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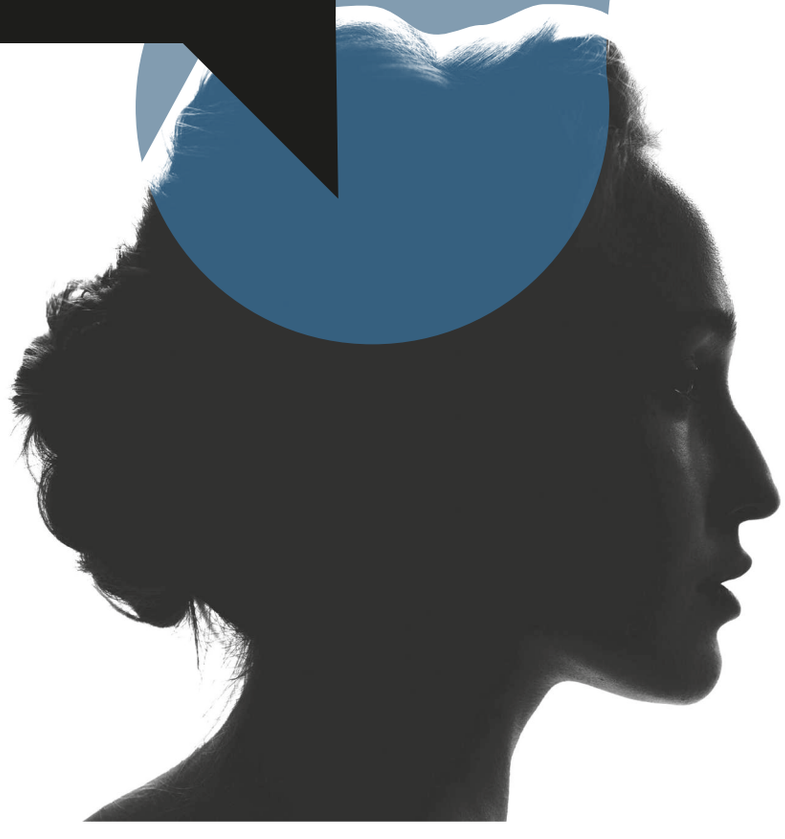
ALEX RS

Arm Light Exoskeleton Rehab Station

More than **200 million patients** globally require neuro rehabilitation due to conditions such as **stroke (80 million), traumatic brain injury (56 million), and spinal cord injury (27 million),** among others.

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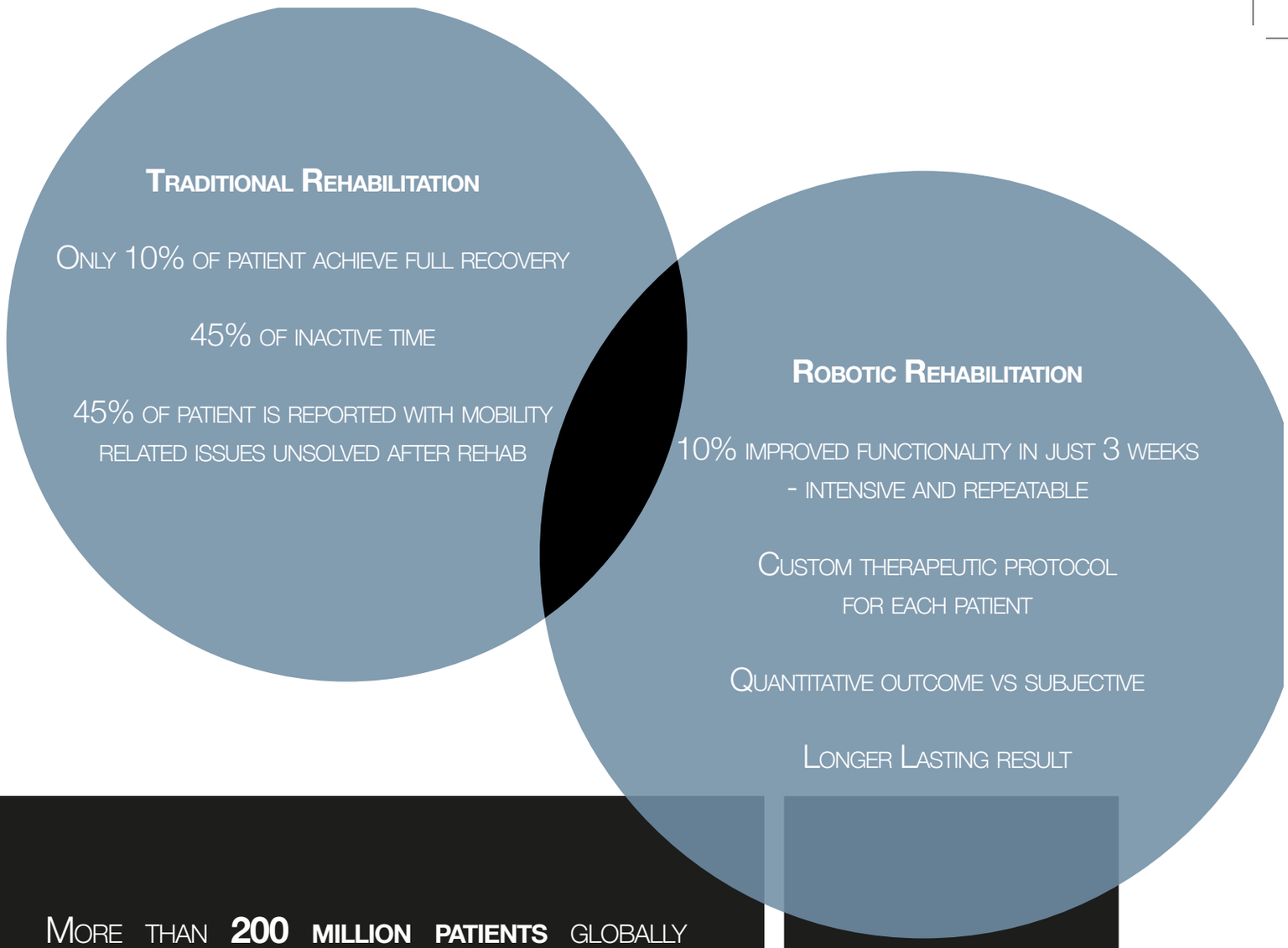


More than **200 million patients** globally require neuro rehabilitation due to conditions such as **stroke (80 million), traumatic brain injury (56 million), and spinal cord injury (27 million),** among others.

The main goal of neuromotor rehab is to help patients regain autonomy and improve control over their limb movements. The likelihood of recovery for patients, which is primarily influenced by the type and severity of the injury, heavily relies on the quality and intensity of the rehab treatment, the specific exercises performed, and personalized rehab plans tailored to individual patient characteristics.

Currently, these therapies are conventionally administered through periodic sessions by therapists. However, traditional physical therapy lacks intensity, with 45% of inactive time during rehab due to fatigue and tiredness, and lacks measurable tracking of patient progress. It has been noted that up to 45% of patients continue to face unresolved mobility issues post-rehab, with only 10% achieving full mobility recovery.

This underscores the importance of transitioning to robotic rehabilitation, which offers more intensive and repetitive treatment leading to quicker and longer-lasting results.

ALEX RS

Arm Light Exoskeleton Rehab Station

The ALEx RS (Arm Light Exoskeleton Rehab Station) is an advanced robotic apparatus designed for upper limb rehabilitation in patients recovering from neurological traumas such as strokes or requiring specialized rehabilitation post bone fractures or surgeries. This innovative device facilitates a comprehensive motor rehabilitation program aimed at restoring joint mobility, enhancing coordination, and incorporating task-specific and cognitive performance elements.

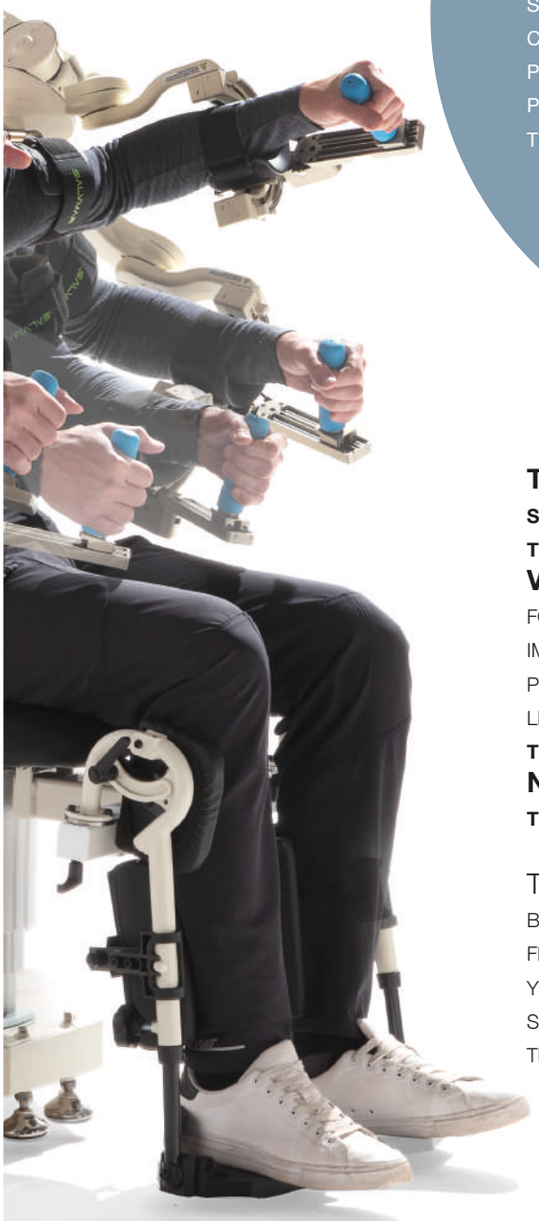
The ALEx RS features two primary components:

2.

A cutting-edge arm exoskeleton, the first of its kind in a bilateral configuration, capable of applying customized forces to the patient's forearm to provide physical support during tailored therapeutic exercises. This configuration allows for individual use of the right or left limb or simultaneous engagement of both.

1.

An integrated virtual reality (VR) unit with neurorehabilitation-specific scenarios, enabling a variety of customizable exercises and activities. It provides real-time feedback on therapy progress and continuous monitoring of the patient's performance.



The ALEx RS represents a holistic rehabilitation solution by merging state-of-the-art robotic technology, like the active arm exoskeleton, with Virtual Reality applications. This integration allows for the evaluation of patients' motor capabilities and the implementation of advanced personalized therapeutic protocols. This robotic station caters to upper limb rehabilitation and serves as a valuable tool for **therapists, including Physiatrists, Orthopedists, Neurologists, and Physiotherapists, aiding in patient treatment and progress monitoring.**

The ALEx RS is grounded in the principle, supported by extensive scientific literature, that repetitive, frequent, intense, and task-specific motor rehabilitation yields optimal results, especially in neurorehabilitation settings. The device is adept at meeting these essential therapeutic requirements.

The Virtual Reality exercises create an engaging environment tailored to the patient's requirements, making the treatment process stimulating, diverse, and personalized.

The device's lightweight and slender design faithfully mirrors the wearer's movements, while its patented shoulder mechanism facilitates a vast range of motion comparable to

92% of the human arm's workspace.

The ALEx RS promotes motor learning through cerebral plasticity **by offering a Bilateral mode for simultaneous arm movement, akin to Mirror Therapy, and a Record & Play mode for precise passive treatments guided by therapists.**

It accommodates patients of varying anthropometric dimensions, aiding them in all stages of rehabilitation.

During ALEx RS treatment, patients are continuously motivated to surpass personal performance limits, with real-time visualization of movements on a large screen and continuous monitoring through a patented sensor system.

The **Virtual Reality Applications library offers diverse exercises focusing on coordination, precision, fluidity, joint ability, concentration, and attention,** with varying difficulty levels and progress tracking capabilities.

The ALEx RS boasts several advantages, including customizable treatment for diverse patient profiles, the flexibility of u**nilateral or bilateral arm usage**, and a comprehensive rehabilitation experience **combining robotics and Virtual Reality technologies.**

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