

Exoskeleton Devices

John Byrne

A powered exoskeleton is a wearable mobile machine that is powered by a system of electric motors, pneumatics, levers, hydraulics, or a combination of technologies that allow for limb movement with increased strength and endurance.

Rehab vs. Everyday Use

- There are a number of devices that are just for rehab at this time.
- They have to be used in a rehab environment and with a trained physiotherapist.
- These are the most expensive

Everyday Use

- Assist with walking and rehab
 - I want to *improve* my independence
- Assist with working – construction and medical

Rehab - Ekso Bionics

- US product but supported in EU
- <https://eksobionics.com/eksohealth/products/>
- <https://eksobionics.com/eksohealth/patients/>

Ekso Bionics

- This device can do 100% of the work or you can do some of the work.
- Obviously the more one can do then the better outcome.
- I have done 47 minutes of continuous walking and 1586 steps in the Dublin City University unit and before that 48 minutes and 1550 steps in the Trinity College Dublin device
- Cost is e160,000 (approx. \$240,000)
- Cost in Cork Elite gym is e60 per hour





Rehab - HAL

- HAL – Hybrid Assistive Limb (Japan)
- Outside of Japan only available for rehab in Germany (Bochum) and US (Florida)
- This uses continuous feedback loop and can pick up minute electrical signals – even from patients who are “fully paralyzed”
- Very intense – one has to work really hard and do the work.
- I did 5 x 3 minute sessions and was very tired afterwards.
- They have the research to support that this therapy can improve ones walking.





HAL – Programme

- 30 minutes per day
- 5 days a week
- 12 weeks in a row
- **Germany** - Cost is e36,000 (\$48,000) plus travel and living expenses. They have apartments (e70/night (\$105)) on the hospital complex.
- Florida – Cost is \$24,000 plus travel and living expenses.
- Have to check out the Treatment Abroad Scheme
- Outcome – “improvement” in walking
- **Major** time commitment

Everyday Use – Rewalk

- This is an Israeli product
- Supported out of the UK
- Tried it in a NI physio clinic
- Cost approx. e80,000 (\$120,000)
- One piece suit – not sure if can get into it on my own.
- Switch it on and it walks you – no effort required.
- Cannot have it one while driving as the back pack is way too big. This means that I would have to get into it from the boot/trunk.
- Does not really improve my independence



ReWalk™ Personal 6.0

The ReWalk Personal 6.0 System is designed for all day use at home and in the community. It is the most customizable exoskeleton and is configured specifically for you. This precise fit optimizes safety, function and joint alignment.

ReWalk: More Than Walking

Contact

Call us

Send us an E-Mail

Online request



Ursula S., ReWalker
Berlin, Germany

Rtd. Sgt. Thomas
Long Island



Claire L., ReWalker

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Indego

- The parent company is Parker Hannifin which is a global multinational company whose key focus is motion control for the Aviation, Aerospace, Pharmaceutical industries.
- Set up Indego as a Human Motion Control company. US product but supported out of the UK.
- I tried it in the Wellington Private hospital in London.
- It comes in 5 sections and I can have it on **while driving**. With some practice I would be able to get into it in 3/4 minutes and I got out of it in 30 seconds.
- The engineering heritage is very evident.
- I have to move from left to right in order for it to operate. If I do nothing it stops.
- Cost is approx. e80,000 (\$120,000)



Parker Indego

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The Indego Team wants to congratulate Dr. Henry Hasson on completing the 1 Mile Spinal Cord Damage Research Center Fundraiser Race this past Sunday. What an accomplishment by Dr. Hasson and everyone else who participated! Read the profile we did on Dr. Hasson earlier this year: <http://ow.ly/zmiN30gBhgU>

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Parker Indego added 7 new photos to the album Dr. Henry Hasson 1 Mile Race.



Keeogo

- This is a Canadian device but is only available in 2 provinces Ontario & Quebec.
- Cost is approx. e25k (\$40,000)
- They have different financing options available – they only device that has this
- I tried this in the Summer 2016 and again earlier in this July. Functions by picking up slight muscle movements in ones Knees and Hip flexors – my hip flexors are too weak currently.
- I may require too much support for this machine. One can go up/down steps and increase/decrease the walking speed by varying ones effort.

REGAIN the FREEDOM to walk *and Keep on Going*

Keeogo is a powered walking assistance device that is easy to use and will help you walk for a longer time without getting tired.

Get your life back one step at a time...



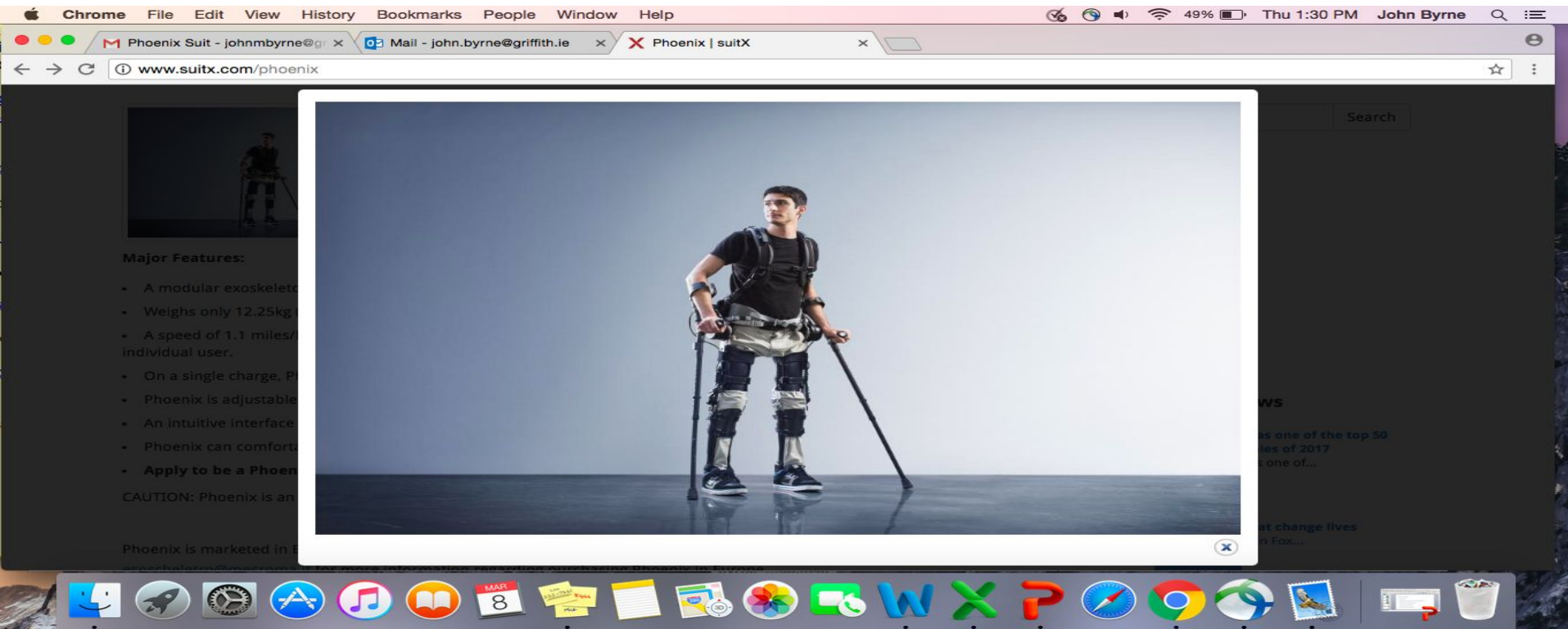
TAKE THE TEST
See if Keeogo
is right for you

Keeogo - video

- https://www.youtube.com/watch?time_continue=2&v=-https://www.youtube.com/watch?time_continue=2&v=-mzXdBc718s

Suitx

- Spin out from Berkley University (US)



Suitx

- <http://www.suitx.com/><http://www.suitx.com/phoenix>
- <https://www.youtube.com/watch?v=https://www.youtube.com/watch?v=BCOctcoVQFY>
- Cost \$40,000US or approx. e33,000 or \$50,000Cdn
- Have applied for FDA approval and already have CE certification in EU and is available for trial in Italy. Hope to test later this year.

Ireland

- Trinity College Dublin – 2 Ekso Bionics
- DCU – 1 Ekso Bionics
- NI Physio – 1 Ekso Bionics
- Cork Elite Gym – 1 Ekso Bionics
- NE (Drogheda) a women – 1 Rewalk
- NI – a young student – 1 Rewalk
- Midlands – male – 1 Ekso Bionics
- Donegal – male – 1 Rewalk

University of Limerick - Ireland

- UL did a case study for publication on my user experience which will help others decide given what they want to do with a device narrow down there selection.

Research - TCD

- Trinity College Dublin – 2 Ekso Bionics devices – one owned by TCD and one privately own.
- Have a 3 year EU funded project to use spinal simulation and then check the effect by using the Ekso Bionics.
- The privately own Ekso Bionics is for rehab and the person is blind and paralysed and has his own assistants. He has a very successful
- I was involved in training the 3 physios involved in this 3 year project.

Research – DCU

- DCU got an Ekso Bionics device early summer 2018 and is currently getting their physios certified.
- I have been involved in training the physios.

Questions?