



WHITE PAPER

Walking without difficulty is a blessing that is forgotten when you have full motor skills. Nevertheless, for 100 million people with gait disorders worldwide, walking with ease and being independent in their daily movements is a grail that is unreachable. Indeed, living with motor difficulties is an unprecedented burden that weighs heavily on the independence and moral of people with stroke, multiple sclerosis, cerebral palsy, Parkinson's disease or simply age-related muscle and joint difficulties. In a mild to moderate stage, people with gait disorders still walk a few hundred steps per day but rely heavily on passive aids such as canes or a wheelchair to move longer distances.

In the case of neurological pathologies, people partially lose muscle control of their lower limbs and depend on ankle and knee braces for support. However, orthoses remain inconvenient for the patient in terms of daily use. They have changed very little over the past decades and are rightly considered by patients to be cumbersome and stigmatizing.

Usually, it is even easier for the patient to move around in a wheelchair to be independent than to make the difficult effort of walking every day with an orthosis. This leads to an early loss of walking, whereas physicians recommend walking daily to limit the risk of complications due to physical inactivity and to maintain good health in the long term.

REEV was born out of the realization that no solution exists today to address the need for daily physical mobility for people with walking disorders. There is in fact a gap between wearing an orthosis everyday and the permanent use of a wheelchair, which means giving up walking. We believe that the world of orthopaedic devices must reinvent itself with modern technological solutions directly inherited from the prowess of rehabilitation exoskeletons in clinics. Today, rehabilitation exoskeletons are increasingly used in hospitals, but they have difficulty reaching the doors of rehabilitation centers to help patients on a daily basis due to their cumbersome size and high cost.

That's why we want to transform current orthotics into motorized and connected orthotics that will change the daily life of people with gait disorders. To do this, we are developing DREEVEN: a disruptive technology consisting of a light and intelligent motorization for medical orthoses that motorizes a joint and assists its user to walk, stand up, sit down and take stairs with much greater ease.



DREEVEN mounted on a knee orthosis

DREEVEN is at the crossroads of joint support orthoses and rehabilitation exoskeletons. It is a lightweight and discreet exoskeleton intended to become the electric bike of walking for millions of people who are losing their independence. These people dream of regaining the joy of walking with ease and finally being independent on a daily basis. For patients, functional independence is synonymous with a more fulfilling social life, which allows them, for example, to work more easily, to go for a walk outdoors, to pick up their children or grandchildren from school, to go shopping or to attend cultural events.