

Researchers test technological support with robots and functional electrical stimulation

By **Donna Hunter** - April 19, 2021

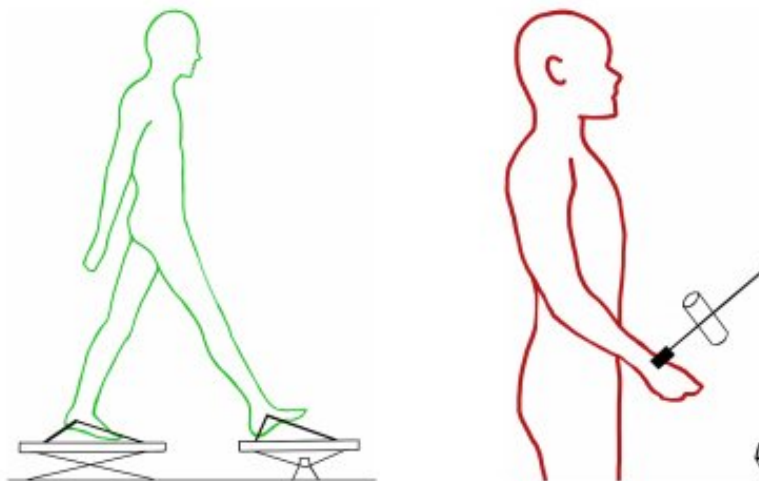


Figure 1-1: Illustrations of end-effector robotic devices, lower limb and upper limb (right). Source: [3]

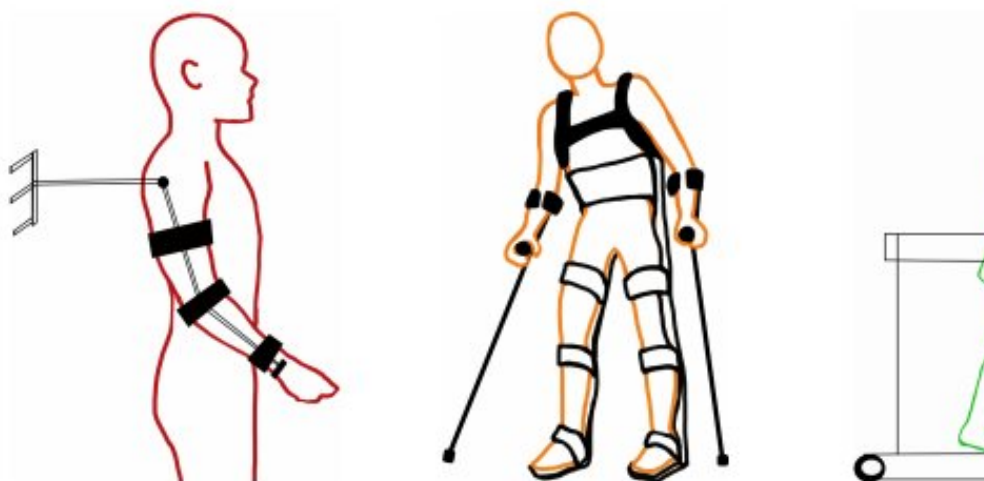


Figure 1-2: Illustration of exoskeleton devices (from left to right): upper limb exoskeleton, lower limb overground exoskeleton, body weight supported exoskeleton. Source: [3]

Some robots can provide additional clinical benefit in the rehabilitation of stroke patients as an additional procedure, the functional electrical stimulation of individual muscles or muscle groups, such as an additional procedure, are the results of a study based on scientific findings that the Austrian Institute for the Evaluation of Health Technology together with a German working group for guidelines and has now published. After a critical analysis of

recommends a health economic assessment before these additional therapy options are applied.

The comprehensive analysis was based on a total of more than 55 randomized clinical trials and a Cochrane review. The specific use of robotic rehabilitation (RAR) and functional electrical stimulation (FES) in different t available devices is extremely large for both RAR and FES," commented Priv. Doz. Claudia Wild, direct correspondingly high, but unfortunately – as our study shows – only partially met. For example, we w benefit for some RAR interventions in combination with standard therapy compared to standard thera

In fact, some types of RAR can benefit the therapeutic process, especially when RAR is used for arm r stroke. However, evidence of an additional benefit of RAR as an aid to gait training is weaker. It is bel caused by more intensive and frequent patient training, which is achieved without any additional effor "The use of RAR can therefore be very useful," concludes Dr. Wild. "It can improve the therapy results physical therapists of time and physical stress. We recommend, however, that the use also be evaluat the additional benefit could not be proven for all robots and the heterogeneity of the products can be take into account the severity of the stroke, as well as the therapeutic context and conditions. "

The FES, on the other hand, disappointed expectations of additional benefits. These expectations prin paralyzed muscles through external electrical stimulation, as well as improved blood flow or blood flo FES, a total of 26 clinical studies by AIHTA and German colleagues were evaluated. They found that a electrical stimulation rarely brought any additional benefit. However, there is evidence that sub-interv electrodes while walking) is not inferior to a conventional ankle orthosis. In this case, a health econor In addition, six other randomized controlled studies are ongoing to investigate an additional clinical be welcome addition to the database, which may also provide new insights.

Overall, the study, now available online, shows a mixed picture of the clinical benefit of advanced adju rehabilitation. Some RAR interventions offer additional benefits that FES do not. A critical evaluation i before use in standard therapy.

The robotic exoskeleton training expands the possibilities for stroke rehabilitation

Provided by the Austrian Institute for Assessment of Health Technologies (AIHTA)

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