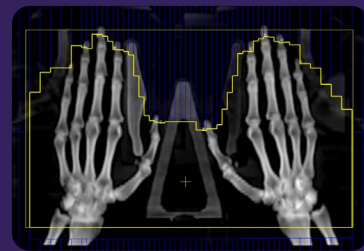


Low-Dose Radiation Therapy (LDRT) for Osteoarthritis & Inflammatory Joint Disease



Chronic joint pain from osteoarthritis (OA) and other degenerative conditions are a leading cause of disability, particularly in aging populations. OA affects hundreds of millions globally and is associated with persistent pain, reduced mobility, and diminished quality of life.¹

Low-Dose Radiation Therapy (LDRT) is a non-invasive, evidence-based treatment that reduces inflammation and alleviates pain using radiation doses far below those used in oncology. With decades of clinical use in Europe, LDRT is gaining renewed attention as a safe and effective option, particularly for patients with persistent symptoms despite conservative therapy.¹

CLINICAL EFFICACY & PATIENT IMPACT

- **~70% of patients reported pain improvement** following LDRT for hand osteoarthritis (n=483)², and response rates across studies typically show **meaningful pain relief in the majority of patients (60–70%)**, with higher rates reported in some cohorts.^{1,3}
- Benefits include: sustained pain reduction, improved joint mobility and function, and enhanced quality of life¹
- LDRT is well tolerated, with minimal acute side effects and a very low risk profile at therapeutic doses.^{1,5}
- LDRT targets inflammatory pathways rather than tissue destruction, reducing pain over time.^{1,5}

TREATING WITH LDRT

Patient Selection

LDRT is best suited for patients with chronic osteoarthritis or inflammatory joint disease; inadequate response to medications; or contraindications to surgery or invasive procedures.¹ Optimal outcomes are typically seen in early- to mid-stage disease.¹

Typical Regimen

- 0.5–1.0 Gy per fraction
- Total dose: 3–6 Gy per course^{1,3}
- Delivered 2–3 times per week over 2–3 weeks¹
- Repeat treatment may be considered after 6–12 weeks if needed¹
- Lower-dose fractionation (0.5 Gy) is increasingly preferred^{2,3}

Beyond Osteoarthritis

LDRT is also used to treat¹:

- Tendinopathies (e.g., plantar fasciitis, epicondylitis)
- Periarthritis and bursitis
- Degenerative spine conditions
- Early-stage Dupuytren's disease

REFERENCES

1. German Society for Radiation Oncology (DEGRO). S2e guideline: radiotherapy of benign diseases. Version 3.0. Published 2022
2. Donaubauber A.J, Zhou J.G, Ott O.J, et al. "Low Dose Radiation Therapy, Particularly with 0.5 Gy, Improves Pain in Degenerative Joint Disease of the Fingers: Results of a Retrospective Analysis". Int J Mol Sci. 2020 Aug 14;21(16):5854
3. The Use of Low-Dose Radiation Therapy in Osteoarthritis: A Review, Austin P.H. Dove, MD - Department of Radiation Oncology, Vanderbilt University Medical Center, Nashville, Tennessee - Apr 21, 2022
4. Torres Royo L, Antelo Redondo G, Arquez Pianetta M, et al. Lowdose radiation therapy for benign pathologies. Rep Pract Oncol Radiother 2020;25:250–254
5. Weissmann T., Rückert M., Putz F., Donaubauber A.J., Hecht M., Schnellhardt S., et al. Low-dose radiotherapy of osteoarthritis: from biological findings to clinical effects-challenges for future studies. Strahlenther Onkol. 2023