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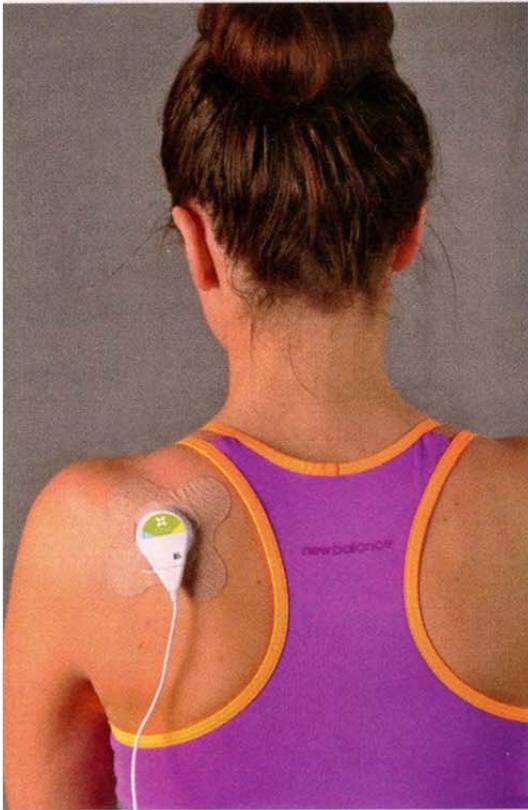
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Treating pain with ultrasound



ALTHOUGH ULTRASOUND is usually associated with baby images, it has been used for more than 60 years to treat injuries. George K. Lewis capitalized on the idea by creating a wearable device that would enable athletes to treat their own injuries with ultrasound, without having to go to a clinic. Ultrasound works by moving high-frequency sound waves through tissue, increasing circulation and driving nutrients to that tissue, says Lewis. Those sound waves move with compression and expansion, similar to a Slinky, which gives the cells something akin to a gentle massage. “That makes them proliferate and populate the area that’s been injured,” he says.

Lewis began working on the ultrasound device with Bryant Guffey, another Cornell student, and JoAnne Guarino, an entrepreneur with a background in technology and healthcare. The three founded ZetrOZ (Zetroz.com) in 2008. The company’s first product was an ultrasound device for horses—the UltrOZ. It was quicker to get into the market because it didn’t need FDA approval and helped prove the technology worked.

ZetrOZ launched its first product for people—the iPod-size Sam (which stands for “sustained acoustic medicine”)—in March at Tri-Mania Boston. It’s the first wearable ultrasound device for humans on the market, and Lewis says it’s so novel that the FDA had to create a new product code for it. Sam retails for \$799,

comes with a rechargeable battery (and charger) and runs for about eight hours on a full charge.

Users attach Sam with a patch that delivers the ultrasound to a problem area before and after exertion. The area gets warm as the device increases circulation to the tissue, and becomes less painful as the ultrasound decreases swelling and inflammation. Sam is especially useful for injuries to tendons, ligaments and cartilage, which have very few or no direct blood vessels, says Lewis. Patients who participated in a recent study using Sam on shoulder tendonitis, in which they wore the device for three to four hours a day for two weeks, reported a 30 percent reduction in pain, says Lewis. Even if you aren’t injured, he says, applying Sam to sore muscles after training or racing helps muscle tissue recover. “If you build up a lot of lactic acid in muscles, it’ll push that out faster than your body normally can.”

Sarah Crane, a personal trainer and triathlete in Nashua, N.H., got a prescription for Sam from her sports medicine physician to help heal a partial hamstring tear. She had undergone very painful PRP treatment and intensive therapy for more than four months, but could still barely walk her dog. Crane began using Sam in March and by her third day with it, says she saw a huge reduction in pain. “Six days into it I was going up and down stairs with no pain—the first time in a year,” she says. “It’s changed my life.”

— EILENE ZIMMERMAN