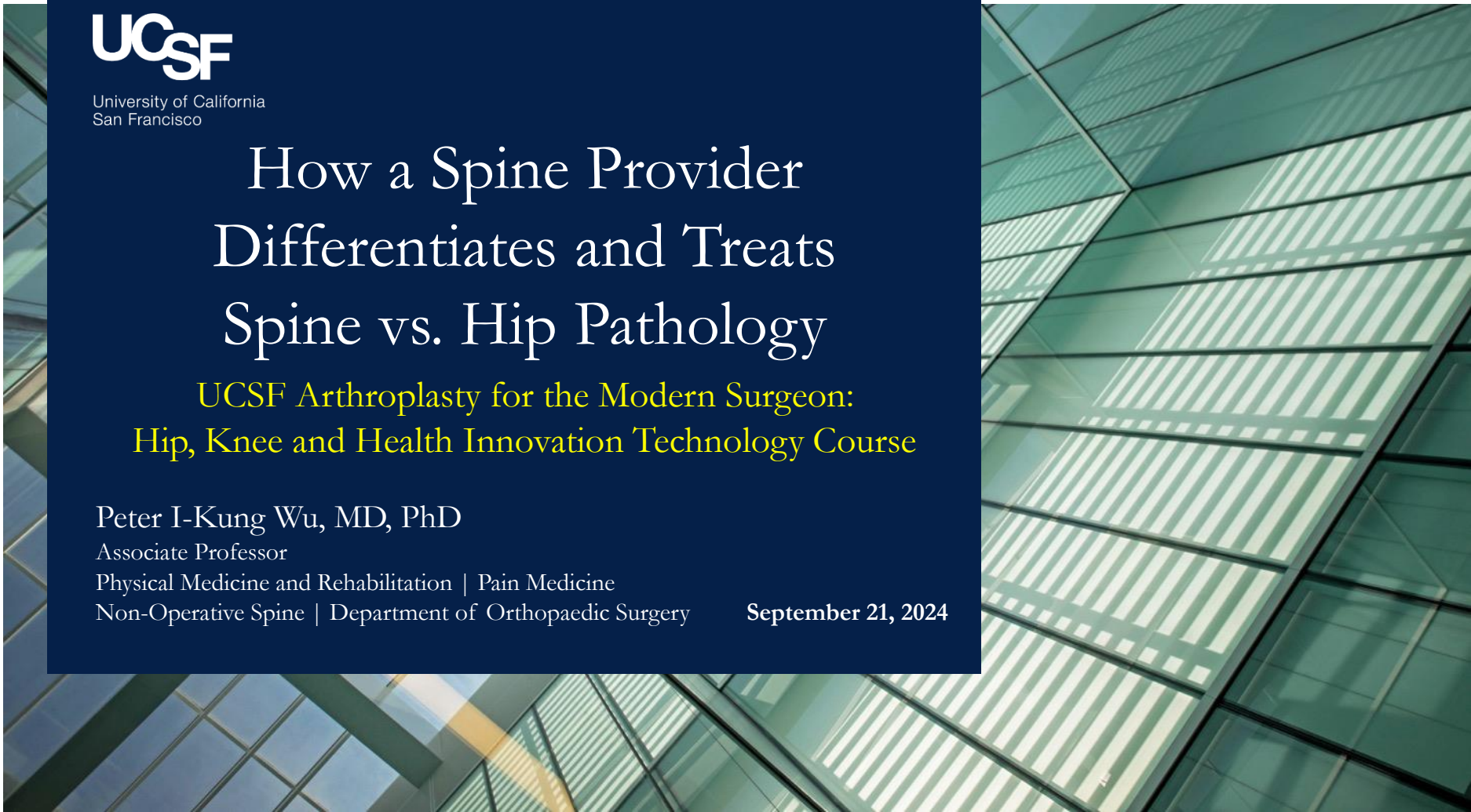

University of California
San Francisco

How a Spine Provider Differentiates and Treats Spine vs. Hip Pathology

UCSF Arthroplasty for the Modern Surgeon: Hip, Knee and Health Innovation Technology Course

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Non-Operative Spine | Department of Orthopaedic Surgery

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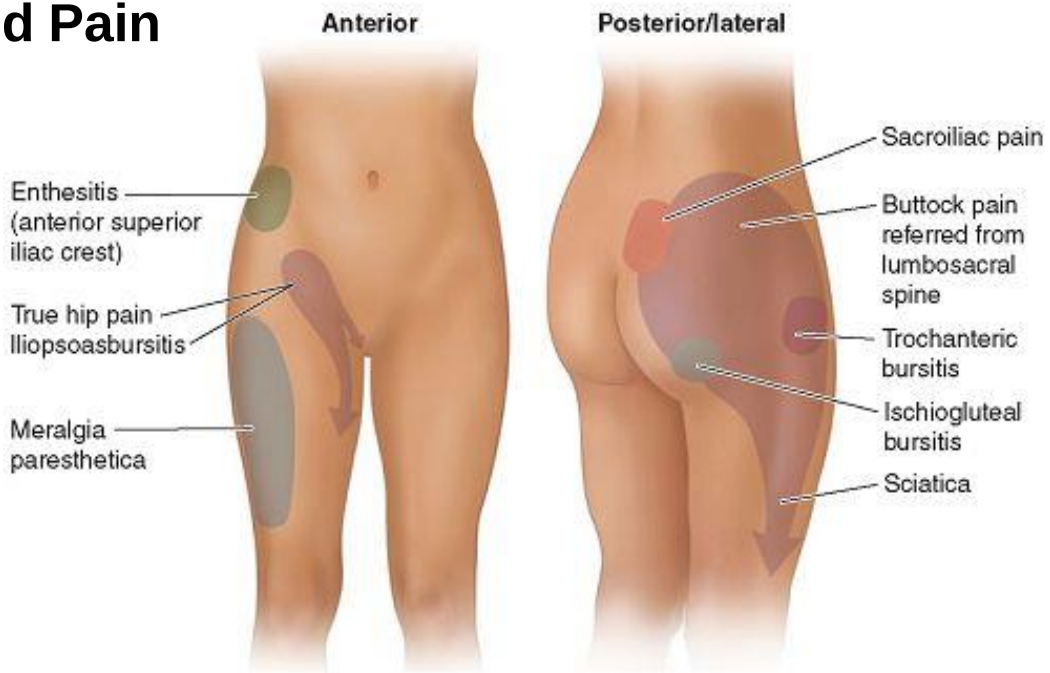
Pain Characteristics

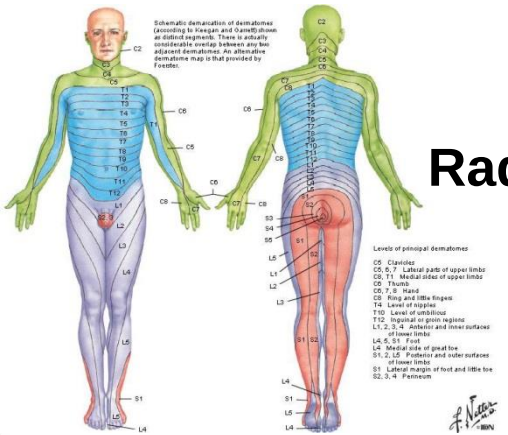
- **Hip-Related Pain**



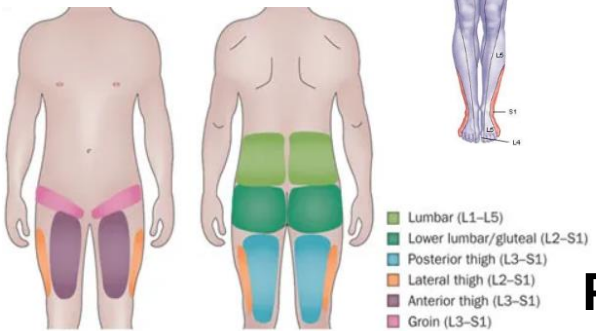
http://hippainrelief.org/wp-content/uploads/2013/08/causes-of-hip-pain-both-sides.jpg

Pain Characteristics

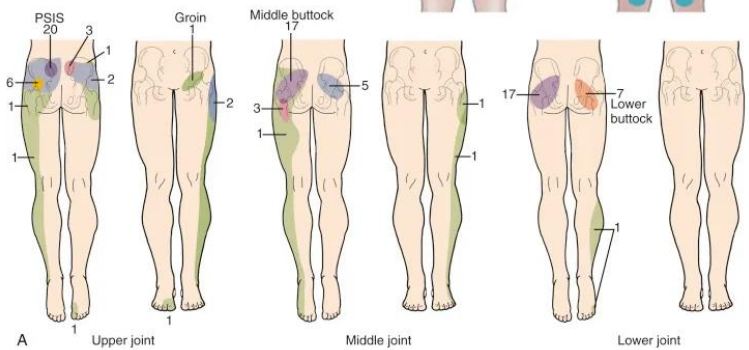
- **Spine-Related Pain**
  - low back, sacrum
  - buttocks, hips, groin, thigh
  - below the knee



Radicular



Facet Joint



Sacroiliac Joint

Mooney and Robertson. Clinical Orthop Rel Res. 1976; 115: 149-156. | McCall IW, et al. Spine;1979;4:441-6.
Marks, R. Pain. 1989; 39: 37-40. | Fukui, S. et al. Clin. J. Pain. 1997; 13: 303–307. | Kleef et al. Pain Practice. 2010; 10(5): 459–469
Kurosawa D, et al. Eur Spine J. 2015 Mar;24(3):521-7.

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History

- **Key points for Differential Diagnosis**
  - Affected areas
    - Axial spine: discogenic, facetogenic, sacroiliac joint, paraspinal myofascial
    - Referred: facet joints, sacroiliac joint, myofascial pain
    - Radiating: radicular, plexopathy, peripheral neuropathy/neuralgia

History

- **Key points for Differential Diagnosis**
  - Pain History:
    - Onset and Mechanism of Injury: inciting factors, trauma, activities
    - Trauma History: motor vehicle accidents, prior/current sports activities, falls
    - Medical History: fractures, inflammatory conditions, cancer
    - Injection/Surgical History: prior spine or hip injections or surgeries

History

- **Key points for Differential Diagnosis**
  - Pain Quality:
    - **Neuropathic:** burning, electric, shooting, buzzing, etc.
      - **Nerve root compression** caused by an acute intervertebral disc herniation may produce **low back pain initially**, followed by radiating pain in the lower extremity
    - **Nociceptive:** achy, deep, throbbing, sharp, stabbing, stiffness, etc.
      - Lumbar facetogenic pain produces axial low back pain and stiffness

History

- **Key points for Differential Diagnosis**
  - Exacerbating factors
    - Movements:
      - Lumbar: spinal flexion, extension, twisting, tilting
      - Hip: hip flexion, rotation
    - Activities:
      - Lumbar:
        - discogenic or radicular pain: sitting, standing, walking
        - facetogenic pain: extension, rotation, flexion
        - sacroiliac joint pain: getting in/out of car, sit-to-stand transfers, stairs
      - Hip:
        - weight bearing, standing, walking

History

- **Key points for Differential Diagnosis**
  - Red Flags and Surgical Indications
    - Motor weakness of the extremities
    - Altered sensation
    - Discoordination
    - Gait impairment or fall
    - Bladder and bowel dysfunction
    - Upper motor neuron signs
    - Fever, chills, sweats; night pain

Physical Examination

- **Key points for Differential Diagnosis**
  - Range of Motion
    - Lumbar – restricted lumbar range of motion
    - Hip joint – restricted internal range of motion
  - Palpation
    - Lumbar – tenderness to palpation at spinous processes, interspinous spaces, paraspinal areas, lumbar and gluteal muscles, sacroiliac joints
    - Hip – tenderness to palpation at hip flexor, greater trochanter, gluteal tendons

Physical Examination

Hip Pain	Test	Sensitivity	Specificity
Arthritis	Internal rotation < 15°	0.66	0.72
	Pain w/ IR	0.82	0.39
	Limited hip adduction	0.80	0.81
Impingement/ Labral Pathology	FADIR	**0.94**	0.08
	Scour	0.50 – 1.00	0.29
	FABER	0.41 – 0.97	0.18 – 1.00
Gluteal Tendinopathy	Resisted external derotation	0.88	0.97
Hip Flexor	Stinchfield	0.06 – 0.75	0.38 – 1.00
	Thomas	0.89	0.92

Katz JN, et al. JAMA. 2021 Feb 9;325(6):568-578. | Reiman MP, et al. Br J Sports Med. 2015 Mar;49(6):357-61.
Wong SE, et al. Curr Rev Musculoskelet Med. 2022 Apr;15(2):38-52.

Physical Examination

Spine Pain	Test	Sensitivity	Specificity
Lumbar Radiculopathy	**Straight Leg Raise (SLR)**	0.52 (0.42-0.58)	**0.89** (0.79-0.95)
	Crossed SLR	0.28 (0.22-0.35)	**0.90** (0.85-0.94)
	Seated Slump	**0.84** (0.74-0.90)	0.83 (0.73-0.90)
	Femoral Nerve Stretch	**1.00** (0.40-1.00)	0.83 (0.52-0.98)
	Motor	0.33 (0.06-0.97)	0.68 (0.59-0.76)
	Sensory	0.33 (0.06-0.79)	0.88 (0.81-0.93)

Physical Examination

Spine Pain	Test	Sensitivity	Specificity
Sacroiliac Joint Dysfunction	**FABER/Patrick's**	**0.72**	0.67
	Pelvic Distraction	0.60 (0.36-0.80)	0.81 (0.65-0.91)
	Compression	0.69 (0.44-0.86)	0.69
	Thigh Thrust	**0.88** (0.64-0.97)	0.69
	Gaenslen's	0.53 (0.30-0.75)	0.71 (0.53-0.84)
	Sacral Thrust	0.63 (0.39-0.82)	0.75 (0.58-0.87)
	≥ 2 positive tests	0.93 (0.72-0.99)	**0.66** (0.48-0.80)

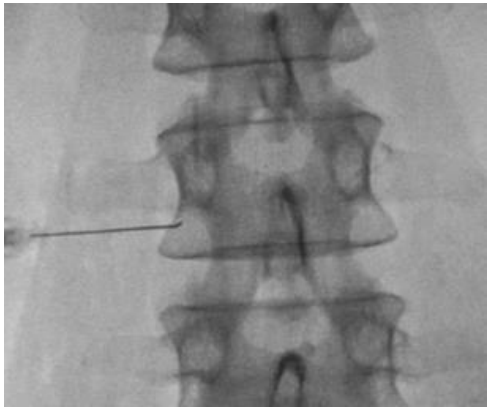
Injections

- **Hip Arthritis**
  - 2010 retrospective analysis
    - Response to intra-articular hip injection has 91.5% sensitivity, 100% specificity, 100% PPV, 84.6% NPV for response to THR
  - 2014 meta-analysis of case series
    - Response to intra-articular hip injection has pooled sensitivity of 0.97, pooled specificity of 0.91 in diagnosing hip arthritis in patients with atypical pain
- **Femoroacetabular Impingement/ Labral Pathology**
  - 2021 case series
    - Response to ultrasound-guided intra-articular hip injection was 91.7% accurate for detecting the presence of intra-articular pathology

Deshmukh AJ, et al. J Arthroplasty. 2010 Sep;25(6 Suppl):129-33. | Dorleijn DM, et al. J Arthroplasty. 2014 Jun;29(6):1236-1242.
Gao G, et al. Arthroscopy. 2021 Jan;37(1):128-135.

Injections

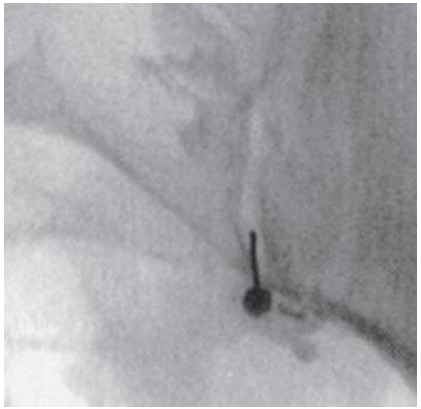
- **Radicular Pain**
  - 2013 Update of Comprehensive Evidence-Based Guidelines for Interventional Techniques in Chronic Spinal Pain
    - The evidence for accuracy of diagnostic selective nerve root blocks is limited



Manchikanti L., et al. Pain Physician. 2013 Apr;16(2 Suppl):S49-283.

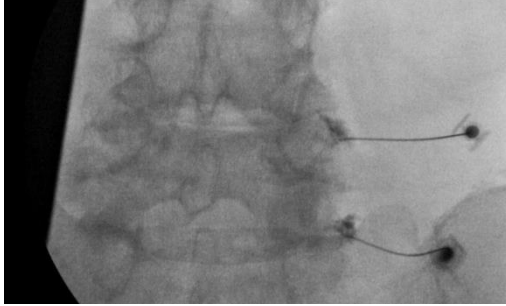
Injections

- **Sacroiliac Joint Pain**
  - 2015 Systematic Review of the Diagnostic Accuracy and Therapeutic Effectiveness of Sacroiliac Joint Interventions
    - Level II for dual diagnostic blocks with at least 70% pain relief



Simopoulos TT, et al. Pain Physician. 2015 Sep-Oct;18(5):E713-56.

Injections



- **Facet Arthropathy**
  - 2020 Guidelines by the American Society of Interventional Pain Physicians (ASIPP) for Facet Joint Interventions in the Management of Chronic Spinal Pain
    - Level IV for accurate diagnosis of facet joint pain with physical examination, with weak strength of recommendation.
    - Level III for SPECT and Level V for scintigraphy, MRI, CT, with weak strength of recommendation
    - **Level I-II for diagnostic lumbar facet joint nerve blocks, with moderate to strong strength of recommendation**

Manchikanti L., et al. Pain Physician. 2020 May;23(3S):S1-S127.

Thank You

- Questions