# Motion Change the Equation

Forces. Biomechanics. Function.

Breakthrough Suspension Biomechanics® engineered to move patients.



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## Tame the effects of foot and ankle breakdown

Foot and ankle pathology is on the rise. Fusions increased from 8.2 to 20.2 cases per 100,000 people between 1994 and 2006<sup>\*</sup>.

Movement keeps the human body healthy. But how can we stay active when musculoskeletal breakdown of the foot and ankle increases pain and compensation of pathomechanics?

Whether the foot and ankle pathology is acute, chronic, post-operative, or non-operative, SubioMed will make the gait more natural with less pain and compensation.

This isn't a traditional shoe insert. It's a literal life changer.

\* Best MJ, Buller LT, Miranda A. National Trends in Foot and Ankle Arthrodesis: 17-Year Analysis of the National Survey of Ambulatory Surgery and National Hospital Discharge Survey. J Foot Ankle Surg. 2015 Nov-Dec;54(6):1037-41.



### Improving lives. One step at a time.

There are many effects of the SubioMed insole on knee and ankle kinematics/kinetics which are statistically significant as well as generally consistent across even this small number of patients.

Ground reaction force and kinetic data suggests a role of the insole for energy storage during weight acceptance and return at push off during gait."

#### **PRINCIPAL INVESTIGATOR**

Biomechanics lab pilot study on post-ankle fusion patients. Manuscript submission to peer review academic journal in June 2022

I'm impressed. The energy return is there and makes walking so much smoother.

#### **DENNIS JANISSE, C. PED.** Clinical Assistant Professor, Medical College of Wisconsin

# Shifting the curve to a new normal.



United Nations (2015). World Population Prospects: The 2015 Revision.

### **Dynamic Energy Management**

SubioMed features carbon-fiber engineering designed to use Ground Reaction Force during sagittal and frontal plane motion of stance phase. In other words, it just changed the recovery and prognosis game for good.

During each rocker of stance phase, segmental springs capture and manage kinetic energy, then sequentially deliver it to the next phase. Energy management and improved biomechanics through the entire gait cycle.



#### HINDFOOT SPRING — DECELERATION & ENERGY ABSORPTION

At heel strike, shock attenuation, GRF capture, and energy transfer into midstance.



#### MIDFOOT SPRING — DECELERATION & ENERGY ABSORPTION

Received energy creates an inverted leaf spring to support the arch and midtarsal joints.

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#### FOREFOOT SPRINGS — ENERGY RETURN AND PROPULSIVE ASSIST

At forefoot loading, top spring supports the metatarsal parabola. At toe-off, both springs deliver propulsive assist.

### **Consistent results**

In-shoe sensing, visual gait analysis, and clinical observations confirm patients move better with SubioMed.<sup>\*</sup>

#### SUBIOMED EFFECTS ON GAIT:

#### Patient-reported gait:

- → Less pain, fewer symptoms
- → More natural movement, better comfort
- → Longer average ambulation

#### vGRF:

→ Better symmetry, reduced compensation

#### Gait Cycle:

→ Longer stride, slower cadence, reduced double support time

#### **Range of Motion**

→ Increased ankle, decreased metatarsal parabola dorsiflexion ROM

#### **Limb Symmetry**

- → Less ipsilateral guarding
- → Less contralateral compensation

#### **Rehab and recovery**

→ Accelerated



## Feel the difference.

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Available by prescription

SubioMed is protected by US patents 9,066,559, 9,943,432, 10,888,447, 9,943,133, 10.477,917 and multiple international patents. Additional US and international patents pending.