



UPRISE™

Ultralight Passive Ruggedized
Integrated Soldier Exoskeleton



The Problem:

> **Lessening the Soldier's Burden** is one of the Top Five (5) Priorities of Armed Forces across the world. Numerous studies state that modern soldiers have reached or even crossed the limit in terms of load carriage before their agility, mobility, lethality, survivability and sustainability are seriously affected.

Mawashi's Solution:

> To solve this critical issue without creating other problems to soldiers, Mawashi developed a Fully Ergonomic Unpowered Human Augmentation System (HAS): The **Ultralight Passive Ruggedized Integrated Soldier Exoskeleton (UPRISE™)**.

Main Features:

- > **Disruptive Game-Changing Exoskeleton Technology;**
- > **Highly Ergonomic Passive Load-Bearing Titanium Structure;**
- > Developed for **Special Operations Forces (SOF)** to reduce the Warfighter's burden;
- > **Field Tested** in Operational Training Environment;
- > Allows for all the **Dynamic and Unpredictable Movements** involved during tactical maneuvers;
- > Composed of a helmet support system, an articulated spine, a sliding belt for torso rotational degrees of freedom, two leg sections with functional hip, knee and ankle joints designed to follow body movements, and two load-transferring soles integrated inside the footwear.

Key Differentiating Factors:

- > **Advanced Ergonomics:** Unparalleled level of Freedom of Movement with less than 1% of resistance on Ease and Range of Motion (RoM) that promotes Agility, Flexibility and Mobility.
- > **Effective 50 to 80% Load Transfer to the Ground:** Smart Load Redirection according to Nature's principles (Biomimetic Blueprint) from the shoulders down to the ground, on the inside of the footwear.
- > **Reliable Unpowered and Ultralight System:** Constant Assistance during the entire mission that allows for a greater Sustainability (batteries lifetime is too short for missions duration); Lighter Design compared to powered systems (no need for heavy actuation, sensing and control systems).

Potential Benefits for the Warfighter:

- > Increased **Performance**
- > Increased **Endurance**
- > Increased **Situational Awareness**
- > Increased **Combat Effectiveness**
- > Decreased **Musculoskeletal Injuries**
- > Decreased **Metabolic Expenditure**
- > Decreased **Fatigue**
- > Decreased **Discomfort**

Potential Benefits for the Armed Forces (Direct and Indirect):

- > Ensured **Superiority** and **Dominance** on the Modern Battlefield
- > **Technological Advantage** over Near-Peer Competitors and Threats against National Interests
- > Enhanced **Operational Readiness**
- > Decreased **Medical Costs**
- > Decreased **Rehabilitation Costs**
- > Decreased **Deployment Costs**



Contact:

Mawashi Science & Technology
820 Ch du Grand-Bernier N
Saint-Jean-sur-Richelieu, Quebec
J2W 0A6
Canada

Phone: +1 450-349-9833
Email: info@mawashi.net
www.mawashi.net

UPRISE™
Ultralight Passive Ruggedized
Integrated Soldier Exoskeleton



MAWASHI
SCIENCE & TECHNOLOGY