



OA Signs & Symptoms

Osteoarthritis Prevention and
Management in Primary Care

OA Signs & Symptoms

Osteoarthritis (OA) is a complex disease affecting bone, cartilage, meniscus, synovial tissues, tendon/ligament and muscle in and around the whole joint, which has been likened to “joint failure.”^{1,2} Many of the risk factors are well-established, including aging, joint injury, genetics, gender, anatomic factors, and presence of comorbid chronic conditions.^{3,4}

OA can be diagnosed and characterized using a combination of three data sources:

- Patient Symptoms and History
- Physical Examination
- Imaging Evaluation

PATIENT SYMPTOMS & HISTORY

Patients may report obvious symptoms of OA such as pain and stiffness in certain joints, but more nuanced symptoms indicative of the condition may arise during a comprehensive history and physical (functional changes, sleep disturbances, history of joint injury, comorbidities).

Pain & Stiffness

The joint sites most often affected by OA include the hands, hips, knees, feet, and spine. Symptoms vary based on the affected joint(s) and the severity of the condition. Pain is a frequent complaint.^{5,6} Typically, patients with mild OA experience localized, insidious pain that is relieved by rest, but aggravated by activity. Although OA is not necessarily progressive, in more moderate to severe forms, the intensity of the pain can vary, especially at night when activity has been high throughout the day.⁷ OA pain may be neuropathic in nature indicated by a sensation of burning or “pins and needles.”⁸ OA may be either unilateral or bilateral, but often affects multiple joints.

Joint stiffness (although generally less than 30 minutes’ duration) and limited range of motion are also frequent complaints. Affected joints may get swollen, especially after extended activity. These symptoms tend to build over time rather than show up suddenly.

COMMON SYMPTOMS OF OA

- Sore or stiff joints—particularly the hips, knees, and lower back—after inactivity or overuse.
- Limited range of motion or stiffness that goes away after movement
- Clicking or cracking sound when a joint bends
- Mild swelling around a joint
- Pain that is worse after activity or toward the end of the day

OA can affect multiple joints of the body in different ways:

- **Hips.** Pain is felt in the groin area or buttocks and sometimes on the inside of the knee or thigh; stiffness after sitting
- **Knees.** A grating or scraping sensation can occur when moving the knee; stiffness after sitting.
- **Hands.** Bony enlargement (nodes) can cause fingers to become swollen/enlarged and tender. There may be pain at the base of the thumb.
- **Feet.** Pain and tenderness are felt in the large joint at the base of the big toe and in the mid-foot. There may be swelling in ankles or toes.

Activities of Daily Living/Functional Changes

OA pain, swelling or stiffness may make it difficult to perform ordinary tasks at work or at home.⁹ Simple acts like tucking in bed sheets, opening a box of food, grasping a computer mouse or driving a car can become nearly impossible. When the lower body joints are affected, activities such as walking, climbing stairs and lifting objects may become difficult. When finger and hand joints are affected, OA can make it difficult to grasp and hold objects, such as a pencil, or to do delicate tasks, such as needlework or fastening clothes. Regardless of which joint(s) are affected, OA can have social consequences for a person, interfering with activities of daily living, visiting with friends and relatives, and participating in the larger community.¹⁰

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Hawker et al⁷ describe 3 stages of OA based on patient-reported pain and functional limitations:

- **Early OA:** patients experience infrequent and predictable but sharp pain brought on by specific movements or activities like high impact sports; usually they still have well-preserved joint function and quality of life (QOL).
- **Mid-OA:** patients continue to experience predictable, but more constant, pain and also start having unpredictable symptoms such as locking. These symptoms begin to impair functionality, participation in activities, and QOL.
- **Advanced OA:** patients have persistent dull and aching pain with intermittent episodes of unpredictable sharp pain. They experience fatigue along with impaired functionality and are significantly restricted in activities and QOL.⁷

Patients may also report sleep disturbances characteristic of insomnia (inadequate sleep, sometimes including difficulty initiating or maintaining sleep) and feeling unrefreshed (or nonrestorative; lack of satisfaction with the sleep experience).¹¹ The prevalence of sleep disturbance among people with knee OA is estimated at more than 70%.¹¹

History of Joint Injury

Patients with a history of joint injury are at increased risk of developing arthritis. Post-traumatic arthritis makes up approximately 12% of all OA cases and can result from injuries sustained in automobile or military accidents, falls, or sports.¹² Someone with a history of anterior cruciate ligament (ACL) or

meniscus tear is 2.5 times more likely to develop knee OA and four times more likely to undergo an eventual total knee arthroplasty.^{13–15} Within the first decade after an ACL injury about 1 in 3 patients have radiographic OA, regardless of initial treatment strategy.^{16,17}

Functional Assessments

There is no single measure to assess a patient's physical function in the setting of research or clinical care for OA. However, using a combination of performance measures and patient-reported outcome measures (PROMs) may give the healthcare provider insight into disease progression, severity, and optimal treatment approaches.

Performance measures assess what patients can do as opposed to what they think they can do.⁴⁰ PROMs are questionnaires that patients complete to describe how arthritis impacts their lives.⁴¹ It has been suggested that PROMs reveal patients' perceived experiences with the disease and its impact on specific activities rather than their actual ability to perform the activities.⁴² Patient self-reports may be influenced by pain, stiffness, and feeling of exertion (not just ability or difficulty in performing the task).⁴² The use of PROMs in clinical care lends itself to shared decision-making. In addition, the process of engaging patients in self-reporting may result in improved self-management, quality of life, satisfaction of care, and communication.⁴³

The following supplemental resources on functional assessments in OA care are available in this toolkit: Overview of Functional Assessments for Knee & Hip OA, Practical Use of Functional Assessments in OA Care, In-depth description of available assessments organized by joint.

Comorbidities

The connection between OA and many other chronic conditions is strong. The presence of other comorbid conditions can serve as an indicator that a patient may have OA or is at risk of developing OA, or that comorbid conditions may complicate OA management. See the Comorbidities and Co-Occurring Symptoms module for more information about OA & other comorbid conditions.

PHYSICAL EXAMINATION

Joint Appearance

On physical exam, the affected joint(s) may appear normal; however, tenderness, pain or mild swelling could be present. Joints with OA are not usually appreciably warm, red, or largely swollen; however, swelling and tenderness may occur. Crepitus, a crackling or grinding within a joint, may be palpable. Muscle wasting (e.g., of quadriceps or thenar muscles) or joint deformity (due to bony enlargement, ankylosis, or malalignment) may also be present. Osteophytes can be palpated as bony projections, and may result in deformities, especially in the distal interphalangeal and proximal interphalangeal joints in the hands. Such deformities may eventually restrict joint range of motion.¹⁸

Heberden's & Bouchard's Nodes

Patients with hand OA may present with Heberden's and/or Bouchard's nodes, which represent bony enlargement of the distal or proximal interphalangeal joints, respectively. Such nodes are more common in women and patients with multiple joint OA.



Heberden's and Bouchard's Nodes. Copyright 2019. American College of Rheumatology. Used with permission.

Differential Diagnosis

When a patient presents with complaints of "joint pain," certain key elements should be evaluated to best direct care. Table 1 illustrates distinguishing characteristics between OA and other common forms of arthritis such as rheumatoid arthritis (RA) and gout or crystalline arthritis. If a patient presents with symptoms or has laboratory (e.g., serum) markers characteristic of inflammatory arthritis, prompt referral to their primary care provider is recommended for further evaluation, as it could indicate the presence of RA or acute gout.

TABLE 1

Comparison of Osteoarthritis, Rheumatoid Arthritis, and Acute Gout¹⁹

| CHARACTERISTIC | OSTEOARTHRITIS | RHEUMATOID ARTHRITIS | ACUTE GOUT |
|-----------------------------------|--|--|---|
| Visible Signs of Inflammation | None or very mild | Often present | Yes |
| Onset of Pain | Gradual | Gradual (weeks to months) | Often sudden (frequently overnight) |
| Inactivity Stiffness | ≤ 30 minutes | ≥ 30 minutes | Unpredictable |
| Systemic Symptoms | No | Yes | Not routinely |
| Initial Number of Affected Joints | Often 1–2 | 2+ (bilateral, symmetrical) | 1 (often the great toe) |
| Common Joint Involvement | Distal hands, basal thumb, knees, hip, spine | Feet, ankles, proximal hands, wrists, ankles, feet | Hands, wrists, elbows, knee, ankle, great toe |

Associated Exam Findings

GAIT ASSESSMENT & MALALIGNMENT

When a patient's gait is observed in the clinic, an uneven or unstable gait may be noted. Additionally, malalignment (i.e., varus [bowlegged] or valgus [knock-kneed]) can result in increased risk of development or progression of knee OA. The worse the malalignment, the greater decline in physical function likely to be experienced by patients.²⁰ Issues of alignment and gait may be better assessed by PT referral. See the Clinical Management of OA module for more information about referrals.

QUADRICEPS STRENGTH

Reduced quadriceps strength has been connected to increased functional disability and pain in people with knee OA^{21,22} and is a risk factor for both OA and falls in the older population.²³ Muscle-strengthening exercises, whether with a physical therapist or through a community-based intervention program, can help reduce pain and functional limitations.

See also "Functional Assessments" on p.3

IMAGING EVALUATION

Medical history and clinical exam may indicate further exploration via various imaging modalities to confirm or refine an OA diagnosis, although this is often not necessary. Imaging is generally not needed to guide treatment decisions. Patients with OA may experience debilitating symptoms but have little radiographic evidence supporting OA or they may have significant radiographic evidence but few symptoms.²⁴ Radiographs can be considered to confirm the diagnosis in the case of uncertainty or other potential etiologies (e.g., evaluation for osteonecrosis or fracture); more advanced imaging is rarely indicated clinically.

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X-rays

Plain radiograph, or x-ray, is the most common, cost-effective, and accessible form of imaging for OA, but it is not without limitations. X-rays are useful for viewing two-dimensional structural changes, which can be helpful in diagnosing osteoarthritis because the affected joint will have a characteristic appearance:

- Osteophytes (bone spurs) often develop at joint margins and are one of the key features of OA in any affected joint.

- Joint space narrowing can be seen at any affected joint and often reflects cartilage thinning, damage, or total loss. At the knee, the joint space can appear narrowed due to meniscal damage and extrusion. Joint space narrowing can be affected by the radiographic view and patient positioning.
- Subchondral cysts and sclerosis indicate damage to the underlying subchondral bone, often adjacent to an area with cartilage damage.
- Joint malalignment or deformity can be risk factors (e.g., varus malalignment) or consequences of the OA process from damage to the joints over time.

X-ray images do not show soft tissues, nor can they discern early signs of OA. Structural changes that are detectable on plain radiograph are generally indicative of a later, more advanced disease state.²



Sample knee radiographs. A. Right knee with KLG=0, normal joint space, no osteophytes. B. Right knee with KLG=4, with sclerosis (*), medial joint space narrowing (long dashed arrow), osteophytes (black arrows). Images from the Johnston County Osteoarthritis Project, courtesy of Amanda E. Nelson MD MSCR.

Advanced Imaging Modalities

While MRI (magnetic resonance imaging), CT (computed tomography) and US (ultrasound) are sensitive modalities for detecting a variety of changes in the OA joint, they are not indicated for clinical use. These modalities are, however, very useful in research given their greater resolution, sensitivity, and ability to detect changes early in the disease process. Such information may prove useful for identifying subgroups (or phenotypes) of OA that may be more likely to respond to given treatments as novel interventions are developed. Additionally, US is useful as a point-of-care tool for intervention guidance²⁵ (e.g., intra-articular injections into deep or difficult joints).

EARLY DETECTION AND TREATMENT

Symptomatic OA and radiographic OA do not always overlap: patients with radiographic OA may not suffer from OA symptoms, and patients may experience OA symptoms before the disease is evident by examination or on imaging studies. Patient-reported symptoms of pain and associated disability are the more important indicators for providers to use in diagnosing OA and helping patients begin to manage their symptoms and functional limitations.²⁶ However, OA can develop over many years, and even before a patient expresses signs and symptoms of OA, it is important for providers to be aware of potential risk factors and intervene with patients on a preventative level.^{27,28} Patients at particular risk of developing OA are those who have suffered an ACL injury or intra-articular fracture, those with hip dysplasia²⁷ or cam morphology²⁹ as well as those who are overweight^{3,30-33} or who have participated in occupational or athletic activities that involve repetitive or excessive joint loading.³⁴⁻³⁷ It is important to engage these patients in prevention and self-management strategies as early as possible to manage their symptoms and prevent or delay the progression of OA.

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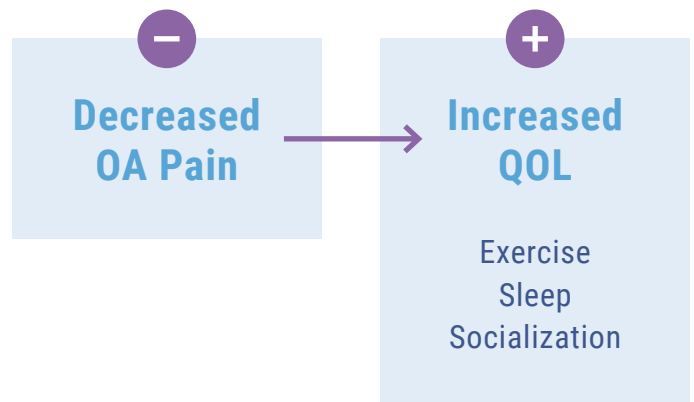
Connect Patients to Self-Management Activities and Programs

Participation in community-based programs that support self-management education and increasing physical activity have been shown to help with symptom management and preventing or delaying the progression of OA. The Clinical Management of OA and Community and Patient Resources modules provide information about programs that are recommended by the CDC, as well as guidance on how to locate these programs in your community.

A patient's ability to participate in exercise therapy as treatment for cardiovascular disease, diabetes, or obesity may be limited as a result of OA.

Pain Management to Improve Quality of Life and Management of other Chronic Diseases

A patient's ability or desire to participate in exercise therapy (e.g., cardiac rehabilitation, regular physical activity) as a treatment option for cardiovascular disease, diabetes, or obesity may be limited as a result of OA-related pain and functional limitations. It is important for providers to assess patients presenting with other chronic conditions for the presence of joint pain to identify and address this barrier to exercise. Providers can reassure patients that exercising with OA is safe and provide resources to patients about specialized interventions, such as aquatic therapy³⁸ or Walk With Ease.³⁹ The Community Resources handout for patients includes more information about these programs and additional resources. Providers can also recommend appropriate pain control measures like topical or oral NSAIDs with specific instructions about dosing around exercise sessions.





Clinical Take-Home Points

- OA is a clinical diagnosis, characterized by pain, aching, and stiffness most often affecting the knees, hips, back, hands, and feet.
- When imaging is needed, radiographs are usually sufficient to rule out other etiologies and confirm the diagnosis.
- Early detection of OA is beneficial for engaging patients in prevention and self-management strategies as early as possible to manage their symptoms and prevent or delay the progression of OA.

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