Musculoskeletal Pain Guidelines

Any musculoskeletal pain syndrome that has already received an appropriate course of therapy without response should be evaluated by either Orthopedics or Physiatry before receiving any further therapy.

Therapy will be given for specific diagnoses. Blanket diagnoses will not be referred to therapy.

Diagnosis specific referral forms should be written. For any diagnosis that is outside the specific referral form, the therapy referral should be approved by orthopedics, Physiatry, or Medical Management.

Medication Recommendations for the Management of Musculoskeletal Pain Syndromes

Kaiser Permanente Health Plan of Ohio
Department of Pharmacy

1. Nonsteroidal Anti-inflammatory Agents
Nonsteroidal anti-inflammatory agents (NSAIDs) can be safely used in the acute setting in all age groups. However, for elderly patients with comorbidities such as renal failure, congestive heart failure, hypertension or peptic ulcer disease, for example, NSAIDs can worsen chronic medical conditions by reducing renal blood flow, increasing blood pressure and causing gastric and duodenal ulcers. Use NSAIDs with caution in elderly patients, particularly those with creatinine clearances < 50 ml/minute. Some protection from peptic ulceration can be achieved by combining NSAIDs with proton pump inhibitors such as omeprazole (Prilosec®). There appears to be a lower risk of ulceration with salsalate (Disalcid), etodolac (Lodine) or nabumetone (Relafen). All NSAID's should be initiated in the elderly with a pulse (a defined course of treatment such as 5 days) rather than as a chronic prescription. Chronic NSAID's should only be used in very few, very selected patients above the age of 65. All NSAID's should be used in combination with a proton pump inhibitor (such as omeprazole) in members greater than 65 years old. A safer alternative for pain management in the elderly is acetaminophen (Tylenol) in divided doses of 2 to 3 grams per day in patients 65 years and 4 grams per day in patients < 65 years.

2. Skeletal Muscle Relaxants
Skeletal muscle relaxants appear to be most useful in the management of acute pain and should be reserved for patients < 65 years of age in short courses due to the high risk of confusion, sedation, falls and fractures in the elderly. Skeletal muscle relaxants have no defined role in the office treatment of chronic pain and should not be used as chronic medications by a non-specialist. Carisoprodol (Soma®, nonformulary) is NOT recommended due to its high level of physical and psychological dependence.

3. Adjuvant Therapies for Neuropathic Pain
Nortriptyline (Pamelor®, Aventyl®) or desipramine (Norpramin®) are the preferred tricyclic antidepressants for the management of neuropathic pain syndromes due to their reduced risk of anticholinergic, sedative and orthostatic side effects. The Nortriptyline Starter Pack (10 mg qweek titration package to a maximum of 50 mg qhs) is available exclusively at Kaiser Permanente pharmacies. Patients are advised to increase the dose by 10mg every week and this prescription product allows patients to titrate the nortriptyline dose to pain relief or adverse effects with instructions within the packaging. Patient counseling to initiate a concurrent laxative regimen is advised as constipation may occur with either of these agents. Agents such as amitriptyline (Elavil®), doxepin (Sinequan®) or imipramine (Tofranil®) should be avoided in patients ≥ 65 years of age due to an increased risk of cardiac and central nervous system side effects.
Gabapentin (*Neurontin®*) is an alternative to tricyclic antidepressants. However, a recent analysis of randomized controlled trials of anticonvulsants for chronic pain showed almost identical rates of adverse effects between gabapentin, phenytoin, and carbamazepine. The most frequent side effects reported with gabapentin in controlled trials are dizziness, somnolence/sedation, GI complaints and ataxia. Slow tapering of the dose on all agents, including tricyclic antidepressants and gabapentin, can reduce these side effects.

4. **Opioid/Narcotic Therapy**

Short acting opioid therapies such as oxycodone tablets or morphine tablets are available for the treatment of severe acute pain. Consider conversion to long-acting opioids such as sustained release morphine (*MS Contin*) if the pain becomes chronic. Methadone is an alternative medication for chronic pain (especially with a neuropathic component). Methadone should not be used on a PRN basis and should not have changes in dose more than once a week. Methadone also requires periodic EKG monitoring to make sure the QTc is less than 0.46 seconds. Combination opioids such as *Percocet* (oxycodone/APAP), *Vicodin* (hydrocodone/APAP) or *Tylenol with Codeine* are dose limiting by virtue of the acetaminophen component (see NSAIDs above) and not recommended for the treatment of chronic pain.

Meperidine (*Demerol®*) and propoxyphene (*Darvocet®, Darvon®*) are NOT recommended for chronic pain management due to reduced efficacy compared to other agents, side effects such as seizures, conduction disturbances and cognitive changes, and a lack of a sustained release formulation.

All opioid therapy should be accompanied by a laxative regimen such as Senna tablets 1-2 po QHS to avoid constipation.
HIP PAIN

SUGGESTED EVALUATION:

1. **History:**
   - Coincident with back pain.
   - Fall
   - Change in ambulation with acute pain.
   - History of Cancer.
   - Chronic steroids.

2. **Physical:**
   - Range of motion pain to palpation of muscle.
   - Active and passive range of motion.
   - Pedal pulses (claudication).
   - Pain worse with internal rotation and/or hopping — **POSSIBLE FEMORAL NECK FRACTURE—CALL ORTHOPEDICS.**

3. **Imaging:**
   - Hip Films

TREATMENT OPTIONS:

1. Possible Femoral Neck Stress Fracture — **PAGE ORTHOPEDICS**
2. Avascular Necrosis
   - Analgesia (See medication recommendations on page 1)
   - Refer to Orthopedics
3. Osteoarthritis
   - Low impact aerobic exercise (water exercise).
   - Theraband
   - Avoid high impact activity.
   - Weight loss.
   - Assistive devices.
   - Analgesia (See medication recommendations on page 1).
   - Return to clinic in 4 weeks.
   - Refer to Physiatry if not successful in 4 weeks.
4. Inflammatory
   - Appropriate Medical and Rheumatological Treatment.
5. Muscle Strain/Tendonitis
   - Thermal therapy (heat or ice, initially ice).
   - Rest, assistive devices.
   - Trial of NSAIDS (See medication recommendations on page 1).
   - Pain free stretching.
   - Return to clinic in 2 weeks.
   - Physical Therapy for 6 visits if fails.
   - Physiatry if not success with patient.
KNEE PAIN (Non-traumatic)

SUGGESTED EVALUATION:

1. **History:** With attention to:
   - Repetitive work, exercise, stair climbing, injury, swelling, instability.
   - Gout/pseudogout.
   - Previous injury or knee surgery.
   - Anterior or joint line pain.

2. **Physical:** With attention to:
   - Joint line, tibial tubercle, lower pole patella. Swelling, effusion, warmth, erythema, ligamentous stability, medial anserine bursal area and hamstring*
   - Patellar subluxation and/or crepitance**
   - Rule out hip pathology.

* Anserine bursitis and hamstring tendinitis occur commonly in obese women with knee osteoarthritis
** Patellofemoral stress is the most common cause of anterior knee pain in women

3. **Initial Labs:**
   - ESR if indicated to evaluate inflammatory conditions (e.g., gout, lupus, RA., malignancy)
     - These are medical or rheumatological conditions.
     - Consider: Uric acid
     - Aspirate for cell count/fluid analysis/crystals if effusion present.


5. **Diagnostic Studies:** N/A

TREATMENT OPTIONS:

1. KP Self-Care Resources
   - KP Healthwise Handbook
   - [www.members.kp.org](http://www.members.kp.org), health encyclopedia
   - Health Education Core library knee brochure.
2. Ice
3. Modified activities.
4. Crutches or cane.
5. Quad sets (isometric exercises), straight leg quadriceps raise, prone or sitting knee bends, and ROM exercises
6. Weight loss
7. NSAID (e.g., ibuprofen [Motrin®]), short-term (2-4 weeks) or Acetaminophen (Tylenol®), long-term, use NSAIDS with caution.
8. Analgesic creams.
9. Refer to Flow Chart.
KNEE PAIN

Chronic or Insidious Onset

KNEE PAIN

Acute Injury
- Swelling/effusion
- Locking
- True giving (pt falls when pivoting)
- Fracture
- Likely sepsis

ANTERIOR PAIN

- Stairs, theatre (pain with prolonged sitting)
- Pseudo giveaway (partial buckling with walking or stairs)
- Pain with manipulation of patella

Refer to Orthopedics

JOINT LINE PAIN (Posterior)

Likely (OA)
- Gelling (stiff when sitting)
- AM stiffness

X-ray:
- AP standing of single involved knee at 0° + 45° knee flexion
- 1 at merchant

<3mm joint

OA

>3mm joint

Likely Meniscal Tear
- Posterior joint line pain
- Effusion
- *McMurray’s Sign
- Locking-can flex knee but cannot fully extend because something is “stuck”

Refer to Orthopedics

*McMurray’s Sign—Pain on extension of knee while pressing on heel.

Refer to Orthopedics

Follow up in 4 weeks → Refer to Orthopedics
If no improvement (continue Home Exercise protocol)

\* Acetaminophen 4 gm/24 hrs if <65 years; 2gm/24 hrs if >=65 years. NSAIDS(lowest GI risk with salsalate, nabumetone or etodolac)

- Glucosamine/chondroitin
- Physical Therapy (1 X 4) to include
  1. Home Exercise Protocol that doesn’t cause ensuing pain/swelling
  2. Aquatic Physical Therapy
  3. Theraband strengthening
- Avoid impact activities
- Cortisone injection

Return to Clinic in 4 weeks, if no improvement. Refer to Orthopedics

Shoes with flat sole and good arch support
Patellar sleeve (with hole) - only in situations that would otherwise elicit pain
Physical Therapy (4 sessions to include)
1. Instruct on Home Exercise Protocol
2. Stretch: hams, quads, gastreoc pelvic stabilizers
3. Pain-free strengthening-quads & pelvic stabilizers
4. Bioid feedback for Vastus Medialis
5. Healthwise Handbook-Patella Femoral

NSAIDS(lowest GI risk with salsalate, nabumetone or etodolac)
LOW BACK PAIN

BACKGROUND:
Most back pain resolves with or without specific treatment.

SUGGESTED EVALUATION:

1. **History:** With attention to:
   - History of trauma.
   - Duration and radiation of pain (e.g., nocturnal, leg).
   - Psychosocial issues.
   - Acuity of onset.
   - Neurologic symptoms: weakness, numbness, bladder and stool function.
   - Other systemic symptoms (e.g., GYN problems, weight loss, fever, abdominal pain).
   - History of cancer.
   - Likelihood of osteoporosis.

   **NOTE:** Warning signs are:
   - Leg pain > back pain
   - Night pain
   - Systemic symptoms
   - Sphincter dysfunction
   - New onset back pain in patient > 55 years of age

2. **Physical:** With attention to:
   - Weight
   - Posture
   - Appropriate neurological, neuromuscular, trigger point, and back exam; straight leg raise (+ if symptoms at 35-70 degrees), great toe plantar and dorsiflexion, and DTR’s. If all 3 normal, likelihood of a nerve root compression is very low. If all 3 abnormal, likelihood is high (≥ 70%).
   - Check hip range of motion

3. **Initial Labs:** If systemic symptoms, CBC, ESR and other testing as indicated

4. **Imaging:**
   - X-ray pelvis/hip if physical exam is abnormal.
   - Routine imaging of back pain is not recommended (ACP) until after the failure of a treatment trial independent of age.
   - With history of trauma and cancer, lumbar spine x-ray (PA & lateral) should be done.

   **NOTE:** EMG, MRI or CT Scans have not proven to be beneficial for acute low back pain in the absence of neurological deficit. Defer decision to specialist if referral indicated.

5. **Diagnostic Studies:** Generally none

TREATMENT OPTIONS:

1. **KP Self-Care /Self Management Resources**
   - KP Healthwise Handbook
2. NSAID (See medication recommendations on page 1).
3. Consider short-term (3 Days) muscle relaxants.
4. Activity modification and exercise program.
5. Consider ice and heat.
6. Return in 4 weeks for follow up.

NOTE: Narcotics, corsets, braces and prolonged use of muscle relaxants and bed rest have not proven to be worthwhile. However, consider short-term pain medication for severe acute back pain.
Muscle relaxants only for acute spasm-not indicated in chronic pain.
Nortriptyline starter pack (See medication recommendations on page 1).
Medrol dose pack for radicular symptoms.
Physical Therapy for two visits for acute pain.
Physical Therapy for six visits for chronic pain.
Chronic Pain/Behavioral Health referral for non pharmacologic pain control.

CRITERIA FOR REFERRAL:

STAT referral to appropriate surgeon:
1. Cauda equina syndrome with sudden incontinence or saddle anesthesia.

Physical Therapy:
1. For evaluation and treatment, including instruction in Home Exercise Program.

Orthopedics:
1. Neuro deficit on initial exam.
2. Increased symptoms (despite conservative care) less than 4 weeks.
3. If persistent pain > 4 to 6 weeks, despite conservative care and Home Exercise Program. Obtain lumbar spine x-ray PA and lateral prior to referring.
4. Call for expedite care if pain severe or keeps patient out of work for more than 1 week.

Behavioral Health:
1. Significant psychosocial stressors.*
2. Concomitant anxiety and/or depression.

Note: * Extended use of pain medication and/or excessive missed days of work are high-risk indicator for psychological factors affecting outcome.

NECK PAIN

BACKGROUND:
Upper extremity pain, tingling, numbness, weakness, with or without neck symptoms, may originate in the neck. Continuous symptoms often relate to fixed anatomical problems; e.g., spondylotic changes. Intermittent symptoms usually due to soft tissue syndromes; e.g., muscle tension. Advancing age favors degenerative changes with nerve impingement; young/middle aged people more likely to have soft tissue pain syndromes.

Neck movement aggravating symptoms suggests pain of cervical origin.¹
NEUROLOGY OF THE UPPER EXTREMITY¹

<table>
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THE MAJOR PERIPHERAL NERVES¹

<table>
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<th>SENSATION TEST</th>
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<td>Dorsal web space between thumb and index finger</td>
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<tr>
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<td>Abduction-little finger</td>
<td>Distal ulnar aspect-little finger</td>
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<td>Median Nerve</td>
<td>Thumb pinch Opposition of thumb Abduction of thumb</td>
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</tr>
<tr>
<td>Musculocutaneous Nerve</td>
<td>Biceps</td>
<td>Lateral forearm</td>
</tr>
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SUGGESTED EVALUATION:

1. **History:** With attention to:
   - Trauma
   - Duration and radiation of pain.
   - Acuity of onset.
   - Neurological symptoms of weakness, numbness.
   - Systemic symptoms/general health/fitness/smoking.
   - Psychosocial issues/stress.
   - Type of employment/activities at work/posture.
   - Fever
   - Headache
   - Weakness of legs (general weakness can be associated with early myelopathy).
   - History of Cancer.
   - Likelihood of Osteoporosis.
   - History of Rheumatoid Arthritis.

2. **Physical:** With attention to:
   - Appropriate neck exam.
   - Range of motion of neck, shoulder, elbow, wrist/hand, noting any symptoms.
   - Appropriate neurological exam, especially looking for weakness, atrophy and signs of myelopathy Torticollis.
When palpating the muscles causes pain and they feel firm, muscle tension is likely present and significant. Tense muscles in the neck and upper back/shoulder region alter neuro-vascular function distally and create “functional thoracic outlet syndromes”, not related to fixed nerve or vascular compression lesions.¹

When muscle tension is present, consider common underlying factors:
- Stress (psychological, emotional or physical).
- Muscle weakness/lack of exercise (generally or regionally).
- Postural fatigue (related to muscle weakness).
- Underlying musculoskeletal injury – if history of recent trauma, consider cervical sprain or fracture.*
- Underlying degenerative arthritis with or without nerve impingement*
- Underlying disc herniation.
- Cigarette smoking, use of stimulants.¹

3. **Initial Labs:** If systemic symptoms:
   CBC, ESR and other testing as indicated.

4. **Imaging:**
   Cervical spine x-ray (to evaluate disc space height/foraminal patency) at initial visit if any of the following:
   - > 55 years old
   - History of cancer.
   - History of direct trauma with immediate onset of significant neck pain, patient holds head in hands (instability).
   - Abnormal neurologic exam’ attention to C5-6, C6-7 distribution gait, myelopathy or upper motor neuron signs, spasticity of lower extremities.
   - Patient has altered mental status.
   - Evidence of other trauma is present (i.e. abdominal or chest wall trauma).

5. **Diagnostic Studies**    N/A

**TREATMENT OPTIONS:**

1. KP Self Care / Self Management Resources
   - KP Healthwise Handbook
   - [www.member.kp.org](http://www.member.kp.org), health encyclopedia
   - Health education library, neck brochures
2. For traumatic neck pain, rest in most comfortable position (usually supine) 1-3 days.
3. Analgesia (See medication recommendations on page 1).
5. Nortriptyline Starter pack (See medication recommendations on page 1).
8. Pain Clinic.
9. Return to clinic in 4 weeks.
SHOULDER PAIN

SUGGESTED EVALUATION:

1. **History**  With attention to:
   Injury – If pain following injury, Urgent referral to Orthopedics

2. **Physical:**  With attention to:
   Evaluate for dislocation.
   Evaluate for neurovascular compromise.

3. **Initial labs:**  N/A

4. **Imaging:**  3 view shoulder (AP, Supraspinous Outlet, Axillary

5. **Diagnostic Studies:**  N/A

TREATMENT OPTIONS:  No Injury

1. KP Self Care / Self Management Resources
   - KP Healthwise Handbook
   - [www.member.kp.org](http://www.member.kp.org), health encyclopedia
2. Ice
3. Rest and immobilize with sling.
4. Analgesia, (See medication recommendations on page 1).
5. Gentle ROM exercise, start with pendulum exercises.
6. Physical Therapy 2 times a week for 3 weeks.
7. For range of motion with wand & theraband.
8. Return to clinic in 3 weeks, if no improvement – Orthopedics.

TREATMENT OPTIONS:  Injury or instability

1. Urgent referral to Orthopedics.
2. Shoulder immobilizer.
3. Analgesia (See medication recommendations on page 1).

SHOULDER PAIN (Non-traumatic)

BACKGROUND:
Common causes of shoulder pain include rotator cuff tendinitis, impingement syndrome, frozen shoulder (characterized by true loss of motion with normal x-rays), acromioclavicular arthritis, or glenohumeral arthritis. Consider referred pain of cervical, thoracic or abdominal origin in evaluating shoulder pain. Rotator cuff is most common source of shoulder pain.

Three steps to relief of shoulder pain include:
- Relieve inflammation (e.g. NSAIDS) – use NSAIDS with caution.
- Restore flexibility (e.g., appropriate stretching exercises).
- Restore balanced strength (e.g., appropriate strengthening exercises).
SUGGESTED EVALUATION:

1. **History:** With attention to:
   - Shoulder pain with overhead activity or reaching, especially behind back (i.e., while dressing).
   - Awaken with pain.
   - Pain radiating to deltoid area and/or to lower arm.
   - Coronary artery disease risk factors.

2. **Physical:** With attention to:
   - Determining origin of pain by physical exam.
   - Tender at subacromial area and acromioclavicular joint.
   - What reproduces the pain?
   - Evaluate for neurological deficits

3. **Initial Labs:** N/A

4. **Imaging:**
   - Orthopedic shoulder series, AP, 30° caudal tilt AP shoulder, axillary, and outlet view, if referred.
   - Consider chest w-ray if smoker or pulmonary symptoms.

5. **Diagnostic Studies:** N/A

TREATMENT OPTIONS:

1. **KP Self Care / Self Management Resources**
   - KP Healthwise Handbook
   - [www.members.kp.org](http://www.members.kp.org), health encyclopedia

2. Activity modification.

3. Ice

4. Exercise – rotator cuff exercise program, including stretching.

5. NSAID- (See medication recommendations on page 1).
Plantar Fasciitis:
Plantar fasciitis may not receive therapy unless ordered by Podiatry

TREATMENT OPTIONS:

1. KP Self Care / Self Management Resources
   - KP Healthwise Handbook
   - www.members.kp.org, health encyclopedia
2. Heel pad.
4. Return to office in three weeks.
   If not improved, refer to Podiatry.

1. History:
   - Occupation
   - Shoes
   - Diabetes

2. Imaging:
   - Heel Films – Optional

3. Criteria for Referral:
   - No response in 3 weeks