

MUSCULOSKELETAL • NGN NCLEX 2026

Osteoarthritis (OA)

The "**wear-and-tear**" degenerative joint disease — non-inflammatory, asymmetric, and the most common form of arthritis worldwide.

DEGENERATIVE

NON-AUTOIMMUNE

WEIGHT-BEARING JOINTS

AGE > 50

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DEFINITION / OVERVIEW

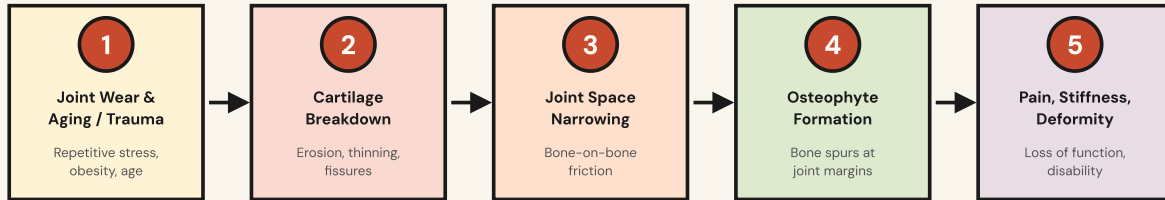
What Is OA?

- **Degenerative joint disease (DJD)** — progressive breakdown of articular **cartilage** with bony overgrowth. Non-inflammatory at the core (though secondary synovitis can occur).
- Most common form of arthritis. Affects **weight-bearing joints** most: knees, hips, lumbar spine, cervical spine — plus hands (DIP and PIP joints).
- Why it matters: **leading cause of disability in older adults**, drives joint replacement surgery, and is a top tested NCLEX topic for distinguishing from RA.

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PATHOPHYSIOLOGY

Cartilage to Bone-on-Bone



Mechanical → Structural → Symptomatic. Unlike RA, OA is **not autoimmune**. Cartilage simply wears down faster than the body can repair it. The body responds with bone remodeling — forming **osteophytes (bone spurs)** that further restrict the joint. Eventually bone rubs directly on bone, producing the classic crepitus, pain, and stiffness.

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SIGNS & SYMPTOMS

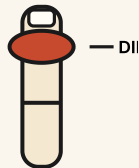
Early vs. Late

Early Findings

- **Joint pain with activity**, relieved by **rest**
- **Morning stiffness < 30 minutes** (key vs. RA)
- **Asymmetric** joint involvement
- **Crepitus** — grating/crackling on movement
- Decreased range of motion (ROM)
- Mild joint tenderness, no warmth

Late Findings

- **Constant pain** — even at rest, at night
- **Heberden's nodes** (DIP joints)
- **Bouchard's nodes** (PIP joints)
- Joint enlargement, deformity, malalignment
- Functional impairment, gait disturbance
- **No systemic symptoms** (no fever/fatigue)

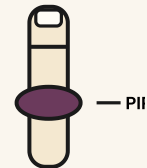


Heberden's Nodes

DIP JOINTS (HIGHER UP)

Heberden = High up.

Bony enlargements at the **fingertip knuckles** (distal interphalangeal).



Bouchard's Nodes

PIP JOINTS (MIDDLE KNUCKLE)

Bouchard = Between (middle).

Bony enlargements at the **middle knuckles** (proximal interphalangeal).

RED FLAG FINDINGS

When to Escalate

Joint locking, sudden severe pain, joint instability, or significant loss of function may indicate **loose body, severe cartilage tear, or need for surgical referral**. Pain at rest or night pain in late disease is also a key indicator of disease progression and reduced quality of life.

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PRIORITY NURSING INTERVENTIONS

ABCs & Safety First

- **Assess pain** — location, severity (0–10), triggers, what relieves it. Track functional impact.
- **Apply heat for stiffness** (warm shower, paraffin baths) and **cold for acute pain/swelling**. Apply **before** activity, **after** cold.
- **Encourage low-impact exercise** — **swimming, water aerobics, cycling, walking**. Strengthen muscles around the joint to offload pressure. **Bed rest is contraindicated.**
- **Promote weight loss** for obese clients — each pound lost = 4 lb less stress on knees.
- **Teach joint protection** — use larger/stronger joints, avoid prolonged standing, use **unaffected** side).
- **Administer analgesics on schedule** (not PRN) for chronic pain — acetaminophen first-line.
- **Fall prevention** — clear pathways, non-slip footwear, grab bars, adequate lighting. Especially critical with hip/knee OA.
- **Promote rest balance** — pace activities, schedule rest periods, avoid overuse of affected joints.
- **Pre-op / Post-op care** for total joint arthroplasty when indicated (hip, knee).

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PHARMACOLOGY

Medication Hierarchy

DRUG / CLASS	MECHANISM	KEY SIDE EFFECTS	NURSING CONSIDERATIONS
Acetaminophen NON-OPIOID ANALGESIC • 1ST LINE	Central pain inhibition; minimal anti-inflammatory effect	Hepatotoxicity if > 4 g/day (3 g/day in older adults/liver disease)	Monitor LFTs. Avoid alcohol. Check OTC combo products for hidden acetaminophen.
NSAIDs IBUPROFEN, NAPROXEN, CELECOXIB	COX inhibition → ↓ prostaglandins → ↓ pain & inflammation	GI bleed, renal toxicity, ↑ BP, cardiovascular events (esp. celecoxib)	Give with food. Monitor BUN/Cr, stool for blood, BP. Caution in elderly & renal disease.
Topical Agents CAPSAICIN, DICLOFENAC GEL	Local pain relief; capsaicin depletes substance P	Skin irritation, burning sensation (capsaicin)	Wash hands after application. Avoid eyes/mucous membranes. Effect takes 1–2 weeks.
Intra-articular Corticosteroids TRIAMCINOLONE, METHYLPREDNISOLONE	Potent anti-inflammatory injected directly into joint	Joint damage with overuse, infection risk, transient ↑ BG	Max 3–4 injections/year per joint. Monitor blood glucose in diabetics.
Duloxetine SNRI • CHRONIC OA PAIN	↑ Serotonin & norepinephrine → modulates pain signaling	Nausea, dizziness, dry mouth, somnolence	Monitor for mood changes / suicidal ideation. Do not stop abruptly.
Hyaluronic Acid Injections VISCOSUPPLEMENTATION	Joint lubrication; supplements synovial fluid	Injection-site pain/swelling	Series of 3–5 weekly injections. Effects may take weeks; not for everyone.
Tramadol / Opioids RESERVED FOR SEVERE PAIN	μ-opioid agonist + monoamine reuptake inhibition	Constipation, sedation, dependence, fall risk	Last-resort. Fall precautions. Avoid in older adults if possible.

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NCLEX TEST TRAPS

Common Wrong vs. Right

✗ WRONG

"OA causes morning stiffness lasting hours and bilateral symmetric joint swelling."

✓ RIGHT

OA stiffness is **< 30 minutes** after waking/inactivity, and joint involvement is **asymmetric**. That's **RA** they're describing.

✗ WRONG

"Recommend strict bed rest to protect the affected joints."

✓ RIGHT

Bed rest worsens OA. Encourage **low-impact exercise** (swimming, cycling, walking) to strengthen surrounding muscles.

✗ WRONG

"OA is an autoimmune condition — give DMARDs and corticosteroids systemically."

✓ RIGHT

OA is **NOT autoimmune**. DMARDs/biologics treat RA. OA = acetaminophen, NSAIDs, topical agents, intra-articular steroids only.

✗ WRONG

"Hold the cane in the same hand as the affected hip/knee for support."

✓ RIGHT

Cane goes on the **UNAFFECTED side** — to offload weight from the painful joint.

✗ WRONG

"Apply cold packs before exercise to reduce joint stiffness."

✓ RIGHT

Heat BEFORE activity (loosens stiff joints). **Cold AFTER** activity (reduces inflammation/swelling).

✗ WRONG

"Take acetaminophen 1000 mg every 4 hours for breakthrough pain — no daily limit needed."

✓ RIGHT

Acetaminophen max is **4 g/day** (3 g/day in elderly/liver disease). Check all OTC products for hidden acetaminophen → hepatotoxicity.

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PATIENT & FAMILY EDUCATION

Lifestyle & Self-Management

- ☐ **Weight management is the #1 modifiable factor** — for every pound lost, 4 lb of stress is removed from each knee.
- ☐ **Exercise daily, low-impact** : swimming and water aerobics are gold standard (buoyancy reduces joint load). Walking, cycling, tai chi also recommended.
 - Avoid high-impact** activities (running, jumping).
- ☐ **Heat → before** activity for stiffness.
 - Cold → after** activity for pain/swelling. Use for 15–20 minutes at a time.
- ☐ **Joint protection rules:**
 - ☐ Use **larger/stronger joints** for tasks (carry with arms, not fingers)
 - ☐ Avoid prolonged sitting/standing — change positions every 30 min
 - ☐ Use ergonomic tools, jar openers, long-handled reachers
 - ☐ Wear supportive low-heel shoes; avoid high heels
- ☐ **Medication safety:** Acetaminophen **4** . Take **with** . Report black tarry stools, abdominal pain, max **g/day** NSAIDs **food** decreased urine output.
- ☐ **Realistic expectations:** OA is progressive but manageable. Goal is pain control + functional preservation — **not cure** .
- ☐ **Know when to call the provider:** sudden severe pain, joint locking, signs of infection (red, hot, swollen joint with fever), or rapid loss of function.
- ☐ Discuss **joint replacement** (TKA/THA) when pain is uncontrolled, function is severely limited, or conservative measures fail.

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MEMORY BOOSTERS

Mnemonics & Pattern Recognition

OA = Old Age

Old **A**ge / **O**ver-use

"Wear & tear" disease. Mechanical, not autoimmune.
Worsens with activity, eased by rest.

30 / 30 Rule

OA stiffness lasts **< 30 minutes**

RA stiffness lasts **> 30–60 minutes**

Single biggest discriminator on NCLEX.

HEBarden = HIGH

Heberden's = **H**igh up = **DIP** (fingertip knuckle)

Bouchard's = **B**etween = **PIP** (middle knuckle)

Both = bony nodules, OA hallmark.

HOT before / COLD after

Heat before activity → loosens stiff joints

Cold after activity → reduces inflammation

Reverse order = wrong answer on NCLEX.

CANE on UNAFFECTED

Hold the **cane** in the hand **OPPOSITE** the painful joint. The cane offloads weight from the bad side.
(Same rule: walker advances on affected side first; stairs: "**up** with the good, **down** with the bad.")

OA vs RA

OA = **O**ne sided · **A**symmetric · activity ↑ pain

RA = **R**ed/warm · symmetric · **R**est ↑ stiffness

OA: bony nodes. RA: soft, swollen, systemic (fever, fatigue, rash).

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NGN CLINICAL JUDGMENT MEASUREMENT MODEL

6-Step Scenario Walkthrough

SCENARIO

Mrs. Carter, 68 years old, BMI 32, presents to the clinic with bilateral knee pain that has worsened over 2 years. She reports **knee pain after walking around the grocery store**, morning stiffness lasting about 15 minutes, and difficulty climbing stairs. Vital signs: T 98.4°F, HR 78, BP 138/82, RR 16, SpO₂ 98%. On exam: **crepitus on knee flexion, bony enlargement of the DIP joints of both hands, no warmth or redness**. She takes acetaminophen 500 mg "a few times a day" and admits to walking less because of the pain.

1

Recognize Cues

Relevant data: Age 68, BMI 32 (obese), bilateral knee pain worsened by activity, morning stiffness < 30 min, crepitus, **Heberden's nodes (DIP)**, no joint warmth/redness, no fever. Decreased activity due to pain. **Vital signs stable.** → All cues point to a **degenerative**, not inflammatory, process.

2

Analyze Cues

Pattern fits **osteoarthritis**: activity-related pain, brief morning stiffness, asymmetric pattern allowed, crepitus, Heberden's nodes, no systemic symptoms. Obesity is a modifiable risk factor accelerating cartilage breakdown in weight-bearing joints. **Rule out RA** — no symmetric swelling, no warmth, stiffness < 30 min, no fatigue or fever.

3

Prioritize Hypotheses

Top priority: Chronic pain related to OA + deconditioning & fall risk from inactivity. Secondary: **risk for acetaminophen overuse / hepatotoxicity** ("a few times a day" with unclear dosing). Tertiary: BMI-related disease progression. → All point to functional preservation and safe pharmacologic management.

4

Generate Solutions

(1) **Schedule acetaminophen on a regimen** ≤ 4 g/day; verify all OTC sources. (2) Initiate **low-impact exercise program** — water aerobics, walking 20–30 min/day. (3) **Weight reduction** teaching with referral to dietitian. (4) Teach **heat before / cold after**. (5) Joint protection education + assistive device assessment. (6) Fall risk assessment + home safety plan.

5

Take Action

Administer/teach **acetaminophen 650 mg q6h scheduled** (max 4 g/day). Review all OTC labels with patient. Refer to physical therapy for individualized exercise program. Provide weight-management resources. Demonstrate **cane use on unaffected side**. Schedule follow-up in 4–6 weeks.

6

Evaluate Outcomes

Expected outcomes by next visit: pain rating decreased from baseline, increased activity tolerance, no S/S of GI bleeding or hepatotoxicity (no jaundice, normal LFTs if checked), weight loss $\geq 1\text{--}2$ lb, demonstrates correct cane use and joint-protection techniques, verbalizes when to call provider. **Reassess pain, function, medication adherence, and BMI trend.**