SYREBO

Hand Rehabilitation Robot (BCI)

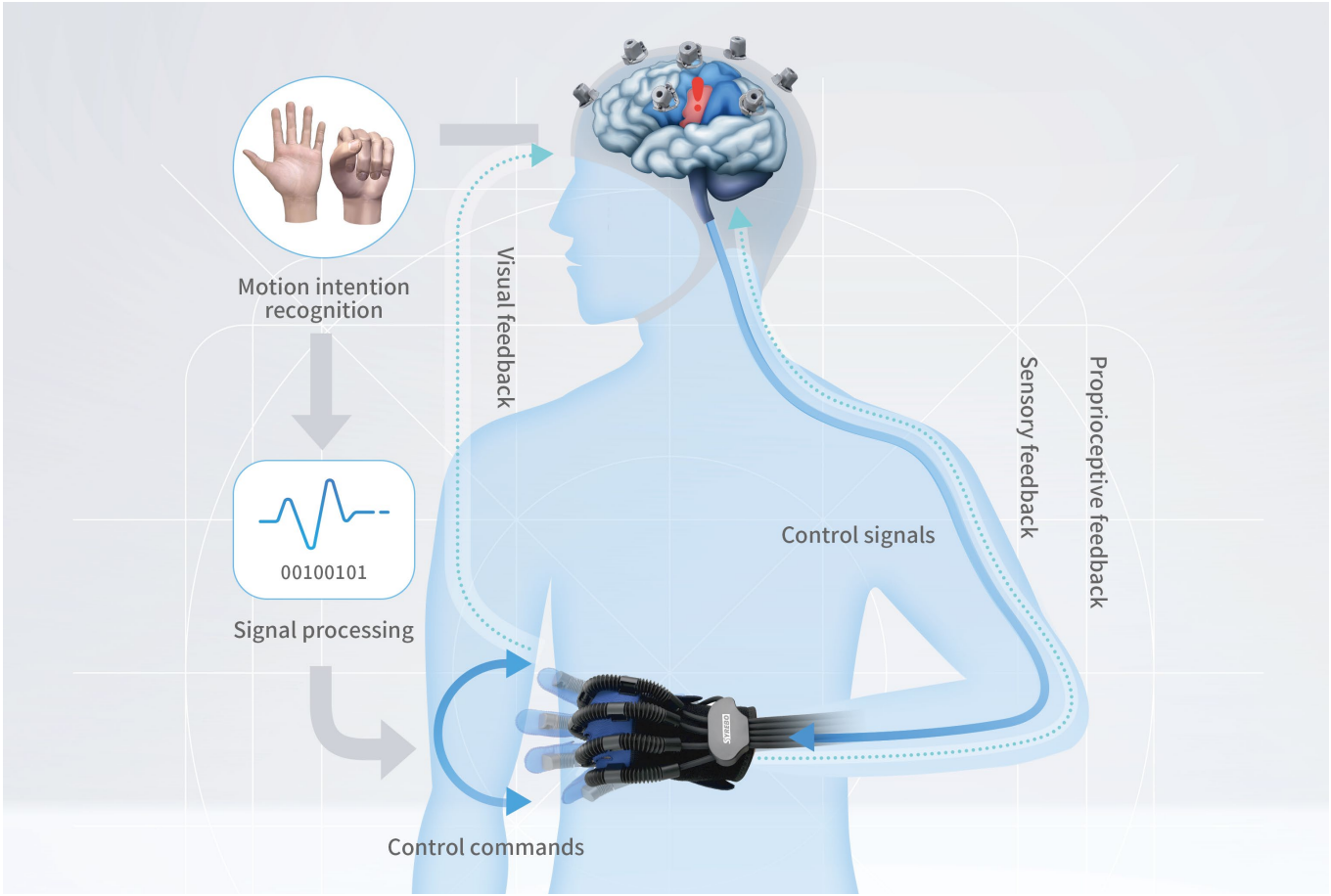
SY-HR08G

CE FDA ISO

Hand Rehabilitation Robot (BCI)

SY-HR08G

Based on the principles of motor imagery and neural plasticity, through brain-controlled training, it stimulates patient’ s active movement awareness, achieving a "perception-control" bidirectional closed-loop neural stimulation, reshaping users' neural pathways, and significantly improving rehabilitation effectiveness.



Brian-inspired algorithm

Cutting-edge noise reduction capability to capture EEG, ensure data accuracy

All stage rehabilitation

Suitable for 0-5 muscle strength patients, covers all stages of rehabilitation

Rich application scenarios

Detachable structure satisfies various scenarios like bedside, rehabilitation center, etc.

Active rehabilitation

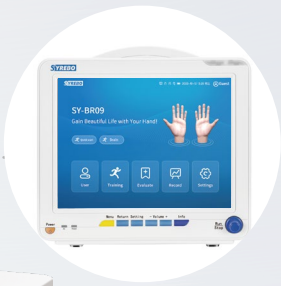
Compared to motor execution, motor imagery has more active brain EEG activity

Easy to wear

Wireless design is easy to assemble, improves work efficiency

EEG acquisition system

Virtual reality
training games



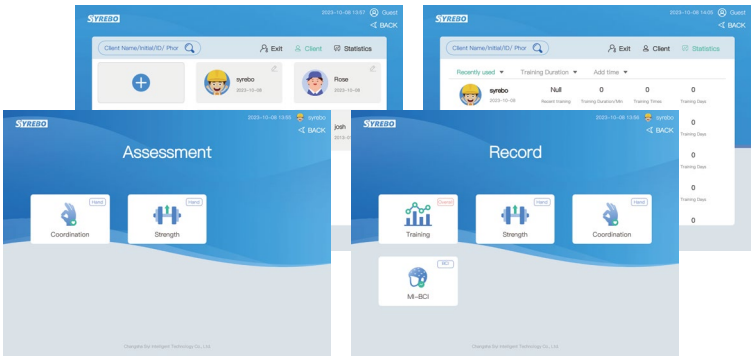
Host

Power glove
Data glove

Product Features

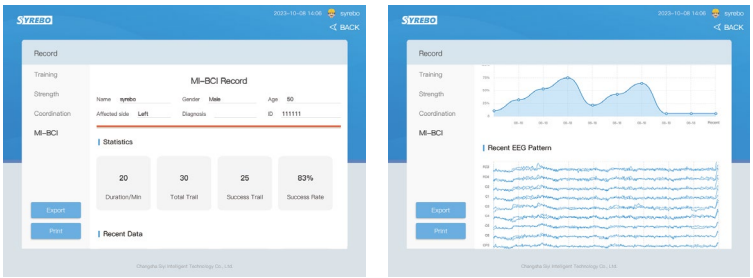
Intelligent user management

Integrate user profile and multi-assessments in one user management, simultaneously checking rehabilitation progress in multiple dimensions.



EEG data tracking technology

Advanced data processing technology enables EEG signal collection smoothly. EEG signal data can be stored and viewed on MATLAB software, providing references for rehabilitation programs and guidance for clinical research.



Multi-dimensional training

Muscle strength training

Cover all 0-5 MMT score

ROM training

Improve the ROM of shoulder and elbow joint

Cognitive training

Improve user’ s cognition with memory, attention training

ADL training

Simulate activities of daily living

Coordination training

Improve finger coordination

Active game training

Stimulate active participation

Multi-sensory task-oriented training

Task-oriented training combining visual, auditory, sensory and other multi-dimensional stimuli to improve overall rehabilitation efficiency.

Full coverage of rehabilitation cycle

Force sensing technology can provide assists or resists force, meeting users' needs in different rehabilitation stages, suitable for users with muscle strength levels 0-5.

Passive training (Gr.0-1 muscle strength)

Stimulate movement awareness

Assistance training (Gr.2 muscle strength)

Induce active participation

Active training (Gr.3 muscle strength)

Improve patients' willingness of active participation

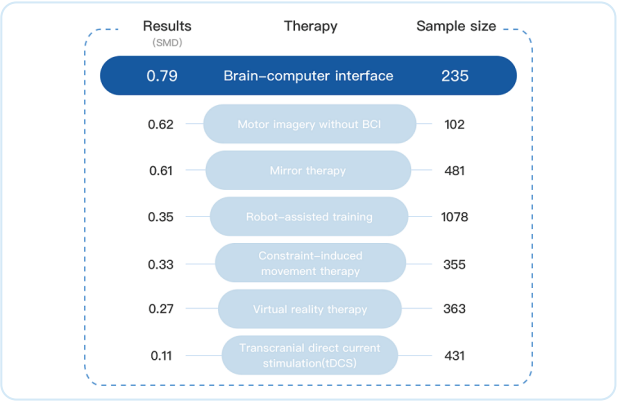
Resistance training (Gr.4-5 muscle strength)

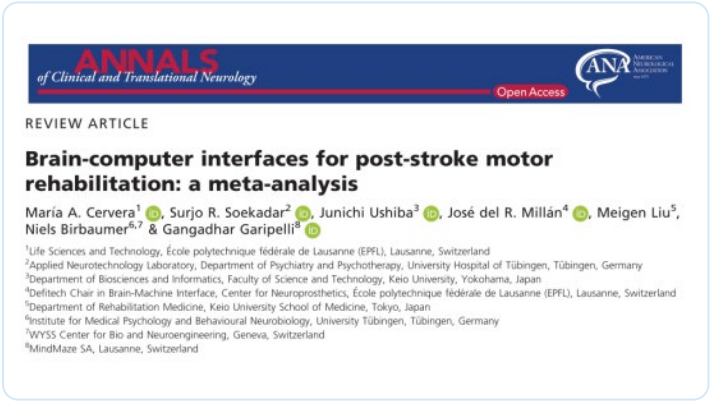
Improve muscle strength

Clinical Evidence

1. BCI-based neurorehabilitation is superior to common rehabilitation treatments such as motor imagery, mirror therapy, robot-assisted training, constraint-induced movement therapy, virtual reality therapy, and tDCS.

Reference: Cervera MA, Soekadar SR, Ushiba J, et al. Brain-computer interfaces for post-stroke motor rehabilitation: a meta-analysis. Ann Clin Transl Neurol. 2018 Mar 25;5(5):651-663.

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REVIEW ARTICLE

Brain-computer interfaces for post-stroke motor rehabilitation: a meta-analysis

María A. Cervera[1], Surjo R. Soekadar[2], Junichi Ushiba[3], José del R. Millán[4], Meigen Liu[5], Niels Birbaumer[6,7] & Gangadhar Garipelli[8]

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[4]Defitech Chair in Brain-Machine Interface, Center for Neuroprosthetics, École polytechnique fédérale de Lausanne (EPFL), Lausanne, Switzerland
[5]Department of Rehabilitation Medicine, Keio University School of Medicine, Tokyo, Japan
[6]Institute for Medical Psychology and Behavioural Neurobiology, University Tübingen, Tübingen, Germany
[7]WYSS Center for Bio and Neuroengineering, Geneva, Switzerland
[8]MindMaze SA, Lausanne, Switzerland

2. Improved hand motor function, quality of life and neuroplasticity in stroke patients, and these improvements persisted in long-term follow-up after treatment.

Reference: Baiz, Fong KNK, Zhang JJ, Chan J,Ting KH, Immediate and long-term effects of BCI-based rehabilitation of the upper extremity after stroke: a systematic review and meta-analysis. J Neuroeng Rehabil. 2020 Apr 25;17(1):57

Bai et al. Journal of NeuroEngineering and Rehabilitation (2020) 17:57
https://doi.org/10.1186/s12984-020-00686-2

Journal of NeuroEngineering and Rehabilitation

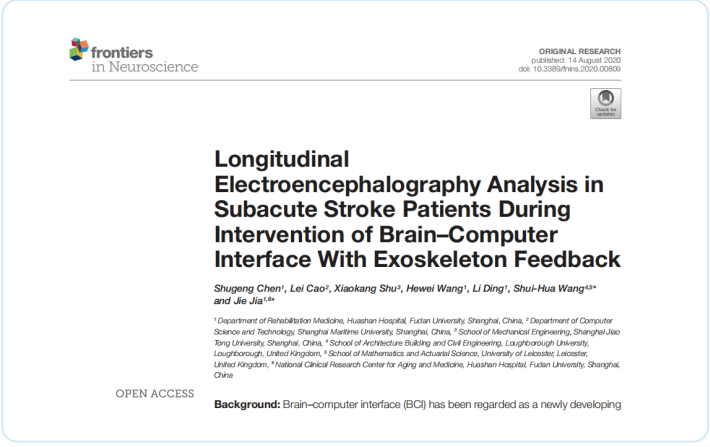
REVIEW Open Access

Immediate and long-term effects of BCI-based rehabilitation of the upper extremity after stroke: a systematic review and meta-analysis

Zhongfei Bai[1,2,3], Kenneth N. K. Fong[1*], Jack Jiaqi Zhang[1], Josephine Chan[4] and K. H. Ting[5]

3. Brain-computer interface training was feasible in sub-acute stroke patients. Patients who presented increasingly stronger or continuously strong activations (ERD) may obtain better motor recovery.

Reference: Chen S, Cao L, Shu X, Wang H, Ding L, Wang S-H and Jia J (2020) Longitudinal Electroencephalography Analysis in Subacute Stroke Patients During Intervention of Brain–Computer Interface With Exoskeleton Feedback. Front. Neurosci. 14:809. doi: 10.3389/fnins.2020.00809



frontiers in Neuroscience

ORIGINAL RESEARCH
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doi: 10.3389/fnins.2020.00809

Longitudinal Electroencephalography Analysis in Subacute Stroke Patients During Intervention of Brain–Computer Interface With Exoskeleton Feedback

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Background: Brain–computer interface (BCI) has been regarded as a newly developing

Indication for Use

Patients with hand dysfunction caused by stroke, brain injury, cerebral palsy, hand trauma, parkinson's disease, lymphedema, alzheimer, etc.

Specification

Product name		Model
Hand rehabilitation robot (BCI)		SY-HR08G
Size of host	**Charge voltage**	**Charge frequency**
300*160*275(mm)	100-240V	50-60Hz

Standard Accessories

Name	Qty	Name	Qty
Host	1 pc	EEG acquisition system	1 pc
Power-assisted glove	3 pairs	Data glove	1 pair
Grip strength meter	1 pc	Manual switch	1 pc
Adapter	1 pc	Power wire	1 pc
User manual	1 pc	Qualified certification	1 pc

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