EN

ADVANCED NEUROREHABILITATION THERAPIES

Spinal Cord Injury • Stroke • Multiple Sclerosis • Parkinson

ants

working together



CNRS

ENS DE LYON

Hôpitaux de Lyon

ants | Advanced Neurorehabilitation Therapies

The association ANTS was created in 2015 by Vance Bergeron, a CNRS Scientifique Director at the Ecole Normale Supérieure de Lyon. Vance Bergeron became tetraplegic in February 2013 after being hit by a car while riding his bicycle to work one morning. During his hospitalization and after returning home he has continued to regain strength and acquire maximum independence through a novel rehabilitation program that combines state-of-the-art technologies and sports training. Through ANTS this experience is being shared and further developed.

> Vision

- ***Overcome neuromotor impairment by providing advanced neurorehabilitation therapies.***

> Mission

- ***Develop and provide state-of-the-art equipment and facilities, with experts to carryout the most advanced neuro-rehabilitation therapies and fitness programs available.***

> Objectives

- ***Assist individuals in achieving their highest potential by improving function and independence.***
- ***Reduce secondary injuries and diseases due to sedentary lifestyle.***
- ***Promote specially adapted sporting events.***
- ***Sponsor state-of-the-art research and development in neurorehabilitation therapies.***

1 > Functional Electrical Stimulation (FES) <

> FES cycling



RESTORATIVE THERAPIES RT300 — AVAILABLE

- *Increase bulk of stimulated muscles.*
- *Increase bone density in lower limbs.*
- *Reduced body fat content.*
- *Improved cardiovascular health.*
- *Reduced risk of diabetes.*
- *Reduced spasticity in stimulated muscles.*

> FES Hand rehabilitation system



BIONESS H200 — AVAILABLE

- *Improve range of motion and hand function.*
- *Reeducate muscles prevent/retard disuse atrophy.*
- *Increase blood circulation.*

2 > Robot-Assisted Therapy <



- *Robot-assisted therapy is a form of physical therapy that uses robotic devices to help movement that has been impaired due to central nervous system injuries/anomalies.*



LOKOMAT

- *In addition to training the brain and spinal cord, robot-assisted walking therapy helps to strengthen muscles and improve circulation.*
- *The weight bearing nature of the walking exercise also reinforces bones at risk of osteoporosis due to lack of use.*

3 > Standing Therapy & Strength Training <

> Standing Benefits



LIVESTAND

AVAILABLE

- *Enhances circulation and blood pressure.*
- *Aids digestion, bowel function & bladder drainage.*
- *Increases bone density.*
- *Relieves pressure points.*

> Strength Training



- *Regular resistance exercise improves ability to complete daily activities, enhances body composition, and encourages motor function. It also promotes physical fitness, reduces secondary disease risk and slows typical age related declines, thereby enhancing independence and reducing risk of inactivity.*

4 > Sports & Recreational Therapy <

> Organized cycling adventures

BERKELBIKE



- *TOURISTIC: ViaRhône cycling trails cover 450 km through the Rhone-Alpes region. Accessible to all for day and week trips.*
- *SPORTIVE: challenges that include classic ascensions from the Tour de France; Mont Ventoux, Col de Galibier, and more ...*

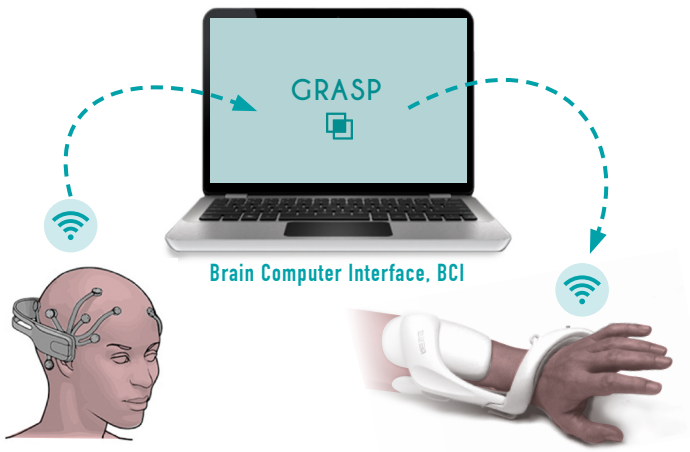
> Accessible Nautical adventures



- *Lift for easy boarding and transfers.*
- *Adapted safety equipment.*
- *Low-hull boats for enhanced stability.*
- *Trained crew for assistance.*

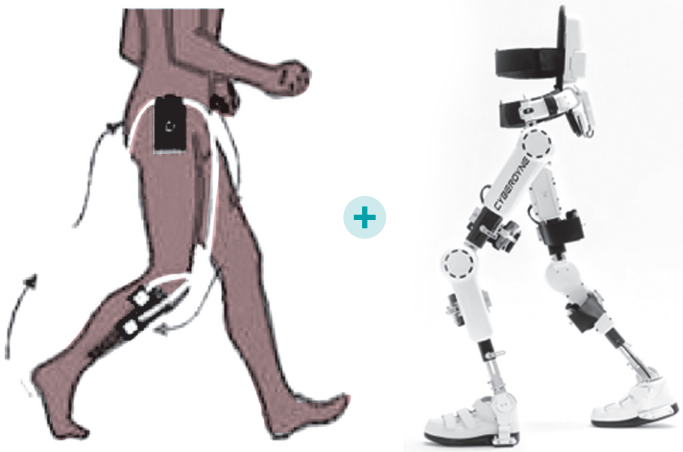
5 > Assistive Wearable Technologies Research <

> Project GRASP



- *BCI controlled FES hand orthesis for reeducation and functional hand use.*

> Project Walk This WAY



- *Combined FES and lower-limb exoskeleton for ambulation.*

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