

Knee Osteoarthritis (OA)



Irreversible condition due to inflammation and common age-related degenerative changes. It can involve cartilage within the tibiofemoral joint (more common) and/or the patellofemoral joint (less common). Knee OA directly affects the bones of the joint, as well as surrounding cartilage and muscles.

Clinical Diagnosis

Knee pain + ≥ 3 of the following:

- Age >50 years
- < 30 mins of morning stiffness
- Crepitus
- Bony tenderness
- Bony enlargement
- No palpable warmth



Related Findings

(May be asymmetrical)

- Knee pain during WBing and at rest
- Effusion
- Hip and knee muscle weakness
- Knee stiffness in the morning
- Balance impairments
- Limitations in activities (functional & leisure)



Risk Factors

- Family history of OA
- Overweight/ obese
- Prior knee injury or trauma
 - Ligamentous or meniscal tears
 - Prior fractures
 - Ligamentous instability
- Leg length discrepancy (OA likely on longer side)
- Genu valgum (lateral compartment knee OA) or genu varum (medial compartment knee OA)
- $>$ or $< 15^\circ$ Q-angle
- Patella Alta (patellofemoral OA)
- Repetitive kneeling and heavy lifting
- Long distance running, football, hockey



Outcome Measures

Patient-reported Outcome Measures

- KOOS
 - 5 subscales (pain, symptoms, ADL, sport/rec, knee-related QoL)

- WOMAC

Functional Outcome Measures

- 6MWT
- TUG
- 30CST

Differential Diagnosis

Patellofemoral Pain Syndrome (PFPS) - Retropatellar pain or pain around the patella; more common in teens and young adults; no presence of structural deformities including increased Q-angle or articular cartilage degeneration; may see patella maltracking

Rheumatoid Arthritis (RA) - chronic inflammatory disease with symmetrical presentation; progresses from smaller to larger joints; >30 minutes of morning stiffness in the affected joints, swelling, warm, tender joints, fatigue, fever, onset between ages 35-60 years.

Knee OA References:

- Bullock J, Rizvi SAA, Saleh AM, et al. Rheumatoid Arthritis: A Brief Overview of the Treatment. *Med Princ Pract*. 2018;27(6):501-507. doi:10.1159/000493390
- Ekim AA, Hamarat H, Musmul A. Relationship Between Q-Angle and Articular Cartilage in Female Patients With Symptomatic Knee Osteoarthritis: Ultrasonographic and Radiologic Evaluation. *Arch Rheumatol*. 2017;32(4):347-352. Published 2017 Jun 5. doi:10.5606/ArchRheumatol.2017.6145
- Guide | Physical Therapy Guide to Knee Osteoarthritis | Choose PT. Accessed February 24, 2023. <https://www.choosept.com/guide/physical-therapy-guide-osteoarthritis-of-knee>
- Kolasinski SL, Neogi T, Hochberg MC, et al. 2019 American College of Rheumatology/Arthritis Foundation Guideline for the Management of Osteoarthritis of the Hand, Hip, and Knee [published correction appears in *Arthritis Care Res (Hoboken)*. 2021 May;73(5):764]. *Arthritis Care Res (Hoboken)*. 2020;72(2):149-162. doi:10.1002/acr.24131
- Petersen W, Ellermann A, Gösele-Koppenburg A, et al. Patellofemoral pain syndrome. *Knee Surg Sports Traumatol Arthrosc*. 2014;22(10):2264-2274. doi:10.1007/s00167-013-2759-6
- Primorac D, Molnar V, Rod E, et al. Knee Osteoarthritis: A Review of Pathogenesis and State-Of-The-Art Non-Operative Therapeutic Considerations. *Genes (Basel)*. 2020;11(8):854. Published 2020 Jul 26. doi:10.3390/genes11080854
- Samuel AJ, Kanimozhi D. Outcome measures used in patient with knee osteoarthritis: With special importance on functional outcome measures. *Int J Health Sci (Qassim)*. 2019;13(1):52-60.
- van Doormaal MCM, Meerhoff GA, Vliet Vlieland TPM, Peter WF. A clinical practice guideline for physical therapy in patients with hip or knee osteoarthritis. *Musculoskeletal Care*. 2020;18(4):575-595. doi:10.1002/msc.1492