

Osteoarthritis

Osteoarthritis is when the cartilage cushion inside a joint wears down faster than the body can fix it, so bone rubs on bone.

THE ONE-LINE TRUTH

The slippery cushion inside the joint has worn away, leaving bone rubbing on bone.

The chain — how it unfolds

1. Cartilage wears down faster than the body can fix it. — why: Years of mechanical stress — plus enzymes released by low-grade inflammation — break the cartilage matrix apart. Because cartilage has no blood vessels, it cannot heal; chondrocytes (cartilage cells) work too slowly to keep up.
2. The bone underneath thickens and grows bony bumps (osteophytes). — why: With less cartilage cushion, the subchondral bone takes more direct impact. It responds by getting denser (sclerosis) and growing spurs at the joint edges, trying to spread the load and stabilize the joint.
3. You feel pain when you move the joint; the pain gets better with rest. — why: Cartilage and bone have no pain nerves, but moving the damaged joint stresses the synovium, bone lining (periosteum), and ligaments around it — all of which do have nerves. Resting stops the stress, so the pain fades.
4. Morning stiffness lasts less than 30 minutes. — why: Overnight, synovial fluid drains out of the cartilage and the joint feels stiff. As soon as you start moving, the cartilage soaks up fluid again like a sponge, and the joint loosens up — usually in under 30 minutes (much shorter than the hour-plus stiffness of rheumatoid arthritis).
5. You hear grinding (crepitus) and feel bony knobs on your fingers. — why: Rough, worn cartilage surfaces grind against each other, making a crackling or crunching sound. Bone spurs (osteophytes) show up as hard lumps — Heberden nodes at the fingertips (distal interphalangeal joints) and Bouchard nodes at the middle knuckles (proximal interphalangeal joints).
6. The joint loses range of motion. — why: Bone spurs, thickened bone, cartilage fragments, and tight muscles physically block the joint from bending or straightening all the way.

7. In late disease, the joint twists out of line (malalignment). — why: The subchondral bone can collapse unevenly, especially if one side of the joint wears faster. The joint tilts — think of bow legs (genu varum) in knee OA — and cannot track straight anymore.
8. Every finding traces back to the same root: the cartilage cushion has worn away. — why: Pain, stiffness, grinding, bone bumps, limited motion, and twisting are all the body's attempts to protect and stabilize a joint that has lost its smooth, slippery cushion. The findings are not random — they are survival strategies.

Spot it — what you see, and why

- Pain in big joints — hips, knees, hands, or lower back: The protective cushion at the end of each bone (cartilage) wears thin over years of use. Once the cushion is mostly gone, bone rubs on bone inside the joint, which triggers pain.
- Joint stiffness that loosens after you move around: When the joint sits still, fluid inside thickens like cold honey, and small bits of worn cartilage settle. Moving the joint pumps fresh fluid through and clears the debris, so stiffness usually lasts less than 30 minutes.
- Pain that gets worse as the day goes on or after you use the joint a lot: Each time you walk, climb stairs, or grip something, the worn joint surfaces press together. By evening, the lining of the joint is irritated and swollen from all that friction, so pain climbs higher.
- Hard, bony bumps on finger joints — Heberden nodes at the tips or Bouchard nodes in the middle: As cartilage wears away, the bone underneath tries to repair itself but grows extra bone in the wrong places, forming lumps you can see and feel on the sides of the joints.
- Pain at the base of the thumb that makes pinching and gripping hard: The small saddle-shaped joint at the base of the thumb (the carpometacarpal joint) takes a beating every time you pinch or twist. Cartilage there wears out, so the bones grind and the joint aches.
- Joint swelling that feels firm, not squishy: The bone edges thicken and extra fluid collects inside the joint capsule (the sac that wraps the joint). The swelling is firm because it is a mix of bone growth and thick fluid, not pure liquid.

Red flags — act now

- Sudden, severe joint pain or swelling in one joint that comes on in hours — may be infection or gout instead.
- Fever, night sweats, or unexplained weight loss — raises concern for infection or a different type of arthritis.
- Numbness, tingling, or weakness below the painful joint — suggests a nerve is being pinched and needs urgent evaluation.
- Joint pain plus a new rash, eye redness, or belly symptoms — points toward autoimmune arthritis, not osteoarthritis.

- Pain so bad that it wakes you from sleep or keeps you from walking — may need joint replacement surgery soon.

Treat it — in this order

1. Weight loss and low-impact exercise (swimming, water aerobics, biking) → Reduces the load pressing down on worn cartilage and slows further wear. Strengthens muscles around the joint so they absorb shock instead of bone.
2. Acetaminophen or NSAIDs (ibuprofen, naproxen, diclofenac) → Blocks pain signals and reduces the low-grade swelling that speeds up cartilage breakdown.
3. Topical NSAIDs (diclofenac gel) or capsaicin cream on the painful joint → Reduces swelling and pain signals in hands, knees, and other surface joints without stomach, kidney, or heart risk.
4. Intra-articular corticosteroid injection (triamcinolone, methylprednisolone) → Reduces swelling inside the joint so movement hurts less for weeks to months.
5. Intra-articular hyaluronic acid injection (viscosupplementation) → Adds slippery fluid so bones glide better and pain with movement drops for weeks to months.

Your top priorities at the bedside

1. Assess pain level using a 0-to-10 scale and ask which joints hurt most during movement and rest. — why: Osteoarthritis pain comes from bone rubbing on bone without cartilage cushion; tracking pain patterns helps separate it from inflammatory arthritis and guides treatment intensity.
2. Check the affected joints for bony lumps called Heberden nodes (finger tips) and Bouchard nodes (middle finger joints) and check if the thumb base is swollen. — why: These hard bony bumps form when cartilage is gone and bone grows abnormally; they confirm osteoarthritis and differentiate it from rheumatoid arthritis, which causes soft, squishy swelling.
3. Teach the patient to lose weight if overweight and start low-impact exercise like swimming, water aerobics, or cycling. — why: Every pound of body weight puts four pounds of pressure on the knee joint; losing weight reduces cartilage stress and exercise strengthens muscles that support damaged joints without pounding them.