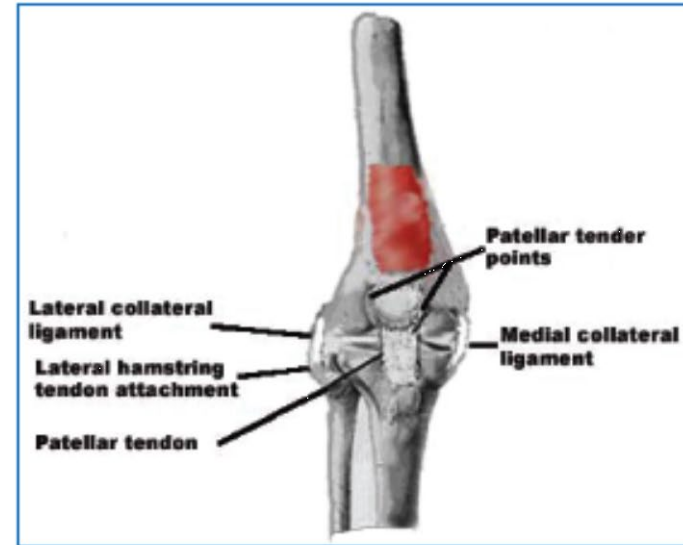
**Frequency of Occurrence:** Common to uncommon.

**Clinical Correlation(s):** Pain in the area of the medial knee, often intermittent (twitchy) in nature.

**Associated Pain Referral Pattern:** Same.

**Alternate Names/Nomenclatures:** Jones called this "Medial Meniscus."

**Explanatory Notes:** None.



Anterior Knee Tender Points



Treatment position



## POSTERIOR KNEE TENDER POINTS

### MEDIAL HAMSTRING TENDON

**Location of Tender Point:** On the tendon of the medial hamstring at, or just superior to, its attachment to the posterior medial surface of the tibia.

**Anatomical Correlation:** The tendon of the medial hamstring muscle at its attachment to the tibia.

**Direction to Press on Tender Point:** Press from posterior to anterior.

**Treatment Position(s):** With patient supine, stand on the same side as the Tender Point with one foot on the table. Place patient's foot in the fold of your flexed knee. The patient's hip is flexed about  $90^\circ$  and the knee is flexed more acutely. Grasp the underside of the patient's calf and externally rotate the tibia on the femur.

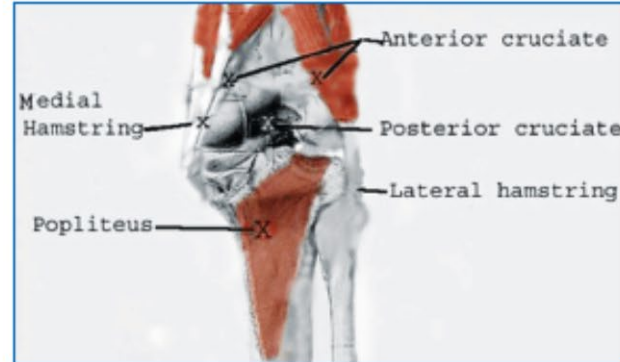
**Frequency of Occurrence:** Uncommon.

**Clinical Correlation(s):** Pain in the posterior medial knee area especially when walking or running.

**Associated Pain Referral Pattern:** Same.

**Alternate Names/Nomenclatures:** None.

**Explanatory Notes:** None.



Posterior knee Tender Points



Treatment position

## POSTERIOR KNEE TENDER POINTS

### LATERAL HAMSTRING TENDON

**Location of Tender Point:** On the lateral hamstring tendon at or near its attachment to the posterior lateral surface of the proximal fibula.

**Anatomical Correlation:** As stated.

**Direction to Press on Tender Point:** Press posterior to anterior.

**Treatment Position(s):** With patient supine, abduct lower limb at the hip to allow the knee to be flexed. Flex knee slightly while the back of the thigh remains on the tabletop. Then exert slight abduction and slight external rotation on the knee to fine-tune the mobile point.

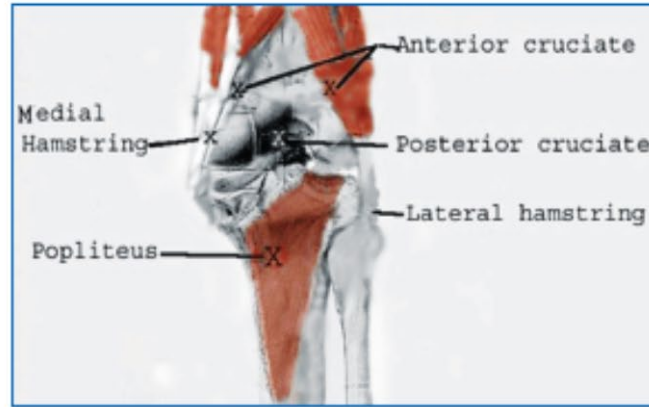
**Frequency of Occurrence:** Uncommon to rare.

**Clinical Correlation(s):** Pain in the posterior lateral knee.

**Associated Pain Referral Pattern:** Same.

**Alternate Names/Nomenclatures:** None.

**Explanatory Notes:** None.



Posterior knee Tender Points



Treatment position



## POSTERIOR KNEE TENDER POINTS

### ANTERIOR CRUCIATE LIGAMENT

**Location of Tender Point:** Adjacent to the distal hamstring muscle at the level of the upper popliteal space. It can be either medial or lateral. If medial, it is found on the lateral aspect of this tendon; if lateral, it is found on the medial aspect of that tendon.

**Anatomical Correlation:** Anterior cruciate ligament.

**Direction to Press on Tender Point:** Press from posterior to anterior.

**Treatment Position(s):** With patient supine, place a rolled towel under the lower femur. Exert pressure on the upper tibia from anterior to posterior, creating a shearing force toward the table. The force needed may be as much as 50 pounds. Fine-tune with internal rotation of the tibia using pressure on the foot.

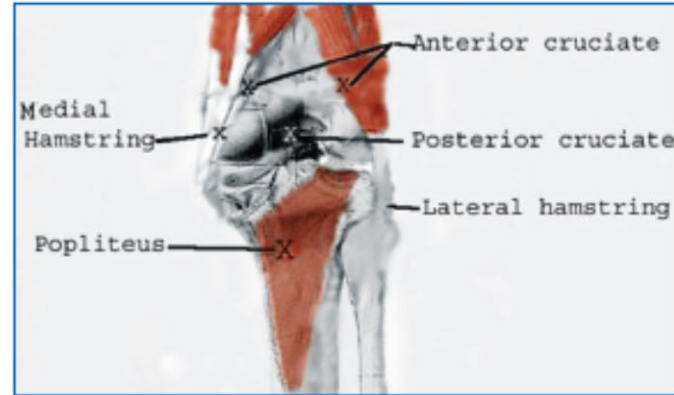
**Frequency of Occurrence:** Uncommon.

**Clinical Correlation(s):** Deep knee pain posteriorly.

**Associated Pain Referral Pattern:** Same.

**Alternate Names/Nomenclatures:** None.

**Explanatory Notes:** None.



Posterior knee Tender Points



Treatment position

## POSTERIOR KNEE TENDER POINTS

### POSTERIOR CRUCIATE LIGAMENT

**Location of Tender Point:** In the center of the popliteal space.

**Anatomical Correlation:** Posterior cruciate ligament.

**Direction to Press on Tender Point:** Press from posterior to anterior.

**Treatment Position(s):** With patient supine, place a rolled towel under the upper calf. Exert pressure on the lower femur from anterior to posterior, creating a shearing force toward the table. The force needed may be as much as 50 pounds. Fine-tune with internal rotation of the tibia using pressure on the foot.

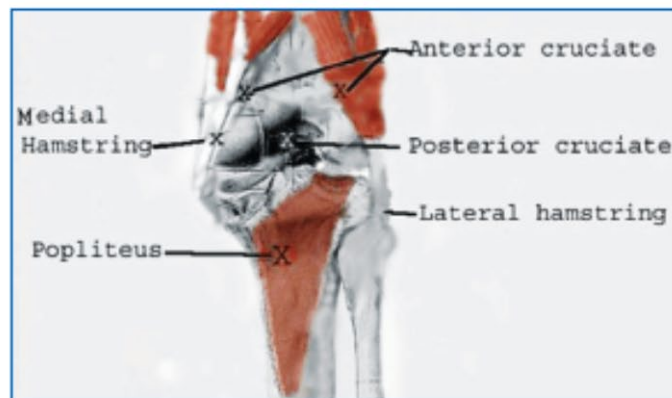
**Frequency of Occurrence:** Uncommon.

**Clinical Correlation(s):** Deep posterior knee pain.

**Associated Pain Referral Pattern:** Same.

**Alternate Names/Nomenclatures:** None.

**Explanatory Notes:** None.



Posterior knee Tender Points



Treatment position



- Break? 15 Minutes?



# Foot and Ankle Considerations

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# Treatment of Lower Leg, Ankle, and Foot Pain and Dysfunction with Counterstrain:

Using Myofascial Pain Patterns and Dr. Larry Jones' Tender Points



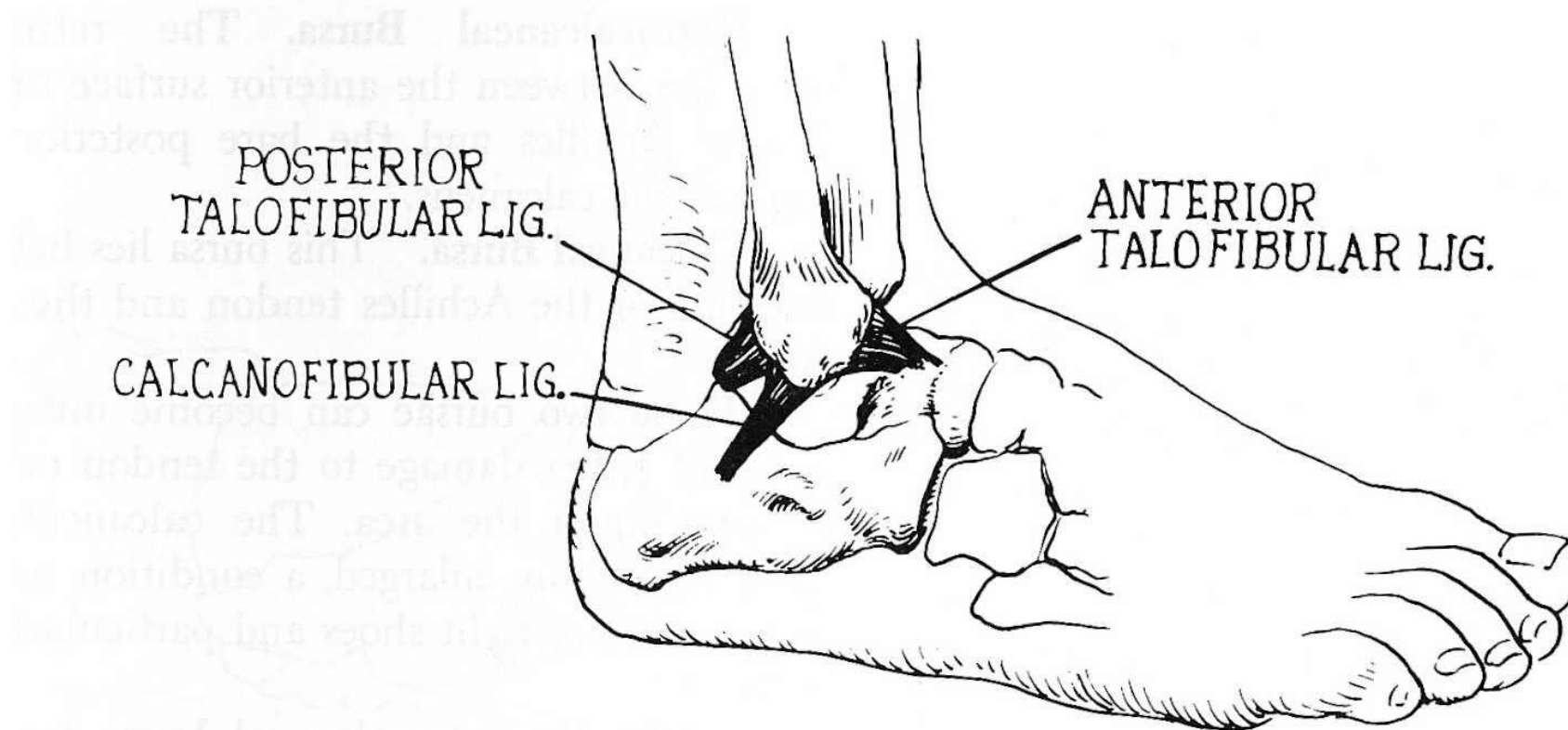
# Posterior Tibia SCS and Inversion Sprain of Ankle

Not in Myers text.

Very common cause  
of Knee pain after  
ankle inversion  
sprain or foot injury



“LATERAL ANKLE” INCLUDES TALOFIBULAR LIGAMENT AND OTHERS...



**Fig. 44.** Three important ligaments of the lateral aspect of the ankle.

## LATERAL ANKLE (Peroneus Brevis, Peroneus Longus)

**Location of Tender Point:** In a depression located about  $\frac{3}{4}$ -inch below, and anterior to the lateral malleolus. An alternate Point is just below the fibular head where the muscle attaches on the lateral surface of the leg.

**Anatomical Correlation:** Peroneus brevis and/or peroneus longus.

**Direction to Press on Tender Point:** Press from lateral to medial.

**Treatment Position(s):** 1) Patient lies on affected side with knee flexed and ankle suspended over the edge of the table. 2) Patient moves to the end of the table and suspends foot over the edge, as shown. Place a rolled towel or pad between ankle and table edge for comfort. Firmly grasp the medial foot and calcaneus. Exert force, up to 50 pounds, toward the floor to create eversion of the ankle. Slight external rotation is usually needed to fine-tune.

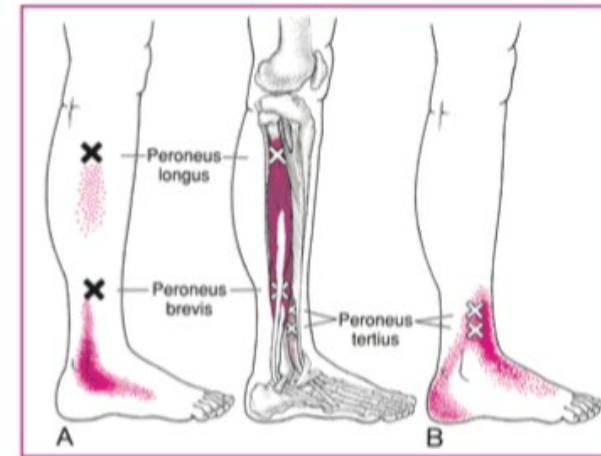
**Frequency of Occurrence:** Common to uncommon.

**Clinical Correlation(s):** Lateral ankle pain, which may extend forward along the side of the foot and may be present in the lateral leg also.

**Associated Pain Referral Pattern:** Same.

**Alternate Names/Nomenclatures:** None.

**Explanatory Notes:** None.



Pain patterns - peroneal muscles



Treatment position (Figure A.)

Most Common SCS TP's for Ankle:

## Left Posterior Fibular Head –Lateral knee pain

### Posterior Fibular Head (L Post Fib head as example):

- Initially locate the tender point on the posterior-medial side of the fibular head and motion testing, determining that the fibular head is posterior
- W/ the thumb of your left hand, move the fibular head more posteriorly, exaggerating it position while simultaneously plantar flexing and invert the ipsilateral corresponding foot / ankle to 'see saw' the fibula anteriorly distally, but posteriorly proximally.
- The forefinger of your left hand continually monitors the patient's posterior tender point during the entire duration of treatment with minimal (approximately 1 ounce) pressure.
- Hold position for 90 second or until release felt at the tender point
- Return to neutral and reassess fibular head motion

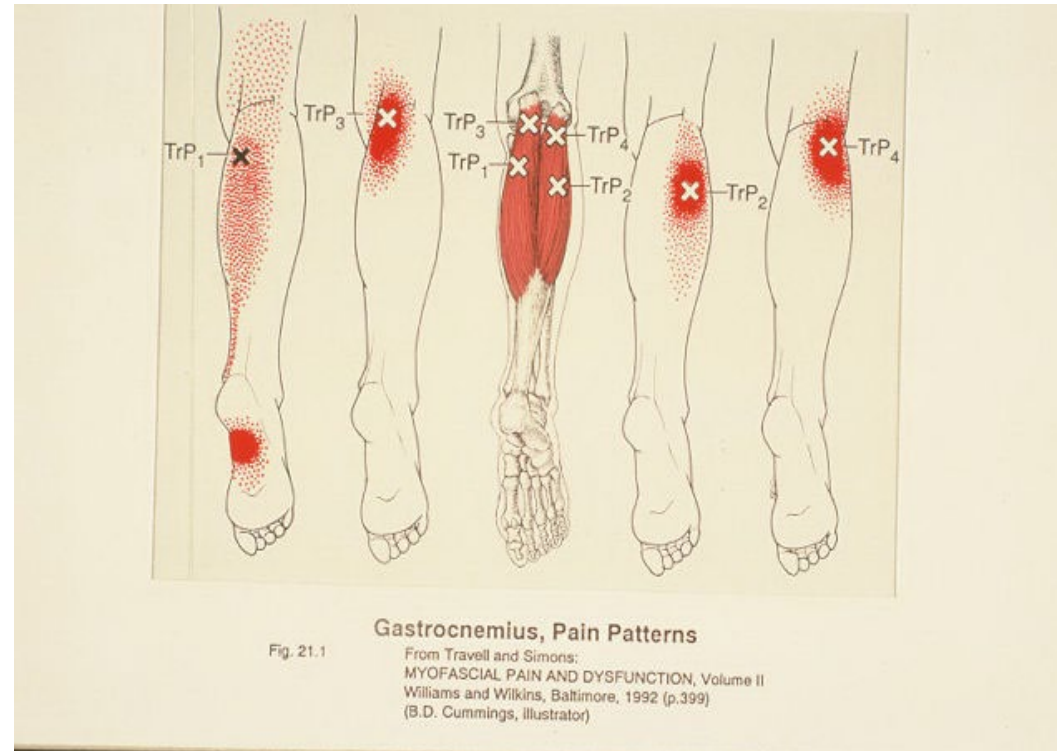
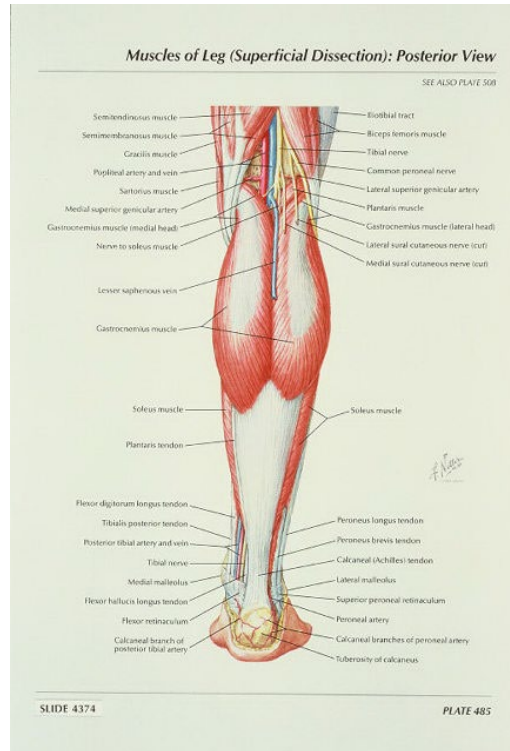




## Talofibular Ligament SCS Tenderpoint (and TX)



# POSTERIOR KNEE PAIN



**GASTROCNEMIUS – A COMMON SOURCE OF POSTERIOR KNEE PAIN**



## POSTERIOR KNEE PAIN

### GASTROCNEMIUS MUSCLE

**Location of Tender Point:** The most common Tender Points are on the medial and lateral heads of the gastrocnemius muscle near the lower border of the popliteal space. Tender Points also can be found anywhere in the belly of the muscle and along the sides of the Achilles tendon near its insertion.

**Anatomical Correlation:** As stated.

**Direction to Press on Tender Point:**  
Press from posterior to anterior.

**Treatment Position(s):** With patient prone, stand at the same side of the table as the Tender Point, with your foot on the table and your knee flexed. The patient's knee is flexed with the dorsal arch of the foot resting on your thigh. Push the palmar surface of the heel toward the calf to achieve marked extension of the ankle. Rotate internally or externally to fine-tune. Move the heel toward the side of the Tender Point. •

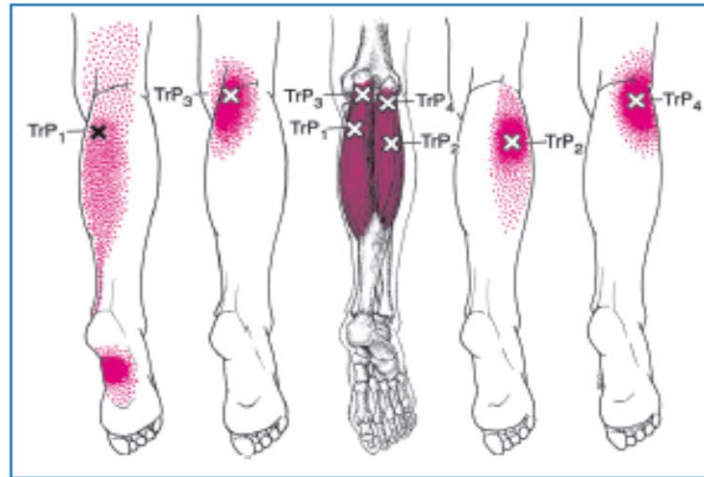
**Frequency of Occurrence:** Common.

**Clinical Correlation(s):** The most common presentation of posterior knee pain is when walking, when the ankle is flexed and the knee is extended.

**Associated Pain Referral Pattern:** Calf pain may be present and, more rarely, posterior ankle pain.

**Alternate Names/Nomenclatures:**  
Jones called this point "Extension Ankle."

**Explanatory Notes:** None.



Myofascial pain pattern



Treatment position

## POSTERIOR KNEE PAIN

### SOLEUS

**Location of Tender Point:** Posterior to tibia medially on the fibers of the muscle. Also can be palpated though the gastrocnemius muscle, as the soleus lays directly beneath the main part of this muscle.

**Anatomical Correlation:** Soleus muscle.

**Direction to Press on Tender Point:** Press medial to lateral on the fibers of the soleus posterior to the mid-portion of the tibia. Otherwise palpated posterior to anterior though the gastrocnemius.

**Treatment Position(s):** With the patient prone, stand on the same side of the table as the Tender Point with your foot on the table, knee flexed. Flex the patient's knee by resting the dorsal arch of the foot on your thigh. Push the plantar surface of the heel toward the calf to achieve marked extension of the ankle. Rotate Internally or externally to fine-tune. Move the heel toward the side of the Tender Point.

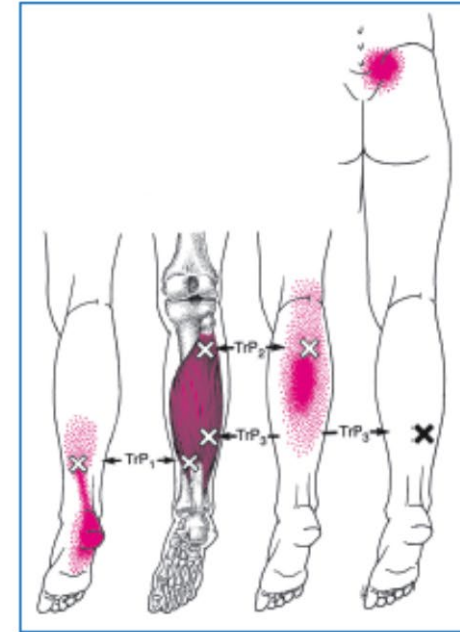
**Frequency of Occurrence:** Common to uncommon.

**Clinical Correlation(s):** Calf pain, posterior knee discomfort, and posterior heel pain extending into the bottom of the heel.

**Associated Pain Referral Pattern:** May refer pain to the sacroiliac joint area of the same side.

**Alternate Names/Nomenclatures:** In his first book, Jones referred to this Point as "Flexion Medial Calcaneus."

**Explanatory Notes:** The soleus is considered separately from the gastrocnemius muscle because the pain pattern may present quite differently.



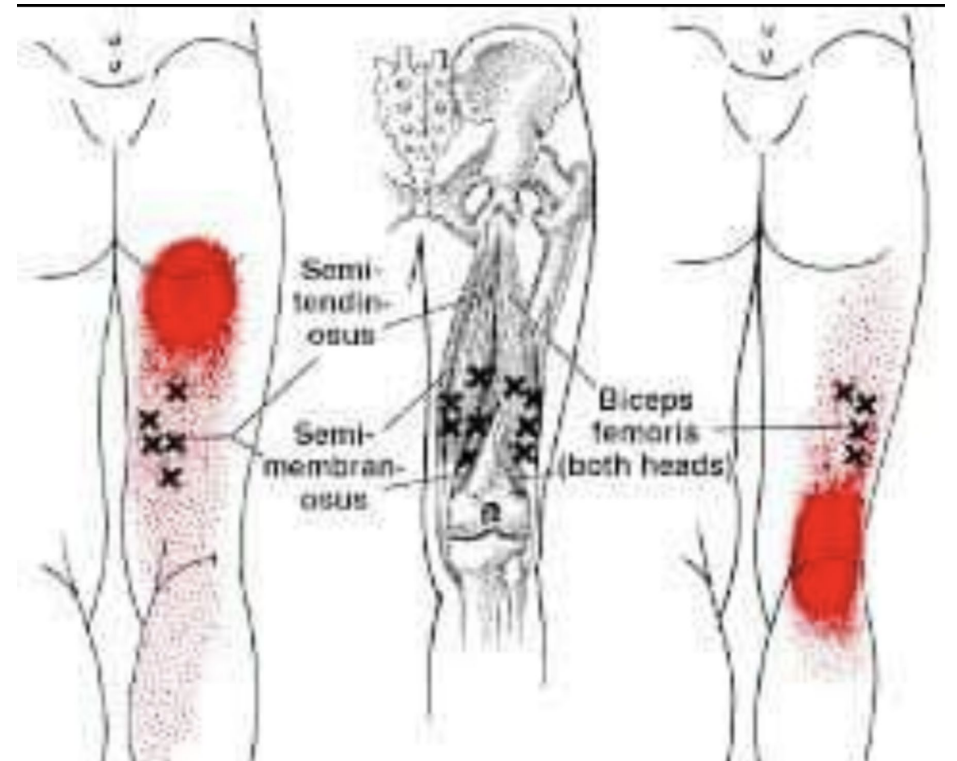
Pain pattern - soleus



Treatment position

# POSTERIOR KNEE PAIN

THE BICEPS FEMORIS PORTION OF THE HAMSTRING CAN CAUSE POSTERIOR KNEE PAIN



## POSTERIOR KNEE PAIN

### BICEPS FEMORIS LONG- and SHORT-HEAD

**Location of Tender Point:** In the posterior thigh over the involved muscle, lying lateral to the midline.

**Anatomical Correlation:** As shown in Figure B.

**Direction to Press on Tender Point:** Press from posterior to anterior.

**Treatment Position(s):** With patient prone, knee flexed to 90°, stand at the same side of the table as the Tender Point. Place one hand under the lower anterior thigh and lift to create extension of the hip. Flex your knee and place it on the table under the patient's lower anterior thigh to maintain extension of the hip. Fine-tune with some internal rotation of the thigh, and more, or less, flexion of the patient's knee, as indicated.

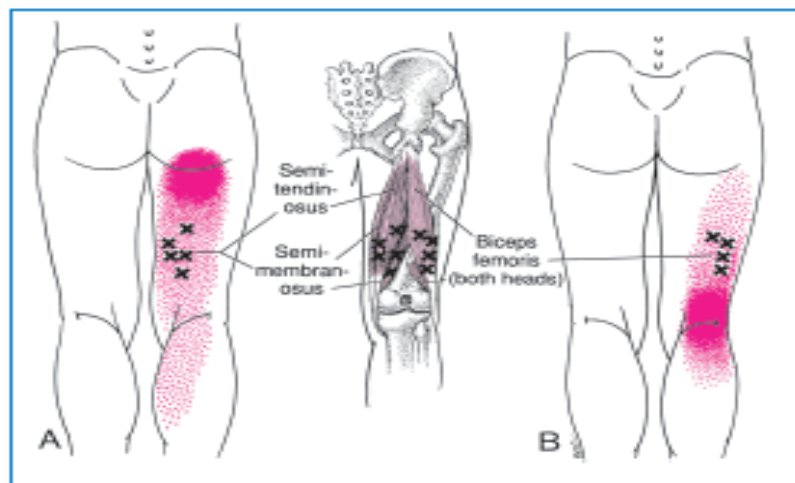
**Frequency of Occurrence:** Common to uncommon.

**Clinical Correlation(s):** Posterior knee pain and posterior thigh pain.

**Associated Pain Referral Pattern:** Same.

**Alternate Names/Nomenclatures:** None.

**Explanatory Notes:** This Point was not mentioned by Jones.



Pain pattern for the biceps femoris of the hamstring muscle group



Treatment position



# POSTERIOR KNEE PAIN

## GASTROCNEMIUS MUSCLE

**Location of Tender Point:** The most common Tender Points are on the medial and lateral heads of the gastrocnemius muscle near the lower border of the popliteal space. Tender Points also can be found anywhere in the belly of the muscle and along the sides of the Achilles tendon near its insertion.

**Anatomical Correlation:** As stated.

**Direction to Press on Tender Point:**  
Press from posterior to anterior.

**Treatment Position(s):** With patient prone, stand at the same side of the table as the Tender Point, with your foot on the table and your knee flexed. The patient's knee is flexed with the dorsal arch of the foot resting on your thigh. Push the palmar surface of the heel toward the calf to achieve marked extension of the ankle. Rotate internally or externally to fine-tune. Move the heel toward the side of the Tender Point. •

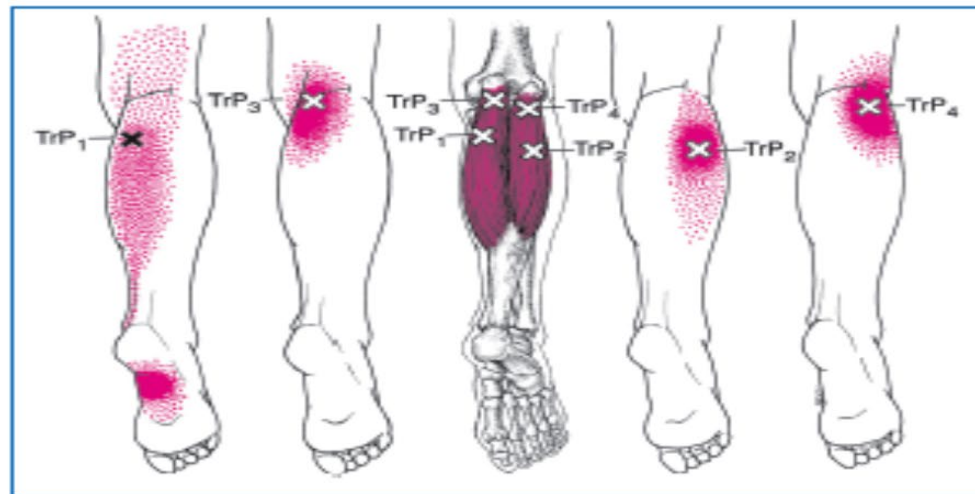
**Frequency of Occurrence:** Common.

**Clinical Correlation(s):** The most common presentation of posterior knee pain is when walking, when the ankle is flexed and the knee is extended.

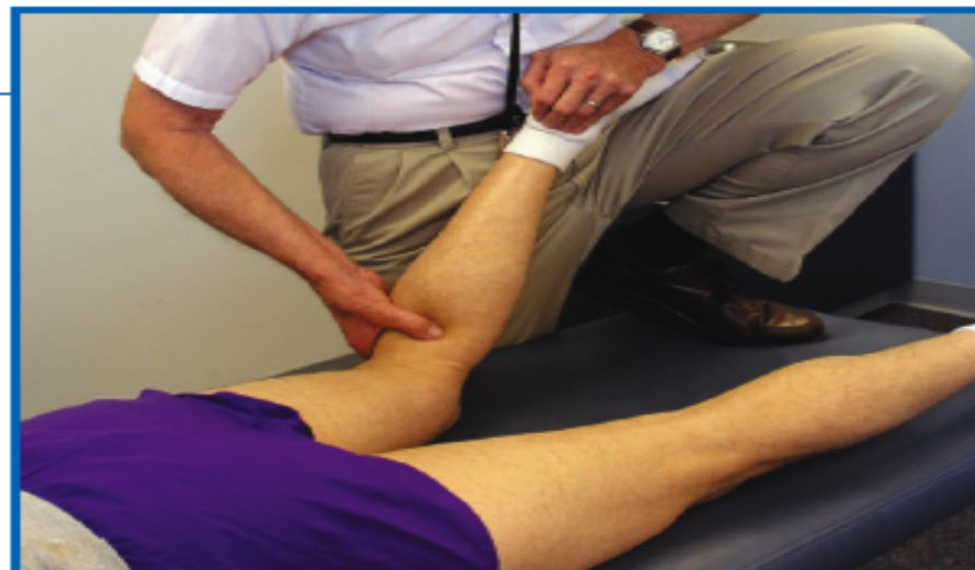
**Associated Pain Referral Pattern:** Calf pain may be present and, more rarely, posterior ankle pain.

**Alternate Names/Nomenclatures:**  
Jones called this point "Extension Ankle."

**Explanatory Notes:** None.



Myofascial pain pattern



Treatment position



## POSTERIOR KNEE TENDER POINTS

### MEDIAL HAMSTRING TENDON

**Location of Tender Point:** On the tendon of the medial hamstring at, or just superior to, its attachment to the posterior medial surface of the tibia.

**Anatomical Correlation:** The tendon of the medial hamstring muscle at its attachment to the tibia.

**Direction to Press on Tender Point:** Press from posterior to anterior.

**Treatment Position(s):** With patient supine, stand on the same side as the Tender Point with one foot on the table. Place patient's foot in the fold of your flexed knee. The patient's hip is flexed about 90° and the knee is flexed more acutely. Grasp the underside of the patient's calf and externally rotate the tibia on the femur.

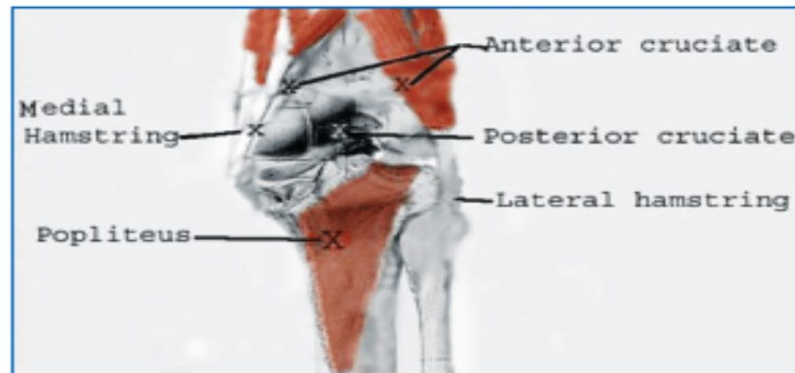
**Frequency of Occurrence:** Uncommon.

**Clinical Correlation(s):** Pain in the posterior medial knee area especially when walking or running.

**Associated Pain Referral Pattern:** Same.

**Alternate Names/Nomenclatures:** None.

**Explanatory Notes:** None.



Posterior knee Tender Points



Treatment position

## ANTERIOR KNEE TENDER POINTS

### PATELLAR

**Location of Tender Point:** Around the medial or lateral margins of the patella.

**Anatomical Correlation:** Medial and lateral patellar retinaculi.

**Direction to Press on Tender Point:** Press directly against the patella toward the side that is painful.

**Treatment Position(s):** With patient supine, exert pressure on the side opposite the Tender Point, across the midline of the patella toward the Tender Point. •

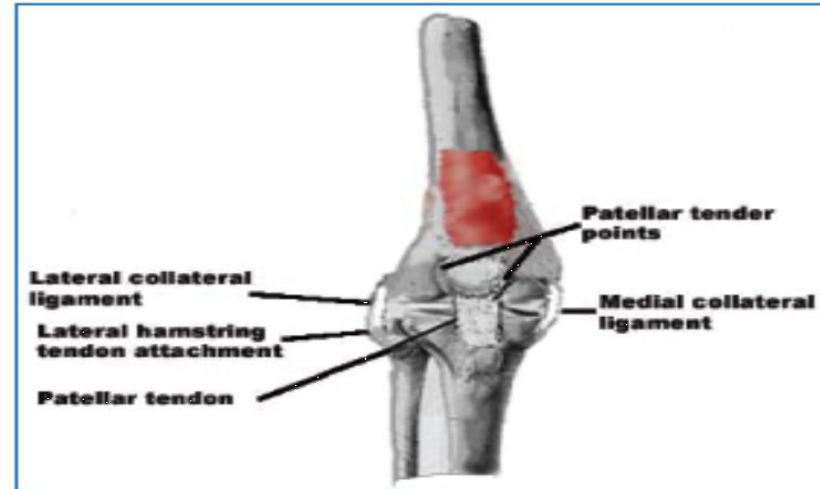
**Frequency of Occurrence:** Rare.

**Clinical Correlation(s):** Intermittent pain in the area of the patella especially with flexion of the knee.

**Associated Pain Referral Pattern:** Same.

**Alternate Names/Nomenclatures:** None.

**Explanatory Notes:** None.



Anterior knee Tender Points



Treatment position

# Articulatory OMT Knee- Anterior – Posterior Glide



- **Grasp below the knee joint firmly and articulate anterior and posterior slowly under load. ( Ortho Drawer Test)**

## Knee Articulatory OMT - Lateral and Internal Rotation of Knee with Extension

---

- Using the modified McMurray's Ortho test as a treatment when no internal derangement but stiffness is present. Only if No Medial Meniscus tear present.

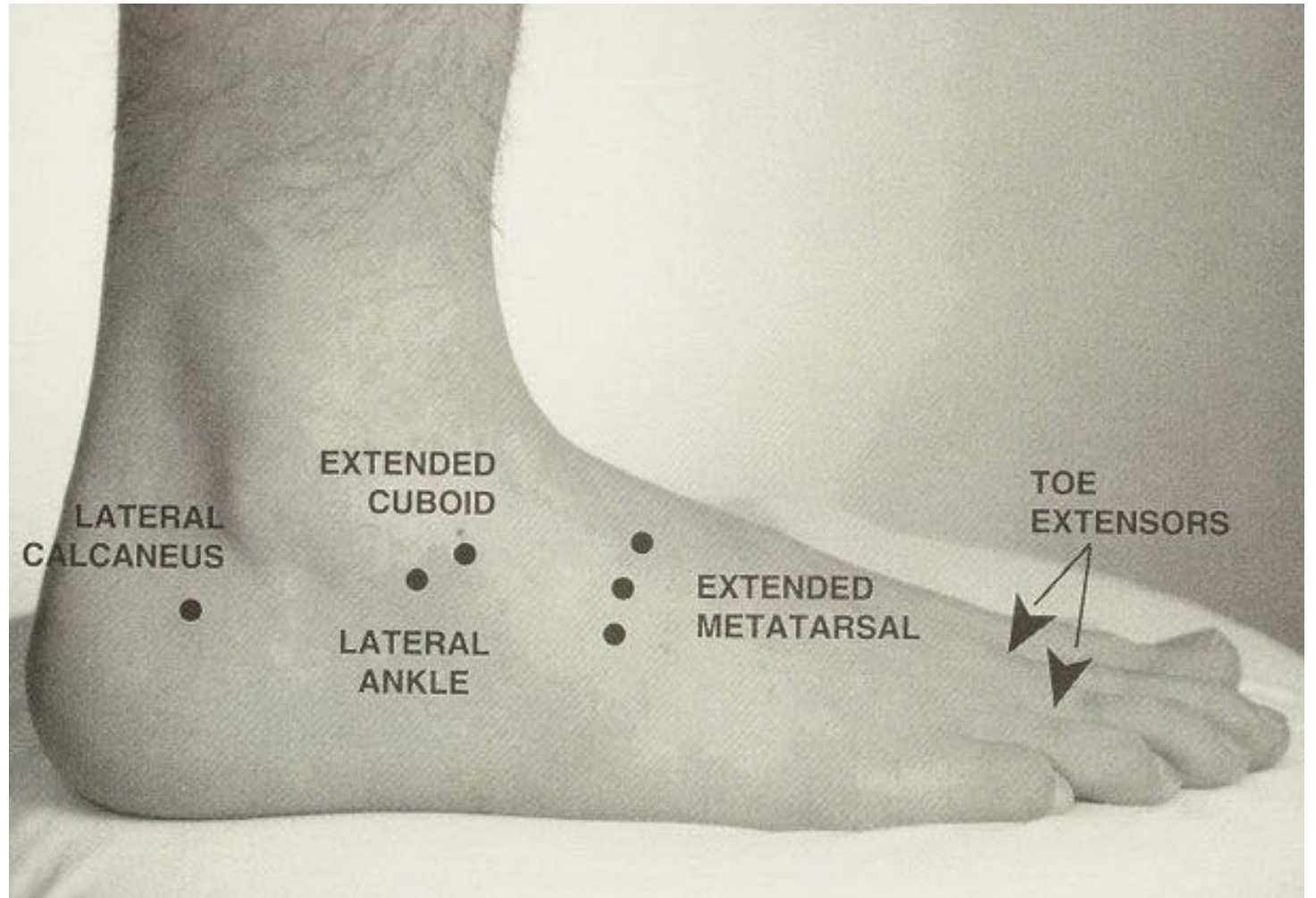




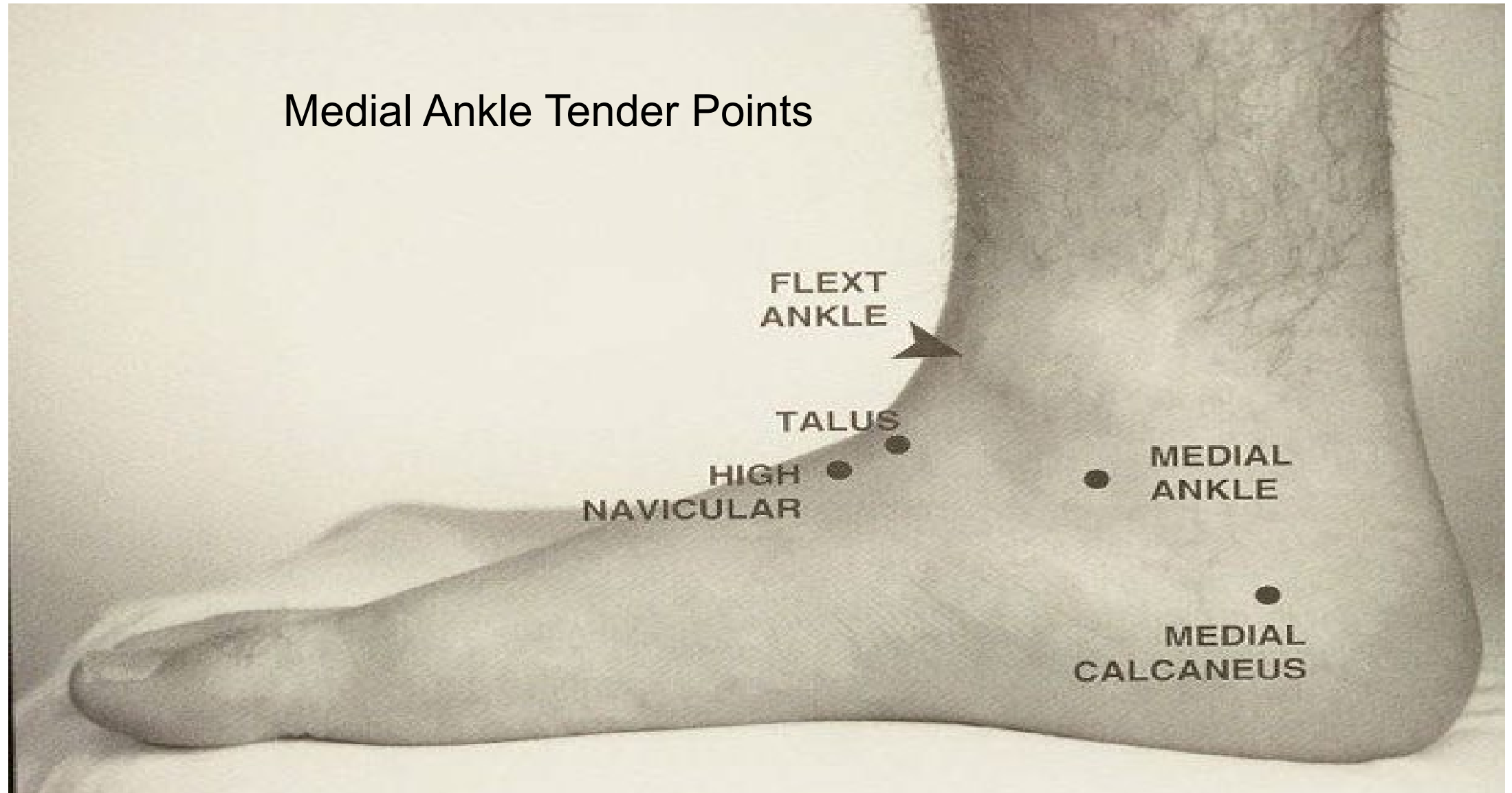
# FOOT AND ANKLE OMT

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- Lateral Ankle Tender Points
- FOOT TENDERPOINTS



## Medial Ankle Tender Points



“Bear Foot” ...



## LATERAL ANKLE (Peroneus Brevis, Peroneus Longus)

**Location of Tender Point:** In a depression located about  $\frac{3}{4}$ -inch below, and anterior to the lateral malleolus. An alternate Point is just below the fibular head where the muscle attaches on the lateral surface of the leg.

**Anatomical Correlation:** Peroneus brevis and/or peroneus longus.

**Direction to Press on Tender Point:** Press from lateral to medial.

**Treatment Position(s):** 1) Patient lies on affected side with knee flexed and ankle suspended over the edge of the table. 2) Patient moves to the end of the table and suspends foot over the edge, as shown. Place a rolled towel or pad between ankle and table edge for comfort. Firmly grasp the medial foot and calcaneus. Exert force, up to 50 pounds, toward the floor to create eversion of the ankle. Slight external rotation is usually needed to fine-tune.

**Frequency of Occurrence:** Common to uncommon.

**Clinical Correlation(s):** Lateral ankle pain, which may extend forward along the side of the foot and may be present in the lateral leg also.

**Associated Pain Referral Pattern:** Same.

**Alternate Names/Nomenclatures:** None.

**Explanatory Notes:** None.



Pain patterns - peroneal muscles



Treatment position (Figure A.)



## Anterior Lateral Ankle Tenderpoint (Talofibular Ligament) SCS Treatment



## Talofibular Ligament SCS Tenderpoint (and TX)





## MEDIAL ANKLE (Tibialis Anterior)

**Location of Tender Point:** Just beneath the medial malleolus in an arc about 1-inch long. May also be found in the tibialis anterior muscle in the front of the leg.

**Anatomical Correlation:** The tibialis anterior muscle.

**Direction to Press on Tender Point:** Press medial to lateral.

**Treatment Position(s):** Patient lies on unaffected side with their ankle suspended off the end of the table. Place a rolled towel or pad between the ankle and the edge of the table for comfort. Firmly grasp the lateral part of the foot and heel and exert pressure to bring about inversion of the ankle. The amount of force here is much less than that needed for the lateral ankle treatment. Fine-tune with slight internal rotation of the foot.

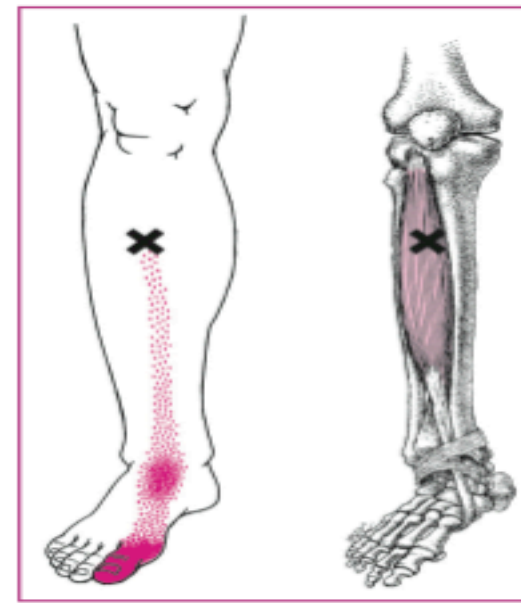
**Frequency of Occurrence:** Common to uncommon.

**Clinical Correlation(s):** Pain in the medial ankle. Following an injury, may be associated with bony and ligamentous damage. This should be ruled out.

**Associated Pain Referral Pattern:** Pain may be referred to the great toe, or be in the anterior leg over the tibialis anterior muscle.

**Alternate Names/Nomenclatures:** None.

**Explanatory Notes:** None.

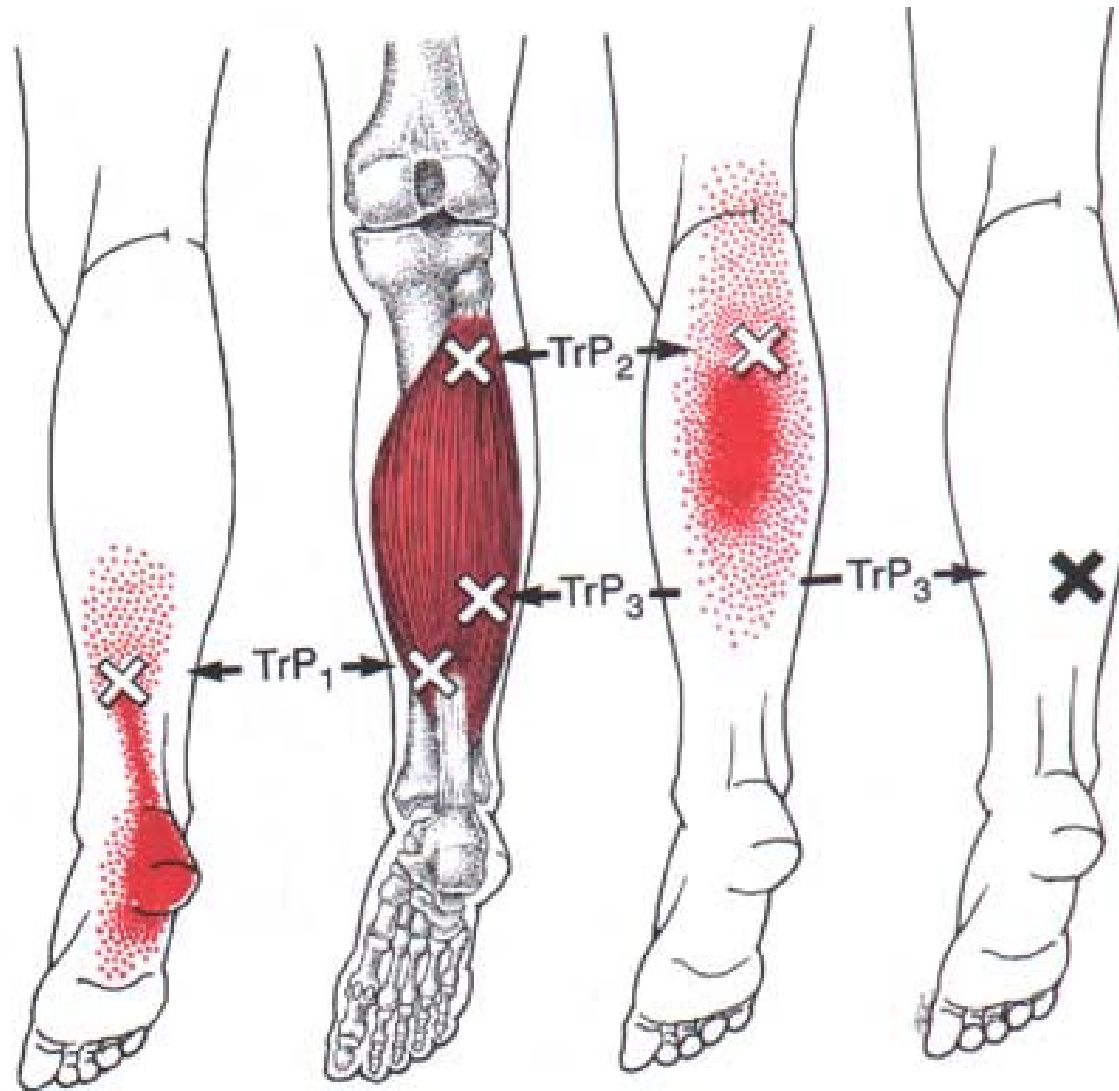


Tibialis anterior



Treatment position

## SOLEUS MUSCLE PAIN PATTERNS



“THE RUNNER’S MUSCLE”



**Location of Tender Point:** Posterior to medial aspect of the tibia on the fibers of the muscle. Also palpated though the gastrocnemius muscle, as the soleus lies directly beneath the main part of this muscle.

**Anatomical Correlation:** Soleus muscle.

**Direction to Press on Tender Point:** Press medial to lateral on the fibers of the soleus directly posterior to the mid-portion of the tibia. Palpate posterior to anterior though the gastrocnemius.

**Treatment Position(s):** With patient prone, stand at the same side of the table as the Tender Point, with your foot on the table and your knee flexed. Flex the patient's knee with the dorsal arch resting on your thigh. Create marked extension of the ankle by pushing the plantar surface of the heel toward the calf. Angle the vector of the force medially to fine-tune.

**Frequency of Occurrence:** Common to uncommon.

**Clinical Correlation(s):** Calf pain and posterior heel pain extending into the bottom of the heel.

**Associated Pain Referral Pattern:** May refer pain to the sacroiliac joint area of the same side.

**Alternate Names/Nomenclatures:** This Point is referred to by Jones as "Flexion Medial Calcaneus," in his first book.

**Explanatory Notes:** The reason this is considered separately from the gastrocnemius muscle is that the pain pattern may present quite differently.

See Posterior Knee - Soleus, page 151.

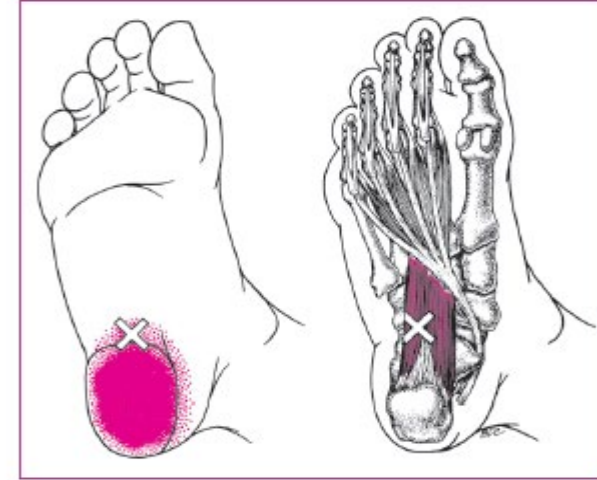


Treatment position

## Flexion Calcaneus (Quadratus Plantae)

### LOCATION:

**-Anterior border of plantar surface of Calcaneus**



Flexion calcaneus pain pattern

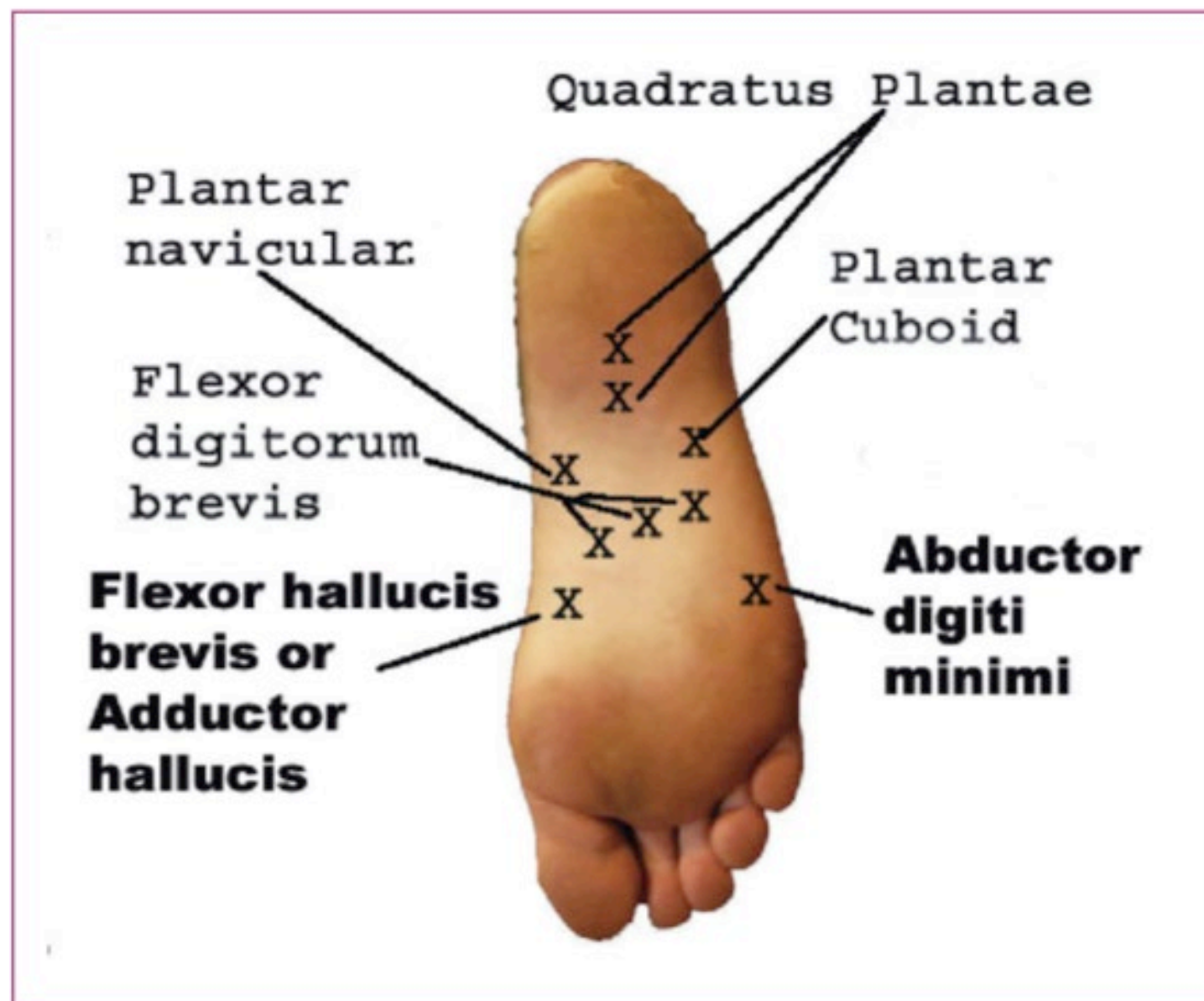
### TREATMENT POSITION:

- Patient prone with knee flexed and dorsum of ipsilateral foot resting on doctor's thigh
- Induce plantar flexion by using doctor's hand or by pushing the dorsum of the foot against doctor's thigh.
- Doctor grasps the calcaneus with the other hand and exert an anterior-caudad force to induce more plantar flexion.



Treatment position

## JONES' Tender Points – PLANTAR SURFACE OF FOOT





## Plantar Fascia Inflammation

### FLEXION CALCANEUS Quadratus Plantae

**Location of Tender Point:** On the plantar surface of the foot at the anterior border of the calcaneus, in the plantar fascia.

**Anatomical Correlation:** Quadratus plantae muscle.

**Direction to Press on Tender Point:** Press from the plantar surface of the foot toward the dorsal surface.

**Treatment Position(s):** With patient prone, stand on the same side as the patient's involved foot with your foot on the table. Patient's knee on the affected side is flexed with the dorsum of their foot on your thigh. Grasp the calcaneus and exert an anterior-caudad force. Push the dorsum of the foot down against your thigh or your other hand to induce plantar flexion and shorten the quadratus plantae muscle and plantar fascia.

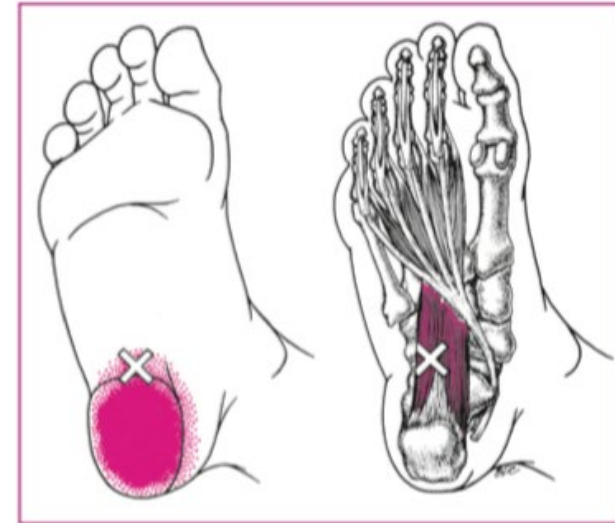
**Frequency of Occurrence:** Common to uncommon.

**Clinical Correlation(s):** Heel pain on the bottom of the heel. Often mistakenly attributed to a heel spur.

**Associated Pain Referral Pattern:** None.

**Alternate Names/Nomenclatures:** Jones calls this "Flexion Calcaneus" in his 1st Edition, and "Flexed Calcaneus" in his 2nd Edition.

**Explanatory Notes:** None.



Flexion calcaneus pain pattern





## Plantar Heel Pain

The most common myofascial cause of plantar heel pain is the *quadratus plantae* muscle. In fact the *quadratus plantae* is often the actual culprit in such diagnoses as plantar fascitis and heel spur. When this muscle is at fault, the painful condition can be remedied quickly and easily with Counterstrain treatment of this muscle.

## **FLEXION CALCANEUS**

### **Quadratus Plantae**

**Location of Tender Point:** On the plantar surface of the foot at the anterior border of the calcaneus, in the plantar fascia.

**Anatomical Correlation:** Quadratus plantae muscle.

**Direction to Press on Tender Point:** Press from the plantar surface of the foot toward the dorsal surface.

**Treatment Position(s):** With patient prone, stand on the same side as the patient's involved foot with your foot on the table. Patient's knee on the affected side is flexed with the dorsum of their foot on your thigh. Grasp the calcaneus and exert an anterior-caudad force. Push the dorsum of the foot down against your thigh or your other hand to induce plantar flexion and shorten the quadratus plantae muscle and plantar fascia.

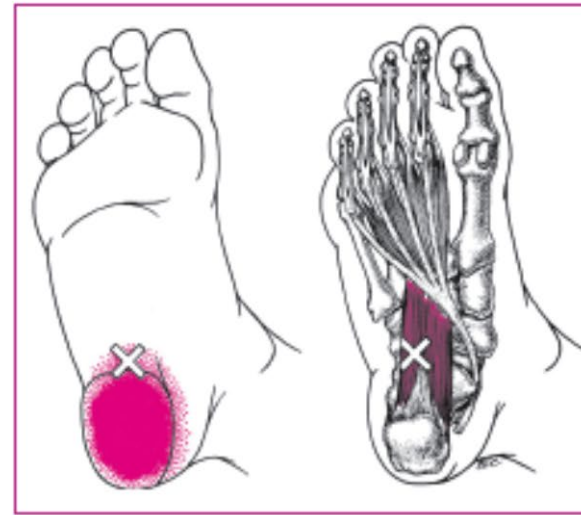
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**Clinical Correlation(s):** Heel pain on the bottom of the heel. Often mistakenly attributed to a heel spur.

**Associated Pain Referral Pattern:** None.

**Alternate Names/Nomenclatures:** Jones calls this "Flexion Calcaneus" in his 1st Edition, and "Flexed Calcaneus" in his 2nd Edition.

**Explanatory Notes:** None.



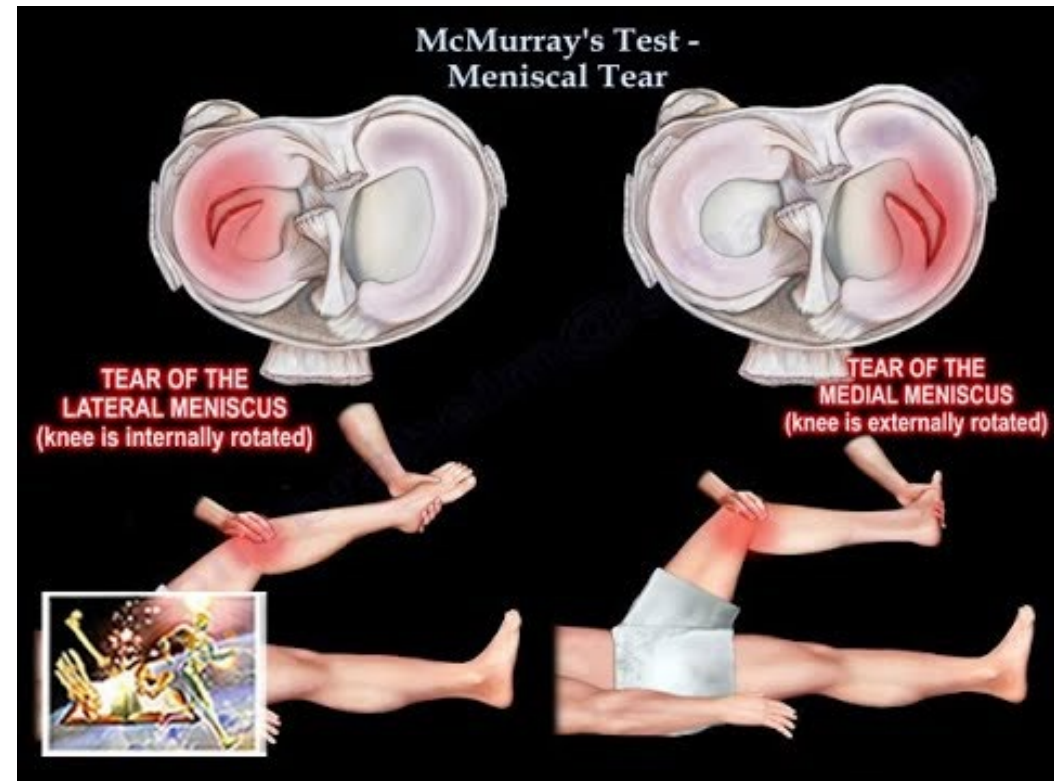
Flexion calcaneus pain pattern



Treatment position

# Articulatory and Muscle Energy OMT for Extremities:

- For the Knee- Anterior – Posterior Glide testing and McMurray Test can be used slowly and gently to restore “tracking” of the knee and stiffness from internal derangement.



# Articulatory and Muscle Energy OMT for Extremities: Ankle Joint

- For the Ankle Joint: Again, Anterior –Posterior Glide with negative load (distraction) of the ankle joint is very useful and diagnostic. Restoration of extension and flexion at the chronic somatic dysfunction of the ankle joint (mortis).
  - Works by unloading the joint mechanoreceptors -both proprioceptor and nociceptors allowing for release of the joint protective reflexes and reduction in inflammation with increased motion without pain and stiffness.
- Muscle Energy OMT is very effective on ankle and foot somatic dysfunction and pain- but more for Chronic somatic dysfunction. Concentric and Isokinetic MET.



# Workshop Demonstration of Ortho Tests used as modified Articulatory OMT

- KNEE:

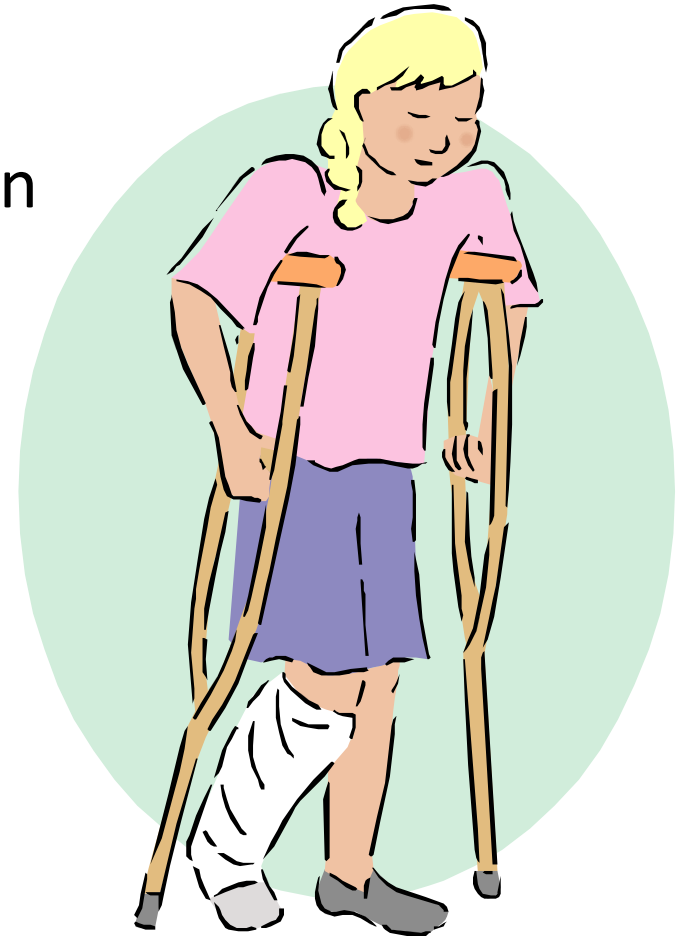
- Drawer Test as articulatory for anterior posterior glide restriction
- McMurray's Test for poor tracing of knee joint
- Palpation Exam –Use Indirect and Direct Myofascial Release

ANKLE:

- Anterior-Posterior Glide test of Mortise-use as articulates with distraction of joint

# Acute Ankle Trauma

- Most common injury of all sports
- Represents up to 30% of all sports injuries seen
- 12% of all injuries seen in ER



# Types of Ankle Injuries

- Soft Tissue: tendons, ligaments, muscle
- Bony: talus, malleolar metatarsal



## Talofibular Ligament SCS Tenderpoint (and TX)





# Ankle Articulatory OMT

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- Grasp forefoot with one hand and the calcaneus with other
- Initiate a steady traction pull on the calcaneus while creating anterior posterior glide with extension and flexion under load.
- (See Demonstration)
- For chronic ankle stiffness from old injury and/or arthritis



Most Common SCS TP's for Ankle:

## Left Posterior Fibular Head –Lateral knee pain


### Posterior Fibular Head (L Post Fib head as example):

- Initially locate the tender point on the posterior-medial side of the fibular head and motion testing, determining that the fibular head is posterior
- W/ the thumb of your left hand, move the fibular head more posteriorly, exaggerating it position while simultaneously plantar flexing and invert the ipsilateral corresponding foot / ankle to 'see saw' the fibula anteriorly distally, but posteriorly proximally.
- The forefinger of your left hand continually monitors the patient's posterior tender point during the entire duration of treatment with minimal (approximately 1 ounce) pressure.
- Hold position for 90 second or until release felt at the tender point
- Return to neutral and reassess fibular head motion





# Acute Ankle or Knee treatment guidelines

- Protect from further injury
  - Relative rest
  - Ice
  - Compression
  - Elevation
- 



## Treatment Goals of Osteopathic Management:

- Break the pain cycle
- Restore range of motion
- Return strength to the ankle in both open and closed chain kinetics
- Decreasing swelling
- Increasing range of motion
- Breaking pain/spasm cycle
- Promote Healing and return of Function



# EXERCISE AND HOME THERAPY

- **\*\*Necessary Adjunct to OMT –is part of Osteopathy**
- Exercise and Supportive Therapy
  - Be specific in your treatment goals
- Stretch, Retrain and Strengthen
  - Simple at home treatments
  - Retraining is key to avoid reinforcing inhibitory reflexes
- Refer to who will individualize therapy based on kinesiology and muscle –tissue physiology.

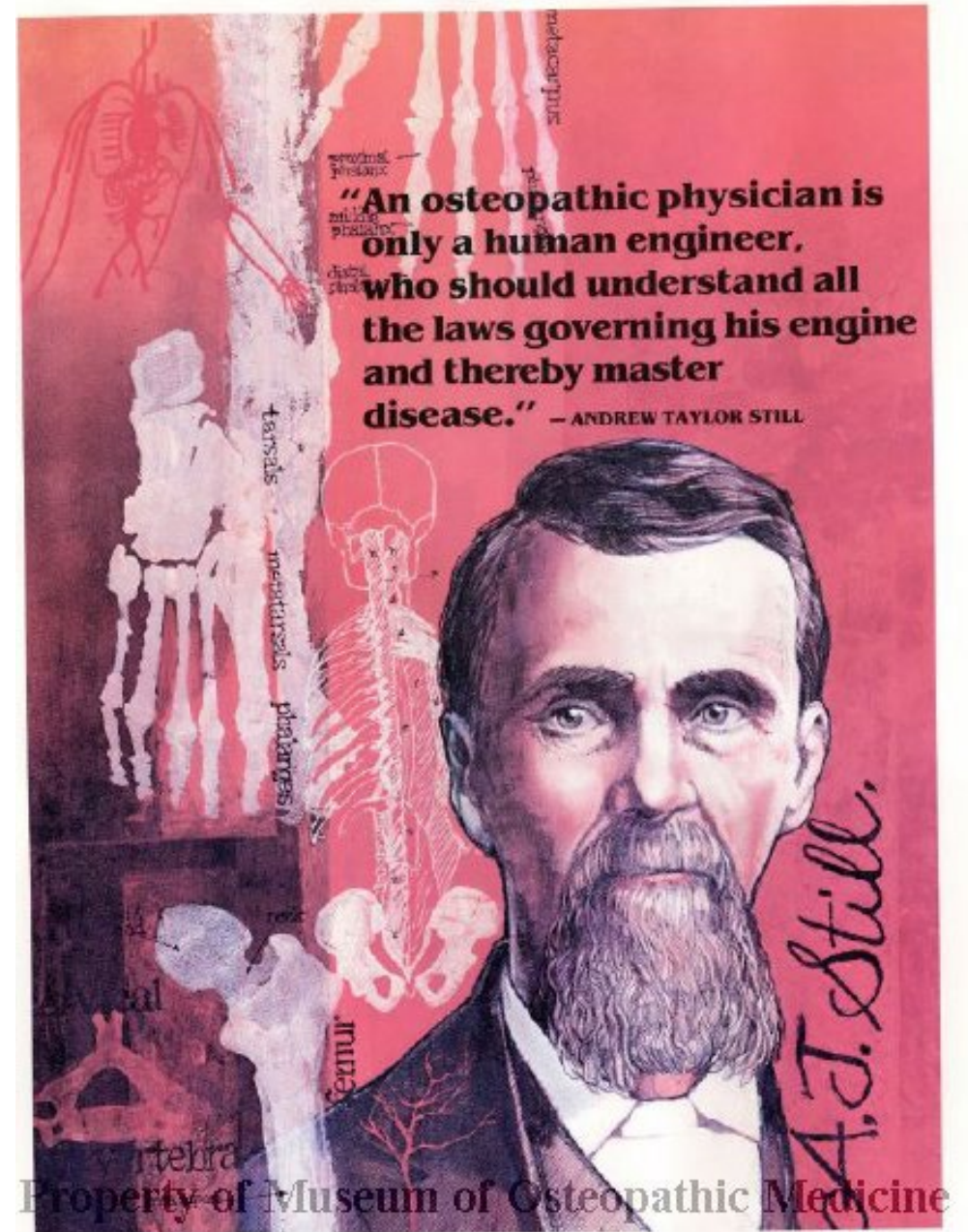


# In Summary:

- Strain Counterstrain is effective for common foot and ankle injury pain.
- Foot problems can lead to symptoms from the knees to the head.
- We always examine the feet and ankles with any chronic knee or low back problem.
- **Myofascial** ankle symptoms often come from the *peroneus* muscles for lateral ankle and foot pain and the *tibialis anterior* for medial ankle pain.
- Calf, posterior heel pain and plantar heel pain from the *soleus*, *posterior tibialis*, and *gastrocnemius*.

# Keep in mind for Extremities....

- Imaging of extremities is helpful but not often diagnostic without your skills in examination.
- Palpatory skills and functional testing such as standard Orthopedic testing maneuvers and use of Counterstrain positions can give a very accurate evaluation rapidly.
- SCS and MET are very good choices for OMT as well as MFR
- HVLA may be contraindicated where articulatory OMT may mobilize without as much contraindication
- Treat centrally first, then go to extremity





# Keep in mind for Extremities....

- Use Palpatory skills and functional testing such as standard Orthopedic testing maneuvers and use of Myofascial pain patterning for DX and TX.
- Counterstrain position Response can help give a very accurate evaluation rapidly.
- Careful history and examination is important
- Pain is often a Liar- can be referred or compensatory
- Clinical Counterstrain and MET are very good choices and *careful* articulatory OMT





# Topical or Oral Analgesic Meds Too?

Certainly, very safe topicals can be suggested since they are OTC with the cautions on the package.

- Topical Ibuprofen or Diclofenac are available OTC as directed.
- Oral Ibuprofen in combination with acetaminophen for acute pain and inflammation.
- OMT treats Inflammation WHICH CAUSES PAIN by releasing the “inflammatory soup” from the joints. Small amounts of endorphin is released, cytokines, bradykinins , etc.



# Any Questions?

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- Thank you for letting me share some useful concepts, OMT and I hope –Ideas!

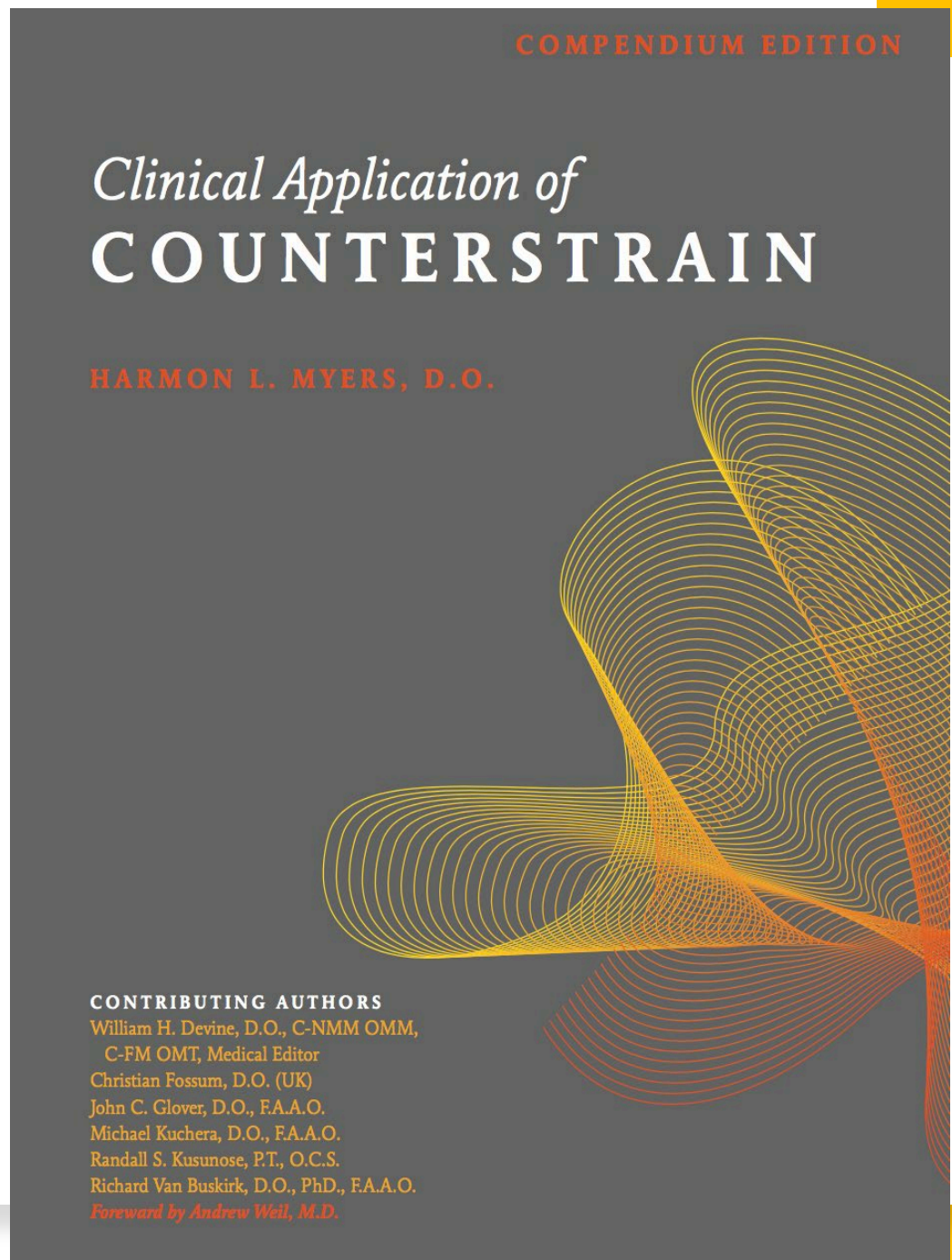


“Thank You, thank you very much....”





Major  
Reference for  
presentation:





- 
- Janet Travell, MD and
  - David Simons, MD

VOLUME 2

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**Myofascial Pain  
and Dysfunction  
The Trigger Point Manual**

THE LOWER EXTREMITIES

---

JANET G. TRAVELL, M.D.  
DAVID G. SIMONS, M.D.

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Illustrations by Barbara D. Cummings