

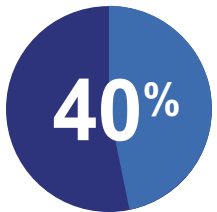
# KNEE OSTEOARTHRITIS:

## Prevalence, Risks and Treatment Options

### PREVALENCE



MORE THAN **1 IN 3** AMERICANS OVER 60 HAVE RADIOGRAPHIC EVIDENCE OF OSTEOARTHRITIS AND



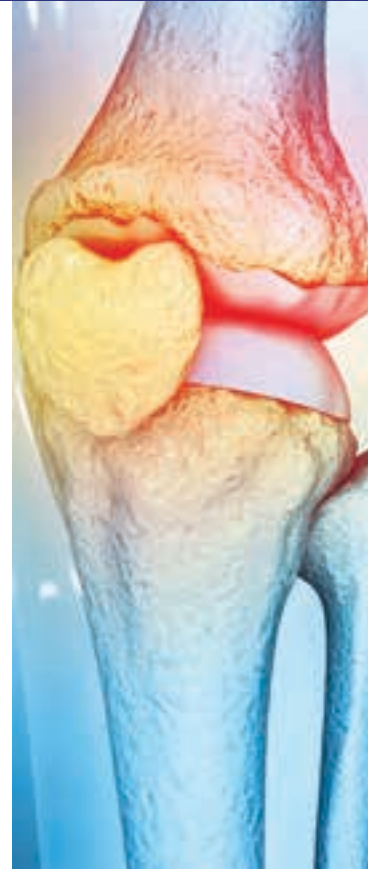
APPROXIMATELY **40%** OF THEM REPORT **BOTHERSOME SYMPTOMS**<sup>1</sup>

**WOMEN ARE MORE LIKELY TO DEVELOP OSTEOARTHRITIS AFTER AGE 50**<sup>2</sup>

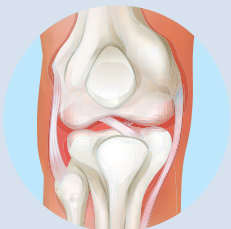


OSTEOARTHRITIS IS A MUCH **MORE COMPLEX** DISEASE THAN PREVIOUSLY THOUGHT, WITH INFLAMMATORY MEDIATORS RELEASED BY CARTILAGE, BONE AND SYNOVIUM.<sup>3</sup>

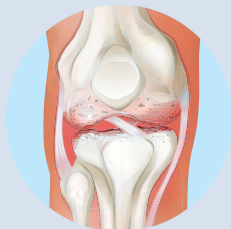
**SYNOVITIS IS NOW ACCEPTED AS A CRITICAL FEATURE OF OSTEOARTHRITIS**<sup>3</sup>, AND SOME STUDIES HAVE SUGGESTED THE CONDITION IS A DRIVER OF THE OSTEOARTHRITIS PROCESS.



### RISK



NORMAL KNEE JOINT



KNEE JOINT WITH ARTHRITIS

LIFETIME RISK OF DEVELOPING SYMPTOMATIC KNEE OA IS **40% IN MEN** AND **47% IN WOMEN**. THAT RISK RISES TO **60%** IN SUBJECTS WITH A BMI OF 30 OR HIGHER.<sup>4</sup>

#### SYSTEMIC RISK FACTORS FOR OA INCLUDE:

- AGE
- SEX
- ETHNICITY
- BONE DENSITY
- ESTROGEN REPLACEMENT THERAPY
- NUTRITION
- GENETICS
- OBESITY
- JOINT INJURY/ DEFORMITY
- SPORTS PARTICIPATION



# KNEE OSTEOARTHRITIS

## TREATMENT

### Non-surgical

Nonpharmacologic interventions and NSAIDs are most commonly prescribed to treat the pain associated with OA (conservative management), with alternative pharmacologic therapy only prescribed in the presence of inadequate response and severe pain.<sup>5</sup>

9% of those with knee OA use opioids chronically.<sup>6</sup>

### Chronic NSAID use is not without risks in older patients:

- They are responsible for 30% of hospital admissions for adverse drug reactions<sup>7</sup>
- Increased risk of bleeding and cardiovascular disease<sup>8</sup>
- Double the risk of hospitalization due to heart failure<sup>8</sup>
- Can cause GI bleeds<sup>8</sup>
- Risk of impaired renal function<sup>8</sup>

### Surgical

**600,000** Total Knee Arthroplasty (TKA) surgical procedures are performed in the U.S. annually...

...and that number is projected to rise to over **3 million per year**<sup>9</sup>

More than **2/3 of patients** with severe OA are **unwilling to consider TKA**<sup>10,11</sup>

...and **20%** of patients who undergo TKA report **dissatisfaction** with the procedure<sup>12</sup>

1. Dillon C.F., Rasch E.K., Gu Q., Hirsch R. Prevalence of knee osteoarthritis in the United States: arthritis data from the third national health and nutrition examination survey 1991-94. *J. Rheumatol.* 2006;33:2271-2279. <https://www.ncbi.nlm.nih.gov/pubmed/17013996> [PubMed] [Google Scholar]  
2. Source: CDC  
3. F Berenbaum 1 Osteoarthritis as an inflammatory disease (osteoarthritis is not osteoarthrosis!) *Osteoarthritis Cartilage.* 2013 Jan;21(1):16-21. doi: 10.1016/j.joca.2012.11.012. Epub 2012 Nov 27.  
4. Murphy L, Schwartz TA, Helmick CG, et al. Lifetime risk of symptomatic knee osteoarthritis. *Arthritis Rheum.* 2008;59(9):1207-13. [PMC free article] [PubMed] [Google Scholar]  
5. Daste C., Kirren Q., Akoum J., Lefevre-Colau M.-M., Rannou F., Nguyen C. Physical activity for osteoarthritis: Efficiency and review of recommendations. *Jt. Bone Spine.* 2021;68:105207. doi: 10.1016/j.jbspin.2021.105207. [PubMed] [CrossRef] [Google Scholar]  
6. Elena Losina 1, Shuang Song 2, Gordon P Bensen 2, Jeffrey N Katz 3 *Arthritis Care Res (Hoboken)*. 2023 Apr;75(4):876-884. Opioid Use Among Medicare Beneficiaries With Knee Osteoarthritis: Prevalence and Correlates of Chronic Use. doi: 10.1002/acr.24844.  
7. Pirmohamed M, James S, Meakin S, et al. Adverse drug reactions as cause of admission to hospital: prospective analysis of 18 820 patients. *BMJ.* 2004;329(7456):15-19. [PMC free article] [PubMed] [Google Scholar]  
8. Abigail Davis et al. The dangers of NSAIDs: look both ways. *Br J Gen Pract.* 2016 Apr; 66(645): 172-173. PMID: PMC4809680 doi: 10.3399/bjgp16X694433

## A NEW AND MUCH-NEEDED OPTION

A new and minimally invasive procedure called genicular artery embolization (GAE) reduces the flow of blood to the synovium—the lining of the knee—which reduces inflammation and the associated pain.

GAE is performed by an interventional radiologist who inserts a tiny catheter into an artery in the upper thigh, and then uses imaging to guide it through the body's blood vessels to the arteries that supply blood to the synovium, where inflammation occurs. Tiny particles are injected through the catheter into these arteries, which reduces the flow of blood. The effect is a significant reduction in the inflammation associated with osteoarthritis, and a reduction in pain.

GAE has a high clinical improvement rate and a low incidence of adverse reactions.<sup>13,14</sup>

A clinical study performed in 2021 demonstrated that the average pain scores decreased from 8 out of 10 to 3 out of 10 within the first week of the procedure.<sup>15</sup>

“Although there are many options for conservative therapy prior to surgery, there is yet to be a treatment modality that provides reliable, sustained relief without the risks of chronic medication. The available data for GAE suggest that it may fill this void.”<sup>16</sup>

**Dr. Nazar Golewale is board-certified in vascular & interventional radiology. If you are interested in learning more about GAE or consulting with him about a patient, please call (219) 208-6218.**

9. Inacio, M., Paxton, E. W., Graves, S. E., Namba, R. S., & Nemes, S. (2017). Projected increase in total knee arthroplasty in the United States - an alternative projection model. *Osteoarthritis and cartilage*, 25(11), 1797-1803. <https://doi.org/10.1016/j.joca.2017.07.022>  
10. Hawker G.A., Guan J., Crawford R., Coyle P.C., Glazier R.H., Harvey B.J., et al. A prospective population-based study of the predictors of undergoing total joint arthroplasty. *Arthritis Rheum.* 2006;54:3212-3220. doi: 10.1002/art.22146. [PubMed] [CrossRef] [Google Scholar]  
11. Hawker G.A., Wright J.G., Badley E.M., Coyle P.C. Perceptions of, and willingness to consider, total joint arthroplasty in a population-based cohort of individuals with disabling hip and knee arthritis. *Arthritis Rheum.* 2004;51:635-641. doi: 10.1002/art.20524. [PubMed] [CrossRef] [Google Scholar]  
12. Marsh J, Joshi L, Somerville L, Vasaheily E, Lanting B. Health care costs after total knee arthroplasty for satisfied and dissatisfied patients. *Can. J. Surg.* 2022;66:E562-E566. doi: 10.1503/cjs.006721. [PMC free article] [PubMed] [CrossRef] [Google Scholar]  
13. CH Sun et al. Efficacy analysis of selective genicular artery embolization in the treatment of knee pain secondary to osteoarthritis *Zhonghua Yi Xue Za Zhi* 2022 Mar 22;102(11):795-800. doi: 10.3760/cma.j.issn.1121-3729.2022.0226-02166.  
14. Bedros Taslakian et al. Genicular artery embolization for treatment of knee osteoarthritis pain: Systematic review and meta-analysis *Osteoarthritis Cartil Open* 2023 Feb 6;5(2):100342. doi: 10.1016/j.ocarto.2023.100342. eCollection 2023 Jun.  
15. <https://www.sirweb.org/media-and-pubs/media/news-release-archives/2021-knee-pain-031621/>  
16. Abin Sajin, MD et al. Musculoskeletal Interventions: A Review on Genicular Artery Embolization. *Semin Intervent Radiol.* 2021 Dec; 38(5): 511-514. Published online 2021 Nov 24. doi: 10.1055/s-0041-1736529 PMID: PMC8612839 PMID: 34853465

