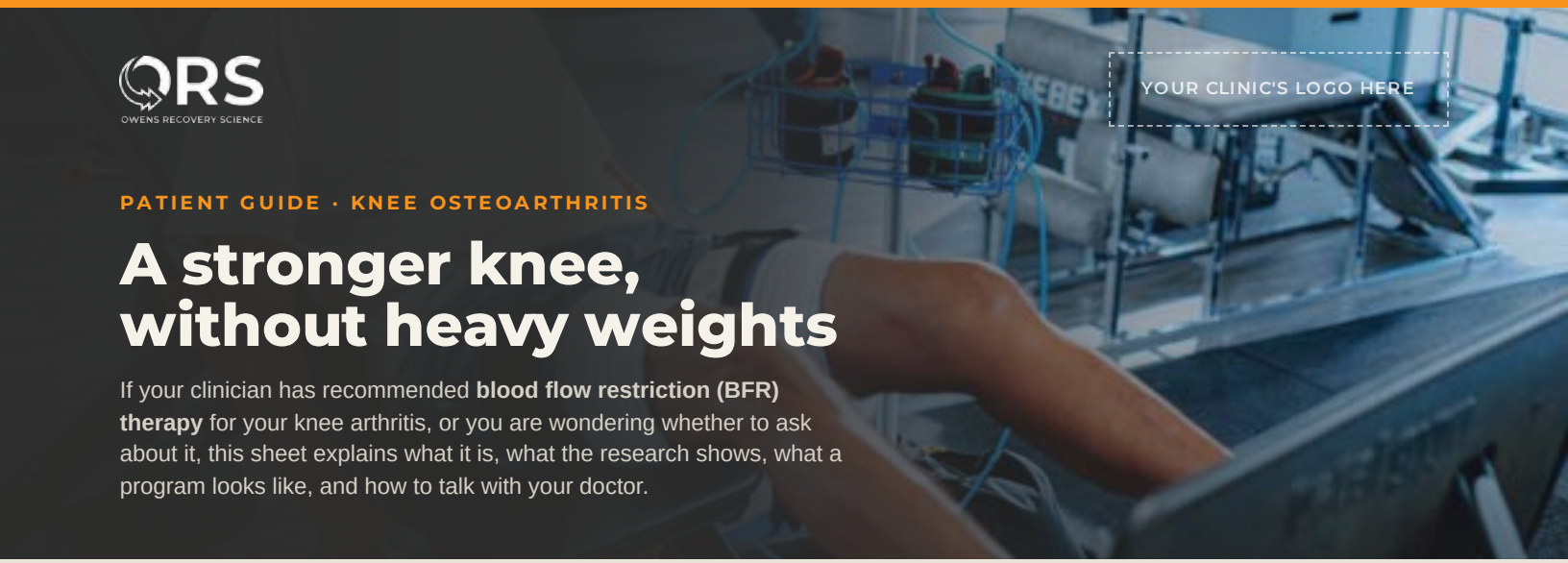


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PATIENT GUIDE · KNEE OSTEOARTHRITIS

A stronger knee, without heavy weights

If your clinician has recommended **blood flow restriction (BFR) therapy** for your knee arthritis, or you are wondering whether to ask about it, this sheet explains what it is, what the research shows, what a program looks like, and how to talk with your doctor.

1 Why a light weight with a cuff can do the job of a heavy one

Arthritic knees need a strong thigh muscle to protect the joint and reduce pain. Building it normally takes heavy weights, exactly what a painful knee won't allow. BFR solves that problem.

1

A cuff, set just for you

A specialized cuff goes around your upper thigh. The system measures your own blood flow and inflates to a personal pressure: enough to slow blood leaving the muscle, never to stop blood going in.

2

Light exercise, big signal

You do leg press and leg extension with very light weight, about a third of what you could lift once. With the cuff on, the muscle works as if the weight were heavy, without the heavy load on your joint.

3

Strength, less pain, more movement

Over 12 weeks the thigh gets measurably stronger, the knee hurts less, and most people find they can do more of what they want to do.

2 What the research showed

In the largest study to date, 120 people with knee arthritis at a university hospital in Belgium all did the same 12-week supervised exercise program. Half also used BFR on their leg exercises. One year later, compared with exercise alone, the BFR group had:

15

points less knee pain on a 0–100 scale, well past the amount doctors consider meaningful (10)

63%

fewer knee injections in the year after the program

1.5 hrs

more activity every week, on their own, a year after the program ended

0

extra dropouts. People stuck with BFR just as well as with regular exercise

Jacobs et al., Annals of the Rheumatic Diseases 2025 and British Journal of Sports Medicine 2025. A second trial in Denmark (Sørensen 2025) found the same pattern: larger gains in strength and everyday function than standard exercise. Results are group averages; your own results may differ.

3 What a program looks like

Weeks 1–2	Weeks 3–12	Week 6	Week 12	After
Getting used to the cuff. One exercise only.	Two sessions a week. Cuff on two leg exercises, plus your other exercises without it.	Don't expect to feel different yet. The study didn't either.	Stronger, less pain, better on stairs and chairs.	Keep moving. The gains grew after the program ended.

Each session is about 45 minutes. Your clinician measures your personal cuff pressure before you start.

4 What it feels like

A deep, tiring burn in the thigh during the set, like the last few reps of a hard workout, but with a light weight. It passes within a minute of the cuff coming off. Some people notice tingling or a little bruising under the cuff; both are normal and short-lived. In the studies, fewer people quit BFR because of knee pain than quit heavy-weight training.

5 Is it safe? Tell your clinician if...

BFR has been studied in tens of thousands of people, including older adults and people with arthritis. Side effects are usually minor. To keep it that way, your clinician will ask a few questions before you start. **Please tell them if you have, or have ever had:**

- A blood clot (DVT or pulmonary embolism), or a family history of clotting problems
- Unexplained calf pain or swelling, especially after a cast, boot or long travel
- Hormone medication, including birth control pills or hormone therapy
- Heart or blood-vessel disease, or high blood pressure
- Numbness, skin problems or an infection in the leg

None of these automatically rule you out. They help your clinician decide how to set up your program safely.

6 Questions to ask your physical therapist

- How do you measure my cuff pressure, and how often do you check it?
- What will we measure at the start so I can see my progress?
- What should I do on the days between sessions?
- What should I do if my knee is sore the next day?

7 Talking with your doctor or surgeon

If you're seeing an orthopaedic surgeon or your primary care doctor, they may not have heard about BFR for knee arthritis yet; the biggest studies were only published in 2025. Here is what to say and what to ask.

Something you can say

"I'd like to try a supervised exercise program with blood flow restriction before deciding on injections or surgery. There's a randomized trial from 2025 in the *Annals of the Rheumatic Diseases* and *BJSM* showing less pain and far fewer injections a year later. Would you refer me?"

Ask

"Is there any reason BFR wouldn't be safe for me? And can we hold off on the next injection until I've finished the 12-week program?"

Ask

"If I do decide on a knee replacement later, would getting stronger first help my recovery?"

Bring this sheet with you. The clinic listed below can send your doctor the studies and your progress measurements.

THE RESEARCH, AND THE PEOPLE BEHIND THIS GUIDE

This guide was written by **Owens Recovery Science (ORS)**, the team that pioneered BFR rehabilitation in the U.S. military and has trained more than 15,000 clinicians in personalized BFR. Every study on this sheet used a system that measures each person's own blood flow and sets a personal cuff pressure. The **Delfi Personalized Tourniquet System**, provided by ORS, is the most-researched of these, trusted by the Department of Defense, NASA, the U.S. Olympic & Paralympic Committee, all five major U.S. professional sports leagues, more than 150 universities, and healthcare systems large and small. To find a clinician trained in personalized BFR, or to learn more about certification, visit **owensrecoveryscience.com**.

141+ published studies using this system

15,000+ clinicians trained by ORS

5 major U.S. pro leagues

150+ universities

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This sheet is general education, not medical advice. Talk with your own clinician about whether BFR is right for you. Research figures are from Jacobs et al., Ann Rheum Dis 2025;84:341–350 and Br J Sports Med 2025;59:1481–1489, and represent group averages. *© 2026 Owens Recovery Science · owensrecoveryscience.com*