Photobiomodulation (PBM) for Hip Pain and Hip Replacements: Evidence and Protocols

What is Photobiomodulation?

Photobiomodulation (PBM) therapy uses specific wavelengths of red and near-infrared light to stimulate mitochondrial activity, enhance ATP production, reduce oxidative stress, and improve microcirculation. These mechanisms promote tissue repair, reduce inflammation, and alleviate pain. PBM is particularly effective for musculoskeletal pain, including hip pain due to arthritis, bursitis, or following hip replacement surgery.

Clinical Benefits for Hip Pain and Hip Replacement

- A 2022 systematic review demonstrated that PBM significantly reduces postoperative pain and inflammation following total hip arthroplasty. [Live link](https://pubmed.ncbi.nlm.nih.gov/35112365/)

- PBM improves range of motion and reduces reliance on analgesics in patients with chronic hip osteoarthritis. [Live link](https://pubmed.ncbi.nlm.nih.gov/33087992/)

- In a randomized controlled trial, PBM applied post-hip replacement improved gait speed and functional scores. [Live link](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8477649/)

Mechanistic Evidence

PBM downregulates inflammatory cytokines such as TNF-α and IL-6, while increasing anti-inflammatory cytokines like IL-10. This modulates the inflammatory cascade involved in hip joint degeneration and post-surgical trauma. Enhanced mitochondrial activity also supports tissue repair and regeneration in periarticular muscles and connective tissues.

Suggested Protocols: SPRB & GRPB

SPRB – Localized Hip Pain or Post-Surgical Site
- Apply to lateral or posterior hip joint area or along the surgical site
- 660 nm + 850 nm light (50:50 blend)
- 15 minutes per session, up to 2× in one sitting

- Repeat up to 3× daily for acute symptoms
- Long-term use: 3–5× per week for chronic pain
- Supports pain reduction, tissue healing, and reduced muscle guarding

GRPB – Broad Coverage for Hip and Pelvic Area
- Wrap or drape across both hip joints or pelvic region
- Use 660 nm (1/3) and 850 nm (2/3) wavelength ratio
- 30 minutes per session, up to 3× per day for symptom control
- Maintenance use: 3–5×/week
- Useful for bilateral hip pain, stiffness, or general recovery after replacement surgery

Monitoring & Safety Tips

- Apply to clean, dry skin
- Place device directly on skin for optimal absorption
- Monitor for overheating and allow cooling between sessions if needed
- PBM is safe, non-invasive, and drug-free, with no known adverse effects when used as directed

Conclusion

PBM offers a clinically supported, non-invasive approach to managing hip pain and accelerating recovery after hip replacement surgery. Using PBM Healing Wellness devices such as SPRB and GRPB consistently can reduce inflammation, enhance mobility, and support long-term joint health.

Disclaimer

The information provided in this document is for educational and informational purposes only. It is not intended as a substitute for professional medical advice, diagnosis, or

treatment. Individuals should always consult with a licensed physician or qualified healthcare provider before beginning any new therapy, including the use of photobiomodulation (PBM) devices.

PBM devices such as the SPRB and GPRB are wellness tools designed to support general health and well-being. They are not medical devices and are not intended to diagnose, treat, cure, or prevent any disease or medical condition. No medical claims are made or implied. Results may vary based on individual factors, and PBM should not be considered a replacement for appropriate medical care.