



MULTIMEDIA REPORT (28.2.2017)

Clinical Evaluation of Gait Training with Exoskeleton in Children with Spinal Muscular Atrophy

Elena Garcia (CSIC)

Version 1

Submission date: 28.02.2017

Use the table below as an internal changelog. You can delete it before submitting.


Date	Name	Changes/Comments
28.02.2017	Elena Garcia	First draft

This document is a multimedia report on the EXOTrainer project on the development of ATLAS 2020 pediatric exoskeleton that allow rehabilitating walking capability to children with Spinal Muscular Atrophy Type 2.


1. STORY BOARD

EXOTRAINER


CLINICAL EVALUATION OF GAIT TRAINING WITH EXOSKELETON IN CHILDREN WITH SPINAL MUSCULAR ATROPHY




ERIKA WAS BORN WITH SMA, THE 2^o MOST FREQUENT NMD IN CHILDHOOD. THE #1 IN CHILD MORTALITY




HER MUSCLE WEAKNESS IS CAUSING SPINE MALFORMATION & SIDE EFFECTS




BUT ERIKA CAN BE A HAPPY CHILD BECAUSE SHE HAS HER COGNITIVE CAPABILITIES FULLY PRESERVED




IN THE LAB WE THOUGHT...: ROBOTICS TECHNOLOGY CAN DO SOMETHING FOR HER & ALL CHILDREN!



THE FIRST WEARABLE GAIT EXOSKELETON FOR CHILDREN

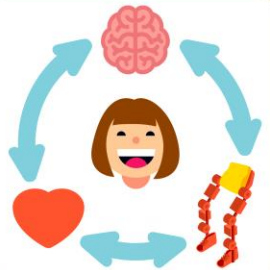


AN ORTHOTIC DEVICE THAT ATTACHED TO HER LEGS & TRUNK PROVIDES WALKING ABILITY. ERIKA HAS PARTICIPATED IN CLINICAL TRIAL WITH GREAT SUCCESS




3D MOBILITY (5/6 DOF PER LEG)
AUTONOMY FOR HALF DAY USE
LOW WEIGHT AND VOLUME (12 KG)
DC MOTORS WITH ACTIVE JOINT RIGIDITY CONTROL
ADJUSTABLE 1/4" SIZE FROM 3 TO 14 YR OLD







THIS DEGENERATION COULD BE DELAYED OR EVEN AVOIDED BY SIMPLY WALKING



EXOSKELETON PROVIDES ERIKA FUNCTIONAL AUTONOMY & IMPROVES HER SELFESTEEM WITH AN OVERALL BENEFIT IN NEUROMUSCULAR THERAPY



A MODERATE PHYSICAL EXERCISE CAN INCREASE IN 50% HER LIFE EXPECTANCY & IMPROVE DRASTICALLY HER QUALITY OF LIFE

2. VIDEO FILES

All videos can be found on Marsi Bionics Youtube channel: https://www.youtube.com/channel/UCOLH_VPZ2Dlzz8bTwcSp95Q

- Summary of the project:



Video Link: <https://youtu.be/MrAHnPLUvQo>

- Clinical assessment of the project



Video Link: <https://youtu.be/l-o2YzOR7Ew>

- One of the clinical sessions of gait training with ATLAS2020 exoskeleton



Video Link: https://youtu.be/X_jcQaUPwjA