

Low-dose Radiation Therapy for Osteoarthritis



Offering a **noninvasive treatment** option to reduce osteoarthritis pain and improve function

70% of patients report a meaningful improvement in their symptoms. In some patients, results may last well past a year.



What You Need to Know

THE RADIATION DOSE IS VERY LOW

at 3 Gy — just 5% of
the typical dose used for
cancer treatment

Short treatment regimen

6 TREATMENTS
delivered over
2-3 WEEKS

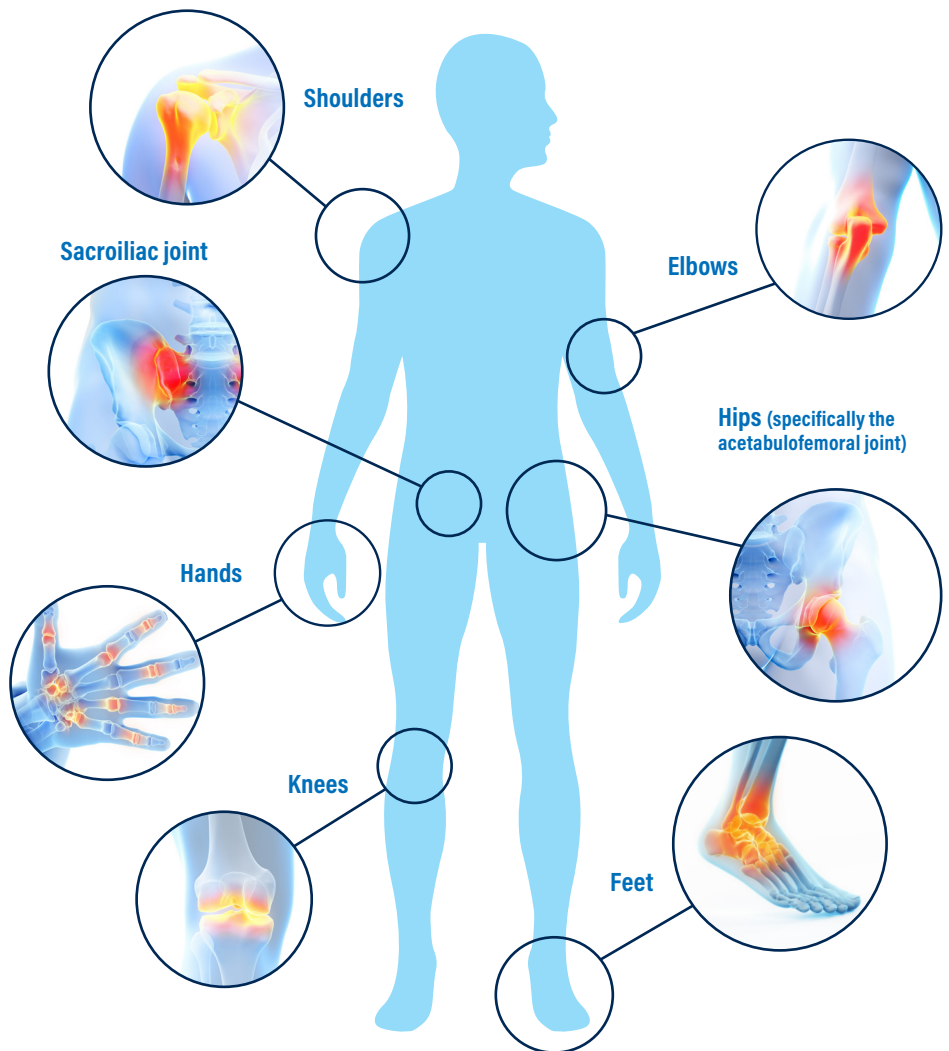
Fast and painless

with each session taking

**10 MINUTES
OR LESS**

Sites We Treat

We treat mainly sites in the appendicular skeleton, including upper and lower limbs and the connecting girdles, such as:

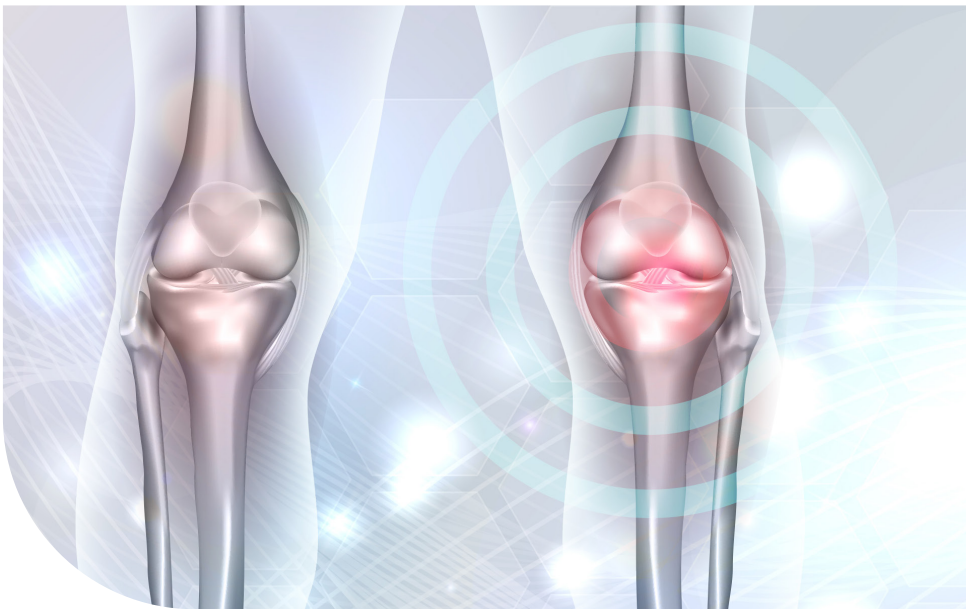


Who is eligible?

PATIENTS WHO

- Are **50+ years of age**
- Have a history of **at least moderate osteoarthritis**
- Have **failed a previous treatment**

PREVIOUS TREATMENTS INCLUDE physical therapy, oral or topical drug treatments such as non-steroidal anti-inflammatory agents, or intra-articular corticosteroid injections



What's the evidence?

At the annual meeting of the American Society for Radiation Oncology (ASTRO) in 2025, Dr. Byoung Hyuck Kim, et al, presented a study demonstrating that low-dose radiation effectively treats mild-to-moderate knee osteoarthritis:

- **114 patients** with moderate-to-mild knee osteoarthritis randomized to placebo, 0.3 Gy or 3 Gy (over six treatments)
- Patients were limited to **acetaminophen only** for pain relief
- Of the patients treated with 3 Gy, **70% improved** in at least two of three areas (pain, function, overall assessment of their condition) at four months
- Placebo and 0.3 Gy showed a **42% and 58%** improvement respectively

How it works

Inflammation occurs when the body's immune system sends large numbers of immune cells and chemical signals to an injured or irritated area. While this response is important for healing, sometimes it becomes excessive or ongoing, causing pain, swelling, and tissue irritation.

Low-dose radiotherapy does not primarily work by destroying tissue. Instead, it appears to act like a reset signal for the immune system and helps to "calm down" this overactive inflammatory response in several ways, including:

- ✓ Reducing the recruitment of inflammatory cells
- ✓ Lowering the production of inflammatory chemicals
- ✓ Encouraging immune cells to adopt a more tissue-repairing behavior

Together, these effects can **decrease pain, swelling, and inflammation in treated tissues.**

Very low risk, potential high reward

- **Essentially no acute side effects**
- **No known cases of secondary malignancies** from LDRT, according to DEGRO guidelines for benign disease reports. Theoretical risk is 0.2 in 1,000 patients.
- **May reduce use of NSAIDs** which have an excess risk of 7 in 1,000 non-fatal bleeds annually (2 in 1,000 fatal) with a 4-fold increase risk of GI bleed.
- **Surgery after radiation still possible.** No literature suggests that LDRT could negatively affect a surgical procedure after irradiation for osteoarthritis.

Mark Farrugia, MD, PhD

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