

PHYSICAL THERAPY IS BETTER THAN GLUCOCORTICOID INJECTIONS FOR OSTEOARTHRITIS OF THE KNEE

QUALITY OF EVIDENCE: MODERATE



Want to learn more? Check out the [SGIM Bottom Line Podcast](#) on iTunes, Spotify, or wherever you get your podcasts. Go to sgimbottomline.com or scan the QR code for details.

THE BOTTOM LINE

Among patients with knee osteoarthritis, physical therapy is more effective than glucocorticoid injections in achieving increased functional status and decreased pain and stiffness at 1 year.

WHY THIS IS IMPORTANT

Knee osteoarthritis is a common progressive joint disease¹. Clinical practice guidelines advocate the use of non-steroidal anti-inflammatory drugs, physical therapy, and/or intra-articular glucocorticoid injections in pain management². There have been few controlled clinical trials comparing the efficacy of physical therapy (PT) with glucocorticoid injections (GC) on long-term clinical outcomes^{3,4}. We report the results of a recent randomized clinical trial that compared PT and GC for treatment of knee osteoarthritis¹.

FACTS

STRUCTURE OF THE STUDY

- An open-label randomized trial of 156 patients meeting American College of Rheumatology (ACR) clinical classification for knee osteoarthritis and having radiographic evidence of knee osteoarthritis. (ACR clinical classification requires knee pain plus 3 of the following 6 features: age greater than 50, stiffness lasting less than 30 min, crepitus, bony tenderness, bony enlargement, no palpable warmth.)
- Seventy-eight patients received up to 12 PT sessions, and 78 patients received 3 GC injections in the study year for treatment of knee osteoarthritis.
- Inclusion criteria were adults older than 38 years, eligibility for care in the military health system, and English proficiency.
- Exclusion criteria were receipt of GC injections or PT within 1 year before enrollment, absence of radiographic evidence of knee osteoarthritis, active rheumatic disease, knee infection in the past year, and allergy or adverse reaction to corticosteroids.
- Outcome assessments were done by research assistants blinded to treatment assignments.
- Primary outcome was improvement in Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) score at 1 year (Fig. 1), with higher scores representing worsening function, stiffness, and pain. WOMAC scores ranges 0 (no pain, stiffness, or decreased physical function) to 240 (sig-

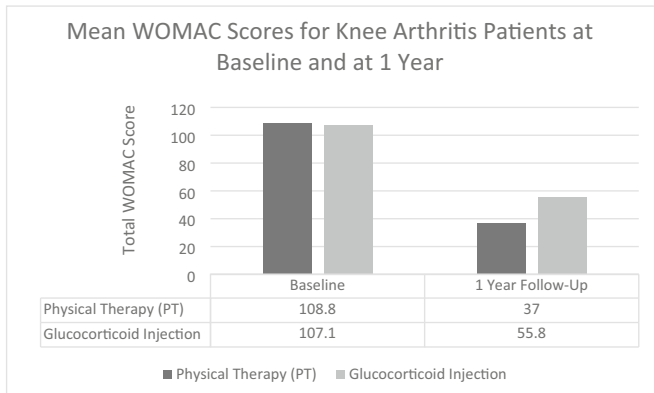


Figure 1 Mean WOMAC score at baseline and at 1 year.

nificant pain, stiffness, or decreased physical function). Minimal clinically important difference in WOMAC scores is 12%.

- Adverse events included death, infection, and a persistent worsening of symptoms requiring additional treatment outside of the trial.

Results of the Study.

- Mean age 56.1 years, 52% men, average BMI 31.5, baseline WOMAC score 108. There were no significant baseline differences between the two cohorts.
- Mean number of GC injections received was 2.6 (range, 1–4); mean number of PT treatment sessions was 11.8 (range, 4–22).

- WOMAC scores at 1 year were significantly lower in the PT group (37.0, SD 30.7) than in the GC group (55.8, SD 53.8), with a between-groups difference of 18.8 (95% CI 5–32.6, $p = 0.008$).
- Post hoc sensitivity analyses excluding 7 patients in the PT group receiving GC injections and 14 patients in the GC group receiving PT noted no difference in the results for the primary outcome.
- No important adverse events were reported.

STUDY QUALITY AND APPLICABILITY

The study was well designed and properly conducted. There were several limitations. Five therapists giving PT sessions were part of the research team, potentially introducing intervention bias favoring the PT intervention. The lack of reporting about pain medication use makes it unclear whether the standard of care beyond the study interventions was equally utilized between the study groups. Neither patients nor treatment personnel were blinded leading to performance bias favoring the PT intervention. Patients in the PT group had more visits with a health care provider as compared to the GC group, potentially introducing exposure bias favoring the PT intervention.

Declarations:

Conflict of Interest: The authors declare that they do not have a conflict of interest.

TIPS FOR DISCUSSION OF RESULTS WITH PATIENTS

- Among patients with osteoarthritis of the knee, those who had PT had less pain and stiffness and better function after 1 year compared to those who had GC which are also referred to as “steroid shots.”
- PT patients had more total visits with either the doctor or therapist than GC patients during the study.
- Adverse events were minimal for either intervention.

AUTHORS

Corresponding Author: Christopher D. Jackson, MD; UTHSC Internal Medicine Residency, Memphis, TN, USA (e-mail: cjacks67@uthsc.edu).

References

1. **Deyle GD, Allen CS, Allison SC, Gill NW, Hando BR, Petersen EJ, Dusenberry DI, Rhon DI.** Physical Therapy versus Glucocorticoid Injection for Osteoarthritis of the Knee. *N Engl J Med.* 2020;382(15):1420-1429. doi: <https://doi.org/10.1056/NEJMoa1905877>.
2. **Kolasinski SL, Neogi T, Hochberg MC, et al.** 2019 American College of Rheumatology/Arthritis Foundation guideline for the management of osteoarthritis of the hand, hip, and knee. *Arthritis Care Res (Hoboken)* 2020;72:149-62.
3. **Matzkin EG, Curry EJ, Kong Q, Rogers MJ, Henry M, Smith EL.** Efficacy and treatment response of intra-articular corticosteroid injections in patients with symptomatic knee osteoarthritis. *J Am Acad Orthop Surg* 2017;25:703-14.
4. **Rocha TC, Ramos PDS, Dias AG, Martins EA.** The Effects of Physical Exercise on Pain Management in Patients with Knee Osteoarthritis: A Systematic Review with Metanalysis. *Rev Bras Ortop (Sao Paulo).* 2020 Oct;55(5):509-517. <https://doi.org/10.1055/s-0039-1696681>.

Publisher's Note: Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Written by the Evidence-Based Medicine Task Force

Camden S. Hastings, MD
Alana J. Schilthuis, MD
Christopher D. Jackson, MD



The Bottom Line summaries reflect the expertise and opinions of the SGIM EBM Task Force as of the date of release of this summary.

For additional information contact: Christopher D. Jackson, MD, cjacks67@uthsc.edu.