Spine and Sports Fellowship Didactic Curriculum

Monthly Fellow Chairman’s Rounds

Dr. Elliot Roth is the chair of the department of PM&R for RIC and meets with all of the fellows within RIC once per month starting in August. The content of each month’s meeting is as follows:

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Didactic Sessions with Joe Ihm

The fellows meet with the program director for 30-60 minutes an average of every other week at 7am on Wednesdays. During that time the objectives listed below are covered. Dr. Ihm signs off on topics that are covered. Only fellows attend this meeting and no meeting occurs without both fellows present. Certain sessions are covered at certain times of the year, starting with physical exam techniques at the beginning of the year.

July-September

Neck

1. With regards to assessing outpatient cervical spine disorders, discuss performance of neurologic exam including manual muscle testing of the C5-T1 myotomes, light touch and pin-prick testing of the C4-T1 dermatomes, testing the muscle stretch reflexes for biceps brachii, brachioradialis, and triceps brachii, and Hoffman’s test. Discuss utility of performing neural tension testing for the upper limb, including median, ulnar and radial nerve biases.

Signature ________________________________  Date __________

Elbow

1. Identify by palpation major anatomical areas about the elbow region, including the radial head, radiocapitellar joint, extensor musculature, biceps tendon, medial and lateral epicondyles, ulnar nerve, and area of the medial collateral ligament?

Signature ________________________________  Date __________

2. Demonstrate an examination for a patient with lateral elbow tendinopathy, including at least three provocative tests and differential palpation of the lateral elbow. Outline a treatment plan for this diagnosis.

Signature ________________________________  Date __________
Low Back

1. Discuss key components of the physical exam to evaluate patients with low back pain. This would include performance of manual muscle testing of the L2-S1 myotomes, testing light touch and pin-prick testing of the L2-S1 dermatomes, testing of muscle stretch reflexes at the patellar, medial hamstring, and Achilles. Included in the physical exam would be checking provocation of symptoms with the femoral nerve stretch, slump sit test and straight leg raise. Also included with be testing for ankle clonus and the Babinski maneuver. Also included would be palpation of the following boney landmarks: iliac crest, anterior superior iliac spine, posterior superior iliac spine, greater trochanter, sacral sulcus.

Signature ________________________________  Date __________

2. Discuss performance the following maneuvers as each relates to testing for pain originating from the SI joint: FABER/Patrick’s test, thigh thrust, sacral compression test, Gillet’s test.

Signature ________________________________  Date __________

Hip

1. Review physical exam of hip girdle including manual muscle testing with assessment of hip strength using both open and closed chain activities. Also, review assessment of hip range of motion, including popliteal angle, modified Thomas’s test, Ely’s maneuver, internal and external rotation, FABER/FADIR testing, and traction (both axial traction and traction with internal rotation).

Signature ________________________________  Date __________

Knee

1. Perform a physical examination on a patient presenting with knee pain including: testing the four major ligaments (ACL, PCL, MCL, LCL), for the meniscal pathology (McMurray’s test or variant), and appropriate neurological testing; identify landmarks on palpation of the knee region, including patella, medial femoral condyle, fibular head, hamstring tendons, quadriceps tendon, patellar tendon, medial and lateral joint line, MCL, LCL, and pes anserine bursa.

Signature ________________________________  Date __________

Ankle/Foot

1. Review physical exam of the ankle including: palpation of physical landmarks in the ankle-foot region including the medial and lateral malleoli, talar dome, calcaneus, navicular tuberosity, fifth metatarsal (including tuberosity), Achilles tendon, peroneal (fibular) tendons, posterior and anterior tibialis tendons, and plantar fascia; ligamentous testing of medial, lateral and syndesmotic aspects of ankle; manual muscle testing, including evaluation of peroneal subluxation.

Signature ________________________________  Date __________
October-December
Neck

1. Discuss the clinical presentation and management for cervical myelopathy.
   Signature ________________________________  Date __________

2. Discuss the clinical presentation and management for cervical radiculopathy.
   Signature ________________________________  Date __________

3. Discuss appropriate reading of a cervical spine x-ray, identifying the following elements on AP, lateral, and oblique views: spinous process, pedicles, articular processes, zygapophysial joints, transverse foramen, uncal processes, neuroforamina. Also identify the following lines on lateral view: anterior longitudinal line, posterior longitudinal line, spinolaminar line, and spinal line.
   Signature ________________________________  Date __________

4. Read a cervical MRI, identifying the following elements: spinous process, pedicles, articular processes, and zygapophysial joints. Identify both the descending and exiting nerve roots. Distinguish between T1- and T2-weighted images.
   Signature ________________________________  Date __________

Shoulder

1. Identify standard shoulder radiographic views. Demonstrate major osseous structures on these radiographs, including the glenohumeral joint, greater and lesser tuberosities, acromio-humeral interval, glenoid, and AC joint.
   Signature ________________________________  Date __________

2. Identify major osseous and musculotendinous structures on a shoulder MRI scan. Discuss the potential relevance of “abnormal findings”. Are all structural changes clinically significant?
   Signature ________________________________  Date __________

3. Discuss the historical and physical findings in a typical patient with rotator cuff disease, including demonstration of impingement signs and manual muscle testing. Outline an initial treatment plan for a patient with rotator cuff disease, including medications, modalities, exercise, and activity restrictions. Discuss physical therapy prescription and rationale.
   Signature ________________________________  Date __________
4. Discuss the historical and physical findings in a typical patient with glenohumeral joint instability, including demonstration of apprehension signs and manual muscle testing. Discuss how instability and rotator cuff disease may be related. 
Signature ________________________________  Date __________

5. Discuss the role of the scapular stabilizer muscles in optimizing scapulothoracic function; identify the main muscles involved and describe exercises that will work each muscle effectively. 
Signature ________________________________  Date __________

6. Outline an initial treatment plan for a patient with an acute traumatic anterior shoulder dislocation, s/p reduction? When can the athlete return to play? When is surgery an option? 
Signature ________________________________  Date __________

7. Describe and demonstrate at least two physical examination maneuvers for evaluation of the glenoid labrum. 
Signature ________________________________  Date __________

8. Discuss the importance of evaluating kinetic chain mechanics and sport specific technique in an athlete with shoulder pain. 
Signature ________________________________  Date __________

Elbow

1. Discuss the differential diagnosis of lateral and medial elbow pain. 
Signature ________________________________  Date __________

2. Discuss injury of the ulnar collateral ligament and treatment plan for patients with pain and/or instability related to injury of this ligament. 
Signature ________________________________  Date __________
January-March

Low Back

1. Discuss the clinical presentation and management for lumbosacral radiculopathy.
   Signature ________________________________  Date __________

2. Discuss the diagnostic approach to zygapophysial joint arthropathy, including history, physical examination, z-joint injections, medial branch blocks, and radiofrequency ablation.
   Signature ________________________________  Date __________

3. Discuss the clinical presentation and management for lumbar spinal stenosis.
   Signature ________________________________  Date __________

4. Explain the concept of directional preference and centralization of pain as these relate to lumbosacral radiculopathies.
   Signature ________________________________  Date __________

5. Review the following structures as seen on AP, lateral, and oblique views of the lumbar spine: spinous processes, pedicles, articular processes, zygapophysial joints, transverse processes, neuroforamina.
   Signature ________________________________  Date __________

6. Read a lumbar MRI, identifying the following elements: spinous process, pedicles, anulus fibrosus, ligamentum flavum, articular processes, and zygapophysial joints. Identify both the descending and exiting nerve roots. Distinguish between T1- and T2-weighted images.
   Signature ________________________________  Date __________

7. Discuss the evaluation and treatment of the young athlete with spondylolysis, including utility and appropriateness of imaging studies and management to maximize resolution and pain.
   Signature ________________________________  Date __________
Hip

1. Discuss differential diagnosis of an athlete presenting with groin pain.
   Signature ________________________________  Date __________

2. Discuss the presentation of femoroacetabular impingement, physical exam findings, potential plain film findings, and management.
   Signature ________________________________  Date __________

3. Discuss “snapping hip,” including proposed mechanisms for etiology and treatment interventions.
   Signature ________________________________  Date __________

4. Discuss the two types of femoral neck stress fractures, including history, physical examination, and treatment differences between the 2 most common types.
   Signature ________________________________  Date __________

5. Discuss physical exam and treatment for patient with hip osteoarthritis. Discuss nonoperative and operative treatment in the athlete who presents with this problem.
   Signature ________________________________  Date __________

6. Review a hip x-ray, identifying views and locating the following landmarks: acetabulum, femoral head, greater trochanter, lesser trochanter, superior and inferior pubic rami. Discuss indications for ordering hip imaging, including views.
   Signature ________________________________  Date __________

Knee

1. Discuss general issues related to patient presenting with knee pain including: 5 important historical questions to ask a patient with knee pain and discuss their potential clinical significance; regional (anterior, lateral, medial) differential diagnosis for knee pain including mechanical, neurologic, and referred causes.
   Signature ________________________________  Date __________
2. Review structure on standard knee radiographs. Demonstrate major osseous structures on these radiographs, including the medial and lateral tibiofemoral joint space, medial and lateral femoral condyles, patella, fibula, and medial tibial plateau.
Signature ________________________________  Date __________

3. Identify major structures on a knee MRI scan, including the four major ligaments, both menisci, and the patellar tendon. Discuss clinical relevance of findings seen on MRI of the knee.
Signature ________________________________  Date __________

4. Discuss the historical and physical findings in a typical patient with an acute ACL injury including demonstration of tests for effusion, Lachman test, and anterior drawer test. How can a PCL tear look like an ACL tear on exam?
Signature ___________________ Date __________

5. Discuss the historical and physical findings in a typical patient with a posterior horn medial meniscal tear including specific location of joint line testing, bounce home test, hyperflexion test, and McMurray’s test. Discuss possible findings on plain films and MRI. Describe the treatment of acute meniscal tears in detail.
Signature ___________________________ Date __________

6. Outline an initial treatment plan for a patient with either a degenerative meniscal tear or knee OA including options for medications, modalities, assisted weight bearing, bracing, exercise, and activity modification. Discuss physical therapy prescription and rationale.
Signature ___________________________ Date __________

7. Outline a treatment plan for patellofemoral pain, including medications, modalities, bracing, exercise, and activity restrictions, as appropriate. Describe the rationale for any stretching or strengthening you prescribe. Discuss the potential value of a foot orthosis in these patients? Discuss physical therapy prescription and rationale.
Signature ___________________________ Date __________

April-June Session

Leg

1. Discuss history, physical and differential diagnosis of leg pain in an athlete.
Signature ___________________________ Date __________

2. Discuss diagnosis and management of a calf strain.
Signature ___________________________ Date __________
3. Discuss diagnosis and management of medial tibial stress syndrome.
   Signature ___________________________  Date __________

4. Discuss diagnosis and management of a tibia or fibula stress fracture.
   Signature ___________________________  Date __________

Ankle/Foot

1. List at least 5 important historical questions to ask a patient with an acute ankle injury and discuss their potential clinical significance. List a regional (anterolateral, anteromedial, posterolateral, posteromedial) differential diagnosis for ankle pain including mechanical, neurologic, and referred causes.
   Signature ___________________________  Date __________

2. Outline the Ottawa ankle rules for obtaining radiographs in acute ankle-foot injury and demonstrate their application to the history and physical examination on a patient.
   Signature ___________________________  Date __________

3. Discuss presentation of a high ankle sprain (a.k.a. syndesmotic injury)? Demonstrate at least two physical examination signs for a syndesmotic injury in addition to palpation for a Maisonneuve fracture.
   Signature ___________________________  Date __________

4. Identify standard ankle radiographic views. Demonstrate major osseous structures on these radiographs including the tibia, fibula, malleoli, calcaneus, anterior process of the calcaneus, talar dome, and visible mid-foot and forefoot bones.
   Signature ___________________________  Date __________

5. Discuss the historical and physical findings in a typical patient with Achilles tendinopathy including demonstration of the Thompson test, ROM testing, and differentiation of soleus vs gastrocnemius length. List at least three risk factors for Achilles' tendinopathy. Discuss treatment of Achilles tendinopathy and return to running.
   Signature ___________________________  Date __________

6. Discuss the historical and physical findings in a typical patient with posterior tibial tendon dysfunction including palpation of the tendon, functional testing, and manual muscle testing.
   Signature ___________________________  Date __________
7. Outline an initial treatment plan for a patient with an inversion ankle sprain including medications, modalities, assisted weightbearing, bracing, exercise, and activity modifications. Discuss osteochondral injuries as they relate to ankle sprains and ongoing ankle pain. Discuss physical therapy prescription and rationale.
Signature ________________________________  Date _________

8. Compare operative and non-operative treatment options after Achilles tendon rupture.
Signature ________________________________  Date _________

Exercise Prescription

1. Discuss physiologic adaptations to different intensities of aerobic exercise. Compare threshold of physical activity for health benefits to exercise for aerobic and fitness benefits.
Signature ________________________________  Date _________

2. Discuss environmental effects on exercise.
Signature ________________________________  Date _________

3. Discuss recommendations for resistance training to improve strength and endurance.
Signature ________________________________  Date _________

4. Discuss ways to counsel a patient on the importance of aerobic exercise and a healthy lifestyle.
Signature ________________________________  Date _________

5. Discuss the effects of disease (e.g., diabetes, cardiac conditions, and arthritis) on exercise and the use of exercise in the care of medical problems.
Signature ________________________________  Date _________
Didactics sessions while on rotation at RIC while at SSRC or River Forest

Melissa Kolski -- physical therapist at SSRC

1. Mechanical diagnosis and treatment
   Signature ________________________________  Date _________

2. Pain classifications
   Signature ________________________________  Date _________

3. The kinetic chain
   Signature ________________________________  Date _________

Dan Blatz

1. Preparticipation Physical Examination
   Signature ________________________________  Date _________

2. Sports Sideline coverage
   Signature ________________________________  Date _________

Maria Reese

1. Female Athlete Triad/Bone Health in Sports Medicine
   Signature ________________________________  Date _________

2. Endurance Event Coverage
   Signature ________________________________  Date _________

Monica Rho

1. Introduction to Musculoskeletal Ultrasound: Principles, Knobology, and Identifying Anatomic Structures
   Signature ________________________________  Date _________

2. Ultrasound of the Upper Extremity: Shoulder, Wrist, Elbow, and Hand
   Signature ________________________________  Date _________

3. Ultrasound of the Lower Extremity: Hip, Knee, Ankle, and Foot
   Signature ________________________________  Date _________
4. Interventional MSK Ultrasound  
   Signature ________________________________  Date __________

Alex Sheng

1. Lumbar Spondylolysis.  
   Signature ________________________________  Date __________

2. Approach to patient with a suspected glenoid labral tear.  
   Signature ________________________________  Date __________

Andrew Hendrix

   Signature ________________________________  Date __________

   Signature ________________________________  Date __________

   Signature ________________________________  Date __________

Didactic Sessions while on rotation at Northwestern University

Kristin Abbott

1. Cardiac and pulmonary issues in the athlete  
   Signature ________________________________  Date __________

2. Dermatologic issues in the athlete  
   Signature ________________________________  Date __________

3. Guidelines for evaluating and treating concussion in sport  
   Signature ________________________________  Date __________
4. Understanding pharmacology and effects of therapeutic, performance enhancing, and mood-altering drugs
   Signature ________________________________  Date __________

Katie Knappenberger
Basic nutritional principles and their application to exercise
Signature ________________________________  Date __________

Lori Schwanhausser Jeffries
Psychological aspects of exercise, performance, and competition
Signature ________________________________  Date __________

Jason Pullara
  1. Physical conditioning requirements for various activities
     Signature ________________________________  Date __________
  2. Special considerations for exercise related to age, gender, and disability
     Signature ________________________________  Date __________

Didactic sessions while on rotation at Lurie Children’s Hospital

Cynthia LaBella or Rebecca Carl

Growth plate injuries
   Signature ________________________________  Date __________

Growth and development related to exercise
   Signature ________________________________  Date __________

Didactic sessions while on rotation at Northwestern or RIC’s River Forest site with Dr. Steve Gryzlo

  1. Functioning as a team physician
     Signature ________________________________  Date __________
  2. Ethical principles as applied to exercise and sports
     Signature ________________________________  Date __________
  3. Medical-legal aspects of exercise and sports
     Signature ________________________________  Date __________
Separate didactic session with Dr. George Chiampas, who is the medical director for the Chicago Marathon

Environmental effects on exercise
Signature ________________________________ Date __________

Radiology Conference
Once per month at 7am Dr. Ruth Ramsey visits SSRC for one hour to discuss cervical, thoracic and lumbar spine cases and to review how to assess images for pertinent findings. Faculty, residents from the core residency program, and sports fellows attend these meetings.