



Unique in
NEUROREHABILITATION





INTENSIVE, INDIVIDUALISED AND HOLISTIC
NEUROREHABILITATION GIVES EVERY
PATIENT THE CHANCE FOR A BETTER LIFE.

ADELI Medical Center

Individual

Intensive

Holistic

Unique

The outstanding therapeutic approaches applied within our unique rehabilitation program are presented to you in detail on the following pages.

The ADELI Medical Center ensures an intensive, individualised and highly effective rehabilitation for all of its patients. The main and only aim of the program is to achieve more independence and a higher quality of life for every person visiting us. The ADELI team consists of highly qualified and dedicated specialists who are committed with their heart and soul to the progress of every individual patient.

What makes ADELI **special** – is the high intensity and individuality of the neurorehabilitation. A patient is accompanied through his or her daily treatment program by five or six therapists, for four to six hours a day, six days a week.

What makes ADELI **unique** – are the rare and highly specialised treatments, some of which originate from space or underwater neurology. Good examples are proprioceptive stimulation with application of devices from space medicine or oxygen therapy in a highly modern hyperbaric chamber.

Management
ADELI Medical Center

250 qualified employees

With more than 250 highly qualified employees, the ADELI Medical Center is one of the leading institutes specialised in neurorehabilitation. The institute is licensed and active in the following fields of medicine: neurology, medical rehabilitation, physiotherapy, rheumatology, balneology, clinical speech therapy and intensive medicine.

ADELI provides its unique treatment mainly for people suffering from damage to their central nervous system. Such conditions are usually caused by birth trauma, brain haemorrhage, stroke or traumatic brain injury.

ADELI Medical Center

ADELI

The scientific basis

Univ. Prof. Dr. Dr. h.c. mult. Franz Gerstenbrand

Scientific supervisor of the ADELI Medical Center

"The ADELI Medical Center in Piestany is fully equipped with all known means of modern neurorehabilitation. Scientific achievements of neurologic research are well applied within the scope of the treatment program, especially in activating the proprioceptive system. A department of hyperbaric oxygenation therapy complements the main facility. As one of the few institutes in Europe the Center specialises in paediatric neurorehabilitation.

Neurorehabilitation

The basic principles of modern neurorehabilitation are well established at the ADELI Medical Center. The therapeutic community of specialised physicians, therapists and the staff of various other areas of

medicine work in close collaboration with the relatives or carers for the benefit of the patient. The concept is supported by creating an individual rehabilitation program for each patient after a thorough analysis of the neurological deficits and their cause, taking account of the damage caused to the brain, spinal cord and peripheral nervous system.

Space medicine

This stimulation of proprioceptive system - one of the most important components of motor function - is accompanied at ADELI by the use of medical devices that find their origin in space medicine. For example, the cosmonaut suits and the vibrating shoe: the effectiveness of this method has been scientifically proven by recent research using

functional MRI studies (fMRI). It has emerged as a new treatment option in neurorehabilitation.

Brain areas activated

ADELI Medical Center also makes good use of the newly opened hyperbaric oxygen treatment (HBOT) department. Numerous researches - mainly in the USA - have proven the effectiveness of this treatment for various neurological conditions. The method can be used to treat patients who suffer from the severe consequences of a traumatic brain injury, stroke or an apallic syndrome in advanced remission stage of different etiology. The approach yields results even in patients with a locked-in syndrome."



Univ. Prof. Dr. Dr. h.c. mult.

Franz Gerstenbrand

Franz Gerstenbrand habilitated in 1967 about the "traumatic apallic syndrome" and became a university professor in 1973. In 1975, he became chief of Department II at the Neurological Hospital in Vienna and the University Neurology Clinic in Innsbruck. Since 1986, Gerstenbrand worked on the effects of outer space on the human body, together with Russian scientists, and the representatives of NASA and ESA. After his retirement in 1994 he remained as co-director of the Boltzmann Institute for Restorative Neurology. Gerstenbrand is author of more than 700 publications and twelve books.



ADELI MEDICAL CENTER



One of a kind **NEUROREHABILITATION**

High intensity for best outcome

In order to achieve the best possible progress for every patient, the ADELI Medical Center provides selected specialists which are grouped into multi-disciplinary teams.

Following the ideal of "intensive and individual", such teams treat a maximum of four patients daily and are guided by a neurologist, who monitors not more than 16 patients throughout a rehabilitation cycle.

30 hours of therapy per week

Generally an interdisciplinary team consists of a neurologist, physical, occupational and speech therapists as well as specialised nurses and masseurs. By deploying various specialists for every patient, the required intensity of treatment and concentration on individual needs are achieved to the best possible extent.

An intensive ADELI neurorehabilitation course usually takes three to four weeks. Patients undergo treatment for five hours per day on average, six days a week. Thus, each patient goes through 30 hours of therapy per week.

Independence and quality of life

The rehabilitation goal is defined after the initial neurological examination and subsequent consultation between the doctors and therapists. An improvement in the quality of life and independence is the goal for every patient: such abilities as walking and speech as well as self-care are the main areas of concentration. Becoming independent from carers and ideally reintegration into professional life are the long term goal for adolescent patients.



The following neurological disorders are treated at ADELI Medical Center:

- Traumatic brain injury
- Stroke, CVA
- Brain haemorrhage
- Cerebral palsy

- Spinal cord injury
- Peripheral nerve injuries
- Polyneuropathy
- Meningitis

For a better life

"I can walk again"

Brain haemorrhage, coma, and fight for survival: Mira from Vienna arrived home from hospital in a wheelchair. "Hopeless", diagnosed her doctors. After two weeks of rehabilitation in ADELI, she could stand on her own for the first time. Since then, Mira comes to ADELI Medical Center in Slovakia twice a year for treatment: "I make visible progress every time", she says: "Now I can already walk alone with a stick. This is incredible from every-thing that I have seen."

Mira, 52, Austria



"My second life"

Livia Bellini from Italian Manerba, near Lake Garda, suffered a stroke at the age of 57 years: leaving her semi paralyzed. For the doctors treating her, she was a "hopeless case".

13 months after the stroke, she finds hope at ADELI Medical Center – taking the first 80 independent steps into her new life. "My balance and physical condition has improved immensely since then. Now I can stand upright again without falling over."

Livia, 59, Italy

"First steps after 14 years"

Car accident. Coma. Wheelchair. For Christoph Fischer from Vienna, his life seemed to be over at the age of 26. But 14 years after the disaster, the impossible happened: For the first time, he is back on his feet again. Days later, he takes his first steps after the accident.

Thomas, 43, Austria



"Walking 1,000 meters"

Four months after a serious car accident, 17-year old Christoph Domagala finally woke up from a coma. Initial diagnosis: traumatic brain injury and life in a wheelchair. But Christoph and his parents kept fighting and trying all possible therapies until they found ADELI. Here he worked hard and accomplished what others call a miracle: his first steps after the accident. Other therapies followed, with even more progress. As result Christoph now walks 1,000 meters at a stretch. The long road to his life before the accident had begun.

Christoph, 29, Germany



Unique PAEDIATRIC NEUROREHABILITATION

Holistic and individual

ADELI Medical Center is one of Europe's leading institutions specialised in child neuro-rehabilitation. The rehabilitation program is unique in its intensity and its holistic character: the young patients are treated individually for up to five hours daily.

During the neurophysiological therapy, every child is treated by up to three therapists at the same time, so that the nervous system learns several important functions simultaneously: such as head control, body posture and correct step execution.

The following paediatric neurological conditions are treated in ADELI Medical Center:

- Cerebral palsy
- Spina bifida
- Congenital and acquired neurological disorders
- Traumatic brain injury
- Conditions after a juvenile stroke
- Conditions after oxygen deficiency
- Conditions after meningitis and encephalitis

Large commitment for small patients

An intensive paediatric neurorehabilitation course lasts between two and four weeks. The treatment for young patients takes place for six days a week and lasts for four to five hours. The team of therapists is led by a neurologist who observes the patient, guides the treatment process and ensures the highest quality of care.

The individual therapy supports the child's development as close to a normal and independent life as possible.

"One of the main competencies of ADELI Medical Center is child neurorehabilitation. Primarily, children with neurological deficits caused by a birth trauma are treated here. The centre itself has considerable experience in treating children in infancy. The earlier neurological problems are treated, the better the plasticity of the child's brain can be taken advantage of. Hence the chances of improvement are particularly good."

Univ. Prof. Dr. Dr. Franz Gerstenbrand



ADELI Medical Center

For a better future



"No need for wheelchair"

"Be prepared that your child will live a happy life - in a wheelchair," recalls Petra Luger as the first diagnosis. Her daughter Magdalena was affected from birth with cerebral palsy. But with the help of ADELI specialists, a new life has begun for her: contrary to the initial diagnosis, nine-year old Magdalena can walk on her own, can speak normally and keep up with her classmates. She also participates in the physical education class.

Magdalena, 10, Austria



"A few operations less"

Samuel Pagliai was affected from birth with heavy spastic cerebral palsy. His doctor recommended three surgeries and Botox treatment to reduce spasticity. Instead, Samuel's parents opted for proprioceptive treatment in ADELI, with devices derived from space medicine. And with success: Just after the first rehabilitation cycle, Samuel was able to sit, swallow and speak independently for the first time in his life. This spared him painful operations.

Samuel, 9, Italy

"20 steps alone"

Two brain haemorrhages after birth: Niklas Boerger from Weimar in Germany suffers from severe spastic disorders. The breakthrough came after therapies at the ADELI Medical Center: "He walked 20 steps alone for the first time in ADELI Medical Center - I cried with joy", said Niklas' mother, Klara. After another visit, he even ran more than 50 steps. Klara: "Though it is very exhausting for Niklas, he likes to come back here every time for more progress."

Niklas, 9, Germany



Proprioception

The right foundation

The permanent awareness of the body and the current perception of its movements is called proprioception. It is the constant flow of information from the body to the brain which receives and stores these messages continuously. Thus it learns to apply the forces of the body properly for every movement - walking, eating, grasping, talking etc.

Regaining body control

When due to damage in the central nervous system the brain is sending incorrect signals to the body, it appears as a lack of body control, motor and sometimes speech disorder. On the way back to the brain, the information is hence also incorrect and full of distorted signals – from which the brain tries to learn. Technically, the flow of such signals is called abnormal proprioception.

ADELI breaks this vicious cycle with a series of measures, in which healthy physiological

Compared to many widely used motor rehabilitation programs, proprioceptive stimulation has a more profound effect on the treatment of neurological deficits. This comes from the fact, that proprioception stimulates the nervous system where the damage has occurred, thus creating a better foundation for a successful rehabilitation.

proprioception is stimulated and the brain is supplied with the correct information. This is achieved by

- specific active and passive motion exercises under the guidance of selected specialists
- use of special equipment to enhance the afferent signals.

The result: The patients learn to control their body.

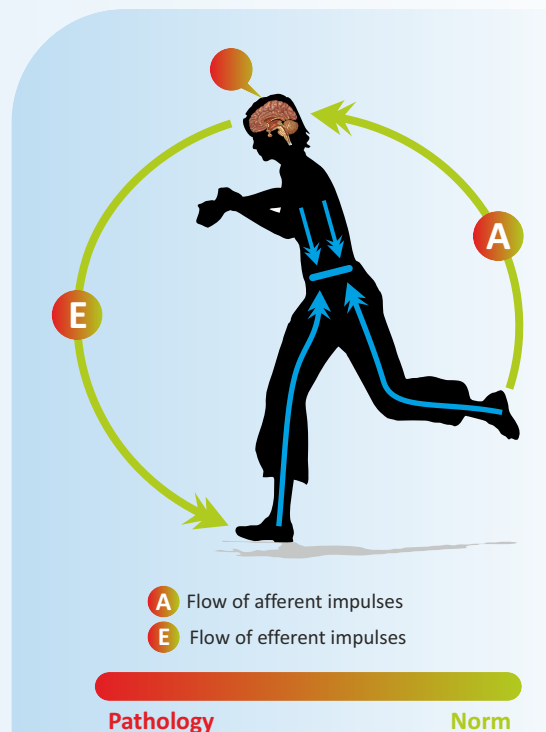
space neurology as well as Russian space medicine.

With the help of up to four specialists, the patients learn to sit, stand, walk, talk and take care of themselves for several hours a day. In this way, they make significant progress on their way back to normal life.

One of a kind in Europe

There are hardly any other neuro-rehabilitation centres in Europe which use proprioceptive stimulation with such intensity, individuality and variety.

Patients are treated at ADELI based on the latest achievements of Austrian-German



The brain learns to control the body from birth. The learning process happens by exchanging signals between the body and the brain.

The brain learns constantly, a lifetime - through permanent feedback from the so-called afferent impulses (see above). The various sensors in the nervous system (proprioceptors) tell the brain continuously and in detail, what the body is currently doing.

Space neurology and proprioception

Unique

Devices and specialised procedures, originating from space medicine make the rehabilitation program of ADELI Medical Center incomparable to other institutions. The application of such equipment makes the therapy program even more effective for each patient.

The concepts were developed by scientists in the USA, Russia and Germany, to prevent damage to the nervous and muscular systems of astronauts. These are damages that result from physical inactivity and weightlessness. Similarly to patients with brain damage, the brain of an astronaut "forgets" the correct movements due to lack of proper input. In this case, stimulating the healthy proprioception provides the right solution.



Univ. Prof. Dr. Dr. h.c. mult.
Franz Gerstenbrand

"The devices developed by space neurology for preventing disorders that are caused by the absence of gravity can be used to activate the proprioceptive system and its effect on motor functions. New treatment programs have been developed by using the cosmonaut suit. The vibro-stimulation

shoe is already used in the rehabilitation of spastic symptoms and in preventing bed-rest syndrome.

The study of the proprioceptive system with the help of insights from real and simulated weightlessness opens up a new path in rehabilitation. It also opens up new diagnostic methods for early detection of neurological disorders."

The anti-gravitation system

of a human is like "software" that is built into the nervous system. This program controls every movement in response to the continuously acting force of gravity - in particular, the head and trunk control and the musculoskeletal functions of the legs.

The anti-gravity system of most brain-damaged patients is underdeveloped. In some cases, there are congenital deficiencies, in other - the program has been damaged after a brain injury. Wheelchair patients and bedridden patients, as well as people with limited mobility or balance problems are particularly affected.

Outstanding effectiveness

is achieved due to special exercises with simulated hypo- and hyper gravity: with suits from Russian space medicine. Foot sole stimulation and vibration therapy also make an important contribution to the success of treatment and come from German and Austrian space neurology.



Hyperbaric Oxygen Therapy



Lack of oxygen as cause for brain damage

■ Lack of oxygen during birth is a known cause for infantile cerebral palsy. The deficiency leads to a brain haemorrhage and damage in the child's brain.

■ Lack of oxygen in the adult brain tissue is most often the cause of a stroke.

■ Although the damaged brain cells are not recoverable, there are intact inactive cells surrounding the centre of injury, so-called "idling neurons" that can be reactivated.

Oxygen activates the brain

The air we breathe consists of 78 percent nitrogen, 21 percent oxygen and various other gases such as argon, neon and helium.

During oxygen therapy, no other gases but pure oxygen at a pressure of 0.7 to 1.3 bars is inhaled, inside the pressure chamber. This increases the oxygen content in the body by up to 25-fold. Thus, barriers to oxygen supply on the way to important body systems are overcome and numerous body functions are activated.

Following the successful application of this procedure in reanimation and intensive medicine, it is now also being used in neurorehabilitation.

State-of-the-art oxygen chamber

A state-of-the-art hyperbaric chamber was produced especially for ADELI Medical Center. The chamber is at the leading edge of technology. Apart from optimal treatment, it allows for continuous observation by specially trained medical personnel as well as computer supervision.

Up to twelve patients and two highly qualified staff members looking after the well-being of patients during treatment, can be accommodated in the chamber for the duration of the session.

Audio and video entertainment is available during the 60 to 120 minute - long sessions in the hyperbaric chamber.

Reactivating dormant brain cells

Even in damaged brain areas that are no longer supplied with blood and thus with oxygen, hyperbaric oxygenation reaches the inactive cells and provides them with the needed oxygen.

Idling neurons are reactivated and provide the basis for some brain functions to be restored.

It is important that the new brain capacities receive physiological stimulation immediately after activation: the intensive proprioception in ADELI Medical Center is a proven method to learn the right movements again and perform them independently as far as possible.



By all means to success

One-of-its-kind in Europe

As the only healthcare facility in Europe, ADELI Medical Center combines two particularly effective methods for treating patients with damage to the central nervous system: intensive proprioception and hyperbaric oxygen therapy.

ADELI has developed this combination in conjunction with distinguished German and Austrian neurologists, in order to further increase the effectiveness of the treatment program.

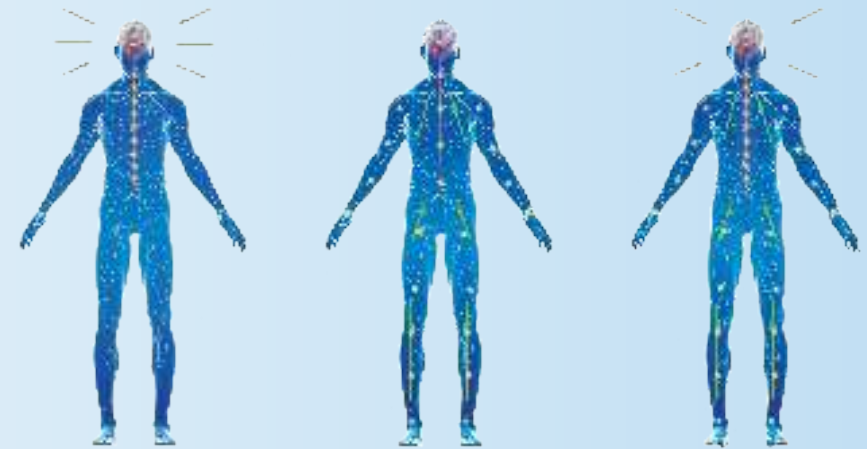
Regain quality of life

The basis of this combination is smart and simple and has proven itself from the first application. Hyperbaric oxygen therapy activates the damaged areas in the central nervous system and makes the brain cells active and capable of learning. Proprioceptive stimulation supplies the brain intensively with the right information, which can be saved rapidly and effectively by newly created capacities.

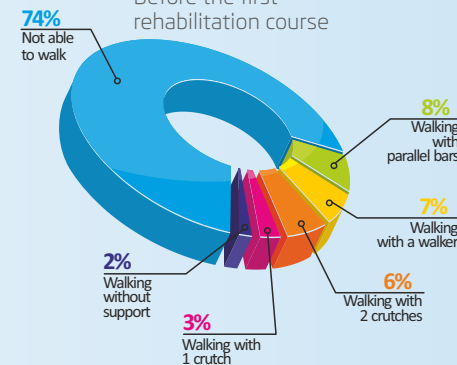
Patients, for whom this treatment program is appropriate, have the possibility of a faster and more effective rehabilitation on their way to more independence and better quality of life.

For more information

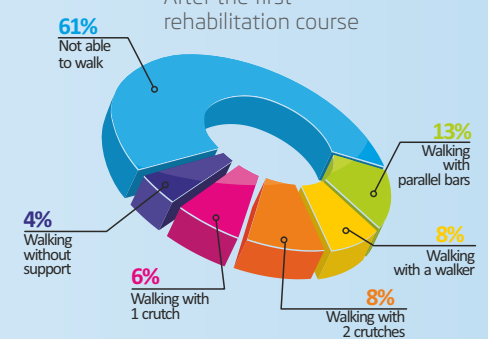
on the neurorehabilitation program and other specific procedures, see the Catalogue of services and quality management of
ADELI Medical Center
and at
www.adelicenter.eu



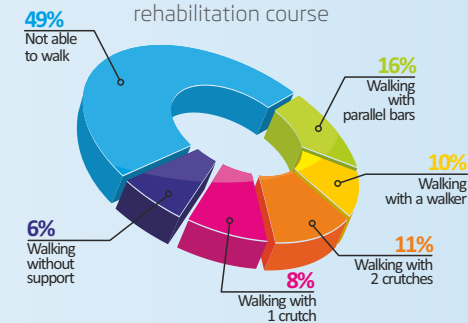
Before the first rehabilitation course



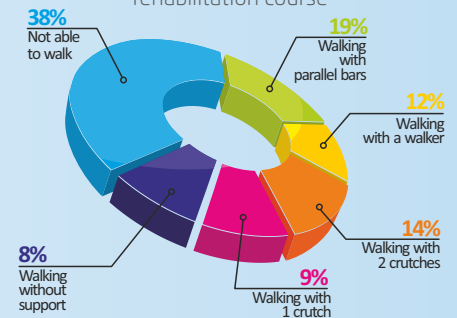
After the first rehabilitation course



After the second rehabilitation course



After the third rehabilitation course





Relaxed stay

At ADELI Medical Center, WELL BEING - for patients and their families - is the priority. We are most delighted when the relatives view their stay with us as a holiday, feeling the patient is in good hands.

The Centre is located in a quiet area, minutes away from a shopping centre and the city centre of Piestany.

A break from everyday life

Spread over 8000m², it has everything under one roof - accommodation in barrier-free rooms with free WiFi access, meals in the restaurant or in the cafeteria and recreation for the families of our patients: massages, swimming pool and sauna.

Other options exist for more active relaxation - be it cycling, hiking, bowling, tennis, golf or squash.

For younger guests and patients, there is a supervised kid's club, playing areas and a snooze room.



ADELI Medical Center

Clinic for neurology, rehabilitation, physical medicine, rheumatology, balneology, clinical speech therapy and intensive medicine

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