PATIENT INFORMATION | **RHEUMATOLOGY**

Understanding Osteoarthritis

An evidence-based guide for patients in Pakistan — what osteoarthritis is, why it happens, and how proven treatments can ease pain, keep you moving, and delay or avoid surgery.

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At a glance

8.49 million	> 61%	1.5 : 1	> 50 yrs
Pakistanis affected (2021)	Of new cases involve the knee	Female-to-male ratio	Typical age of onset

Osteoarthritis (OA) is the world's commonest joint disorder. It used to be dismissed as simple “wear and tear”, but modern research has shown it to be an active disease of the whole joint — affecting cartilage, bone, ligaments, and the synovial lining. OA cannot yet be reversed, but it can be very effectively **managed**. With a combination of exercise, weight control, and medication, the majority of patients can stay active, delay or avoid surgery, and maintain a good quality of life.

What is osteoarthritis?

A healthy joint is lined with smooth **articular cartilage** that allows the bones to glide painlessly over one another, cushioned by lubricating **synovial fluid**. In osteoarthritis, the cartilage gradually thins and frays. The body attempts to repair the damage, but the response is imperfect: bony spurs (**osteophytes**) grow at the joint margins, the underlying bone thickens (**subchondral sclerosis**) and may form small cysts, and the synovial lining can become inflamed. The result is a stiffer, painful joint that does not move as smoothly as before.

Which joints are most often affected?

Joint	Typical features
Knee	The single most common site. Pain on standing up, climbing stairs, or kneeling — particularly important in Pakistani patients who pray, sit on the floor, or use squat toilets. Often bilateral. Knee OA contributes **over 61% of new OA cases in Pakistan**.
Hip	Groin pain that can radiate to the buttock or the inner thigh and knee. Difficulty putting on socks, getting in and out of a car, or rising from a low chair. Walking distance shortens.
Hand	**Bony nodes** at the end joints of the fingers (**Heberden's**) and middle joints (**Bouchard's**), and squaring of the thumb base (first carpometacarpal joint). Often runs in families, particularly in women after the menopause.
Spine	Lower back and neck stiffness, with bony spurs visible on imaging. May cause sciatica or arm pain if a nerve root is irritated.

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Joint	Typical features
Other sites	Big toe (first metatarsophalangeal joint — "bunion" region), shoulder, ankle, and elbow. The wrist, mid-foot, and small finger joints are usually **spared** in primary OA; involvement there suggests an inflammatory arthritis instead.

Incidence and epidemiology

Osteoarthritis is the leading cause of disability among older adults worldwide. The Global Burden of Disease 2021 study estimated that over **595 million people** globally were living with osteoarthritis — a figure that has more than doubled in the past three decades, driven by ageing populations, rising obesity, and increased life expectancy.

South Asian and Pakistani context

Pakistan has experienced a dramatic rise in osteoarthritis. The most recent data, from the Global Burden of Disease 2021 analysis (published 2025), provide the following picture:

• The number of Pakistanis living with osteoarthritis rose from **2.85 million in 1990 to 8.49 million in 2021** — a near three-fold increase. The age-standardised prevalence climbed by 17.9%, to 5,854 per 100,000 population.
• **Women are disproportionately affected** — 7,179 per 100,000 in women versus 4,645 in men in 2021. This sex difference widens further after the menopause.
• **Knee osteoarthritis accounts for over 61% of new cases**, with hand OA next, then hip OA. The dominance of knee OA reflects squatting-based prayer, low seating, and rising obesity.
• The disability burden (DALYs) is rising particularly fast in **Islamabad Capital Territory** (250.7 per 100,000) — the most urbanised region — and lowest in **Khyber Pakhtunkhwa** (191.3).
• The **Pakistan National Joint Registry** (2014–2021) recorded **9,572 total knee replacements** (rate 9.57 per 100,000), of which 69.5% were performed in women, mean age 61.7 years — and **2,265 total hip replacements** at half that rate.

Osteoarthritis is significantly under-recognised in Pakistan, where chronic joint pain is often attributed to age and accepted as inevitable. Early diagnosis, structured exercise, and weight control can preserve joint function for decades and reduce the need for joint replacement surgery.

Who is at higher risk?

- **Age** — risk rises steeply after the age of 50. By 75, more than half of adults have radiographic OA somewhere.
- **Female sex**, particularly after the menopause — the loss of oestrogen accelerates cartilage thinning.
- **Obesity** — the single most important *modifiable* risk factor. Each kilogram of excess body weight loads the knee with up to four times that force during walking. Obesity is also a risk factor for hand OA, suggesting metabolic factors are involved beyond mechanical load.
- **Previous joint injury or surgery** — meniscal tears, anterior cruciate ligament rupture, or fractures involving the joint surface markedly increase later OA risk.
- **Occupational and recreational stress** — jobs involving prolonged kneeling, squatting, heavy lifting, or repetitive impact (manual labour, agriculture, professional sport).
- **Family history** — a strong genetic component, particularly for nodal hand OA.
- **Joint malalignment** — bow-legs (varus) or knock-knees (valgus), and hip dysplasia.
- **Metabolic factors** — diabetes, dyslipidaemia, and the metabolic syndrome are increasingly recognised as accelerators of OA.

How does osteoarthritis develop?

Osteoarthritis is now understood as a disease of the **whole joint**, not just the cartilage. Several linked changes drive the disease forward:

Process	What happens in the joint
1. Cartilage breakdown	Chondrocytes (cartilage cells) shift toward catabolism: matrix metalloproteinases degrade the cartilage matrix faster than it can be rebuilt. The cartilage softens, fissures, and gradually thins.
2. Bone changes	The underlying bone responds with **subchondral sclerosis** (thickening), **cyst** formation, and growth of bony spurs (**osteophytes**) at the joint margins.
3. Synovial inflammation	Low-grade synovitis develops, releasing cytokines (IL-1β, TNF-α) and producing **effusions** in active disease.
4. Ligament & muscle changes	Surrounding ligaments laxify, the joint capsule thickens, and the muscles around the joint (particularly the quadriceps) weaken — increasing instability and pain.
5. Pain pathways	Pain is generated from bone, synovium, ligaments, and nerve endings. In chronic disease, central sensitisation amplifies pain perception, which is why pain does not always match X-ray severity.

*Understanding this multi-tissue process explains why effective management uses **multiple complementary strategies** — exercise to strengthen muscle, weight loss to unload the joint, medication for pain and inflammation, and surgery only when the joint is structurally exhausted.*

Symptoms — what to look out for

Osteoarthritis usually develops slowly, over months to years. The classical features are:

Symptom	Typical features
Pain	**Worse with activity** and **relieved by rest** — the hallmark mechanical pattern. Pain is often felt deep in the joint, may radiate, and can become persistent in advanced disease. Pain at rest or at night suggests more severe disease or inflammation.
Stiffness	**Brief morning stiffness** — typically lasting less than 30 minutes — and stiffness after sitting (“gelling”). Prolonged morning stiffness (over an hour) suggests an inflammatory arthritis instead.
Reduced range of motion	Difficulty fully bending or straightening the joint. May affect daily activities such as praying, climbing stairs, putting on socks, or reaching overhead.
Crepitus	A grating, cracking, or grinding sensation when moving the joint. Often audible. Common and not in itself dangerous.
Swelling	Bony enlargement (osteophytes) at the joint margins, occasional soft swelling from a joint effusion, particularly after activity.
Instability & weakness	Sense of the knee “giving way”, difficulty trusting the joint, and weakness of the surrounding muscles due to disuse.
Deformity	In advanced disease — bow-legs, knock-knees, fixed flexion of the knee or hip, or bony nodes of the fingers.

How is osteoarthritis different from inflammatory arthritis?

It is important to distinguish OA from rheumatoid arthritis or other inflammatory arthritides — the treatments are very different.
• **OA pain** is worst with use and eases with rest; **inflammatory pain** is worst after rest and eases with movement.
• **Morning stiffness** in OA lasts under 30 minutes; in inflammatory arthritis it lasts an hour or more.
• OA affects the **weight-bearing joints** (knee, hip, spine) and the **distal finger joints**; inflammatory arthritis typically affects the wrist, knuckles, and small joints symmetrically.
• Blood inflammation markers (ESR, CRP) and rheumatoid factor are **usually normal** in OA.
• Constitutional symptoms (fever, weight loss, profound fatigue) are **not** features of OA — if present, another diagnosis should be sought.

How is osteoarthritis diagnosed?

Osteoarthritis is principally a **clinical diagnosis**, based on the history and examination. Investigations are used to confirm the diagnosis, exclude other causes, and assess severity:

- **Plain X-rays** — the standard imaging test. Look for **joint space narrowing**, **osteophytes**, **subchondral sclerosis**, and **cysts** (the four classic features). Severity is often graded using the **Kellgren-Lawrence** scale (grades 0–4). Importantly, X-ray severity does not always match symptom severity.
- **Weight-bearing X-rays** of the knee — give a much more accurate picture of joint space than non-weight-bearing views.
- **MRI** — rarely needed for diagnosis, but useful when a meniscal tear, ligament injury, avascular necrosis, or another cause is suspected.
- **Ultrasound** — can identify joint effusions, synovitis, and bone surface changes; useful for guided injections.
- **Blood tests** — usually **not** required for diagnosis but are often performed to exclude inflammatory arthritis or gout. ESR and CRP are typically normal in OA.
- **Joint fluid aspiration** — only required if an acute hot, swollen joint is present, to exclude septic arthritis or crystal-induced arthritis (gout, pseudogout).

Treatment — a stepwise approach

Modern OA management follows the **2024 EULAR recommendations** for the non-pharmacological core management of hip and knee osteoarthritis, the **2019 OARSI guidelines**, and the **2019 American College of Rheumatology guidelines**. The consistent international message is that **exercise and weight management are first-line for everyone** — medication is an adjunct, and surgery a last resort. Treatment is tailored to the individual, the affected joints, and the severity of disease.

The stepped-care pyramid

Step	Approach	Examples and notes
1	**Foundation: education, exercise, weight management**	Patient education about OA; **land-based exercise** (strengthening, aerobic, flexibility) and/or **aquatic exercise**; structured weight loss of **at least 5–10%** if overweight — reduces knee pain by up to 50%. Recommended for **every patient**, irrespective of severity.
2	**Physical adjuncts**	Physiotherapy, walking aids (cane in the opposite hand), **knee braces** for selected patients, footwear changes, and self-management programmes. Heat or cold packs for symptom relief.

Step	Approach	Examples and notes
3	**Topical medication**	**Topical NSAIDs** (e.g. diclofenac gel) — first-choice drug for knee and hand OA, with very low systemic side effects. Topical capsaicin is an alternative for selected patients.
4	**Oral medication**	**Paracetamol** — modest benefit; useful as background analgesia. **Oral NSAIDs** (e.g. naproxen, etoricoxib) at the lowest effective dose for the shortest necessary period, with a proton-pump inhibitor for gastric protection. **Duloxetine** for chronic widespread or neuropathic OA pain. **Opioids and tramadol are NOT recommended** in routine management.
5	**Intra-articular injection**	**Corticosteroid** — short-term flare relief, particularly useful for the knee and base of thumb. **Hyaluronic acid** — used in some centres; weaker evidence. **Platelet-rich plasma (PRP)** — promising but not yet first-line. Avoid repeated steroid injections (more than 3–4 per year per joint).
6	**Surgery**	Considered when conservative treatment has failed and the patient's quality of life is significantly impaired. **Joint replacement** (total knee or hip arthroplasty) is highly successful, with over 90% patient satisfaction at 10 years. Osteotomy may be considered in younger patients with malalignment. **Arthroscopy for OA is not recommended.**

Treatments that are NOT recommended

Many widely-marketed products lack good evidence and should be avoided in routine OA care:
• **Glucosamine and chondroitin supplements** — international guidelines do **not** recommend them; benefit is no greater than placebo in well-conducted trials.
• **Stem-cell therapy** — unproven, expensive, and offered widely outside clinical trials. Avoid until properly evaluated.
• **Arthroscopic "clean-up" for OA** (washout, debridement) — no better than placebo; not recommended.
• **Long-term opioids and tramadol** — modest pain benefit, significant risks of dependence and side effects.
• Many **herbal and over-the-counter "joint" products** — unregulated, may interact with prescribed medication.

What you can do yourself

- **Move every day.** Joints need movement to stay healthy. A combination of **strength training** (targeting the quadriceps for knee OA), **aerobic activity** (walking, cycling, swimming), and **flexibility exercises** is the single most effective treatment.
- **Lose excess weight gradually.** Even a 5–10% reduction in body weight markedly reduces knee pain and slows progression. Combine diet with exercise for the best result.
- **Adapt your prayer and sitting habits if needed.** Painful kneeling or floor-sitting can be modified using a low chair, a prayer stool, or kneeling on a soft cushion. Your religious obligations can continue — ask for advice on safe adaptation.
- **Use the right footwear.** Cushioned, supportive shoes reduce joint loading. Avoid high heels and overly flat shoes for prolonged walking.
- **Apply heat or cold** as preferred — heat eases stiffness; cold eases acute swelling and pain.
- **Pace your activities.** Break tasks into shorter spells and alternate with rest, rather than overdoing it on a good day and paying for it on the next.
- **Look after your mental health.** Chronic pain, low mood, and sleep disturbance feed each other. Cognitive behavioural therapy, mindfulness, and treating depression all improve OA pain.
- **Stop smoking** — smoking worsens pain perception and impairs healing after any future joint surgery.

What is the outlook?

Osteoarthritis is a chronic condition, but its course is highly variable. Many patients have **stable, mild-to-moderate disease** for decades, with good function and low disability. Some progress more quickly. The single greatest predictor of outcome is **not the X-ray finding** but the strength of the muscles around the joint, the patient's weight, and their level of physical activity. Patients who engage actively with exercise and weight management consistently fare better than those who do not. For those who do require surgery, **total knee and hip replacement are among the most successful operations in modern medicine**, with sustained pain relief and improved function in over 90% of patients at 10 years.

When to contact your rheumatologist or doctor

- A joint that suddenly becomes **hot, red, very swollen, and exquisitely painful** — to exclude septic arthritis or gout (an emergency).
- New pain at **rest or at night**, particularly if severe.
- A joint that **locks, gives way, or won't bear weight**.
- Unexplained **weight loss, fever, or fatigue** with joint pain — OA does not cause these symptoms.
- **Worsening pain** despite optimised exercise and medication.
- Side effects of medication — indigestion, black stools, swollen ankles, or high blood pressure while on NSAIDs.

Frequently asked questions

Question	Answer
Will exercise damage my joints?	No — it is one of the most important things you can do. Exercise has been shown to reduce pain and improve function, even in moderate-to-severe OA. Start gradually, build up, and choose low-impact activities like swimming, cycling, and walking.
Should I take glucosamine?	International guidelines do **not** recommend it. Well-conducted trials show no meaningful benefit over placebo. The money is better spent on a gym membership, physiotherapy, or supportive footwear.
Will I need a joint replacement?	Most patients with OA do **not** need surgery. Replacement is considered only when symptoms severely affect quality of life despite optimised conservative care. When performed, the operation is highly successful.
Is OA caused by climbing too many stairs / running / praying?	Moderate, regular activity does **not** cause OA — in fact, it protects against it by strengthening muscles. Heavy occupational load, previous joint injury, and obesity are the main avoidable risk factors.
Are X-ray changes always painful?	No. Many people over 60 have X-ray evidence of OA without significant pain, while others with mild X-ray changes have severe pain. Treatment is guided by **symptoms and function**, not the X-ray alone.
Can I fast during Ramadan?	Yes, in most cases. Discuss medication timing with your doctor — NSAIDs are best taken with iftar food, and adequate hydration between iftar and suhoor is important to protect the kidneys.

Key references and further reading

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Speak to a specialist

Osteoarthritis is manageable, and early advice protects your joints for decades — book a consultation today.

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Important disclaimer. This leaflet provides general information for patients and does not replace individual medical advice from a qualified rheumatologist. Treatment decisions must take into account your full medical history, examination findings, and investigations. Please discuss any concerns directly with Dr Saira Khan or your treating physician.

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