

Improving Rehabilitation Outcomes with Technology

Tellabs Center for Neurorehabilitation and Neuroplasticity

The Tellabs Center for Neurorehabilitation and Neuroplasticity delivers innovative diagnostic and treatment capabilities for adults and children experiencing neurologic impairment resulting from injury or disease. Neurorehabilitation supports brain neuroplasticity, the capability of nerve cells in the brain to reorganize and reconnect around damaged areas.

State-of-the-art technology in the Tellabs Center delivers evidence-based treatment maximizing recovery and promoting independence for patients recovering from:

- Stroke
- Brain injury
- Spinal cord injury
- Guillain-Barré syndrome
- Multiple sclerosis
- Parkinson's Disease
- Cerebral palsy
- Other neurologic disorders and impairments

Enhancing Care with New Technology

Marianjoy is one of a select few clinical facilities in the nation to feature such a wide range of the latest rehabilitation technology including:

Ekso GT™ Robotic Exoskeleton

Utilizing robotics to reeducate the brain and muscles

ZeroG® Gait and Balance Training System

Safely pushing patients to their limits without risk of falling or injury

Armeo® Power Robotic Arm Exoskeleton and Armeo® Spring Arm & Hand Therapy

Stimulating brain and muscle activity to regain lost arm movement

Woodway Split-Belt Treadmill

Builds neuroplasticity while interfacing with the ZeroG® system

KineAssist-MX®

Improving performance through a patient-driven exercise platform

RealEyesX DVR™ Binocular Video Goggles

Improving balance and visual-motor skills through virtual reality

NuStep Recumbent Trainer

Moderate exercise platform for neuroplastic "priming"

Bioness® Integrated Therapy System

Visuomotor System evaluates and improves visual-motor activities

Bioness® L-300 Electrical Stimulation for the Leg and Thigh

Wireless technology stimulates muscles to contract and lift

RE-WALK™ Bionic Leg and Suit

Enabling patients with lower limb weakness to stand, walk, and even take stairs independently

Bertec Balance Advantage™ System CDP

Diagnosing and treating balance impairments with virtual reality



Redefining Rehabilitation

The New Marianjoy Assistive Rehabilitation Technology Institute

“By using assistive technology, our clinicians are better able to assess specific body mechanics; test and evaluate therapeutic alternatives; and utilize this knowledge to benefit our patients by helping them maximize their abilities.”

**Kathleen Yosko,
President Marianjoy**

Patients of the Marianjoy Assistive Rehabilitation Technology Institute work with specially trained therapists and clinicians to find solutions to everyday problems of daily living frequently encountered by individuals with disabilities.

Assistive technology refers to equipment that has been shown to augment educational, vocational, and recreational opportunities for individuals with functional limitations and disabilities. New technologies can be used to improve mobility and communication, enabling adults and children to lead more active, healthy, and independent lives.

The Institute consists of a number of Centers of Excellence where advancements in technology are applied to benefit individuals with disabilities by maximizing functional independence, as described below:



The Assistive Communication and Daily Living Center

provides therapy and technology-based solutions to individuals requiring augmentative and alternative communication methods. Patients can also use environmental controls to turn lights on and off; use small appliances; and open doors.

The Balance and Vestibular Center

provides physical therapy designed to improve vestibular function and postural controls in order to reduce falls and decrease dizziness.

The Driver Rehabilitation Center

at Marianjoy is one of the most highly regarded driver programs in the midwest. Teen and adult patients with disabilities learn or relearn to drive adaptive vehicles configured to suit individuals with varying abilities.

The Gait Analysis and Mobility Center

specializes in walking and gait analysis for patients following a stroke, spinal cord injury, and other neuromuscular disorders.

The Prosthetic and Orthotic Center

evaluates, treats, and supports individuals with amputation and orthotic needs. The team works with certified prosthetists and orthotists to restore mobility and offer solutions for a more active lifestyle.

High Tech and High Touch

The **Marianjoy Assistive Rehabilitation Technology Institute** offers state-of-the-art equipment enabling Marianjoy clinicians and researchers to collect, analyze, and apply data for evidence-based research to improve patient outcomes. The following information highlights some of the new technology at Marianjoy;



To learn more about the Marianjoy Assistive Rehabilitation Technology Institute, visit www.Marianjoy.org.



Armeo® Power Robotic Arm Exoskeleton and Armeo® Spring Arm & Hand Therapy: The Armeo uses robotic technology in conjunction with virtual-reality simulation to help a patient regain use of their arm and hand.



Ekso™Bionics GT: The Ekso Bionics GT is a bionic machine, consisting of an external framework and powered by a system of motors, that enables patients with lower-extremity weakness or paralysis to stand and walk on level surfaces.



The Bioness® Integrated Therapy System: is an easy-to-use rehabilitation therapy tool designed to evaluate individuals who are experiencing visual field loss, visual-spatial neglect, visual-vestibular integration problems, problem-solving issues, and cognitive challenges.



KineAssist-MX®: The KineAssist-MX is a patient-driven platform for performing a wide array of walking and balance-related skill therapies that result in improved performance of daily activities.



IREX®: IREX is a virtual-reality therapy system that uses immersive video gesture control technology to place patients into virtual sport or gaming environments, where they are guided through clinician-prescribed therapeutic exercise regimes.



Pressure Mapping: Pressure Mapping allows monitoring and comparison of pressure distributions over time. It aids in the healing and prevention of pressure sores; offers comparisons between products to determine the most effective one in relieving pressure-related problems; identifies the optimal support surface for the individual.



The Swallowing and Voice Center conducts thorough diagnostic evaluations and treatments of swallowing difficulties, using advanced equipment and technology to improve swallowing and voice production.

The Wheelchair and Positioning Center uses advanced technology and pressure-mapping to measure and evaluate patient body-weight distribution. SmartWheel technology measures propulsion that helps improve mobility and reduce the risk of injury. The Center also provides wheelchair comparisons, training, and follow-up assessments.

The New Aquatic Therapy and Fitness Center

The benefits of warm-water therapy in physical rehabilitation have long been recognized. By decreasing the force of gravity on the body, the buoyancy of water provides ease of movement and offers an environment to address balance issues safely, without the fear of falling. The water's hydrostatic pressure also offers sufficient resistance to increase body awareness and improve muscle strength and endurance. As a result, patients in the Aquatic Therapy Program can achieve their treatment goals with less joint and muscle stress than in a traditional clinical environment. Aquatic therapy at Marianjoy is used either in conjunction with land-based therapy or as a stand-alone treatment option, performed by physical or occupational therapists.

Other benefits of warm-water aquatic therapy include:

- Post-operative pain reduction
- Spasticity reduction
- Joint pain reduction
- Low-impact resistance
- Graded-depth weight-bearing environment



www.Marianjoy.org



To learn more about
Aquatic Therapy at Marianjoy
Rehabilitation Hospital, visit
www.Marianjoy.org.

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26W171 Roosevelt Road, Wheaton, Illinois 60187 • 800.462.2366 • www.Marianjoy.org

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