

# Rehabilitation Robotics

Authored by  
**mohammad looti**

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Rehabilitation robotics is a field of research dedicated to understanding and augmenting rehabilitation through the application of robotic devices. Rehabilitation robotics includes development of robotic therapies.

## Overview

Rehabilitation robotics can be considered a specific focus of biomedical engineering, and a part of human-robot interaction. In this field, clinicians, therapists, and engineers collaborate to help rehabilitate patients.

Prominent goals in the field include: developing implementable technologies that can be easily used by patients, therapists, and clinicians; enhancing the efficacy of clinician's therapies; and increasing the ease of activities in the daily lives of patients.

## History

The International Conference on Rehabilitation Robotics occurs every two years, with the first conference in 1989. The most recent conference was held in Kyoto, Japan in 2009; an upcoming conference is scheduled for 2011 in Zurich, Switzerland.

## Current Areas of Research

Current robotic devices include exoskeletons for aiding limb or hand movement such as the Tibion Bionic Leg, the Myomo Neuro-robotic System and the Berkeley Bionics eLegs; enhanced treadmills such as the Lokomat; and robotic arms to retrain motor movement of the limb such as the MIT-MANUS. Some devices are meant to aid strength development of specific motor movements, while others seek to aid these movements directly. Often robotic technologies attempt to leverage the principles of neuroplasticity by improving quality of movement, and increasing the intensity and repetition of the task.

Rehabilitation robotics may also include virtual reality technology.