

Appendix E: Patient History and Physical Examination

A. Knee and Hip Osteoarthritis Risk Factors

Evidence shows older age, elevated BMI, and history of joint injury increase the risk of both knee and hip OA.[\[194-197\]](#) However, not all patients who sustain joint trauma will develop symptomatic OA, nor will all patients develop OA as they age.[\[47\]](#) The genetic contribution to OA has been reported to be on average 50%.[\[198,199\]](#) Females are generally thought to be at higher risk for the development of OA, though the prevalence is greater in knee OA.[\[194,200\]](#) Knee misalignment is thought to be associated with the progression of knee OA, though the precise nature of biomechanical stresses that lead to the development of OA is complex.[\[194,201,202\]](#) Hip OA has been associated with anatomic abnormalities of the joint, such as various types of hip dysplasia, slipped capital femoral epiphyses, and femoral acetabular impingement.[\[201-203\]](#) Knee OA has been associated with prior knee injury, in particular, meniscus and ligament injuries.[\[204-206\]](#)

The relationship between recreational sport and the development of OA is also complex. Studies have found a correlation between heavy physical activity and the development of OA, but it appears moderate daily recreational activity is not a consistent risk factor for clinical or radiographic knee/hip OA.[\[207-209\]](#)

Occupational risk factors for knee OA include frequent heavy physical load on the joint, frequent exposure to bending, kneeling, squatting, prolonged standing on rigid surfaces, excessive walking, regular stair climbing, jumping, unnatural body position, heavy lifting, and vibration.[\[210-217\]](#) Occupational risk factors for hip OA include occupations that involve standing for >2 hours per day and occupations that involve frequent heavy lifting.[\[218-220\]](#) There may be an association with occupational tasks involved in farming and heavy construction. Rates of OA have been reported to be significantly higher in military populations than in comparable age groups in the general population.[\[12\]](#)

Recognizing the limited number of effective modalities for the non-surgical management of patients suffering from hip and knee OA, the prevalence of chronic comorbid cardiac and renal disease in this patient population, and the well-established adverse effects of NSAIDs available as prescription and OTC products, early surgical consultation for arthroplasty should be encouraged in patients with known coronary disease and/or an eGFR <30 ml/min.

B. Knee Osteoarthritis Patient History

Patients with knee OA typically present with symptoms of activity-related knee pain, often relieved by rest, and joint stiffness of limited duration notably after periods of inactivity.[\[221\]](#) The pain is often described as a deep, aching pain that can be both localized or diffuse. Patients may also complain of crepitus, bony tenderness, reduced range of motion, swelling, and/or joint instability, buckling, or giving way.[\[221\]](#) They may report exacerbation of pain or difficulty with performing activities of daily living that stress the joint such as standing, squatting, kneeling, walking, and stair climbing.[\[221\]](#)

C. Knee Osteoarthritis Patient Physical Examination

In the physical examination of symptomatic knee OA, it can be helpful to include an assessment of BMI, the presence of palpable crepitus in any knee compartment, the presence of joint line tenderness, the frontal plane alignment of the lower limb, the passive range of motion of the knee, lower limb muscle strength (especially the knee flexors and knee extensors), joint proprioception, palpation of tenderness or