



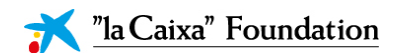
# ABLE

*Restoring the pleasure and empowerment of walking*

In collaboration with:



With the support of:



# Problem: DISABILITY

**5 M** people have Spinal  
Cord Injury (SCI)

**Muscular atrophy**

**Pressure ulcers**

**Osteoporosis**

**Circulatory and  
digestive problems**

# Problem

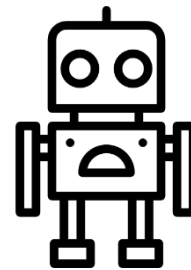
People with a SCI could walk if they had a robotic exoskeleton



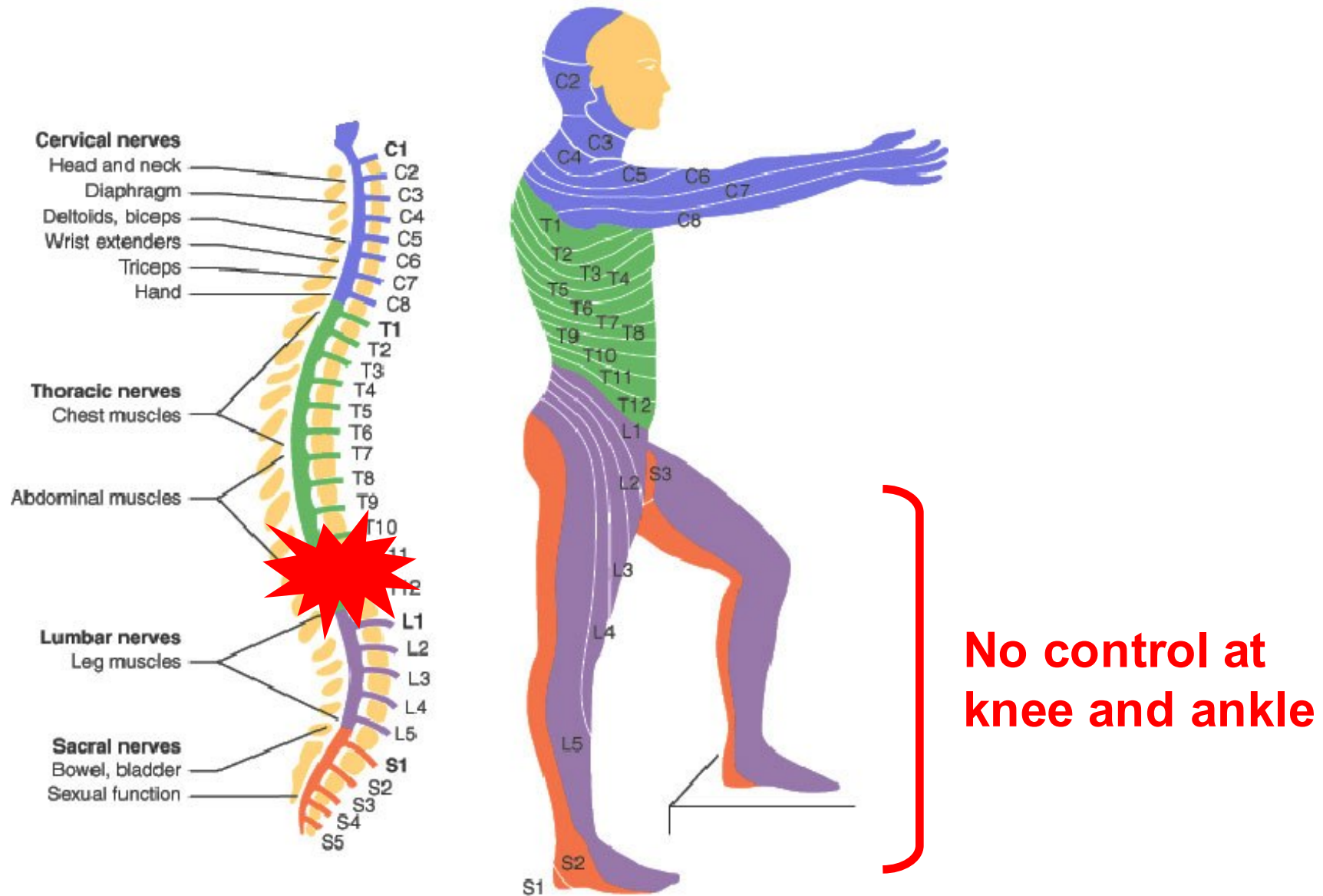
**However...**

Exoskeletons are:

Only found in:



# Target patients



# Market: patients with lower SCI



# Available options for these patients

**Wheelchair**



**Standing frame**



**Orthopedic supports (OS)**

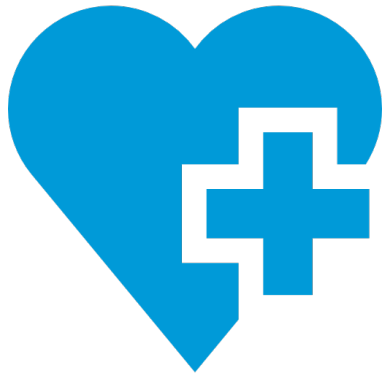


**Exoskeleton**



# Value Proposition

Powering an orthopedic support to **restore the ability to walk in a natural and intuitive way**



Health



Self-esteem

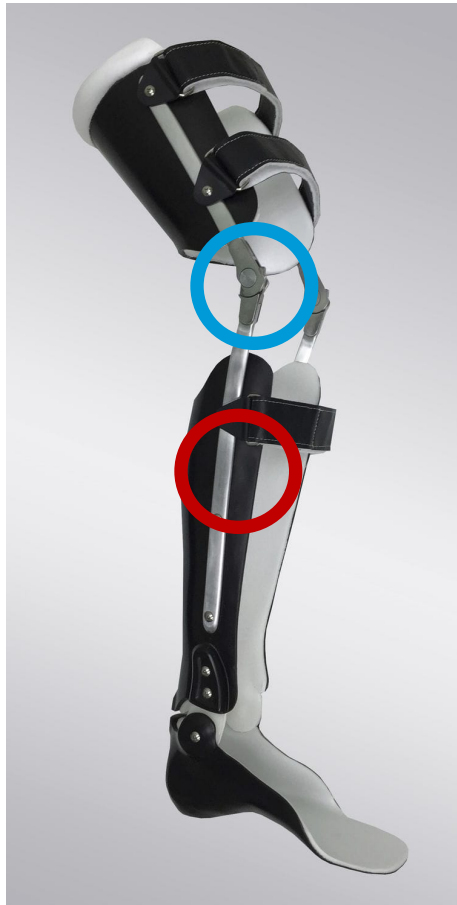


Independence



Quality of life

# Solution



**Orthopaedic support**

+

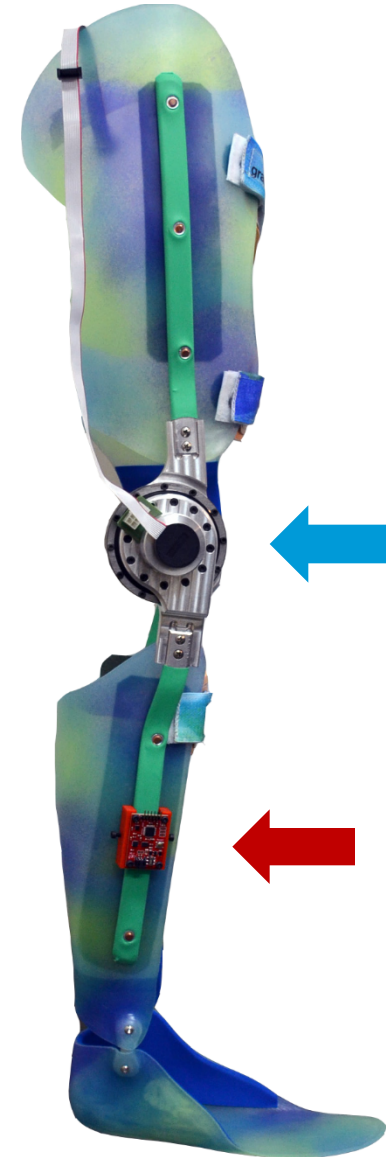


**Electric motor**

+



**Sensor**



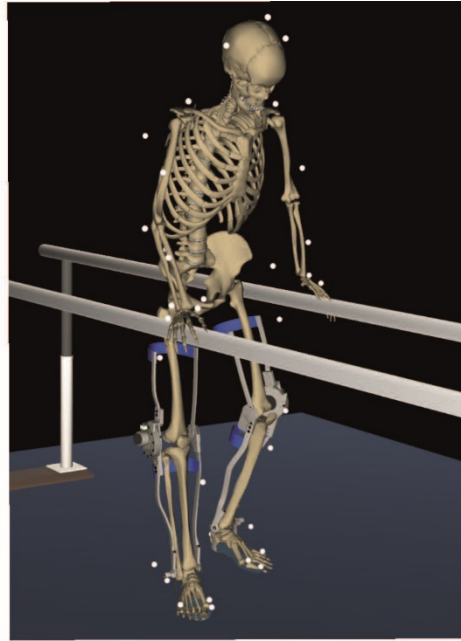


# Clinical evidence

ABLE allows the patient to walk **faster**, and with a **more stable and symmetric gait**

Case 1: the patient walked with orthopedic supports

Case 2: the patient walked with ABLE



**Gait speed**

**+24%**

**Stride length**

**+7%**

**Cadence**

**+16%**

**Lateral disp.**

**-19%**

**Hip flexion**

**+30%**

**Symmetry**

**+23%**

# Robotic exoskeleton market

**Ekso**  
(Ekso Bionics,  
USA)



**ReWalk**  
(ReWalk Robotics,  
Israel)



**HAL**  
(Cyberdyne,  
Japan)



**Indego**  
(Parker Hannifin,  
USA)



**Phoenix**  
(suitX, USA)



**ABLE**  
(UPC, Spain)



<b>Price</b>	130.000 \$	77.000 \$	96.000 \$	80.000 \$	40.000 \$	<b>5.000-10.000 \$</b>
<b>Weight</b>	20 kg	18 kg	12 kg	12 kg	12 kg	<b>5 kg</b>
<b>Home-used</b>	No	Yes	No	Yes	No	<b>Yes</b>

# Team



**Alfons Carnicero**  
CEO

- Industrial Engineer
- Passionate about medical devices and innovation
- Worked in both institutions (UPC, Institut Guttmann)



**Dr. Josep M. Font**  
CSO

- Industrial and Biomedical Engineer
- Director & Founder BIOMECH Lab, CREB
- Rehabilitation engineering, robotics and biomechanics



**Dr. Joan Vidal**  
CMO

- Medical specialist in Physical Medicine and Rehabilitation
- Head of the Spinal Cord Injury Unit at Institut Guttmann
- Spanish representative at the International Spinal Cord Society



**Jesús De Miguel**  
Technical Officer

- Automatic Control and Robotics Engineer



# Advisory Board



**John Collins**

*Project Mentor*

COO at Consortia for Improving  
Medicine with Innovation &  
Technology (CIMIT, Boston)



**Bart Huisken**

*Project Advisor*

Serial entrepreneur in IoT  
and SaaS



**Elena Canetti**

*Tech Transfer Advisor*

Co Managing Partner at  
Inveniam Group



**Elena López-Cano**

*UPC TTO*

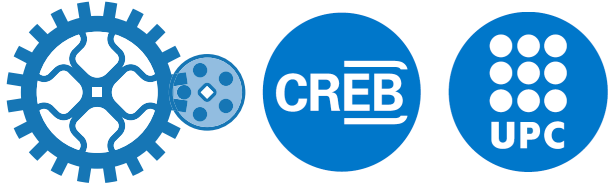
Project Manager at  
Valorization Unit of the UPC



“I would love to go to a concert  
and see the stage again”

*Ramón, 32 years old SCI patient*





# ABLE

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In collaboration with:



With the support of:

