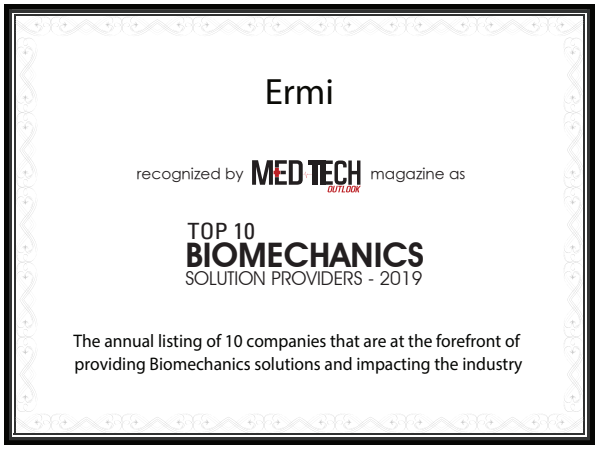
BIOMECHANICS EDITION

MEDICALTECHOUTLOOK.COM

MED TECH OUTLOOK

DECEMBER - 06 - 2019



COMPANY:

Ermi

WEBSITE:

ermi-motion.com

KEY PERSON:

Dr. Thomas Branch MD
CEO
Dr. Shaun Stinton
Director of R&D

DESCRIPTION:

ERMI is an orthopedic biomechanics company, which empowers patients with self-recovery through its cutting-edge medical devices that help in treating severe motion loss

TOP 10 BIOMECHANICS SOLUTION PROVIDERS - 2019

The advancement of biomechanics is leading the medical industry through the next stage of orthopedics evolution. It has revolutionized the understanding of body mechanics, ranging from limb movement to the mechanical properties of tissues and bones. The integration of engineering techniques with biological sciences has paved the way for modeling robust body implants.

The incorporation of biomechanics in the orthopedics sector has empowered the design and development of effective biomaterials. Today, several companies in the biomechanics sector have taken up the beacon to keep the discipline moving forward and strengthen its impact on future generations.

Inspired by the innovative technological trends revolutionizing the medical industry, MedTech Outlook has compiled a list of 'Top 10 Biomechanics Solution Providers' to showcase the leading developments in the sector. In this edition, we have featured BioPoly, a provider committed to its goal of assisting patients through robust implant solutions designed for the treatment of severe cartilage defects. Another feature, Sensor Medica, specializes in the study, design, and development of high-tech products and software aimed at research, medical, and sports markets. PT Genie is featured for its contributions to the orthopedics sector, including injury-specific rehabilitation protocols to enhance patient outcomes. This edition also includes ERMI, a biomechanics company on its mission to help severe motion loss patients and improve their lives.

Equipped with powerful and proven technological capabilities, the solution providers are set to bring revolutionary transformation into the industry. The purpose of this MedTech Outlook edition is to assist you in building productive partnerships and enhancing your capabilities in restoring the normal functions of your patients. We hope it will spur innovation and growth in your organizations.

We present to you MedTech Outlook's, "Top 10 Biomechanics Solution Providers – 2019."

Ermi

Non-Operative Treatment for Severe Motion Loss

The chronicle of Ermi dates back to 1992 when Dr. Thomas Branch, a renowned orthopedic surgeon and research scientist, was the chief orthopedic surgeon at the Atlanta Veterans Affairs Medical Center. During his tenure, he observed the struggle and pain that patients suffering from lack of mobility underwent in terms of expensive revision surgeries and prolonged therapies that normally followed joint damage due to injury or surgery.

Furthermore, he also noticed how stressful it was for patients and physicians when the severe motion loss patient had to stay at the VA Medical Center for months at a time for treatment. Ermi—an orthopedic biomechanics company focused on improving end range of motion—was the realization of Dr. Branch's vision to alleviate the recovery burden on patients, the responsibility burden on physicians, and cost burden on payors. Ermi has brought about a transformation in motion restoration with its revolutionary Flexionater™ and Extensionater™ platforms that empower patients with self-recovery to regain full range of motion in the knee, shoulder, elbow, ankle, and big toe in the comfort of their home.

"The goal of our company is to rescue patients dealing with severe motion loss to be free to move again, free to live again," explains Dr. Branch, CEO of Ermi. "Severe motion loss in the joint results in subsequent loss of function, which makes it challenging to regain motion after surgery or an injury," elaborates Dr. Branch. He explains that motion disability occurs due to scar tissue produced in response to injury or surgery that damages the vascular endothelium in and around the joint. Scar tissue is viscoelastic, wherein its properties are based on its strain rate. The faster it is pulled, the more brittle is the tissue, while a slower pull makes it more stretchable. "The fact is that revision surgery, or vigorous physical therapy can overstress a joint, resulting in the tearing of the tissue. Here, the objective is to apply the right amount of stress allowing the tissue to stretch, but not tear. This is precisely what Ermi's high success rate technology emulates in a concept similar to stretching silly putty," elaborates Branch. "Patients know where the threshold between tearing and stretching is for their body resulting in the ability to self-apply the appropriate amount of pressure."


Dr. Thomas Branch

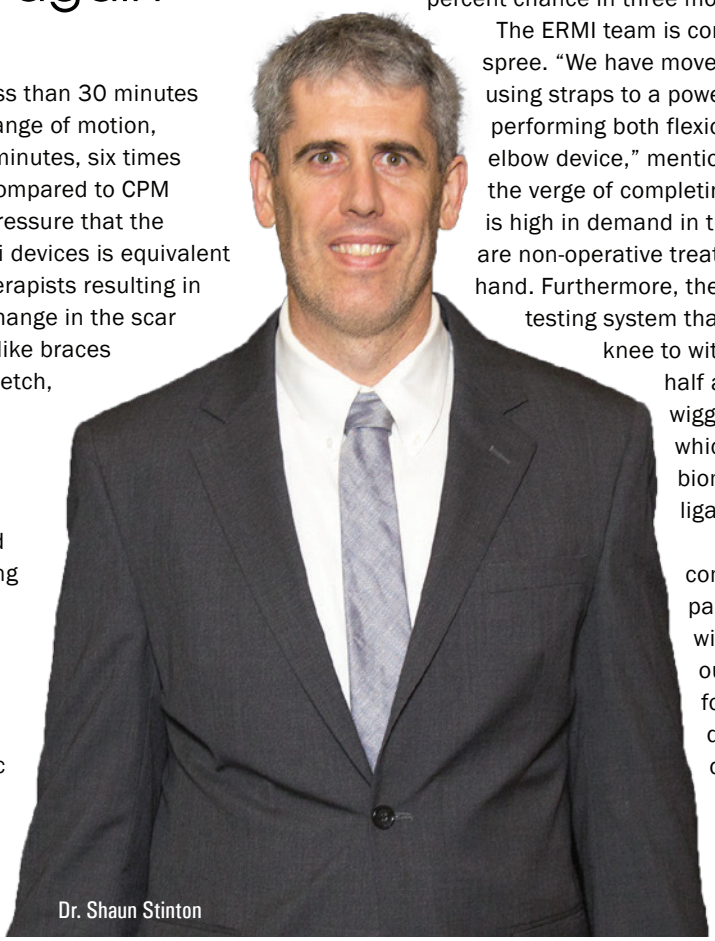
As opposed to conventional Continuous Passive Motion (CPM) machines or other motorized range of motion devices, where neither physician nor patient is sure of the safety factor, Ermi's portable devices are designed to impart fine control and be extremely smooth and continuous on patients with an utmost focus on patient safety. Ermi's standard of care offers patients numerous advantages like cost-effectiveness, elimination of risk and pain alongside avoiding potential complications, reduced recovery time, and eliminating procedure limitations of surgeries. To date, the company holds a record of zero complications related to using the device for over 100,000 patients, together with a splendid success rate of over 90 percent.

What sets Ermi ahead of the curve is its patient-centric and time-efficient technology-based devices that are simple to use. As opposed to CPM machines, where the patient has to

> “The goal of our company is to rescue patients dealing with severe motion loss to be free to move again, free to live again

use it for six hours, with less than 30 minutes of time spent on the end range of motion, with Ermi, only five or ten minutes, six times a day is sufficient. When compared to CPM or stretching braces, the pressure that the patient can apply with Ermi devices is equivalent to that of most physical therapists resulting in a greater opportunity for change in the scar tissue around the joint. Unlike braces using static progressive stretch, Ermi devices apply loads on areas of the body used to pressure, i.e. the palm, torso and plantar foot, and allow for instant, controlled pressure release eliminating the “claustrophobia” of contained straps and bracing.

The sophisticated Ermi devices are based on a patient-controlled hydraulic mechanism that facilitates fine control, continuous and smooth operation, and the application of the right amount of pressure.


Dr. Shaun Stinton

“Our Flexionater devices’ hydraulic mechanism has a lever for patients to pump, which consequently moves a hydraulic cylinder. One full pump of the lever causes little movement of the cylinder, thereby facilitating fine control and enhancing patient comfort,” explains Shaun Stinton, Director of R&D, Ermi.

Adding another feather to its cap is Ermi’s prediction model, developed by leveraging more than ten years of patient data. “Based on the patient’s lost range of motion, the model gives the percentage chance of the attainable degree of improvement. For instance, if a patient has less than sixty degrees of knee flexion prior to starting the Ermi program, the model predicts that patient would have a 57.6 percent chance of reaching over 90 degrees in one month, 83.3 percent chance in two months, or 95.3 percent chance in three months,” explains Stinton.

The ERMI team is continuing on its innovation spree. “We have moved from stretching devices using straps to a powerful exoskeleton system performing both flexion and extension for our elbow device,” mentions Dr. Branch. Ermi is on the verge of completing an ankle system that is high in demand in the U.S. Also in the cards are non-operative treatments for the wrist and hand. Furthermore, they also have a robotic knee testing system that helps in evaluating the knee to within half a millimeter and half a degree for characterizing wiggle between the bones, which gives an idea of the biomechanical changes due to ligament injury.

“Our body of evidence comprises 12 peer-reviewed papers and over 20 patents with the recent addition of our elbow device. Our future focus is to enhance existing devices and develop new devices and reach out to more and different types of patients to ultimately become the global standard of care,” Stinton concludes.