



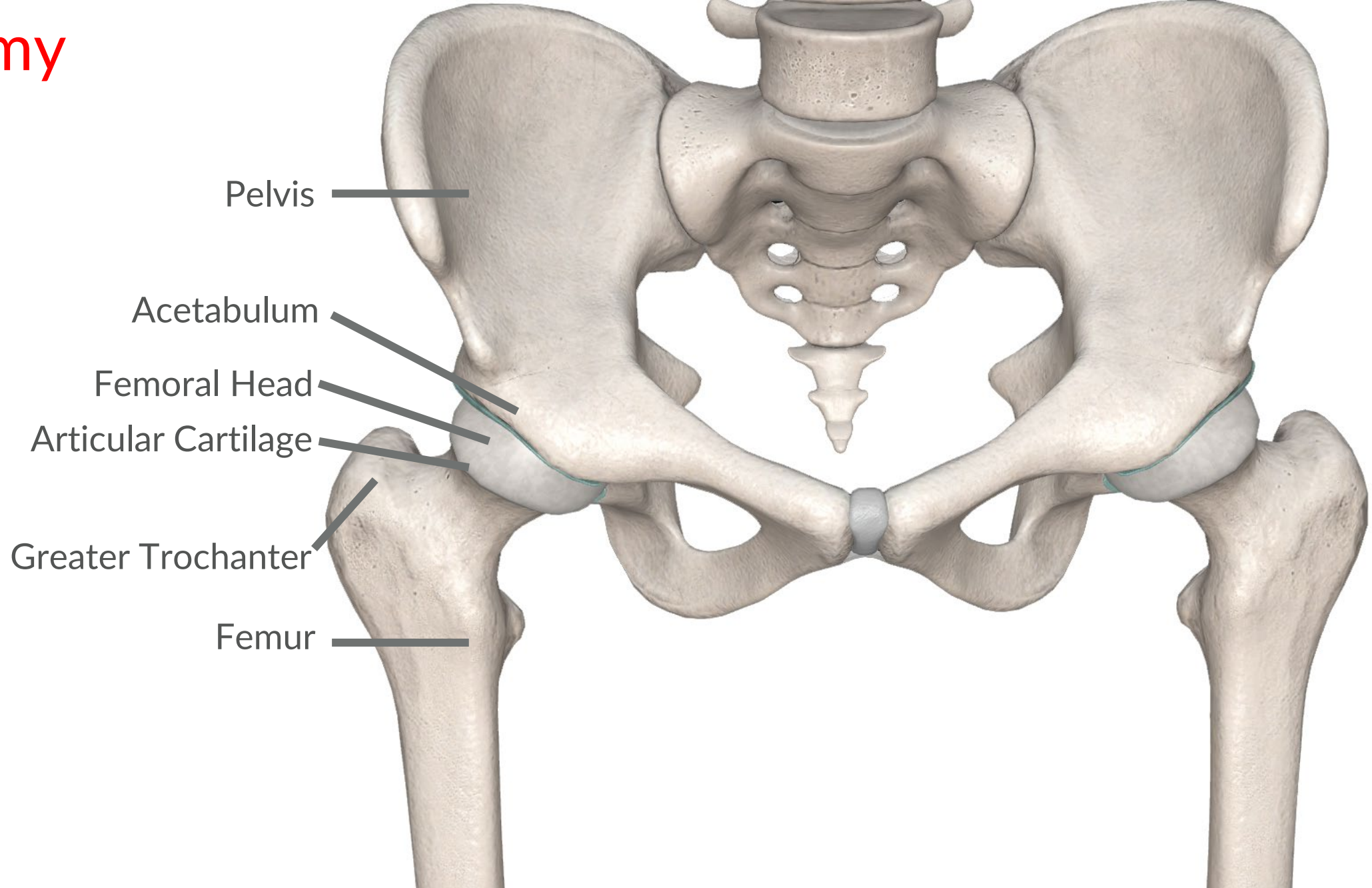
OHCOW

Occupational Health Clinics
for Ontario Workers Inc.

Centres de santé des
travailleurs (ses) de l'Ontario Inc.

Osteoarthritis (OA) of the Hip

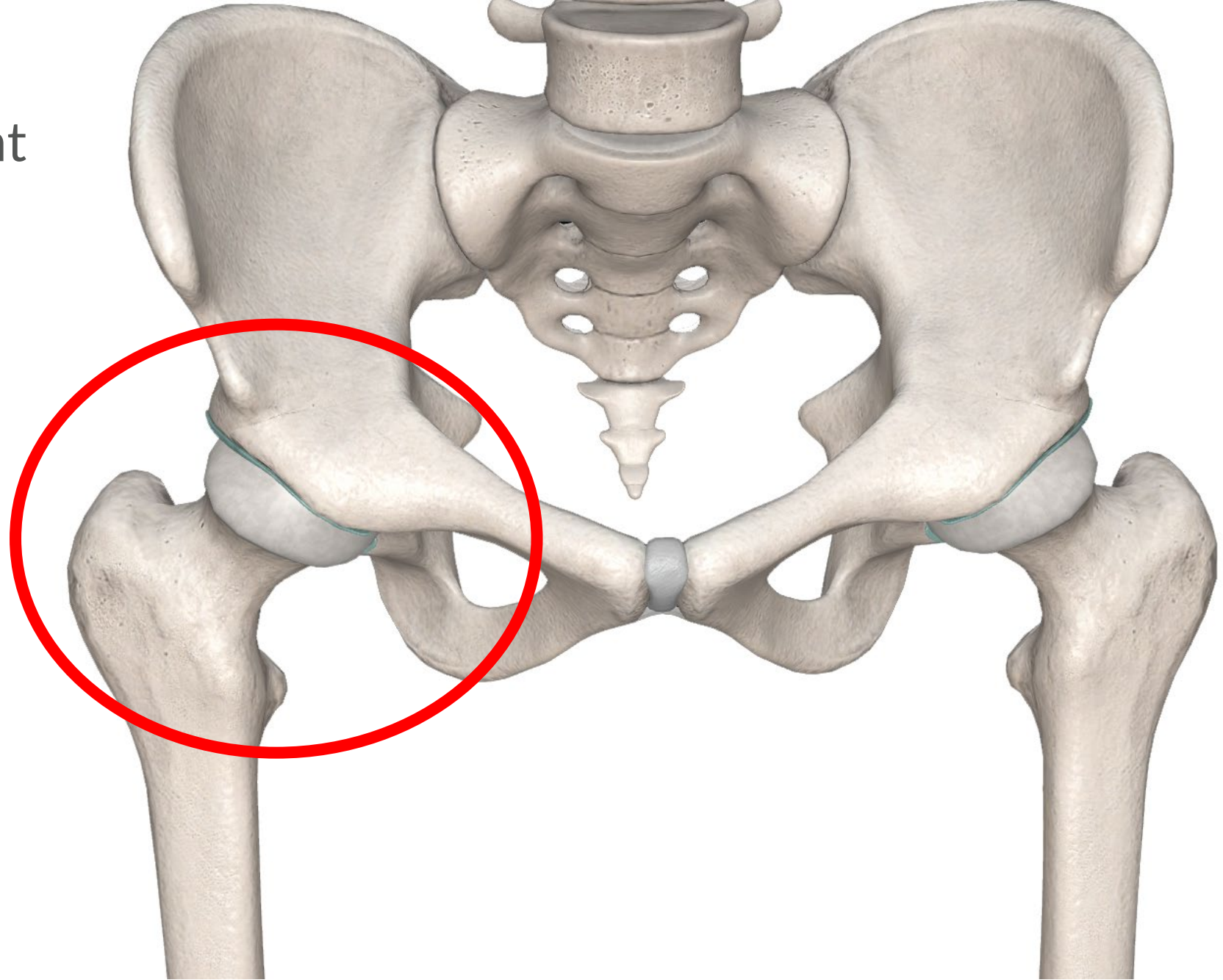
Anatomy





Anatomy

- Ball & Socket Joint

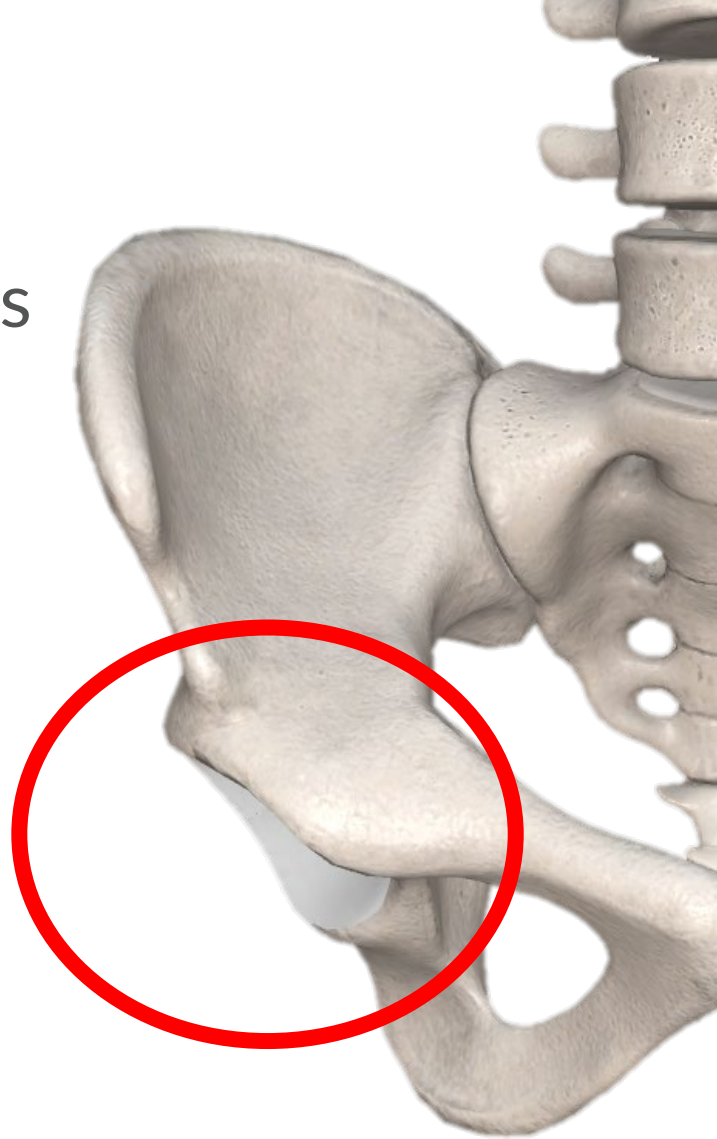


Everyday ball & socket joint



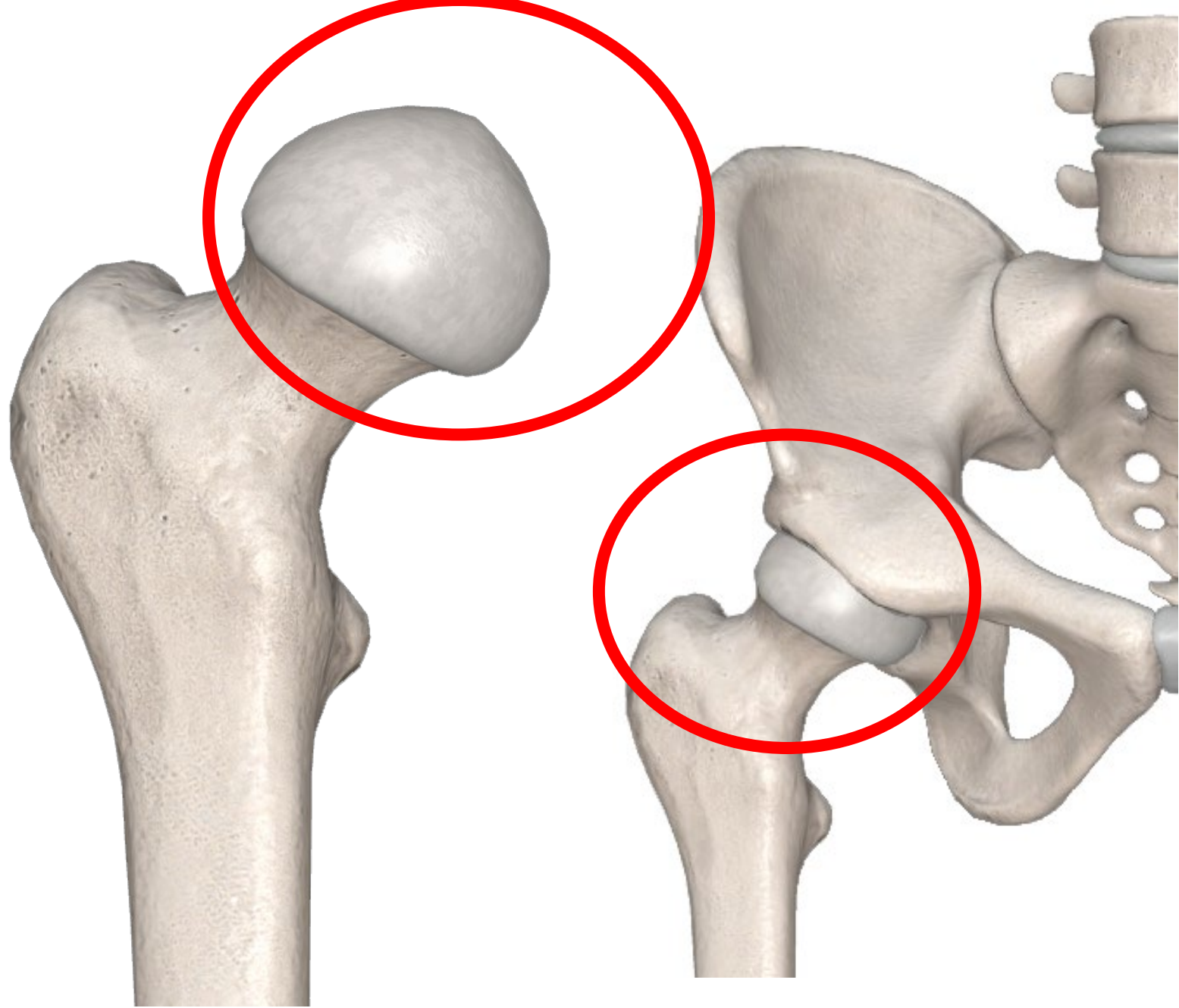
Anatomy

- Ball & Socket Joint
- Socket also known as the Acetabulum



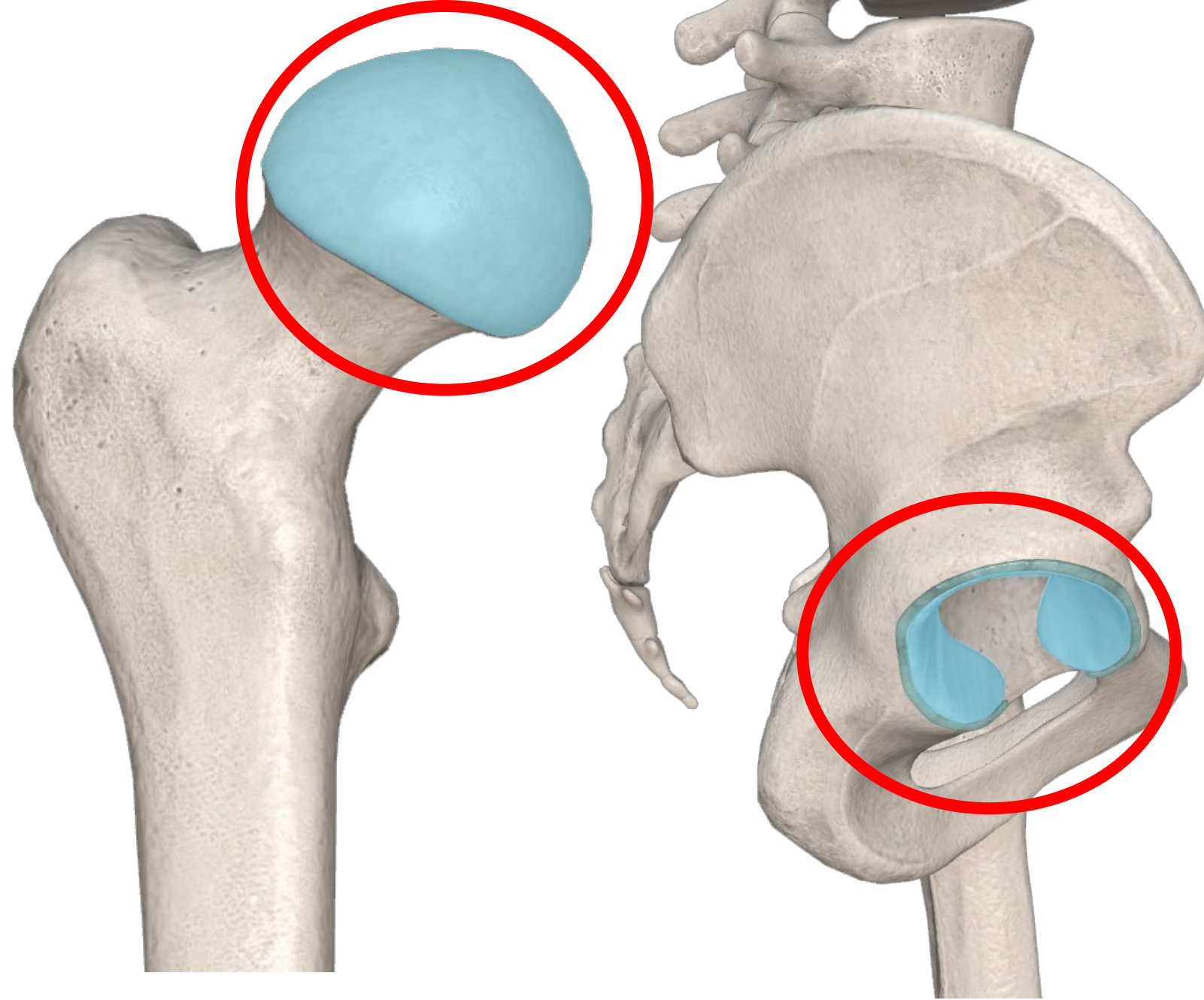
Anatomy

- Ball & Socket Joint
- Ball is the head of the Femur



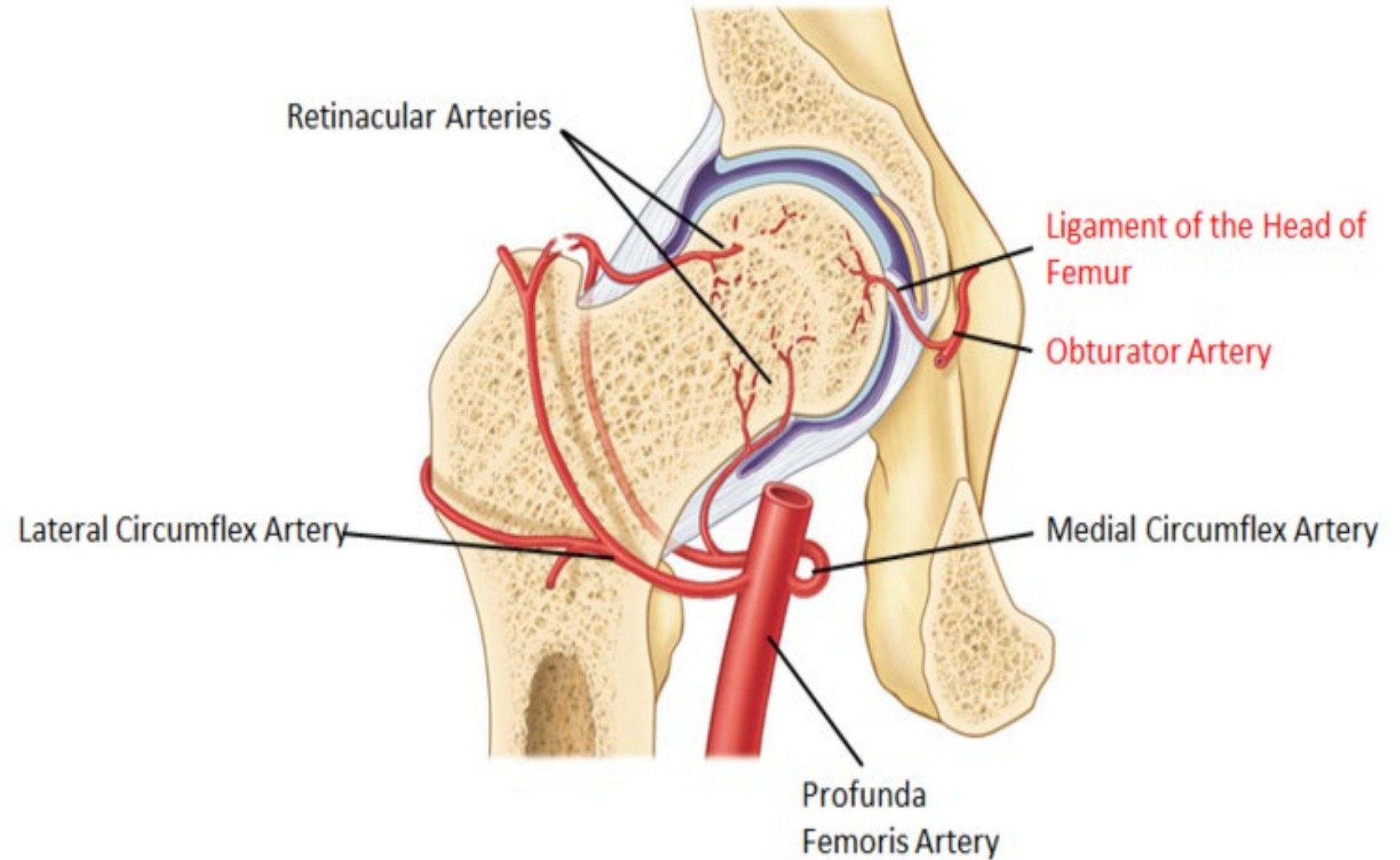
Anatomy

- Ball & Socket Joint
- Articular Cartilage



Anatomy

- Anatomy
- Blood Supply



Hip Joint Function

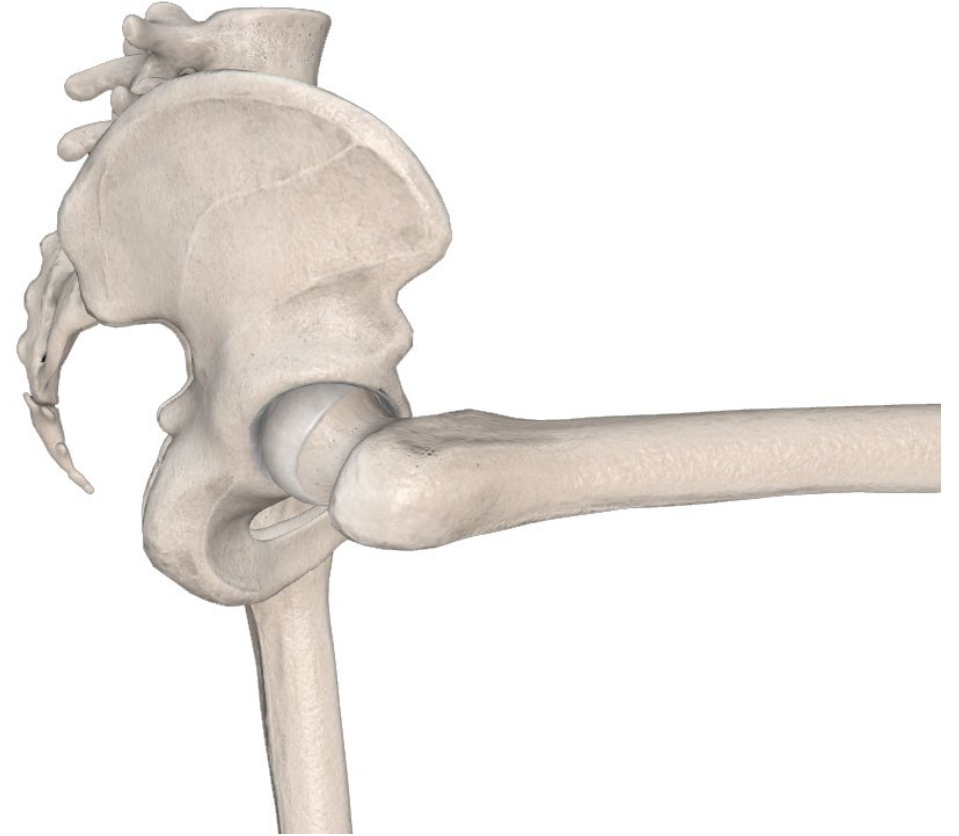
- Wide ROM



Extension



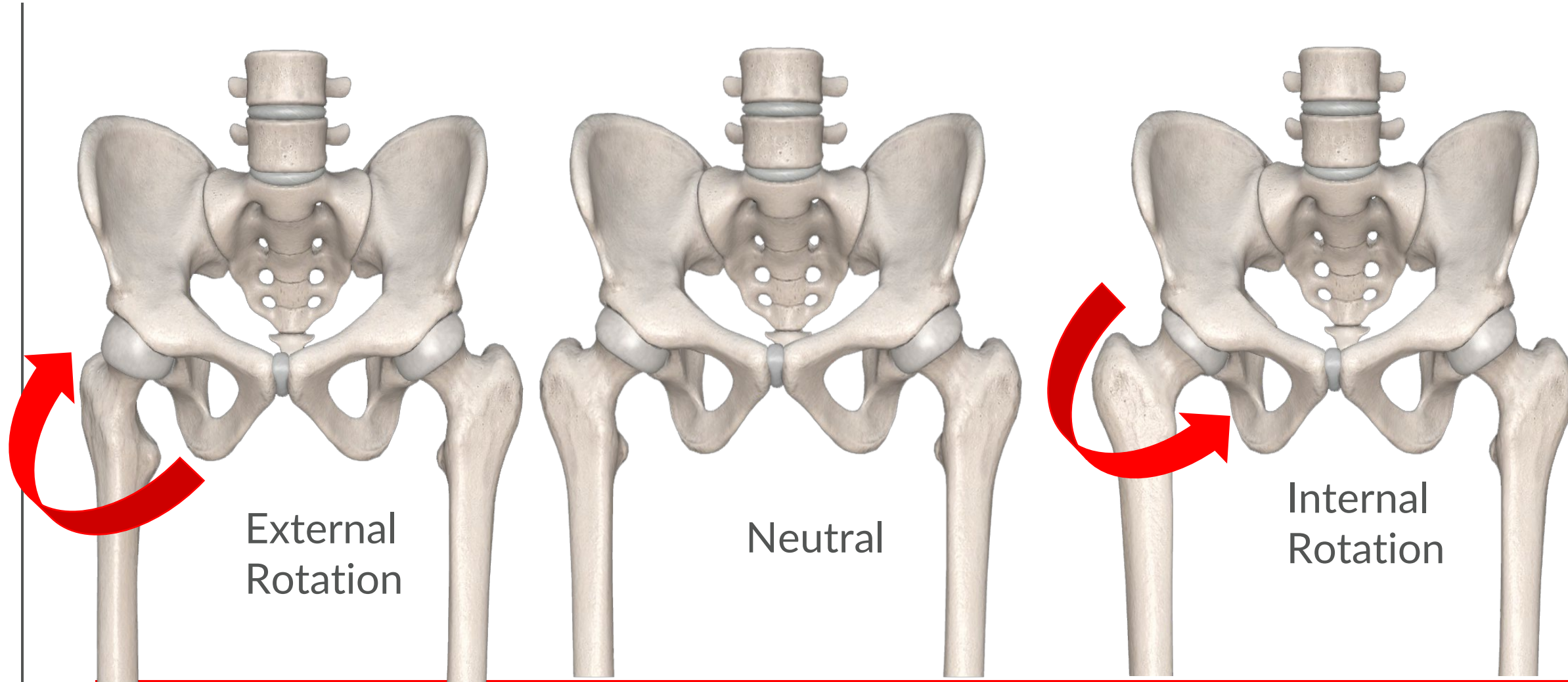
Neutral



Flexion

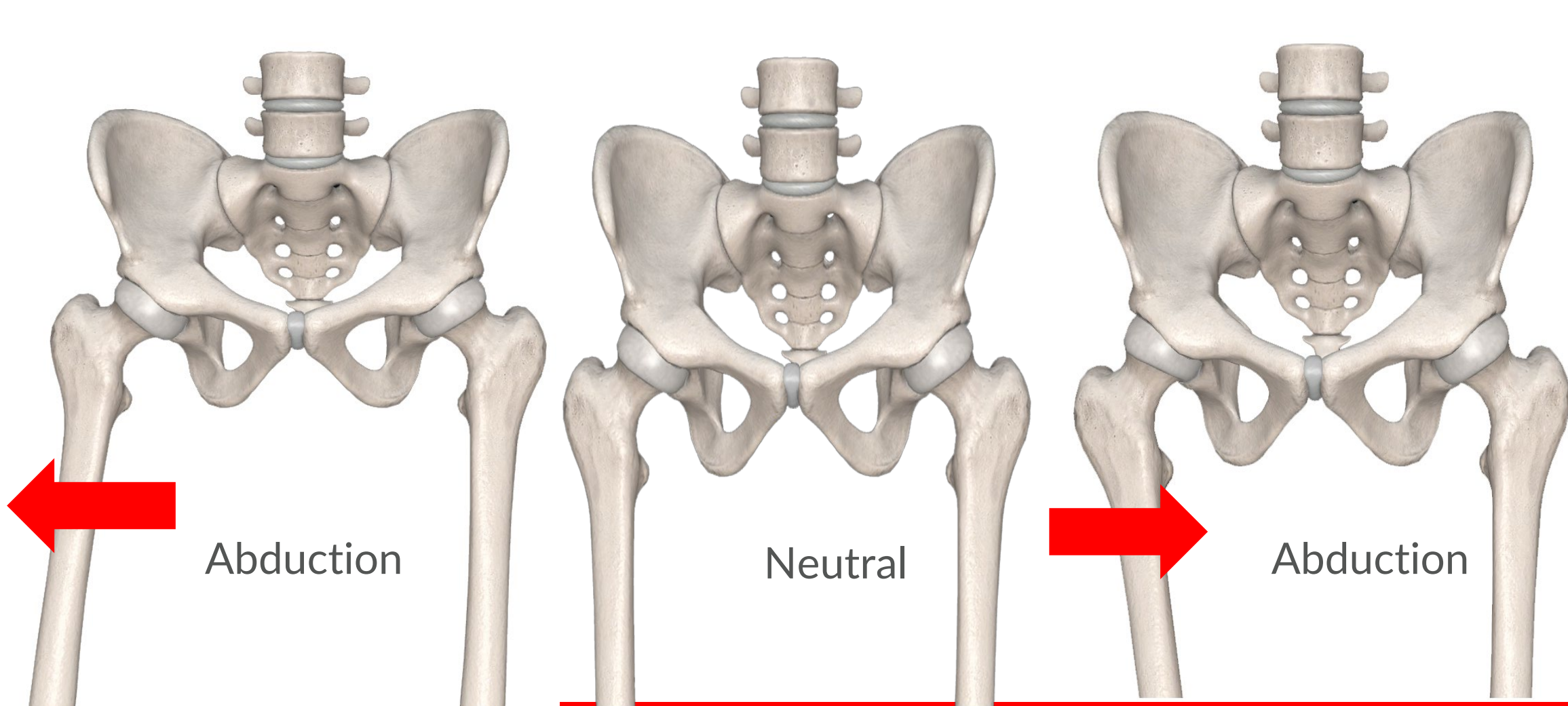
Hip Joint Function

- Wide ROM



Hip Joint Function

- Wide ROM



Gymnasts / Dancers

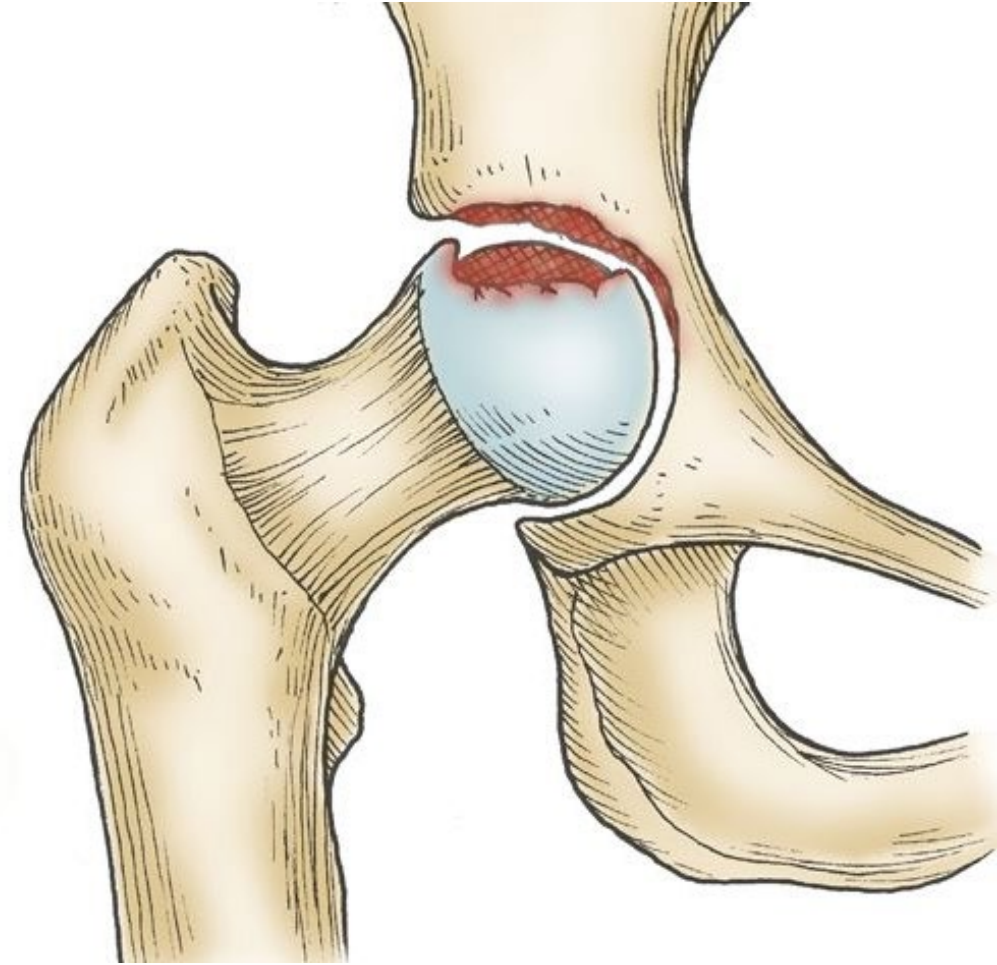


Differential Diagnosis

- Trochanteric bursitis
- Inflammatory arthritis's
- Septic joint
- Osteonecrosis
- Femoroacetabular impingement
- Crystalline diseases
- Lumbar radiculopathy
- Lumbar spinal stenosis
- Cancer (primary or metastatic)
- Meralgia paresthetica
- Iliotibial band syndrome
- Vascular claudication

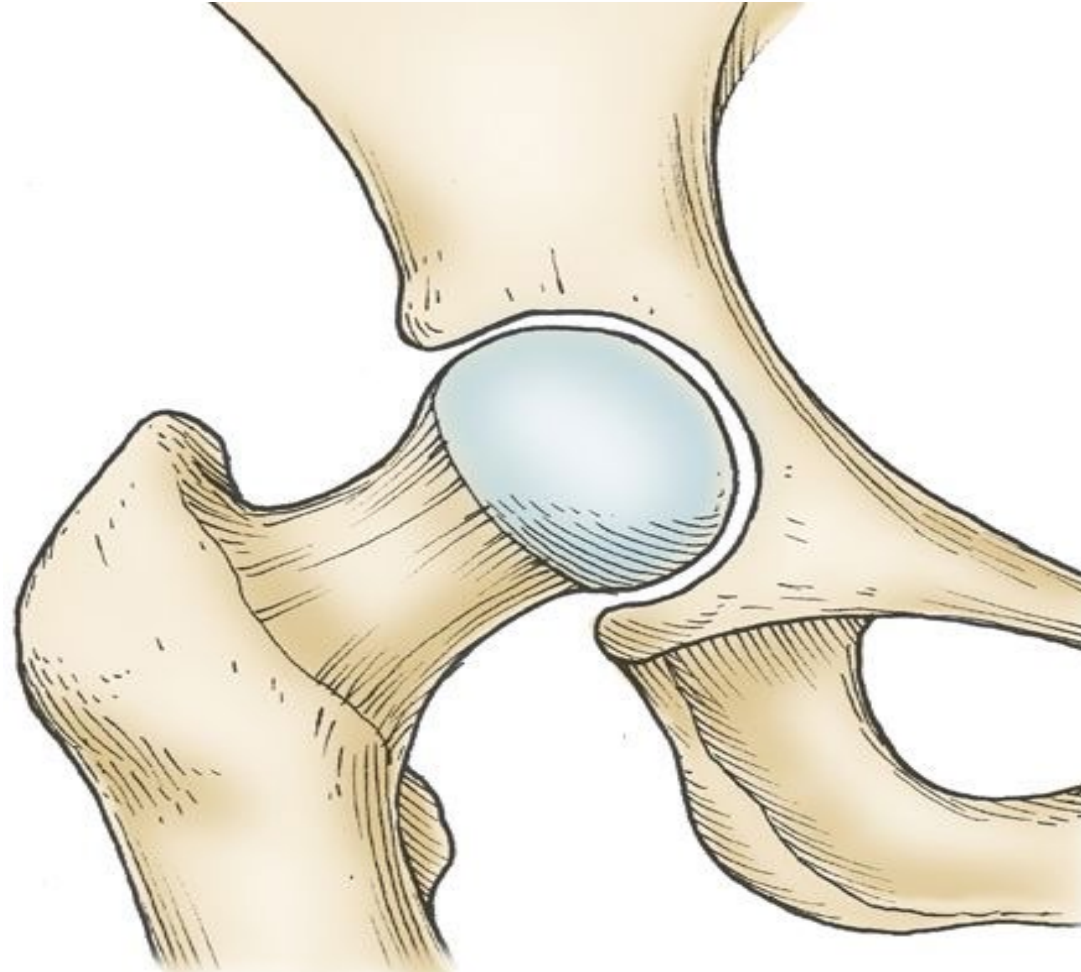
Hip Osteoarthritis (OA)

- Irritates and destroys a joint
- Loss of articular cartilage
- Friction of the bones



Hip Osteoarthritis (OA)

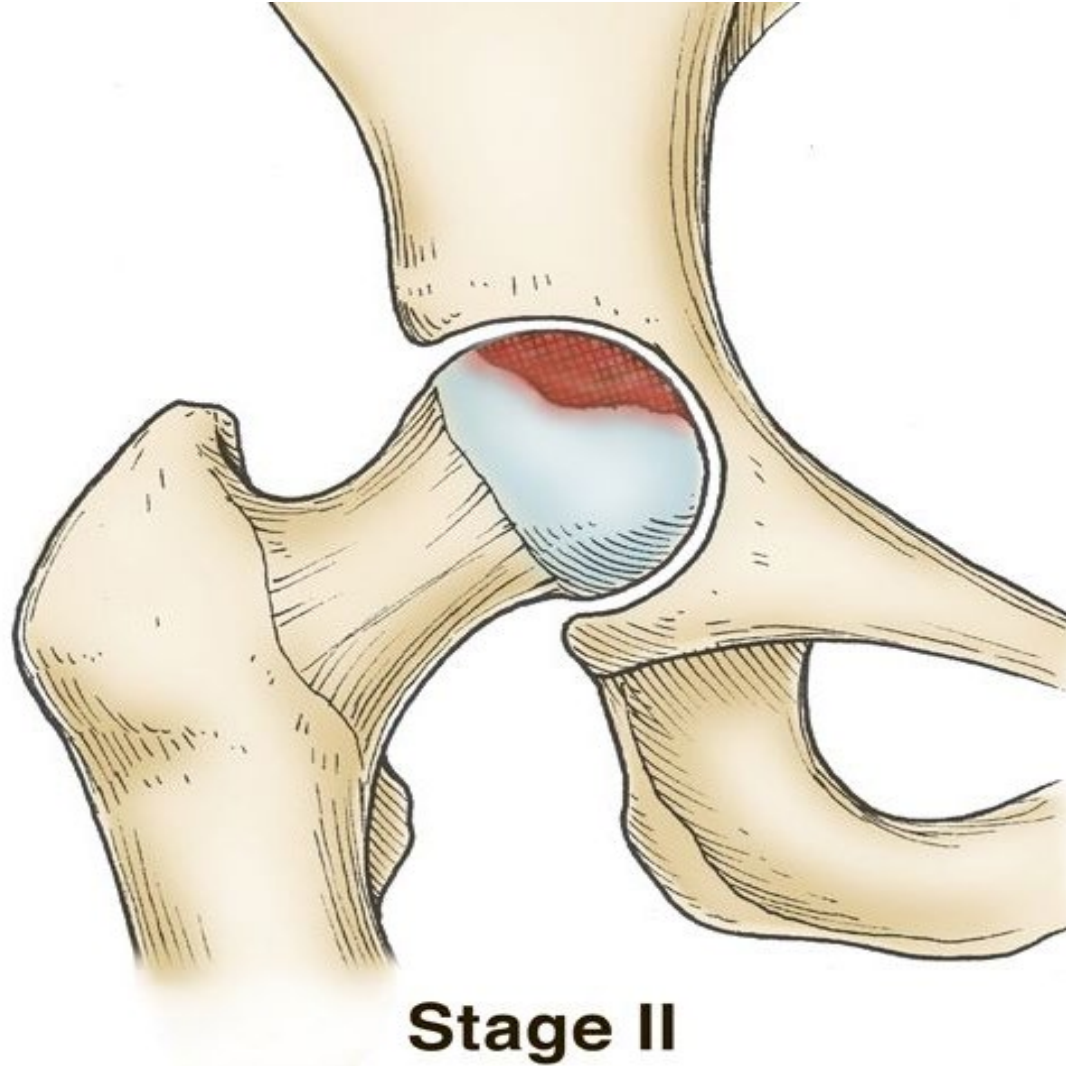
- Stage 1



Stage I

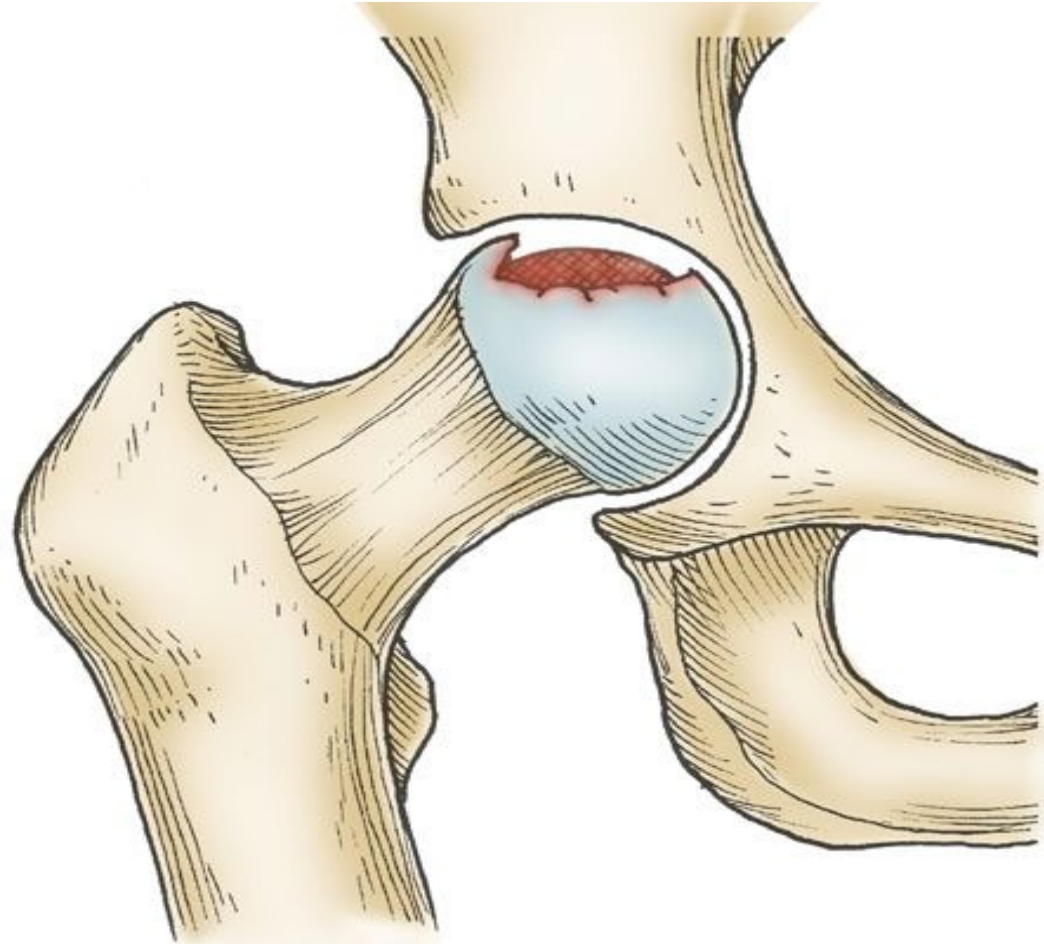
Hip Osteoarthritis (OA)

- Stage 2



Hip Osteoarthritis (OA)

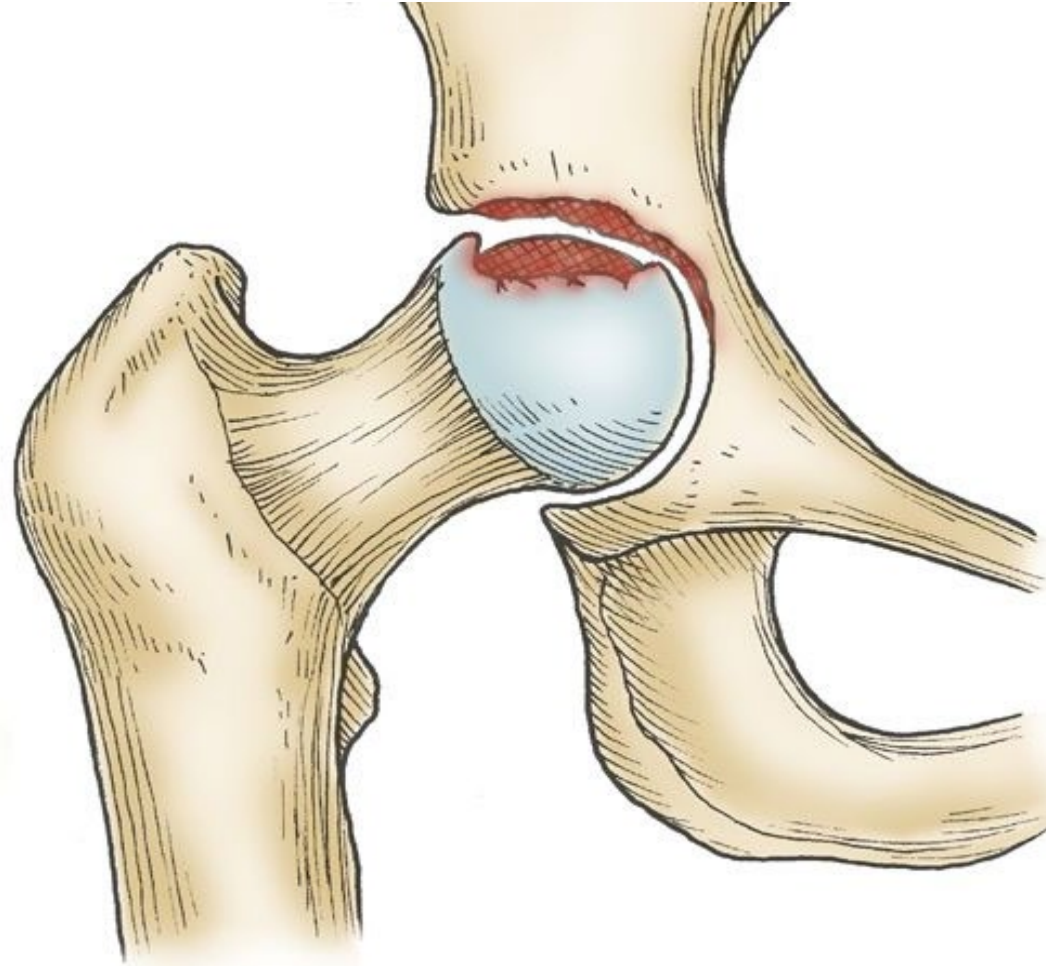
- Stage 3



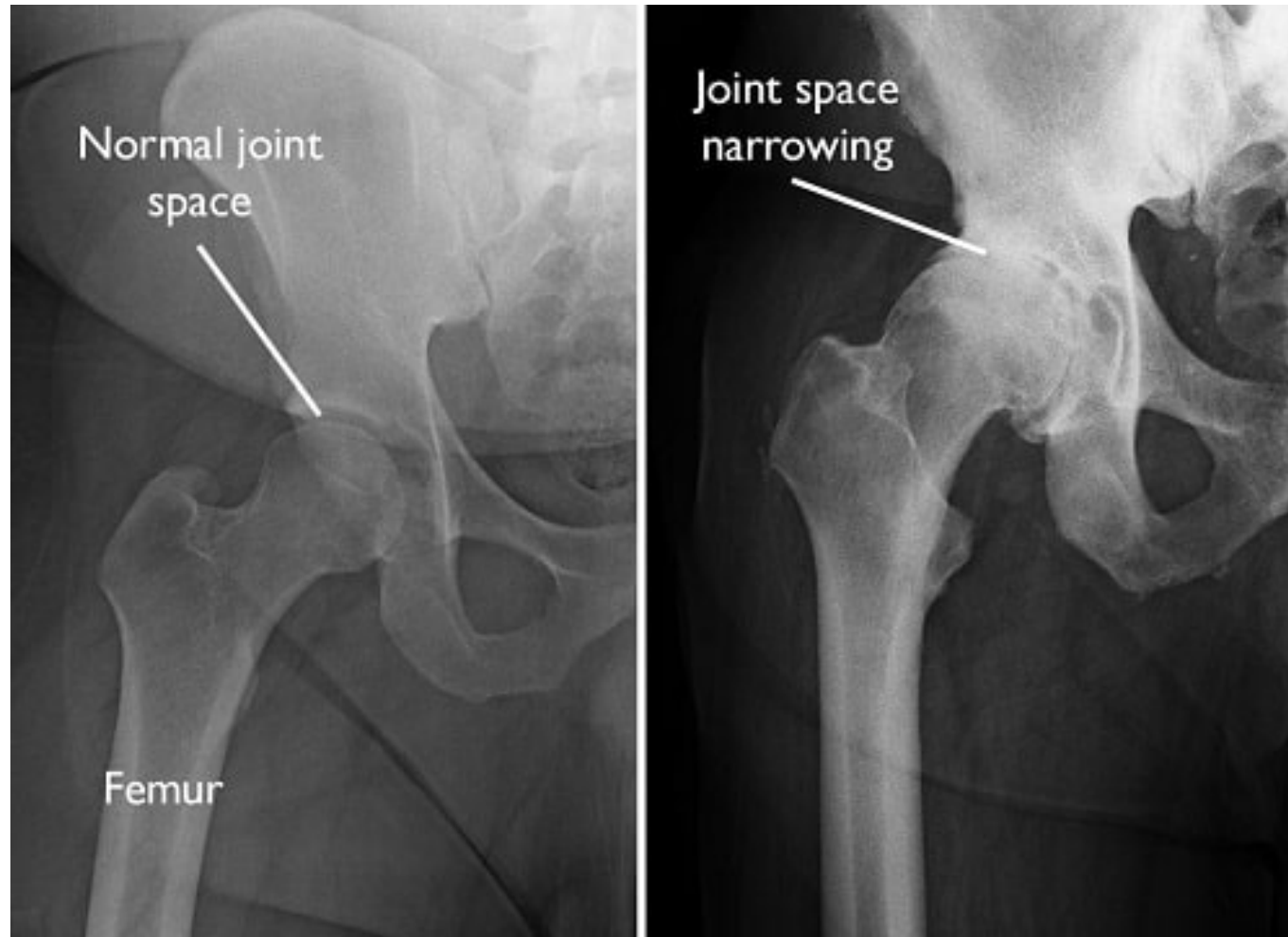
Stage III

Hip Osteoarthritis (OA)

- Stage 4



Stage IV



Hip Osteoarthritis (OA)

■ Symptoms

- Swelling
- Tenderness
- Grinding or crunching sensation
- Limitations in range of motion
- Pain in your groin or thigh that radiates to your buttocks or your knee
- Pain that flares up with vigorous activity
- Stiffness in the hip joint that makes it difficult to walk or bend
- "Locking" or "sticking" of the joint, and a grinding noise (crepitus) during movement caused by loose fragments of cartilage and other tissue interfering with the smooth motion of the hip
- Decreased range of motion in the hip that affects the ability to walk and may cause a limp
- Increased joint pain with rainy weather

Hip Osteoarthritis (OA)

- Diagnosis
- Physical Exam
 - Interview
- Imaging
 - X-rays
 - CT
 - MRI

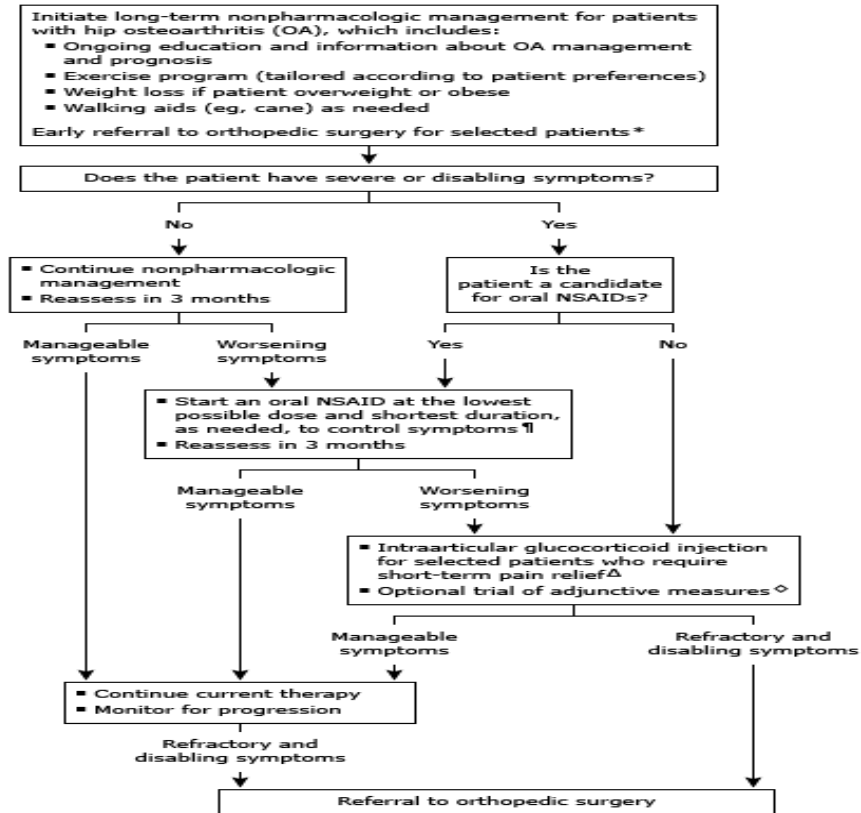
Causes – Non-Occupational

- Age
- Gender
- Genetics
- Obesity
- Previous Injuries
- Joint Malformation
- Lifestyle
- Other Diseases

Treatment

- Non-Surgical
 - Physical Therapy
 - Assistive Devices
 - Medication
 - Changes to lifestyle
 - Steroid Injection
 - Adapting Movements

Management of hip osteoarthritis



NSAIDs: nonsteroidal antiinflammatory drugs.

* Some younger patients with milder symptoms may have disease secondary to alterations in hip joint morphology and may benefit from early intervention with activity modification, physical therapy, and referral to orthopedic surgery. Refer to UpToDate content on management of hip OA.

¶ Assess the need for a proton pump inhibitor if increased risk for gastrointestinal side effects.

Δ Intraarticular glucocorticoids are not routinely recommended because the pain relief is mild to moderate and is short-lived. Refer to UpToDate content on management of hip OA.

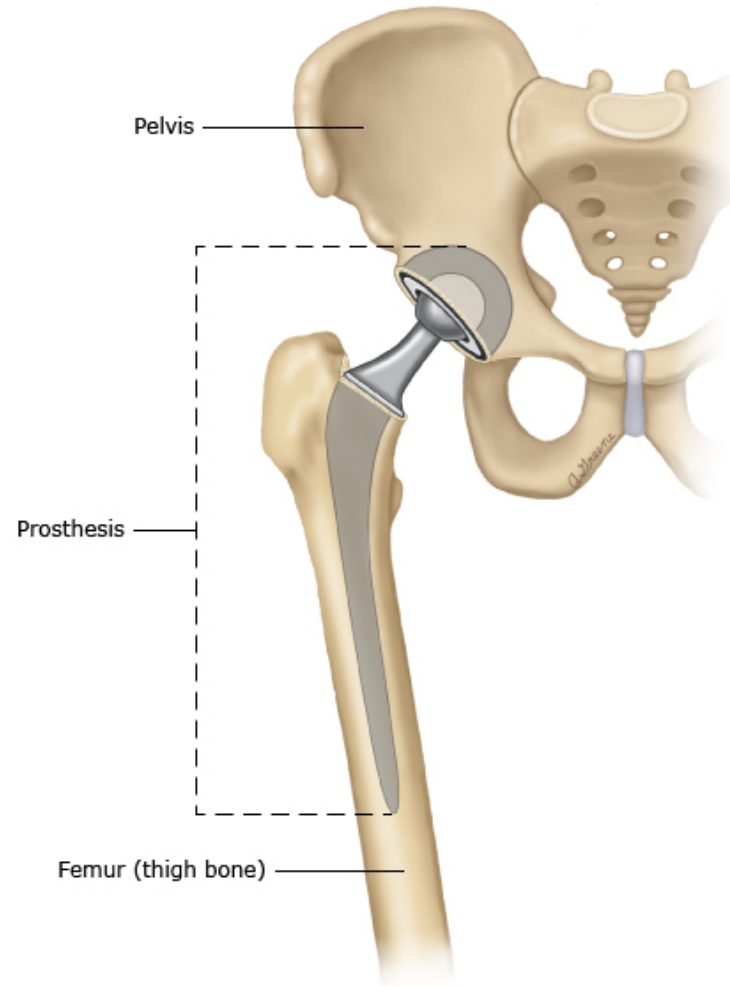
◇ Refer to UpToDate content on management of hip OA for adjunctive measures.

UpToDate®

Treatment

- Surgical
 - Total hip replacement (THR): Arthroplasty
 - Hip resurfacing
 - Osteotomy

Hip replacement



For a hip replacement, your doctor will do surgery to replace your hip joint with a new joint called a "prosthesis." The prosthesis might be made out of plastic, metal, or ceramic.

UpToDate®



Hip Resurfacing



Traditional Total Hip Replacement



Causes - Occupational

John Hopkins indicates the following as a cause of Hip Osteoarthritis (HOA)

- Overuse. Jobs and sports that require physically repetitive motions that place stress on the hip can increase risk for developing osteoarthritis.

Mayo clinic indicates the following as a cause of HOA

- Repeated stress on the joint. If your job or a sport you play places repetitive stress on a joint, that joint might eventually develop osteoarthritis.

Arthritis Society of Canada indicates the following as a cause of HOA

- People who repeatedly experience stress on a particular joint or who perform heavy physical labour may also be at greater risk of developing osteoarthritis. Examples include dancers, heavy machinery operators and construction workers.

Causes - Occupational

Occupation with Increased Rates of HOA

- Healthcare
- Housekeeping
- Service Industry
- Agriculture, fishing, or forestry
- Mining
- Construction
- Food Service



Causes - Occupational

Occupational Causes from Research:

- Heavy Lifting/Carrying
- Stair Climbing
- Full Body Vibration
- Forceful exertions
- Kneeling
- Squatting
- Bending
- Repetitive arm movements
- Standing

**Important there has been some studies that suggest there is no increased risk for Hip Osteoarthritis (HOA) for occupations that require large amounts of walking, sitting, & standing

Research: Systematic Review

■ Jahn et al. (2024)

- Occupational mechanical exposures (lifting/carrying loads, walking, climbing stairs, non-neutral postures, kneeling, squatting, standing/walking, combination) seem to influence the likelihood of developing hip osteoarthritis.

■ Sulsky et al. (2012)

- There is evidence that identifies heavy lifting and standing as hazards for hip osteoarthritis.

■ Unverzagt et al. (2024)

- Studies indicate an association between various occupations with a high physical workload and an increased risk of developing hip osteoarthritis.

■ Fransen et al. (2011)

- Long-term exposure to heavy lifting is significantly associated with developing chronic hip or knee pain.

Research- Longitudinal Study

Juhakoski et al. (2009)

- 22-year prospective study that looked at risk factors predisposing to hip osteoarthritis
- Health survey given in 1978-1980 and then re-examined in 2000-2001, after exclusions a total of 840 participants
- Hip osteoarthritis was diagnosed in 41 subjects
- Heavy manual labour predicted the risk of developing hip OA
- Permanent damages as a consequence of any musculoskeletal injury was also an independent predictor of HOA

Prevention

- Process used to eliminate or reduce workplace hazards.
- Most effective at the top to the least effective at the bottom

Elimination: removing the hazard

Substitution: replacing the hazard with a lesser hazard

Engineering: can be built into the design

Administrative: developing procedures so the work is conducted in a way to minimize the hazard i.e. training

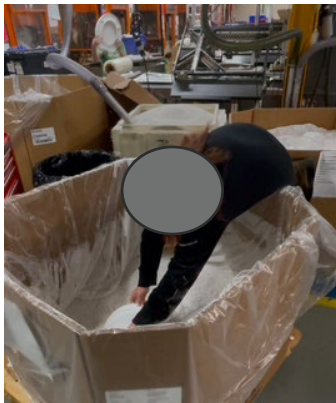
PPE: anything the worker wears to protect them from the hazard i.e. gloves

Hierarchy of Controls



Prevention

- Based on the literature search the main occupational hazard associated with the development of HOA is heavy lifting/carrying
- Using the hierarchy of controls how can this hazard be controlled?
- Elimination
 - Does the load need to be manually lifted and/or carried?
 - i.e. Pails of regrind lifted from cardboard bin to a hopper; process eliminated by storing the full bin by the machine with the vacuum hose in it



Prevention

- **Substitution:**

- Use of a cart to replace manually lifting and/or carrying
- i.e. Donation warehouse employee carried bins sorted scrap metal to designated area, recommended to sort directly into a cart with removable container (reduces the amount of lifting and need to carry)



Prevention

- Engineering:

- Using a powered cart to transport items
- i.e. weights (500 lbs) to calibrate scales in a hospital were pushed on cart to each location; recommendation to use a powered cart



Prevention

Administrative:

- Reduces an employee's exposure to the hazard
 - Job Rotation
 - Job Enlargement (increases variety of work)
 - Training

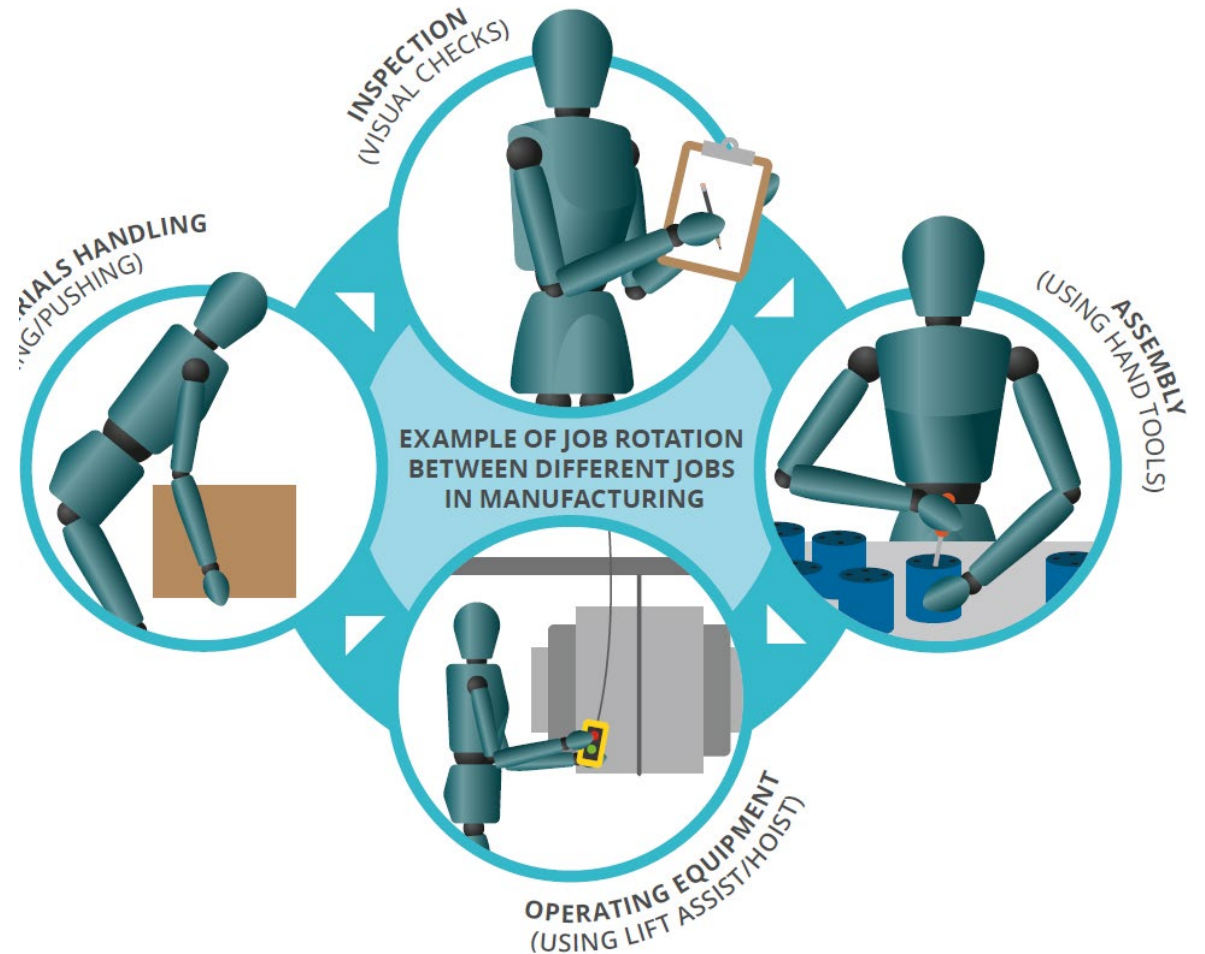
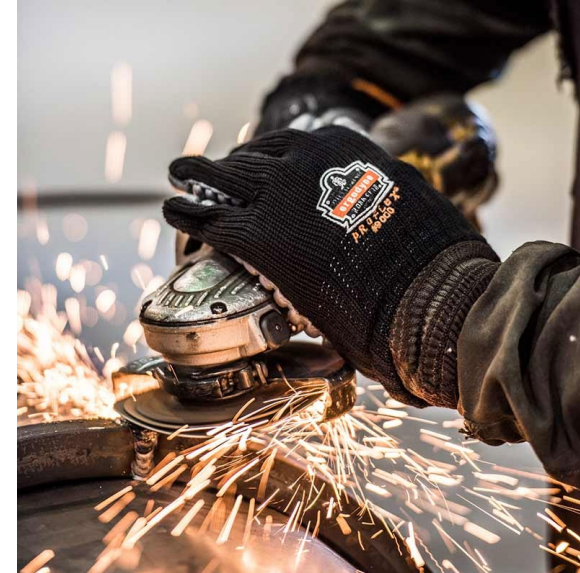


Image: <https://www.msdpreservation.com/resource-library/job-rotation>

Prevention

PPE:

- Something the workers wears to protect them from the hazard
 - Knee Pads
 - Impact Gloves
 - Anti-vibration gloves



Case Study

■ Police Officer

- Worked as a police officer for 15+ years at the time of injury
- Diagnosed with osteoarthritis of the hip
- Denied by WSIB as it is a degenerative disease
- Focusing on one of the main ergonomic risk factors for HOA:
 - Exposure heavy physical loads
 - Required to wear a duty belt which weighs approximately 20 lbs the duration of the shift (12 hours)



Occupational
Health Clinics
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**Clinical
Services**

Assessing whether work
accidents or exposures have
caused a health condition.

Case Study

Review of Literature

- Berner et al. (2024) duty belts have negative impacts on officer's ability to perform occupational tasks and movement. Officers reported an increase in discomfort associated with wearing duty belts while seated.
- Billing et al. (2015) found that for every 1 kg of load carried on the body, physical performance reduces by 1%
- Demsey et al. (2013) found that duty belts reduce officers' agility and ability to exit, pivot, and accelerate from a low car seat.
- Hsiao (2023) found that 88% of officers reported pain and discomfort at the end of a shift, with these complaints associated with the duty belt.
- Hsiao (2023) and Gruevski (2016) found that the most common area of discomfort associated with duty belts was the hips and lower back.
- Larsen et al 2016 & Ramstrand et al., 2016. When investigating gait kinematics at the trunk, hip, knees, and ankles when officers wore duty belts greater hip adduction and abduction was found.

Case Study

- Literature search supported that heavy physical loads including wearing duty belts can contribute to the development of HOA
- A report was written and submitted indicating that the duties performed over 15 years exposed them to the ergonomic risk factors that could lead to the development of HOA



Contact us:



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