



Technical Whitepaper

FootCharge™ by LifePharm Cellnergy Division

A Multi-Therapy Foot Stimulation System for Circulatory, Neuromuscular, and Cellular Support

1. Introduction

The human foot plays a critical role in systemic health. It contains **over 7,000 nerve endings, 26 bones, 66 joints, and over 100 muscles, tendons, and ligaments**, forming a dense neuromuscular and vascular network. Age, inactivity, or prolonged standing can impair foot function, leading to poor circulation, reduced neural responsiveness, and systemic fatigue.

FootCharge™ is a scientifically engineered foot therapy device developed by LifePharm Cellnergy to deliver multi-dimensional stimulation through a combination of:

- Cellwave™ neuromuscular stimulation
- Terahertz frequency resonance therapy
 - Intelligent thermal activation

The system is designed to promote **circulation, nerve signal restoration, and cellular energy activation**, especially in aging or sedentary individuals.

2. Core Technologies

2.1 Cellwave™ Stimulation (CWS)

Cellwave™ is LifePharm's proprietary bioelectric waveform therapy, delivering low-frequency stimulation across the plantar surface of the foot. Unlike conventional EMS, Cellwave uses custom waveform patterns that mimic **physiological nerve signaling** to:

- Activate **afferent and efferent nerve fibers**
- Improve **neuromuscular junction activity**

- Stimulate **proprioceptive feedback** and reflex arcs
- Enhance **lymphatic and venous return** in the lower limbs

Frequency range: 5–60 Hz / Pulse width: 200–400 μ s / Output modulation: adaptive wave cycles

2.2 Terahertz Frequency Resonance

Terahertz (THz) waves fall in the electromagnetic spectrum between microwave and infrared (0.1 to 10 THz). Scientific research suggests that THz resonance can:

- Enhance **intracellular water molecule dynamics**
 - Increase **cell membrane permeability**
- Promote **intercellular communication** and **mitochondrial function**

FootCharge applies controlled THz-level resonance (~ 1 THz), hypothesized to assist in **cellular homeostasis** and **bioelectrical coherence** in foot tissues.

2.3 Thermal Activation Module

The device includes ceramic-based heating elements that deliver **localized infrared warming** (38–45°C) to the sole. Thermal effects include:

- **Vasodilation** of capillaries and microvasculature
 - Improved **oxygen and nutrient delivery**
- Enhanced **enzyme activity** and **cell regeneration**

3. Treatment Programs

FootCharge offers **6 pre-programmed therapy modes** targeting various neuromuscular needs:

Mode Name	Description
1. Tighten Mode	Tonifies foot muscles and arches, supports posture

2. Relax Mode	Gentle wave therapy to calm nerves and reduce stress
3. Strength Mode	Deep stimulation for fatigued, weak muscles
4. Kneading Mode	Rhythmic pressure simulation for tension release
5. Shake Mode	Vibrational pulses to activate nerve endings
6. Tap Mode	Alternating bursts for reflex zone stimulation

Each mode is supported by **10 intensity levels**, enabling tailored user experiences based on therapeutic goals and sensitivity.

4. Proposed Benefits

4.1 Neuromuscular Activation

- Improves **foot muscle strength**, especially intrinsic muscles
- Enhances **neuroplasticity** and responsiveness of aging nerves
 - Supports balance and gait performance

4.2 Circulatory Support

- Improves **venous return** and reduces pooling
- Supports **lymphatic drainage** in lower extremities
- May reduce swelling, tingling, and cold feet

4.3 Cellular and Mitochondrial Function

- Encourages **ATP production** through THz and thermal effects
 - Assists in **waste elimination** and **tissue regeneration**
 - Enhances **cellular signaling efficiency**

5. Target Populations

FootCharge™ may benefit:

- Adults 50+ experiencing decreased foot sensation or circulation

- Individuals with sedentary lifestyles or standing professions
 - Wellness-focused consumers seeking preventive care
 - Athletes or active individuals requiring recovery support
- People with neuropathy-related foot fatigue (non-medical use)

6. Safety and Usage

- **Contraindicated** for users with pacemakers, pregnancy, or implanted electrical devices
 - Recommended usage: **15–30 minutes/day**
- Built-in safety auto-off timer and insulated housing
 - Medical-grade materials for surface contact

7. Summary

FootCharge™ integrates modern bioelectrical stimulation, terahertz energy, and heat therapy into one convenient platform. It is not only a foot wellness device but also a system designed to **support neuromuscular health, enhance local circulation, and promote cellular activation** through the body's foundation — the feet.

With Cellwave™ Technology, FootCharge™ represents a **non-invasive, user-friendly solution** for enhancing whole-body vitality starting from the ground up.

