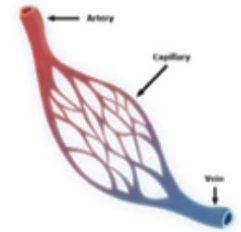
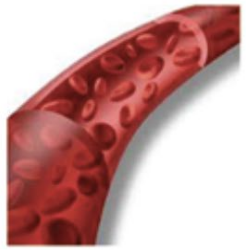
CLINICAL BENEFITS OF ULTRASOUND THERAPY





Mechanisms of Actions "Mechanobiological Device"

Sustained Acoustic Medicine is proven to "supercharge" the bodies natural healing process. We all heal naturally, but it can be slow due to poor underlying circumstances . . .

- **It amplifies our bodies healing process by:**
  - Increasing Collagen Laydown
  - Building new capillaries
  - Cytokine Enzyme and Cellular waste Removal
  - Increased Oxygenated Hemoglobin in Tissue
  - Increased Blood-flow (multi-hour)

. . . Accelerated Tissue Healing also = Significant Pain Reduction!

CLINICAL STUDIES

LEVEL 1:

1. Patterson et al 2020: Low-Intensity Continous Ultrasound for the Symptomatic Treatment of Upper Shoulder and Neck Pain: A Randomized, Double-Blind Placebo-Controlled Clinical Trial. Journal of Pain Research 2020:13 1277-1287
2. Draper et al 2018 "Effect of low-intensity long-duration ultrasound on the symptomatic relief of knee 1 osteoarthritis: a randomized, placebo-controlled double-blind study" Journal of Orthopedic Surgery 2018;13:257.
3. Daniels et al 2018 "The Effects of Low-Intensity Therapeutic Ultrasound on Measurable Outcomes: A Critically Appraised Topic" Journal of Sport Rehabilitation, 2018, 27, 390-395
4. Mattern et al 2017 "The Effect of Low Intensity Wearable Ultrasound on Blood Lactate and Muscle Performance after High Intensity Resistance Exercise" JEP Online August 2017 Vol 20 No 4
5. Draper et al 2016 "Low Intensity Ultrasound or Promoting Soft Tissue Healing: A Systematic Review of the Literature and Medical Technology" Intern Rev (Wash DC)

" sam® has clearly changed the way we are able to accelerate return to function."

– Dr. David Draper, DEd, AT
Professor of Education, Brigham Young University, Provo, UT

" sam® is clinically proven to reduce pain and restore function in patients with osteoarthritis."

– Dr. Thomas Best, MD, PHD
Professor of Medicine, University of Miami, Miami, FL

- Langer et al. 2014: "Patients, on average, reported a **52% reduction** in the pain score from baseline with no adverse effects and **95% satisfaction** of treatment".
- "These studies demonstrate the efficacy of SAM therapy as standalone or adjunctive therapy for the upper back, neck, shoulder, knee, and soft tissue pain reduction along with improved patient mobility, functionality, and return to regular day-to-day life after an injury."

SAM PRO 2.0

long duration treatment
Choose between 1-4 hours of acute ultrasonic treatment.

power indicator
Know when your device is actively providing treatment and when each session is complete.

sam® applicator
Snap securely to patch for direct contact to gel. Releases easily for cleanup.

FDA CLEARED

sam® patch
Single use ultrasound coupling patch w/"gel capture technology" for ideal connection for treatment.

power supply
Lithium-ion battery supply provides applicators with uninterrupted treatments up to four continuous hours of therapy. One-touch on/off.

CAUTION: This is a **Class II Medical Device** and federal law restricts this to sale by or on the order of a licensed health care professional.

The latest medical innovation in mechanobiology to accelerate soft-tissue repair, sam® 2.0 delivers sustained acoustic medicine in a convenient and wearable device approved for prescription home use.

Developed and clinically PROVEN with research studies supported by the National Institutes of Health and United States Department of Defense . sam® 2.0 is the first medical device of its kind to offer single touch control, autonomous-treatment, rapid charge, enhanced coupling patches and rugged housing.

PROFESSIONAL TEAMS

COLLEGIATE TEAMS

SAM PRO 2.0 – Additional Clinical Studies

CLINICAL LEVEL 1A EVIDENCE

1. Winkler et al. 2021 "Sustained acoustic medicine for the treatment of musculoskeletal injuries: a systematic review and meta-analysis." BMC Sports Science, Medicine and Rehabilitation (2021)
2. Uddin et al. 2021 "Low-Intensity Continuous Ultrasound Therapies—A Systemic Review of Current State-of-the-Art and Futur Perspectives." Journal of Clinical Medicine (2021).
3. Best et al. 2020 "Sustained acoustic medicine as a nonsurgical and non-opioid knee osteoarthritis treatment option: a healtl economic cost effectiveness analysis for symptom management." Journal of Orthopaedic Surgery and Research (2020)
4. Daniels et al. 2018 "The Effects of Low-Intensity Therapeutic Ultrasound on Measurable Outcomes: A Critically Appraised Topic." Journal of Sport Rehabilitation. (2018)
5. Best et al. 2016 "Low Intensity Ultrasound for Promoting Soft Tissue Healing: A Systematic Review of the Literature and Medical Technology." Intern Med Rev (Wash D C)

CLINICAL LEVEL 1B EVIDENCE

1. Jarit et al. 2023 "Long Duration Sonophoresis of Diclofenac to Augment Rehabilitation of Common Musculoskeletal Injuries Glob J Ortho Res. 4(2): 2023.
2. Krystofiak et al 2023 "Long Duration Ultrasound Combined with Platelet-Rich Plasma Injection for Return to Sport after Soft Tissue Injury". Orthop Muscular Syst.
3. Patterson et al. 2020 "Low-Intensity Continuous Ultrasound for the Symptomatic Treatment of Upper Shoulder and Neck Pain: A Randomized, Double-Blind Placebo-Controlled Clinical Trial." J. Pain Reas. 2020
4. Draper et al. 2018 "Effect of low-intensity long-duration ultrasound on the symptomatic relief of knee osteoarthritis: a randomized, placebo-controlled double-blind study." J. Orth. Surg. Reas. 2018
5. Mattern et al 2017 "The Effect of Low Intensity Wearable Ultrasound on Blood Lactate and Muscle Performance after High Intensity Resistance Exercise" JEP Online August 2017 Vol 20 No
6. Langer et al. 2015 "Sustained acoustic medicine provides pain relief for osteoarthritis of the knee." Physiotherapy, 101, e864
7. Rigby et al 2015 "Intramuscular Heating Characteristics of Multihour Low-Intensity Therapeutic Ultrasound" Journal of Athletic Training 2015
8. Lewis et al. 2013 "Design and evaluation of a wearable self-applied therapeutic ultrasound device for chronic myofascial pain." Ultrasound Med Biol. 2013.

CLINICAL LEVEL 4 EVIDENCE

1. Walters et al. 2022 "Evaluation of Sustained Acoustic Medicine for Treating Musculoskeletal Injuries in Military and Sports Medicine." Open Orthop J (2022)
2. Draper et al. 2021 "Critical survey and panel review of sustained acoustic medicine in the treatment of sports-related musculoskeletal injuries by professional sports athletic trainers." Current Orthopaedic Practice 32.2 (2021)
3. Madzia, et al. 2020 "Sustained Acoustic Medicine Combined with A Diclofenac Ultrasound Coupling Patch for the Rapid Symptomatic Relief of Knee Osteoarthritis: Multi-Site Clinical Efficacy Study." The open orthopaedics journal 14 (2020)
4. Draper et al. 2020 "Efficacy of Sustained Acoustic Medicine as an Add-on to Traditional Therapy in Treating Sport-related Injuries." Glob J Orthop Res.(2020)
5. Masterson et al. 2020 "Sustained acoustic medicine; sonophoresis for nonsteroidal anti-inflammatory drug delivery in arthritis." Ther Deliv. (2020)
6. Langer et al. 2017. "Skin temperature increase mediated by wearable, long duration, low-intensity therapeutic ultrasound." AIP Conference Proceedings. Vol. 1821. No. 1. AIP Publishing LLC, (2017).
7. Best et al. 2015 "Sustained acoustic medicine: wearable, long duration ultrasonic therapy for the treatment of tendinopathy." The Physician and Sports medicine (2015)
8. Langer et al. 2014 "Pilot Clinical Studies of Long Duration, Low Intensity Therapeutic Ultrasound for Osteoarthritis." Proc IEEE Annu Northeast Bioeng Conf. (2014)
9. Taggart et al. 2014 "Human Factors Engineering and Testing for a Wearable, Long Duration Ultrasound System Self-Applied by an End User." Conf Proc IEEE Eng Med Biol Soc. (2014)
10. Lewis et al. 2013 "Wearable long duration ultrasound therapy pilot study in rotator cuff tendinopathy." Proc Meeting of Acous. (2013)

CLINICAL LEVEL 5 EVIDENCE & DOCUMENTS

1. Draper 2020 "Therapeutic ultrasound: myths and truths for non-portable in-clinic and portable home use ultrasound." MOJ Sports Med . 2020
2. Draper 2019 "The Benefits of Long Duration Ultrasound" J. Sci and Tech. Res.
3. 2018 NIH News article on sam® for knee arthritis pain
4. Lewis et al. 2016 "sam® Sport for the Non-Surgical Soft-Tissue Treatment of Athletes"
5. Lewis et al. 2015 "Review of sam® literature supporting efficacy"
6. Langer et al. 2015 "Sustained Acoustic Medicine A Novel Long Duration Approach" Proc SPIE 2015
7. Langer et al. 2013 "Long duration low intensity ultrasound increases NSAID delivery over four hours" Poc ACOUS 2013