

Ligament Pain Referral Patterns

Below you will find the descriptions for the typical pain referral patterns for the ligaments and zygoapophyseal joint capsules of the spine and ligaments and joint capsules of the extremities portrayed on your NEW Ligament Pain Referral Pattern posters. There are a few images that although I was unable to include in the posters due to space restrictions so I have included their descriptions here for you.

Cervical Spine Referral Patterns

- Temporomandibular Joint:
referral around TMJ, down to inferior angle of mandible along maxillary arch, anterior to ear.
- AO Joint
Capable of more intense and diffuse pain than the AA Joint.
Dull, deep ache, heavy pressure, referred dull pain, numbness, can be felt as inferior as C5 and as superior as almost reaching the vertex of the skull, sub-occipital area and headache, laterally approaches but does not reach the ear.
- AA Joint
Dull, deep ache, heavy pressure, lateral and slightly posterior at the C1-2 segmental level, localized deep, boring, aching pain to the retromastoid, sub-occipital and upper cervical and postauricular regions.
- C1-2 Facet Capsule:
Posterior view - most often occurred in the suboccipital region, extending to the occiput and cranial vertex and or inferiorly into the neck.

Profile view - frequently occurs over the cranial vertex and in the upper forehead, often encompassing the region of the ear and the orbit.

*Rarely occurring in the temporoparietal region and supraorbital forehead.

- C2-3 Facet Capsule:
pain located in the upper cervical region and extending at least onto the occiput. Extension further into the head: toward the ear, vertex, forehead, or eye (as reported in clinical studies of C2-3 pain) was regarded as confirmatory but not essential.

Pain from C2-3 resembled that of C1-2 but is not particularly focused on the suboccipital or occipital region. C2-3 does not encompass the ear.

Posterior view - extends over the lateral occiput toward the mastoid region and above, can occur anywhere within a band from the occiput to the cranial vertex

Profile view - most often extending from the occiput, across the parietal and upper temporal regions, to end in the forehead or in the orbit.

typical forehead pain of C2-3 was lower than that of C1-2 and focused on the supraorbital forehead.

pain referred as well down the front of the arm to the thumb and index finger

- C3-4 Facet Capsule:

pain located over the posterolateral cervical region, extending cranially as far as the suboccipital region, but not intruding substantially into the occipital region, and extending caudally over the posterolateral aspect of the neck without entering the region of the shoulder girdle, following more or less the course of the levator scapulae muscle.

pain referred to the side and to a lesser degree to the front of the head

- C4-5 Facet Capsule:

pain located over a more or less triangular area with two sides consisting of the posterior midline and posterolateral border of the neck and a base running parallel to the spine of the scapula, but somewhat above it, more or less in the same horizontal plane as the lateral third of the clavicle.

pain centered over the lower posterior quadrant of the neck, can spread laterally into the uppermost and proximal region of the shoulder girdle, and upwards to the suboccipital region.

pain referred down the anterolateral arm to the thumb as well as to the index and long finger

- C5-6 Facet Capsule:

pain in a triangular, mantle-like distribution with an apex directed to the midcervical region posteriorly and the main area draping over the top, front, and back of the shoulder girdle, with a base coinciding with the spine of the scapula.

pain centered over the junction of the base of the neck and the top of the shoulder girdle, can extend cranially toward the suboccipital region, and laterally across the outer margin of the shoulder girdle and arm.

Less often, it could flow inferiorly over the scapular region, or into the posterior arm. No patient with C5-6 pain reported pain in the head.

pain referred down the lateral arm to the long and ring fingers

- C6-7 Facet Capsule:
pain over a more or less quadrangular area covering the supraspinous and infraspinous fossae.

similar to C5-6, pain can spread inferiorly and medially into or around the central or medial aspect of the scapula. No patient with C6-7 pain reported pain in the head

pain referred down the posterolateral arm to the ring and little finger

- C7-T1 Ligamentous & Facet Capsule: /1st Costotransverse Joint:
pain referred suprascapular, superior angle and medial region to the scapula

pain in the paravertebral region over the injected joint, which extended inferiorly toward the superior angle of the scapula and interscapular region and toward the inferior angle of the scapula.

Lateral extension of referred pain toward the shoulder joint and referred pain to the suprascapular region

Thoracic Spine Referral Patterns

The referral patterns for the thoracic region are less diffuse than the cervical and lumbar spines. Thoracic pain is more localized and appreciated closer to its origin than other spinal regions.

Most intense area of pain - one segment inferior and slightly lateral to the affected joint. No joint referred pain more superiorly than $\frac{1}{2}$ the vertical height of that segment. All joints referred pain inferiorly and unilaterally. The more inferior and lateral to referral zone extended, the less intense the pain was. Maximum inferior referral was 2.5 segments. Maximal lateral referral approached but did not reach the posterior axillary line.

- T1-2 Supraspinous, Costotransverse and Capsular Ligaments:
radiating pain around paravertebral region, suprascapular, superior angle and medial region to the scapula and around the region of the upper spine.

pain in the paravertebral region over the injected joint, which extended lateral to the interscapular region and inferiorly to the inferior angle of the scapula.

Referred pain toward the superior angle of the scapula and suprascapular region

- T2-3 Supraspinous, Costotransverse and Capsular Ligaments:
refer pain around paravertebral region and down the upper arms

pain in the paravertebral region over the injected joint, which extended laterally toward the interscapular region and caudally toward the inferior angle of the scapula

- T3-4 Supraspinous, Costotransverse and Capsular Ligaments
deep, dull ache, nauseating, boring and cramp like, similar to muscle soreness
Pain into the same side lung and sternum

pain in the paravertebral region over the injected joint, which extended laterally toward the interscapular region and caudally toward the inferior angle of the scapula

- T4-5 Supraspinous, Costotransverse and Capsular Ligaments
deep, dull ache, nauseating, boring and cramp like, similar to muscle soreness
Pain into the same side lung and sternum

pain in the paravertebral region over the injected joint, which extended laterally toward the interscapular region and caudally toward the inferior angle of the scapula

- T5-8 Supraspinous, Costotransverse and Capsular Ligaments:
deep, dull ache, nauseating, boring and cramp like, similar to muscle soreness

refer pain around paravertebral region and deep into the chest
pain in the paravertebral region over the injected joint, which extended laterally toward the interscapular region and caudally toward the inferior angle of the scapula

- T9-10 Supraspinous, Costotransverse and Capsular Ligaments:
deep, dull ache, nauseating, boring and cramp like, similar to muscle soreness

radiating pain around paravertebral region and throughout the chest and upper abdomen, gastric distress (Hackett)
Referred Pain over the iliac crests or into the anterolateral abdominal wall or inguinal area

- T10-11 Supraspinous, Costotransverse and Capsular Ligaments:
deep, dull ache, nauseating, boring and cramp like, similar to muscle soreness

radiating pain around paravertebral region and the area over iliac crest
Referred Pain over the iliac crests or into the anterolateral abdominal wall or inguinal area

- T11-12 Supraspinous, Costotransverse and Capsular Ligaments:
radiating pain around paravertebral region and the area over iliac crest
Referred Pain over the iliac crests or into the anterolateral abdominal wall or inguinal area

Shoulder Referral Patterns

- Glenohumeral Joint Capsules & Ligamentous Tissues:
Diffuse ache, discomfort, numbness in the lower arm, wrist and hand
- Transverse Humeral Ligament:
Sharp well localized pain over the bicipital groove
- Coracoclavicular & Acromioclavicular Ligaments:
refer pain to the distal end of the clavicle to the top of the shoulder
- Anterior Sternoclavicular Ligament:
refer pain to the anterior chest wall along the sternum.
- Post Sternoclavicular Ligament:
refer pain deep within the upper thorax
- Sternocostal/costochondral Ligaments:
refer pain from the front of the chest to the mid back.
- Costovertebral Ligament:
refer pain from the back of the rib segment to the sternum and same rib level attachment

Elbow Referral Patterns

- Medial Ulnar Collateral Ligament:
vague pain down the medial aspect of forearm down to wrist and carpal area refers, to the 4th & 5th fingers
- Lateral Ulnar Collateral Ligament:
vague pain down the lateral forearm along the extensors to the dorsum of the carpals, refers to the 4th & 5th fingers
- Radial Collateral Ligament:
vague pain down the lateral forearm along the extensors to the dorsum of the carpals
- Annular Ligament:
refers to the thumb index & middle finger
- Interosseous Membrane
vague pain in the forearm along the Radius and ulna

Wrist Referral Patterns

- Carpal Ligaments
Referred pain to the palm
- Palmar “V” Ligaments
refer to fingers
- Distal Interosseous Membrane, CMC, MCP joints
refer pain locally
- Distal Interosseous Ligaments:
refer locally and to the fingers, numbness & tingling to fingertips

Knee Referral Patterns

- Patella, Coronary Ligaments and Meniscus:
refer locally to these structures
- Anterior Cruciate Ligament:
intense diffuse central knee pain, posterior patellar pain
- Posterior Cruciate Ligament/ Proximal Tibial Collateral Ligament:
refer into the lower calf, gastroc/soleus
- Proximal Tibiofibular Ligament:
refers down the anterolateral calf all the way to the ankle

Ankle & Foot Referral Patterns

Most ligament injuries to the ankle and foot cause local pain.

- Distal Interosseous Membrane:
refers pain just above the ankle and to the dorsum of the foot.
- Talocalcaneal ligaments:
refers pain to 4-5th digits
- Plantarcalcaneal ligaments:
refers to 2-3rd phalanxs'

Lumbar Spine Referral Patterns

- T12-L1 Supraspinous, Costotransverse and Capsular Ligaments:
radiating pain around paravertebral region and the area over iliac crest
Referred Pain over the iliac crests or into the anterolateral abdominal wall or inguinal area
- L1-2 Facet Capsule:
refer specific to capsule of vertebral levels, radiating laterally along posterior flank, around anteriorly to external oblique and groin area, also into trochanteric area of femur
- L2-3 Facet Capsule:
refer specific to capsule of vertebral levels, radiating laterally along posterior flank, around anteriorly to external oblique and groin area, also into head of femur unilateral referred pain in the lateral thigh region, referred pain to the posterior thigh region
- L3-4 Facet Capsule:
refer specific to capsule of vertebral levels, radiating laterally along posterior flank, around anteriorly to external oblique and groin area, also into trochanteric area of femur
Referred Pain to the Gluteal Region, unilateral referred pain in the lateral thigh region, referred pain to the posterior thigh region
- L4-5 Facet Capsule:
refer specific to capsule of vertebral levels, radiating laterally along posterior flank, around anteriorly to external oblique and groin area, also into trochanteric area of femur
Referred Pain to the Gluteal Region, unilateral referred pain in the lateral thigh region, referred pain to the posterior thigh region
- L5-ILL/S1-Facet Capsule:
Deep pain refers to flank and upper Gluteal Region
- Iliolumbar ligament:
Locally over the ILL, Distally to the gluteal, below the iliac crest, the lateral hip, groin, lower abdomen, anterior medial 2/3 thigh, testicles or vagina, upper anterior thigh to the knee.

Pelvis Referral Patterns

- Sacroiliac Ligaments:
Divided into upper and lower

Upper
locally over upper SIL
Distally over gluteals, down back lateral side of the leg to above the ankle, and ant. part of the upper thigh.

Lower
Locally over the lower SIL
Distally to the posterior thigh, the outer leg (calf), into lateral foot and toes.
- Sacrospinous Ligament
Refers pain locally over the SSL, extends down the central posterior thigh, down the center of the Leg (calf), and beneath the heel.
- Sacrotuborous Ligament
Locally over the STL, extends down the central posterior thigh, down the center of the Leg (calf), and beneath the heel.
- Sacrococcygeal Ligament
refers pain locally, lower gluteals and deep into the pelvis See 9-12
- Hip (Femoral Acetabular) Capsule
inguinal, thigh, knee, and lower leg and foot pain
- Anterior Hip Capsule
inguinal area and referred to the knee
- Posterior Hip Capsule
near middle of glutes over post hip capsule referring down posterolateral leg to foot
- Pubis
Superior & Arcuate pubic lig
refer locally, distally above and below the superior pubic rami. Greater laxity refers to lower abdomen and groin

References

Please go to:

<https://www.lastsite.ca/ligament-pain-references/>