THIS IS TYROMOTION
OVER 1,000 DEVICES IN 300 CLINICS
THE TYROSOLUTION
THE CLEVER THERAPY
WHY TYROMOTION?
OUR PRODUCTS
AMADEO®
DIEGO®
THE PABLO® SYSTEM
THE TYMO® SYSTEM
TYROSTATION
MYRO®
TYROS® – THE SOFTWARE
STUDIES
IN PEDIATRICS
FINGERS IN MOTION – THE APP
TYRO’S WORLD – THE NETWORK
OUR VISION
TYROMOTION GMBH is a world-leading producer of robotics- and computer-assisted therapy devices. The company’s focus is on providing a complete solution which enables doctors and therapists to treat their patients more intensively and make the rehabilitation process more motivating. With over 1,000 devices in about 300 clinics, reha-centers and therapy practices, TYROMOTION GMBH is globally represented.

The company, with headquarters in Graz, Austria, has additional sites in Germany and the USA, as well as a therapy institute (TYRO-MOMENTUM) in Graz, Austria. The distribution network stretches across the entire world.

see also » TYRO’S WORLD – THE NETWORK

TYROMOTION GmbH

MEDICLIN REHA-ZENTRUM ROTER HÜGEL – the modernly furnished interdisciplinary rehabilitation center in Bayreuth, Germany, comprises the departments of neurology, conservative orthopedics and geriatrics.

“We are extremely impressed by the devices. Personally, I particularly appreciate the nearly unlimited therapy options they offer. Thus, I can really tailor the rehabilitation to each individual patient.”
– Iris Ranft, Head of Department Occupational Therapy, Roter Hügel, Germany

PRIVATE CLINIC LASSENTHÖHE – the private clinic Laßnitzhöhe has a custom-made TYROSOLUTION arm-studio, in which impaired and lost function of the arm and hand can be trained and regained.

“With the TYROSOLUTION we can provide diverse support for all phases of rehabilitative therapy. At our clinic, we particularly appreciate the flexible range of applications for the upper extremity.”
– Priv. Dr. Walter Kreuzig, Private Clinic Laßnitzhöhe, Austria

MOSS REHAB has repeatedly been voted among the top ten rehabilitation clinics in the USA and is considered a world-leading institution. Moss Rehab was the first US-American rehabilitation clinic to be equipped with TYROSOLUTION devices.

“The engineers that work for TYROMOTION are pretty smart; they seem to understand what the needs of clinicians and their patients are. Patients – for the very first time – tell you “Doc, I actually like therapy. I want to be in therapy.” Because not only are they using the TYROSOLUTION as an interactive, therapeutic approach but they are getting feedback and that feedback seems to be something they enjoy and appreciate.”
– Dr. Alberto Esquenazi, MD, Chair of the Department of Physical Medicine and Rehabilitation, Moss Rehab Einstein Healthcare Network, USA

Further reference clinics and practices, as well as more detailed information can be found here.
The TYROSOLUTION is a complete concept for the application of robotics- and computer-assisted therapy devices for the upper extremity. Adjustable to the needs of the individual, the TYROSOLUTION is suited for a broad patient spectrum throughout all phases of rehabilitation. The TYROSOLUTION software provides a gapless documentation and evaluation of the therapy progress and offers a huge range of therapy applications for more motivation, efficiency, and variety.
WHY TYROMOTION?

THE CLEVER CONCEPT
1. The therapy concept for the entire upper extremity in all phases of rehabilitation
2. Perfectly compatible devices for maximum effect and flexibility in therapy
3. For a broad patient spectrum, individual adjustment to neurological and orthopedic patients of all ages

THE CLEVER APPLICATION
1. Easy and intuitive handling for therapist and patient alike
2. Efficiency during therapy: short training phases, easy to use, quick setup and all data always in view — entirely without paperwork
3. Greatest benefit in the shortest time for more motivation

"The TYROSOLUTION convinced me with the easy handling and the therapy options it provides."
— Peter David Lloyd, stroke patient, Australia

THE CLEVER SOFTWARE
1. Server solution with TYRO software for wireless networking of all devices, easy saving
2. Vast number of interactive therapy programs for the training of motor and cognitive abilities, for maximum effectivity
3. Sophisticated assessments, clear documentation and well-structured visualization of the therapy progress

"AMADEO and the PABLO system provide me with the option to document and recall the patient’s success and progress any time. This makes it easier to draw-up reports for physicians and public health funds."
— Daniel Ramming, management, Therapy practice Autonomie Ergotherapie, Germany

Why TyroMotion?
OUR PRODUCTS

The TYRO SOLUTION in detail.
One therapy concept for all age groups.
In all phases of rehabilitation.
AMADEO®
MOVE YOUR FINGERS.

FINGER-HAND REHABILITATION

AMADEO is a computer- and robotics-assisted therapy device for fingers and hand in all phases of neurorehabilitation. In everyday life at the clinic and the practice, AMADEO guarantees flexibility: suitable for adults and children, the device can be easily adjusted to individual requirements. Such a perfectly tuned therapy program rapidly helps the patient gain quality of life and motivation. Depending on the rehabilitation progress, the therapist has the option to choose between passive, assistive and active therapy modules.

THE CLEVER THERAPY DEVICE

The patented AMADEO mechanism imitates the natural grasping movement of the hand. Specific exercises with the AMADEO help in cases of limited range of motion, motor function, strength and sense of touch. The finger movements stimulate the brain, and thus the reformation of synapses. Intensive training with a high frequency of repetitions particularly boosts the learning process. In addition, AMADEO reduces spasticity.

As it can be adjusted to the individual needs, AMADEO supports the patient in an intensity that makes it possible to train at the personal limit of performance.

After attaching the fingertips to the fingers and thumb, the therapist selects a customizable therapy program. Perfectly adjusted to the patient’s hand, automated motion sequences are then executed. Depending on the degree of the impairment, the patient can train passively, with assistance from the device, or actively at the individual limit of performance. EMG-triggered training enables early active training, even without muscular strength.

THE ASSESSMENT

Via bio-feedback the patient can follow the motion sequences acoustically and optically in real-time. Built-in sensors allow a quantitative documentation and evaluation of the occurring finger forces and the range of motion. The therapy progress becomes assessable and visible for the patient. This increases the motivation.

THERAPY WITH AMADEO®
PASSIVE, ASSISTIVE AND ACTIVE TRAINING.

– 3 ADVANTAGES AT A GLANCE –

1. For all phases of neurorehabilitation
2. Greatest flexibility for a broad patient spectrum
3. Numerous applications for a more varied therapy routine
Diego® Training in Space.

Arm-Shoulder Rehabilitation

DieGO supports the often difficult training to regain lost arm-shoulder-function in the neurological and orthopedic fields. Arm slings enable an easy fixation of the patient to the device, uni- and bilaterally. The unique overhead construction makes movement in three-dimensional space possible. Passive, assistive and active therapy with DIEGO guides the patient back to naturally accustomed activities.

With DIEGO the rehabilitation process becomes more varied, motivating and target-oriented.

Gaining Momentum for Both Arms

The intelligent gravity compensation (IGC) enables an optimal mobilization of the arms even at an early stage of the rehabilitation process. Thus, natural movements and task-oriented training at the individual limit of performance is also made possible for patients with very little function. In addition, DIEGO scores with its bimanual application option. Other than most devices on the market, DIEGO allows the patient to use both arms simultaneously. This brings therapy much closer to the everyday movements of a human being. DIEGO is suitable for children and adults in all phases of rehabilitation.

Virtual Reality Therapy for All Phases of Neurorehabilitation.

DIEGO brings movement in the treatment of the upper extremity. The playful and interactive training is conducted by means of specially developed one-, two- and three-dimensional therapy modules. In 3-D Virtual Reality Therapy, the immediate motion of the arm is represented on the computer screen. In combination with the Intelligent Gravity Compensation (IGC), the patient has the unique sensation of being able to execute lost function from the very start. This is incredibly motivating.

As part of the TYROSOLUTION, DIEGO comes with the TYRO S software, which offers not just a multitude of therapy modules but also tracks and documents the therapy progress.

1. Active, assistive and passive therapy modules for uni- and bilateral training
2. Enables ergonomic, three-dimensional movement – thanks to Intelligent Gravity Compensation also at an early stage of rehabilitation
3. For a broad patient spectrum

– 3 Advantages at a Glance –
The PABLO® System presents new perspectives and possibilities in motor rehabilitation. The system solution includes the PABLO Sensor Handle, the PABLO Multiball, the PABLO Multibelt, and the PABLO Multiboard.

The PABLO Sensor Handle enables force evaluation of gripping forms, such as the cylinder grip and the pinch grip. Additionally, included position sensors can discern the range of motion of wrist, elbow, and shoulder joint. The PABLO Sensor Handle is simply connected to the USB port of a PC or a notebook.

The PABLO Multiball trains pronation and supination of the lower arm, as well as extension and flexion of the wrist. Even at an early stage of rehabilitation, such as flaccid hemiparesis, targeted applications with the PABLO Multiball are possible.

The PABLO Multiboard can be used for repetitive distal and proximal single- and multi-joint exercises.

The PABLO® System provides well-founded therapeutic possibilities to intervene on a functional, as well as on an activity level. It is superbly suited for the treatment of children and adults with neurologically or orthopaedically induced motor impairment of the hands and arms.

The TyrO S software is the centerpiece of the system. The therapeutic software offers special exercises with the PABLO SYSTEM as well as a report- and documentation system for therapeutic purposes. Interactive therapy modules make the PABLO SYSTEM a motivating all-rounder in the field of hand-arm rehabilitation.

THE PABLO® SYSTEM

1. Numerous static and dynamic assessment- and therapy options for the upper and lower extremity
2. Easy-to-use and wireless, barrier-free design
3. Suitable for patients of all ages

«PABLO in moving pictures»

THE PABLO® SYSTEM

– 3 advantages at a glance –

1. A multitude of options for hand-arm therapy
2. Suitable for children and adults
3. Interactive therapy modules paired with evaluation- and documentation software

COST SAVING SOLUTION FOR SMALL THERAPY CENTRES

– 3 advantages at a glance –

1. A multitude of options for hand-arm therapy
2. Suitable for children and adults
3. Interactive therapy modules paired with evaluation- and documentation software

COST SAVING SOLUTION FOR SMALL THERAPY CENTRES
The TyrOSTATIOn is a workstation for the PABLO System and TymO, which has been optimized for the challenges of everyday therapy. The integrated storage space keeps all devices plus accessories within reach and entirely accessible. The surface is height-adjustable and can be perfectly adapted to all patients. Thus, the TyrOSTATIOn is not just suited as a support for patients standing up but also for wheelchair users. With the TyrOSTATIOn, everything gets in the way of an efficient therapy.

One for all
The all-in-one PC has been equipped with the TyrO S software. Thus, all devices can be used with the TyrOSTATIOn without any hassle: for a gapless documentation and evaluation of the rehabilitation progress.

TymO
TymO impresses because of its versatility and most diverse application opportunities, such as the improvement of balance and postural control, as well as active use of force and support activities of the upper extremities. TymO is also suited for stabilization training of the lower extremity.

The transport can freely extend the preset starting positions (support, sitting and standing). In addition, TymO offers the option to use TymO not just statically but also dynamically.

Due to its thin and wireless design, TymO is barrier-free and flexible in use. The individually adjustable TyrO S Software enables training at the motoric and sensory limit of performance. Neurological and orthopedic patients of all ages can be treated with TymO.

TYMO in rehabilitation – measuring & therapeutic applications.
TymO can be used statically with an elastic support and as a movement board with selective movement axes. These functions have been taken into account in the measuring programs and therapy modules. As a result, the respective deficits of a patient can be addressed in an extremely individualized manner. Static evaluation and therapy: force and weight distributions can be measured and trained in a playful manner with the patient standing, sitting and supporting himself/herself. Dynamic evaluation and therapy: When a rolling element is placed underneath TymO is mobile and can be used to analyze and train the ability of patients to preserve their balance and/or to keep their balance.

The individually adjustable software TyrO S with its playful design enables training at the motor and sensory limit of performance of each individual patient and additionally enables complete follow-up and documentation.

For more information about that, refer to » TyrO S.

The TyMo® System
Rehabilitation for the entire body
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For more information about that, refer to » TyrO S.

Cost saving solution for small therapy centres
TymO in use.
myrO®
ACTIVE. INTERACTIVE.
IN ALL POSITIONS.

THE INTERACTIVE SURFACE FOR A FAR-REACHING THERAPY

myrO is an interactive therapy surface which can be used in a multitude of ways: the myrO sensors allow everyday life motor training with real objects on a responsive surface. myrO reacts not only to motion but also to pressure. Graphomotoric therapy approaches can be realized flexibly and independently of consumables. Spatially explorative elements create more options for cognitive therapy.

MYRO adapts to the needs of each patient; horizontally and vertically: myrO is height-adjustable and the work-surface can be tilted from 0 to 90 degrees. And even myrO's responsive area can be scaled to the patient's ability, which allows training at the personal limit of performance.

myrO supports task-oriented rehabilitation with real objects, trains everyday movements and improves the patient's motor abilities. MYRO also offers a multitude of neurocognitive modules, which can be completed either alone or in multiplayer mode. Therapy with MYRO never gets boring.

– 3 ADVANTAGES AT A GLANCE –

1. Flexible application options, such as therapy with real objects, for a broad patient spectrum
2. Incl. TYRO® for documentation and evaluation of the therapy progress
3. Combination of pressure sensitivity, sensor precision and scalable area of motion
The Three Core Areas of the Software

1 INTERACTIVE THERAPY – Motoric, sensory and cognitive deficits can be playfully counteracted by means of a large number of therapy modules. Thus, the patient’s attention is directed at an external focus, even repetitive training becomes more varied and simply makes more fun.

2 ASSESSMENTS – Each device of the TYROSOLUTION includes the option to conduct assessments. Objective evaluation measures enable a perfect therapy adjustment to the patient. Progress is recorded and the rehabilitation process is made visible. This facilitates the diagnosis and creates motivation.

3 REPORT AND DOCUMENTATION – The TYROS documentation system creates a patient file and saves all results of the diagnosis and the therapy progress. Every new diagnosis is automatically saved and the system creates a therapy report, as well as a final report. These include all data and a diagram of the therapy progress. This saves time and avoids tedious paperwork.

TyrO S is a therapy software specifically developed for the TYROSOLUTION. The individually adjustable and playfully designed modules enable motivating training of motor, sensory and cognitive deficits of each patient and allow a gapless progress tracking and documentation. The software, which is also used for controlling the therapy process, has been developed in close cooperation with patients, therapists and doctors – together with Verena Schweizer the software has been extended to include cognitive therapy games from her neurotraining.

With TYROS the TYROSOLUTION gains numerous additional aspects which make it possible to meet every single patient’s needs.

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The Heart Piece of the TYROSOLUTION.

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3 ADVANTAGES AT A GLANCE –

1 Simple and consistent, very little time required for training
2 Well-conceived documentation and report system
3 A huge selection of interactive therapy games and modules

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EVIDENCE ON ROBOTICS- AND COMPUTER-ASSISTED THERAPY

The therapeutic potential of neuronal plasticity in cases of neurological impairments is undisputed. Theories of cortical reorganisation after brain lesion recommend early, intensive, repetitive and contextual training as an ideal strategy to facilitate relearning of motor function and to minimise motor deficit (Mahrholz et al., 2012).

In this context, the therapy with robotics- and computer-assisted therapy devices can make an important contribution to the optimization of the rehabilitation process (Lo et al., 2010, Hesse et al., 2012). In comparison to conventional therapy concepts, the advantages of robotics-assisted therapy lie in the number of repetitions during training, as well as in the possibility of autonomous exercise (Mahrholz et al., 2012). Thus, clinical guidelines recommend the use of robotics-assisted therapy devices in the rehabilitation of the upper extremity after a stroke (VA/DoD Clinical practice guideline, DGNR-Guidelines).

The Tyropolis concept unites these principles and provides robotics- and sensor-based systems which are suited for patients from the acute to the chronic phase and for all severity levels of motor function impairment. The robotic devices support distal, repetitive hand training and proximal functional arm training. In addition, the sensor-based devices cover the entire upper extremity and the trunk and encourage the patient’s cooperation by means of interactive training.

AmaDeo®

In a study with AmaDeo, Pinter et al. (2013) were able to show that, after active therapy with AmaDeo, the activation of the ipsilateral primary somatosensory cortex and of the supplementary motor area as appeared “normal”. An increased recruitment of the originally functional network became apparent.

Moreover, the practicability, safety and clinical effectiveness in stroke rehabilitation for acute (Sale et al., 2012, 2014), subacute (Hwang et al., 2012), as well as chronic patients (Stein et al., 2011) have been demonstrated.

The I/O interface of the AmaDeo allows researchers worldwide to conduct fundamental research in the fields of robotics-assisted hand training in combination with electromyography-based closed-loop control, brain-computer interface, transcranial magnetic stimulation and transcranial direct current stimulation.

Diego®

Waller and Whitall (2008) have shown the importance of unilateral and bilateral arm training. Especially bilateral task-oriented training is imperative for the (re-)learning of everyday activities. Intelligent Gravity Compensation causes an effective reduction of synergy-dependant linkage, as well as a maximized joint excursion and reach (Kwakkel & Maskev, 2014). The “assisted-as-needed” adjustment of the gravity compensation allows a task-oriented therapy with a reduced individual limit of performance in order to train force and mobility in the most effective way possible.

Serious Gaming

Therapy games actively involve the patient. The therapy software Tyro® stands out due to individual adjustability of the gaming parameters, monitoring of patient movements, feedback, documentation and the use on various therapy devices, depending on pathology and rehabilitation goal. Therefore, in order to reach those therapy goals, spatially developed games for therapeutic purposes should be preferred over conventional games produced for the entertainment industry (Borghese et al., 2013).

By employing virtual reality integrated in those therapy games, an improved recovery of motor function of the upper extremity is a given (Vinás-Díz et al., 2015).

The playful and motivating approach in the application benefits patients and therapists alike. Studies have shown increased motivation during therapy sessions with therapy games (Swanson et al., 2015).
IN PEDIATRICS

TAILORED TO CHILDREN
Therapy with children is particularly close to our heart. Therefore, the TYROSOLUTION provides a choice of products which is ideally suited for the needs of younger patients. Thanks to a specially developed hand-finger-rest, AMADEO perfectly fits small hands and fingers. The AMADEO Fingerfix plasters are also available in child-sizes. In therapy with DIEGO, special arm slings provide perfect support. The greatest advantage of the TYROSOLUTION lies in the playful approach of the therapy modules.

REACHING YOUR GOAL WITH GAMES
The interactive therapy games of the TYROSOLUTION are particularly effective with pediatric patients, as the child’s attention is directed at an external focus. Repetitive training is no longer perceived as such. Instead, it’s about putting out a fire, collecting apples, steering cars, maneuvering hot air balloons and much more! The large selection of programs ensures that therapy never gets boring. Various difficulty levels make an adjustment to the child’s limit of performance possible. This sparks ambition and motivation. And what’s probably most important: therapy makes loads of fun and appetite for more.

FINGERS IN MOTION
THE APP

MORE FEELING FOR YOUR FINGERTIPS
The app provides special finger- and hand-exercises on the iPad. You can choose between numerous different movement patterns for one or more fingers, which need to be traced. The user receives individual feedback about the precision and execution of the exercise after each training session.

ONE APP, MANY ADVANTAGES
The Finger Motion App allows clinics to be closer to their patients than ever, even after completion of the patients’ therapy program. Create your own in-app homepage and connect with your patients. The additional offer makes you as a clinic unique, attracts new target groups and increases revenue!

– APP ADVANTAGES –
- Free clinic ads on your in-app homepage – completely individual
- Additional offers and services for patients
- Motivating exercises for greater patient satisfaction

FINGER MOTION at the Apple iTunes Store»
What makes a manufacturer of medical devices one of the leaders in the business? In addition to high-quality products and services, as well as constant further development of a solution concept, it is one thing in particular: being close to one’s customers.

TYROMOTION GMBH with headquarters in Graz has branch establishments in Germany and the USA. The innovative therapy units are used in rehabilitation centers and hospitals world-wide. The distribution network extends across the entire globe.
Our goal is to facilitate day-to-day rehabilitation. For patients who finally want to feel and move their bodies again and want to be mentally challenged and stimulated. For therapists who want to spend less time with documentation and more time with therapy. And for clinics which would like to increase their efficiency while maintaining the best quality.

Together with therapists and patients, we are developing innovative therapy concepts which combine the latest research and decade-long clinical experience. We aim at a holistic improvement of the rehabilitation process and want to accompany people throughout all phases of their therapy.

**OUR MISSION** is to provide well-conceived rehabilitation solutions, a broad spectrum of treatment options and new perspectives. We not only create revolutionary products with great passion, we also want to give additional value to patients, therapists and doctors. This is our vision for a simpler, more varied and more motivating therapy.

**AWARDS**

Our dedication has been regularly acknowledged, both nationally and internationally. Naturally, we are particularly excited about that and feel encouraged for the future. Among our awards are such prestigious prices as the Design Management Europe Award and the Austrian State Award for Innovation. We see such distinctions as confirmation of our course and will continue our path, always with the needs of our target groups in mind.

For further information, you can go to [www.tyromotion.com/en](http://www.tyromotion.com/en)

**CERTIFICATIONS**

**TYROMOTION GMBH** is a certified manufacturer of medical devices and is subject to strict international guidelines. In order to always remain up-to-date with regards to product- and service quality, we regularly conduct internal and supplier audits.

- ISO 13485 (with extension for Canada – CMDCAS)
- 93/42 EWG Annex II (full quality assurance system)