

LIVING WITH SPINAL CORD INJURY

"I live a rich life, but what if a stem cell technology could have saved my ability to walk?"

Currently, living with a neurodegenerative disease comes with challenges and limitations. It defines the loss of a future one had envisioned. It means reinventing daily routines that were once ordinary. It also means making the best of it. An art that Jos Wetzels has mastered in full.

"Can we schedule our interview at half past ten? I can't make it earlier, as homecare needs the time to get me ready in the morning." Ever since sustaining spinal cord injury, Jos relies on home care, his equipment and most of all his determination and positive attitude to perform his daily regimen.

Jos had always worked in healthcare himself. First, as an anesthesia assistant in the operating theatre. Later, he transferred to industry, to help bring innovations to the market. Like a muscle relaxant that can be used in anesthesiology. And later he became a director at an American medical device company in cardiology. Jos: "I managed research assistants across the globe. I traveled all over the world, to ensure that the development of stents and pacemakers followed local regulations. I loved it."

An accident changed everything

"And I loved cycling," Jos continues. A hobby that one day broke his neck. An unfortunate accident changed his life entirely. "I have an incomplete spinal cord injury very high up my spine. Although not all my nerves are cut through, I am wheelchair bound."

In traumatic spinal cord injury, primary damage is the direct result of trauma, in this case an accident. But



Jos sitting next to his wheelchair, that he got out from by himself

secondary damage, resulting from inflammation, can be equally devastating.

Swelling is bad news

With his medical background Jos immediately knew that when a body part is bruised or broken, fluid retention occurs. And that such edema is bad news for his nerves. "In the operating theatre one of our main concerns was to reduce pressure and swelling caused by excess fluid. And now, as a patient myself, I could

WHAT IS SPINAL CORD INJURY?

Acute traumatic spinal cord injury causes incurable impairment to the spinal cord, affecting approximately 12,000 people across Europe and 17,000 across the USA annually. The damage or trauma interrupts communication of the brain with the body regions below the site of injury. Spinal cord injuries are mainly caused by accidents and - in most cases - result in life-long loss of control of motor functions and sensations. After the primary injury to the spinal cord, a cascade of events leads to progressive loss of tissue which may further deteriorate the patient's prognosis. Current treatment approaches for TSCI are only symptomatic, leaving the underlying pathophysiology unchanged.

do nothing but hope that the damage would be limited," Jos recalls.

One of the objectives of the Neuroplast stem cell technology Neuro-Cells® is to reduce inflammation to prevent secondary damage after sustaining an injury. Jos: "With my experience in mind, I completely understand and support Neuroplasts' focus." Prevention is the best cure, after all.

Existing treatments for spinal cord injuries are symptomatic. "I went to a specialized rehabilitation center for seven months and then I had outpatient treatment for half a year. After that period, as a patient, you need to sort things out yourself." Jos' voice breaks. He pauses for a moment. "Sorry, I had a spasm in my leg, but it's gone now."

Train, and train some more

Jos works with various physiotherapists three times a week to keep stimulating signal transmission and muscles. And he has made progress. "I can go anywhere I like. I can walk 20 meters with a walker, drive in a custom car and I can eat, drink and dress."

Jos' discipline pays off. "But I can't let my guard down. I have to continue training to maintain my abilities." Jos is aware of the vulnerability this brings: "Will I be strong enough to keep this up five years from now?" he wonders. "It's one of the reasons why I don't want to have an electric wheelchair. I need the exercise, so my wheelchair is manual."



Jos still loves cycling

Also, despite all the hard labor, not everything can be trained. Jos elaborates on one of his major constraints in daily life: "I sense when my colon or bladder is full. But I cannot hold it up. I've had to relieve myself in the weirdest places. Like on the emergency lane on the motorway."

NEURO-CELLS® IS A LIVING THERAPY SUPPORTED BY GROWING CLINICAL EVIDENCE

Neuroplast is a clinical stage stem cell biotech combatting the common cellular processes in neurodegenerative diseases. Neurodegenerative diseases include traumatic spinal cord injury, Alzheimer's, and Parkinson's disease.

Neuro-Cells® addresses the common underlying cellular processes driving neurodegenerative diseases. It is a living therapy that leverages the stem cell's natural abilities to restore balance and interaction of those cellular processes to stop further damage and optimize healing and regeneration potential, that the body itself cannot perform due to the blood-brain barrier.

Neuro-Cells® is tested in an ongoing phase II-III trial for acute traumatic spinal cord injury, and preclinical evidence exists for applications for other neurodegenerative diseases.

Neuroplast holds orphan disease designations for traumatic spinal cord injury and frontotemporal dementia, granting fast-track development towards market authorization and ten-year market exclusivity.



Neuroplast' living stem cell therapy aims to preserve function and improve regeneration potential. Neuro-Cells® is currently studied in a Phase II-III clinical trial

Jos is officially and fully declared unfit to work. Primarily because of his fatigue. "Moreover, I feel very expensive," Jos adds. "I have all these materials and equipment, like my wheelchair and a chair lift."

When learning to live with the condition isn't enough

Existing treatments aim to identify what functions are lost, what functions still work and what functions could be improved with physical exercise. But most of it is learning how to live your new life and accepting what has happened to you. Jos: "I wanted more than that."

Jos follows all developments meticulously: "Exoskeletons enable you to walk around. But they cost around a hundred thousand Euros, and they are too static and heavy to actually use in daily life. You can't sit on a couch or drive a car in it."

Being the creative person he is, Jos once asked a mechanical team of students to create a mini exoskeleton for the knees, using springs to support getting up. "But I don't need this anymore after all the physical training I've done."

Another example is chip implantation to improve signal transmission between brain and body. "I'm on a list but for now, I'm not eligible because I've been a patient for too long already."

"I am a very optimistic person. It's my nature. I like to think in possibilities and not in restrictions," Jos explains. "That's also why I volunteer for several companies and research groups to help bring relevant innovations to the market. Sometimes I'm a guinea pig for an invention, sometimes I'm a project manager, and other times I'm a sparring partner."

The major impact of function-saving treatment

Despite living a rich life, Jos sometimes wonders 'what if': "Any loss of function that could have been prevented or restored could have had a major impact on my life. And on the lives of all those people with similar conditions."

Therefore, Jos supports the Neuro-Cells® approach of Neuroplast. Neuro-Cells® controls the inflammation after primary damage, preventing worse from happening. In addition, it increases regeneration potential in the central nervous system, providing a better starting position for regenerative treatments and rehabilitation.

"Who knows what could have happened when such treatment would have been available when I had my accident? Perhaps I'd be able to walk. Or I could go to the bathroom like a normal person. Perhaps I would still be able to work and participate in society even better than today. Who knows?"

WANT TO KNOW MORE?

Neuroplast is always looking for new talent, clinical partners, and investors to accelerate realizing our mission: Using stem cell technology to regenerate futures.

**Contact us via info@neuroplast.com
or follow us on LinkedIn**