

One of the challenges of a chronic pelvic pain condition like IC is that many of the available treatments—instillation, medication, injections, surgery—can cause additional physical and emotional pain before providing any relief. So when we hear about gentle, non-invasive options, we naturally want to know more.

The modalities described below—**low-level laser therapy (LLLT)**, **therapeutic ultrasound**, and **biofeedback**—have brought symptom relief to many people suffering from chronic pelvic pain conditions. For some, they were life-changing. Here's what we learned when we talked to practitioners who use these approaches, and a few patients who benefited from them.

# Non-Invasive Approaches to Treating Pelvic Pain

A growing number of options may bring **symptom relief**.

—By Cheri Smith

## Low-Level Laser Therapy

At a conference several years ago, physical therapist Isa Herrera, MSPT, CSCS, happened upon something that would change her approach to IC treatment. It was a low-level laser, a handheld device about the size of a flashlight that emits photon light without heat. Herrera had elbow pain from the repetitive motions of her work, so she tried it—and was stunned when she experienced immediate relief. So she bought the laser and began experimenting with it for her own pelvic pain. When it worked, she decided to see if it would help her patients with bladder pain.

“At first, I only used it on trigger points,” says Herrera, clinical director of Renew Physical Therapy in New York City, “and my patients were getting immediate relief.” Multiple trigger points within the pelvic area are associated with the bladder, causing urgency and frequency, as well as pain and spasms in the bladder or the muscles surrounding it. She began conducting clinical studies to determine the safest and most effective approach to treatment—where to put the laser and how to angle it, how long to use it, etc. Herrera’s pioneering work in LLLT for IC led her to develop a treatment protocol, “The Herrera LLLT Protocol for Female Pelvic Pain Conditions,” which she will release in May 2014.





Isa Herrera using the FDA-approved ML830 laser on a patient.

“There are **no injections, no surgery, no instillation.** And the aftermath is not like other therapies—it’s gentle.”

— Isa Herrera, MSPT, CSCS

Herrera likes that LLLT is non-invasive and non-pharmacological and that it helps the body heal from within. “There are no injections, no surgery, no instillation,” she says. “And the aftermath is not like other therapies—it’s gentle.”

Although LLLT—also called cold laser therapy—works well for many people, Herrera is quick to point out that it is not a magic bullet. “Because IC is so complicated, I don’t think anything will work in isolation,” she says. Herrera always combines LLLT with other physical therapy, such as myofascial release or pelvic floor work, and her patients may be undergoing other medical treatments as well.



Hina Sheth, MS, PT, OCS, MTC

Hina Sheth, MS, PT, OCS, MTC, practitioner and owner of Philadelphia-based Rebalance Physical Therapy, also uses LLLT as an adjunct treatment for IC and other pelvic pain conditions.

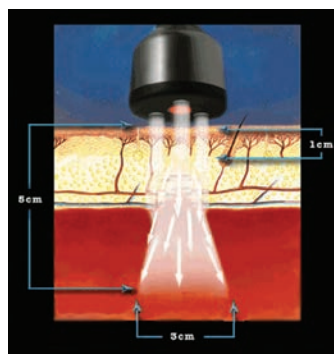
“In areas that are really stubborn, adding LLLT to physical therapy will help reduce tenderness and give quicker results,” she says.

Herrera and Sheth both use the FDA-approved ML830 laser. The wavelength of the light from the laser is 830 nanometers,

which is not easily absorbed into human tissue, so it can penetrate deeply—to about 2.5 inches. Importantly, this frequency of light does not generate heat.

“Research clearly points to the fact that the laser cannot produce heat,” Herrera says. “We’re dealing with very sensitive, delicate tissue. You must not use a laser that has heat because you don’t want to burn the tissue.”

Low-level lasers do not produce sound or vibration either. Instead, the light causes biostimulation at the cellular level. This idea isn’t new—although he didn’t know exactly how it



Instead of producing heat, low-level lasers cause biostimulation at the cellular level.

worked, even Hippocrates noticed the health benefits of light and advocated sunlight for healing.

Biostimulation is a chemical reaction, much like the effect of sunlight on plants, which causes cell components to become active. Sheth explains that LLLT affects the cell’s mitochondria, which are responsible for converting

oxygen and nutrients to energy. The light also increases blood circulation and brings more oxygen to cells, which helps reduce inflammation. And, studies show that LLLT aids in wound healing, which has several implications for IC.

“All of this creates an analgesic [pain-relieving] response,” Sheth says. She’s found LLLT especially helpful in reducing soreness in the places where muscles attach to bone, such as the spots where the abdominals or adductors connect to the pubic bone.

One patient whose weekly sessions with Sheth include LLLT says that the laser has greatly helped reduce her vulvodynia pain. About 4 years ago, Debbie suddenly began having vulvar pain that she eventually learned was linked to the hardening of a 30-year-old episiotomy scar. She was prescribed various antidepressants and spent a lot of time sitting on ice packs, but couldn’t get relief. She was finally referred to Sheth, who began manual therapy to stretch and soften the scar tissue. When Sheth added LLLT to her treatment, Debbie noticed even more improvement. “I’m about 90 percent healed now,” she says. “I feel so much better.”

LLLT is given over the course of one to 12 physical therapy sessions, for 5 to 10 minutes each time. Most people, like Debbie, feel nothing during treatment; some report a warm

## What You Should Know Before Trying LLLT

- The laser must be a low-level laser—it must not generate heat. Herrera recommends the ML830 laser.
- The practitioner should:
  - Offer informed consent.
  - Explain the benefits and risks.
  - Explain the reason for using it.
  - Tell you how many times they've used LLLT.
  - Tell you when you should see a difference from treatment.
  - Tell you what to expect after treatment.
- You should do your own research on LLLT so that you are prepared and know what to expect.

Source: Isa Herrera, *Renew Physical Therapy*

or tingly feeling. Relief can come immediately, or it may take several sessions. LLLT has no official side effects, but there might be some discomfort a day or so afterward from the accelerated healing process—like soreness after a workout while your muscles heal, says Herrera.

## Therapeutic Ultrasound

Most people are familiar with diagnostic ultrasound, which bounces sound waves off of internal structures to show a picture of the area of interest. Therapeutic ultrasound directs low-frequency, low-intensity sound waves toward the source of pain.

“Its main effect on tissues is through warmth, but not like putting a heat lamp on them,” explains David Wiseman, BSc, PhD, MRPharmS. “Ultrasound penetrates tissue, and we think one of the ways it works is by warming tissue just enough to cause blood vessels to dilate and deliver more blood and oxygen to affected tissues.” This in turn reduces spasms of the pelvic floor muscles, which we now know is a key component of many types of pelvic pain, including IC.

A portable therapeutic ultrasound device called PainShield MD has been made available to the public primarily through the efforts of Wiseman, whose research showed its benefits in the treatment of chronic pelvic pain. Wiseman, who founded the International Adhesions Society, has spent 25 years

researching adhesions and pelvic pain and working with patients suffering from them. His study of the device's effect on chronic pelvic pain, reported last year, showed that after using it for 17 months, 15 of 16 women experienced relief from severe and persistent chronic pelvic, bladder, genital, bowel, and musculoskeletal pain.

Among the results were significant reductions in bladder pain when urinating, as well as fewer occurrences of painful urination, especially at night. The women also said they needed less pain medication, slept better, and had a better quality of life.

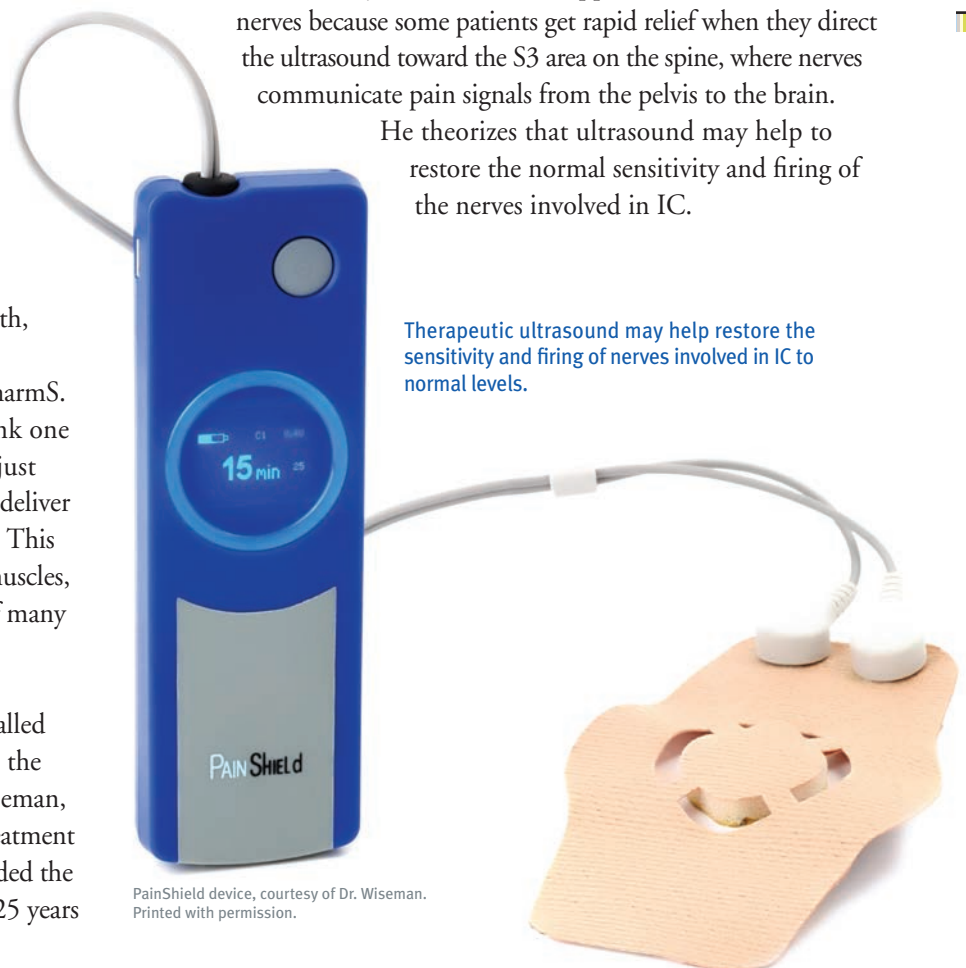
Impressed with the results and eager to make the treatment available to more people, Wiseman created a company called KevMed to bring PainShield MD to the market. (In 2008, NanoVibronix, the company that manufactures the device, received FDA clearance to market it for pain relief.)

“Treatment options are pretty slim for IC,” Wiseman says, noting that PainShield MD is another non-invasive option for treatment: “It doesn't require surgery or medication, is easy to use, and if it doesn't work, you just take it off,” he says. “As far as we know, there are no long-term consequences.”

Wiseman says ultrasound also appears to have an effect on nerves because some patients get rapid relief when they direct the ultrasound toward the S3 area on the spine, where nerves communicate pain signals from the pelvis to the brain.

He theorizes that ultrasound may help to restore the normal sensitivity and firing of the nerves involved in IC.

Therapeutic ultrasound may help restore the sensitivity and firing of nerves involved in IC to normal levels.



PainShield device, courtesy of Dr. Wiseman. Printed with permission.

How quickly patients respond and how long the effects last vary. Some people have immediate relief, while it's more gradual in others; likewise, one person may need daily treatment and another weekly. To figure out how to get the most from the device, Wiseman says, "you need to play with it to see what works. Use it at different times of day, put it over different areas on the body, and try wearing it while driving, walking around, and sleeping."

Wiseman describes the experience of a patient who had severe IC flare-ups every few months. Before using PainShield MD, the pain would nearly immobilize her for a couple of weeks, and she'd have to get to the doctor for tests and drugs. "Now when she feels it starting, she puts the pad over S3," says Wiseman, "and within 30 minutes, she feels like a fire has been extinguished."

“For many IC patients, **pain** is linked to **tense muscles**, although we don't know whether the **pain causes the tension**, or vice versa.” — Amy Stein, DPT, BCB-PMD

Lynne had a similar experience. A few months ago, her IC pain was at its worst. "It was like someone had taken my bladder out, scrubbed it with coarse sandpaper, and stuck it back in," she says.

She wasn't sleeping or eating and was afraid she might try to hurt herself to escape the pain. While looking for solutions online, she came across information about PainShield MD. She talked to Wiseman and decided to give it a try. She responded almost immediately.

"I put it on, and it kind of hurt—but in a different way—and then it just worked," she says. "Within five minutes, I had relief." Now she feels waves of warmth when she wears it, but no discomfort.

Without treatment, Lynne's pain is severe, so she wears PainShield MD all the time, taking it off only when the device needs recharging. She still has some pain, but it's bearable now. "I feel like I have a life again," she says.

Elizabeth echoes that sentiment, describing her experience with PainShield MD as being "set free to live." For more than 30 years, she has suffered from chronic pelvic pain and bowel problems related to pelvic adhesions. A few years ago her situation was so desperate that she was in hospice

care for failure to thrive. Fortunately she regained her will to live; she then decided to have her colon removed. But she continued to suffer, and worried that the colectomy had been a mistake.

Wiseman heard about her and asked if she'd like to be part of his PainShield MD pilot study. "It has totally changed my life," Elizabeth says. Her bladder pain is gone, and she has enough relief from the adhesion and intestinal pain to be able to function.

Elizabeth is among those whose pain decreases gradually when using PainShield MD. "It takes about a week to work at full capacity for me," she says. The relief then lasts for several days at a time.

The device consists of a power source that's about the size of a TV remote, connected by cable to a bandage-size adhesive patch containing the 3 cm ultrasound transducer disc. It's small enough and light enough (3 ounces) that you can hide it beneath your clothes and move around while you wear it. To use it, you put the patch over the area to be treated and turn it on. It works in cycles of 30 minutes on, 30 minutes off, for up to 6.5 hours at a time before needing a two-hour recharge. PainShield MD costs \$875, and is only available by prescription in the U.S.; most other countries do not require a prescription.

## Biofeedback

If you've ever stepped on the scale, seen the numbers, and immediately changed how you eat, you've experienced a type of biofeedback. Put very simply, it's a method of creating awareness of your body and providing information about what happens when you change something you're doing.

During physical therapy for pelvic pain, biofeedback is a tool to teach people to become aware of their pelvic floor muscles and regain control over them to manage symptoms. Problems with these muscles, whether they are too weak or too tight, are linked to bladder and pelvic pain, as well as urinary urge, frequency, and leakage. Through biofeedback, you can see what your muscles are doing when you have symptoms—whether weakness or over-activity is contributing to your problems. Then you can use biofeedback to learn how to strengthen or relax the muscles to get relief.

"For many IC patients, pain is linked to tense muscles, although we don't know whether the pain causes the tension, or vice versa," says Amy Stein, DPT, BCB-PMD, practitioner and founder of Beyond Basics Physical Therapy in New York



Amy Stein, DPT, BCB-PMD

City. She first teaches patients deep breathing techniques for muscle relaxation, then uses biofeedback to show how breathing affects muscle tension and what a relaxed muscle feels like.

Helen receives biofeedback during physical therapy sessions for pelvic floor dysfunction.

To get relief from chronic constipation, hemorrhoids, pain and spasms with urination, urinary frequency, and vaginal pain, she's tried almost everything, including diet changes, antibiotics, acupuncture, probiotics, special soaps, and vitamin B injections.

Helen's daily physical therapy sessions with Stein include massage and myofascial release, and she does two rounds of stretching and relaxation exercises at home every day. Biofeedback gave her additional insight on her breathing, she says.


"I realized that what I thought was correct breathing was not relaxing my muscles enough," says Helen. "By trying different techniques and positions and looking at the biofeedback screen to see which one of them relaxes my pelvic floor the most, I finally understand what I should do and how I should breathe during the massages and while I'm doing my stretches and exercises."

Like other non-invasive treatments, biofeedback does not hurt. Electrodes placed on the body detect muscle activity and transmit that information to a monitor so you can see what the muscle is doing during symptoms, activity, or rest, as well as how it responds when you try to control it. It's a good teaching tool because you can see onscreen how your actions affect the muscle, and learn what it feels like when you make the muscle work the way you want it to.

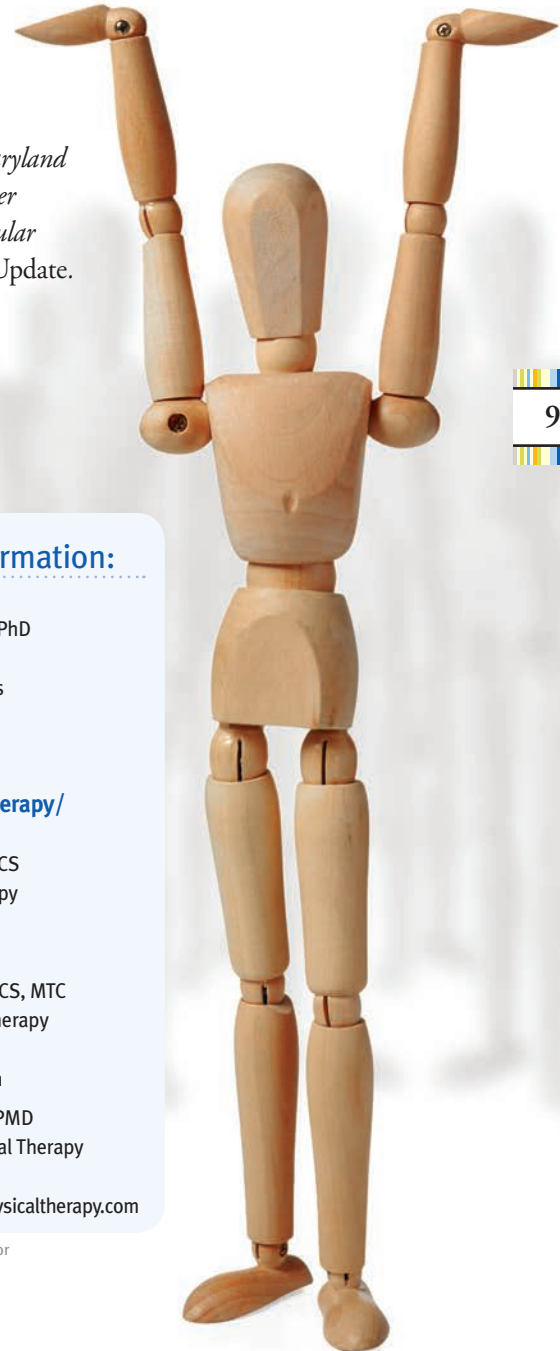
As with most treatments, the time it takes for biofeedback to help depends on the individual. Stein stresses that the important thing is to incorporate what you learn during treatment into daily life. "Every hour you need to do breathing exercises and practice pelvic floor relaxation, so that you can use it when you have symptoms," she says. "It's a lot in the beginning, but it's important because it might take a while to figure out how to use the muscles properly."

For patients who want to do biofeedback at home, there are companies that rent or sell biofeedback products; an online

search comes up with several options. Stein supports this approach, but stresses the importance of working with a physical therapist at first to learn how to use the equipment and the proper techniques for muscle work.

For those who are interested in self-care options, Stein has created a home-based instructional video for pelvic and abdominal pain relief. It provides information about pelvic floor dysfunction and teaches relaxation breathing, self-massage, stretching exercises, basic nutrition, and behavioral modifications to promote healing. *Healing Pelvic and Abdominal Pain: The Ultimate Home Program for Patients and Guide for Practitioners*, will be available this spring. 

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### For More Information:

#### **PainShield MD**

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#### **Low Light Laser Therapy/ Biofeedback**

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