



Use of PBM for Gut Health

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QUESTION 1: Can Red Light Help Improve Gut Health?

Yes, growing evidence suggests red and near-infrared light (photobiomodulation, PBM) can positively impact gut health. Multiple studies have reported that PBM can modulate the gut microbiome, reduce inflammation, and support mucosal healing. This makes PBM a valuable adjunctive therapy for gastrointestinal conditions such as irritable bowel syndrome (IBS), inflammatory bowel disease (IBD), and other gut-related dysfunctions.

Key Clinical Studies & Reviews on PBM for Gut Health:

1. ***Photobiomics and Microbiome Modulation***

Red/NIR light was shown to alter gut microbial diversity in animal models. A 2019 study confirmed these effects, and human trials are beginning to replicate these findings. [PMC6859693](<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6859693/>)

2. ***Inflammation Modulation***

A 2025 study found that 635 nm red light reduced intestinal inflammation and cytokine activity in animal models of colitis. [ScienceDirect, 2025]

3. ***PBM and Gut-Brain Axis***

PBM has been shown to regulate neuroimmune responses related to gut health via the gut-brain axis (Biomedicines, 2023; MDPI).

4. ***Microbial Balance in Humans***

Recent human-focused research showed PBM increased beneficial bacteria such as Faecalibacterium and Akkermansia, while reducing inflammation. [Frontiers in Medicine, 2025]

QUESTION 2: What Mechanisms Are Involved?

PBM affects the gut through multiple biologically plausible pathways:

- Enhances mitochondrial function in epithelial cells
- Modulates inflammatory cytokines like IL-6 and TNF- α
- Boosts local circulation and tissue oxygenation

- Promotes healing of the intestinal lining
- Regulates immune response and gut-brain signaling

QUESTION 3: Will PBM Damage Cells or Tissues?

No. PBM is non-invasive and non-destructive when applied with correct parameters. Rather than destroying cells, PBM promotes:

- Increased ATP production
- Reduced oxidative stress
- Modulation of immune responses
- Enhanced cellular survival and regeneration

Only extremely high, inappropriate doses might induce oxidative stress. Safe therapeutic parameters (e.g., 3–6 J/cm²) do not harm tissue.

QUESTION 4: Why Use Red Light (vs Blue or Other Wavelengths)?

Red light (630–660 nm) and near-infrared light (800–850 nm) penetrate deep enough to reach abdominal tissues and mucosal surfaces. They have strong anti-inflammatory, circulatory, and mitochondrial effects. In contrast, blue light (400–500 nm) only penetrates 0.5–2 mm, making it more suitable for superficial applications such as skin infections.

Summary Table of PBM Benefits for Gut Health

Therapeutic Effect	Evidence
Gut microbiome modulation	Animal and early human trials show beneficial shifts in microbiota [PMC6859693]
Inflammation reduction	Red/NIR PBM lowers pro-inflammatory cytokines and oxidative stress [SciDirect, 2025]
IBD and IBS support	Mechanistic support in Crohn's/UC models [Biomedicines, 2023]
Mucosal healing	Red light supports mucosal repair in colitis models [SciDirect, 2020s]

QUESTION 5: What Is the Recommended Dosing with PBM Healing Devices?

PBM Healing devices, including the SPRB, GPRB, and Therapeutic Yoga Mat, are designed to deliver red (630–660 nm) and near-infrared (810–850 nm) light at safe and effective therapeutic levels for systemic benefits including gut health.

General Dosing Guidelines for Gut Health:

- Use duration: 15 minutes per session
- Frequency: 1–2 times per day
- Target areas: Abdomen (mid and lower regions), especially around the navel and lower digestive tract
- Distance from skin: Direct skin contact

Energy Density and Output (example range for PBM Healing devices):

- Average irradiance: 20–60 mW/cm²
- Session fluence: 18–72 J/cm² (depending on duration and device)
- LED placement: Ensure consistent contact and coverage across target gut area

The SPRB and GPRB are best for flexible placement on the abdominal wall, while the Yoga Mat offers systemic, full-body exposure. Consistency is key—benefits may accumulate over 2–6 weeks of regular use. Always follow manufacturer IFU and consult a clinician for individual protocols.

Disclaimer

This document is for educational and informational purposes only and is not intended as a substitute for professional medical advice, diagnosis, or treatment. PBM devices such as the SPRB, GPRB, and Therapeutic Yoga Mat are wellness tools that support general well-being. They are not medical devices and do not diagnose, treat, cure, or prevent any medical condition. Consult your healthcare provider before starting any new therapy.