

## Living Anatomy Exercise

### ■ **Be able to identify:**

- Humeral Head
- Scapular Spine
- AC Joint
- Sternoclavicular Joint
- ASIS
- Iliac Crest
- Greater Trochanter
- SI Joints
- Femoral Condyle
- Patella
- Medial and Lateral Menisci
- Medial and Lateral Malleoli
- Peroneal Tendons

# Common Musculoskeletal Injuries in Yoga

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# Disclosures

None



# Goals and Objectives

- **Background of US Yoga Practitioners**
- **Epidemiology**
- **Common Injuries**
  - Shoulder
  - Elbow/Wrist
  - Neck and Back
  - Hip and Knee
  - Foot and Ankle
- **General Injury Prevention Recommendations**

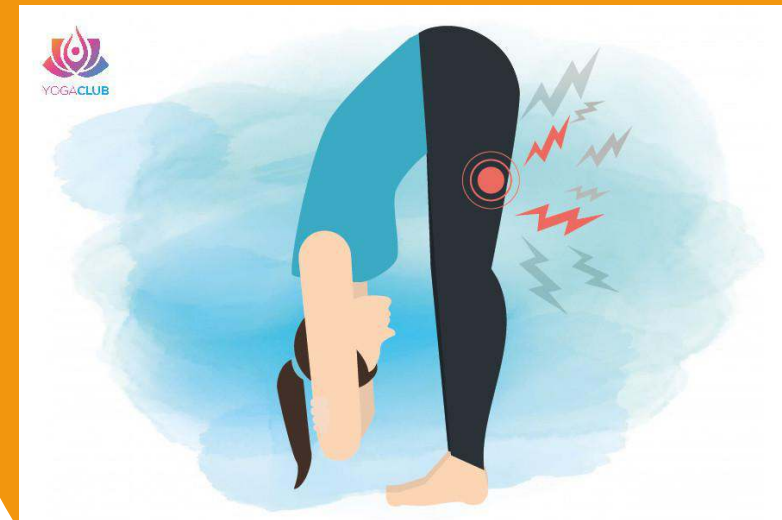
## Background of US Yoga Practitioners

- **General yoga focus on 3 main components in Western world:**
  - Hatha (Postures)
  - Pranayama (Breathing)
  - Meditation
- **Estimated 6.9% of American population reports practicing yoga**
  - Typical US yoga practitioner attends 18.6 classes per year
- **Mean age: 31-58 yo**
- **Majority are female**



- Incidence (rate of new diagnosed cases) of “adverse events” related to yoga of 22.7%
- Lifetime prevalence of “adverse event” (actual amount of cases at any given time) of 35.4%
- Of these events:
  - 1.9% were reported as a “serious adverse event requiring immediate discontinuation of yoga”
  - 0.6% were “adverse events requiring lifetime discontinuation of yoga”
  - 0% reported lifetime impairment from a yoga-related event

# Epidemiolog y



## Epidemiology (continued)



- Are there certain types of yoga implicated more commonly?
  - Bikram, Hatha, and Pranayama cited most commonly
  - Hot Yoga with higher prevalence (52.2%) – generally dehydration events
  - Ashtanga Yoga with longer duration injuries (thought to be related to complex sequences during flow)
- Most commonly cited poses leading to injuries:
  - Lotus, headstand, shoulder stand, handstand, forward bends, backward bends

# Epidemiology (continued)



- Risk of yoga-related injury estimated to 1.45 per 1000 hours of yoga practiced (remember avg is 18.6 classes/year)
- Compared to other activities, there is a lower injury rate than high-intensity, higher impact activities such as soccer
- Risk of yoga-related injury is considered same risk of “usual care and exercise”
- Experience appears to play a role
- Practitioners cited **hypercompetitiveness** and **ego** as most common reason for injury.
  - Other reasons cited include excessive effort, poor technique, inadequate instruction, and poor instruction



## Common Injuries

In order of decreasing frequency: Neck, Shoulder, Low Back, Knee, Wrist, Back (any region), Hamstring, Hip, Leg, and Groin

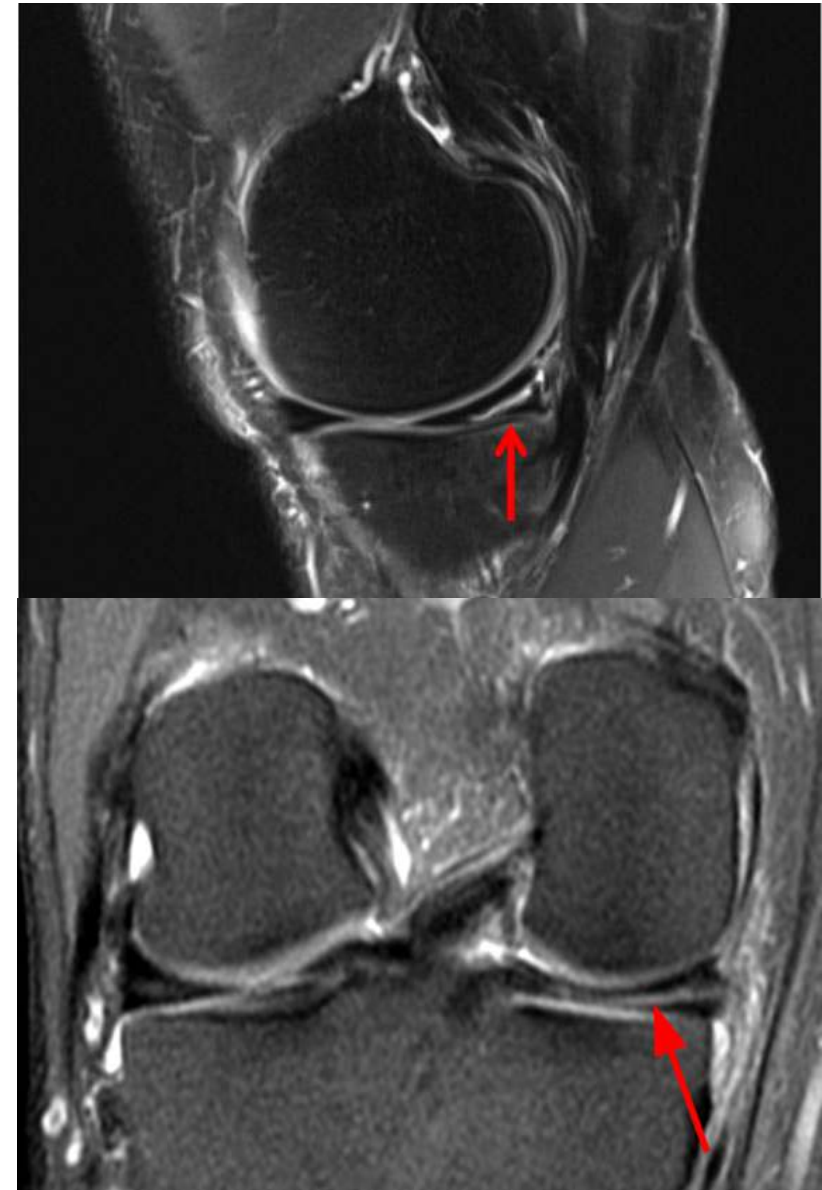
Imaging studies (MRI, CT, ultrasound, X-ray) showed:

- Tendinous lesions (sprains, tendon tears)

  - Most common supraspinatus and Achilles

- Fibrocartilagenous Tears

  - Medial Meniscus, Labrum (Hip and Shoulder), Lumbar Disc, and Peroneus Brevis Tendons



# Upper Extremity

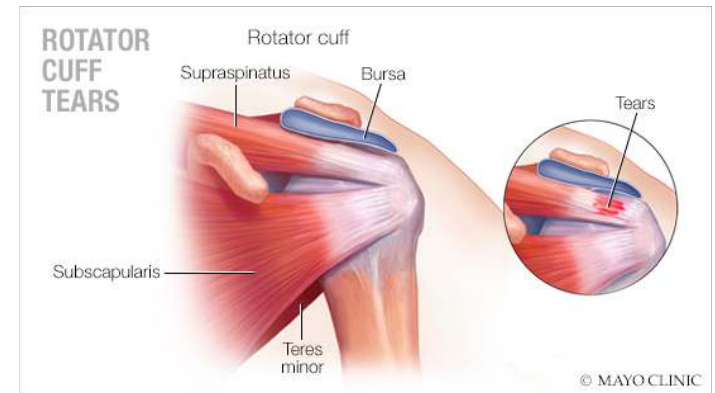
## Shoulder Injuries

Rotator cuff (especially supraspinatus) at risk in any position that puts weight on the hands

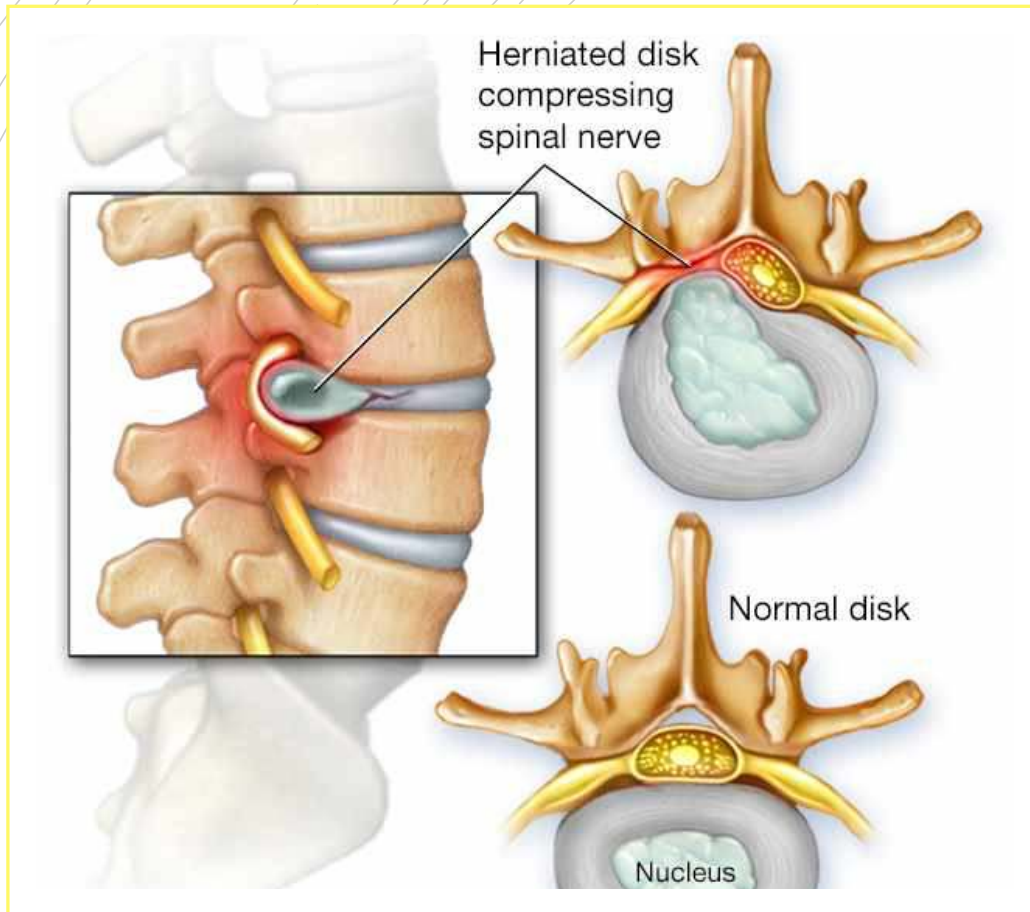
Ex: Chaturanga, downward dog, side plank, wheel, all binds, Handstand, Crow, Plank

## Elbow/Wrist Injuries

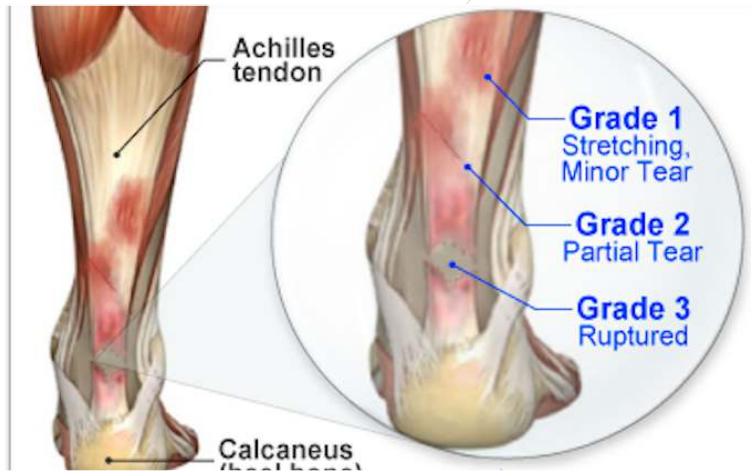
Similar poses leading to shoulder injuries can lead to elbow injuries



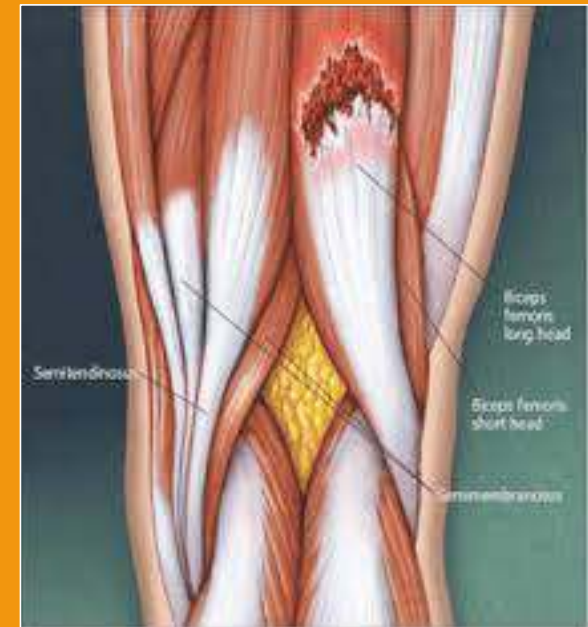
## Neck and Back



- Cervical spine vulnerable to injury during inverted poses due to weight bearing in highly mobile part of the spine
  - Ex. Headstand, Shoulder stand
- Lumbar Spine can be injured during:
  - Backbends and twists due to overextension or forceful muscle contractions
  - Forward bends due to increased stress on the low back in the presence of tight hamstrings. Can also lead to disc herniation and vertebral fractures
- Be particularly mindful in older practitioners with possible degenerative disease (arthritis)!



# Lower Extremity



## ■ Hip and Knee

- Hamstring strains most common
- Poses affecting hips can also affect knees due to stress transfer
- Ex: Wide-legged poses, Warrior poses, Lotus, Tree, Pigeon, Chair

## ■ Foot and Ankle

- Squatting poses can lead to excessive stretch of the Achilles tendon

## Injury Prevention Recommendations



- Avoid postures that cause pain
  - PAIN is different than EDGE
- Offer modifications and use of props
- If persistent pain or dysfunction despite rest, student should seek medical evaluation.
- Reflect on class sizes
  - Size limit?
  - Assistant teachers?
  - Do you know your students?
- Reiterate importance of listening to body and avoiding competition