

Transformative Technology for Upper Limb Neurorehabilitation



deXtreme™
Error Enhancement Technology

**Rebuilding Motor Learning and Instilling
New Dexterity for Stroke and TBI Patients**

deXtreme™

Innovative Technology for Post-Stroke Rehab

BioXtreme's solution uses the body's adaptive response (a universal bio-mechanical phenomenon), thus bypassing cognition, for an automatic, intuitive movement. Our methodology shortens upper limb post-stroke recovery time and dramatically improves position accuracy and stability while increasing patients' range of motion (compared to other treatment methods).

Rapid Motor Recovery

Unique treatment protocol allows upper limb rehab period of only two weeks!

Visible Change

Patients' motor improvement is immediately visible, in both quantity and quality of movement

Regain & Retain

Error enhancement improves the brain's capability to regain & retain lost movements

Accelerate, Stimulate, Encourage

deXtreme™ opens the brain's motor drawer by applying error enhancement forces

Backed up by Evidence

deXtreme™ is validated by 5 completed and published clinical trials

BioXtreme vs. Traditional Rehab Comparison

deXtreme™

- Groundbreaking error enhancement technology
- 2 weeks rehab period, significant improvement in motor results



Traditional

- Corrective & assistive treatment methods
- Long rehab period, limited motor improvement



“ BioXtreme’s deXtreme brings innovation in both Hardware and Software. Exercise control by means of precise error provides stroke patients with an excellent training path. ”

Dr. Franco Molteni, Clinical Director
Villa Beretta Rehabilitation Innovation Research Institute,
Costa Masnaga, Italy



Error Enhancement Technology

Significant Improvement in Motor Recovery

Based on error enhancement forces applied during motor practice, BioXtreme has developed a robotic device for upper limb rehab of post-stroke patients. Utilizing a 3D VR exercise environment to motivate patients, the deXtreme™ device delivers unparalleled results in the field of neurorehabilitation.

Short set-up time

No harnessing, no strapping, no complicated calibration processes needed. Set up for both therapist and patient is easy and fast, allowing maximum use of therapy time.

Easy to use

Patient engagement to the device is simple and intuitive. Switching left and right arm is instant with minimal therapist involvement. The device allows direct wheel chair access.

Adaptive learning

Advanced AI algorithms combined with ongoing machine learning allow for realtime adjustments according to patient’s progress and provide accurate, comprehensive data to therapists.



Adaptive Response

Our method is based on the body’s reaction to changes in environmental forces



Error Enhancement

A robotic system applies error enhancement forces during motor practice



Instinctive Correction

The forces applied trigger the patient to the immediate instinctive correction of movement

“ There are many advantages to deXtreme™ as a therapy tool in the recovery of post stroke patients, and I can clearly see the improvement in arm functionality after using the system. ”

Shiran Dahari-Yakobovich, Occupational Therapist
Reuth Rehabilitation Hospital
Tel-Aviv, Israel



Validated by Clinical Trials

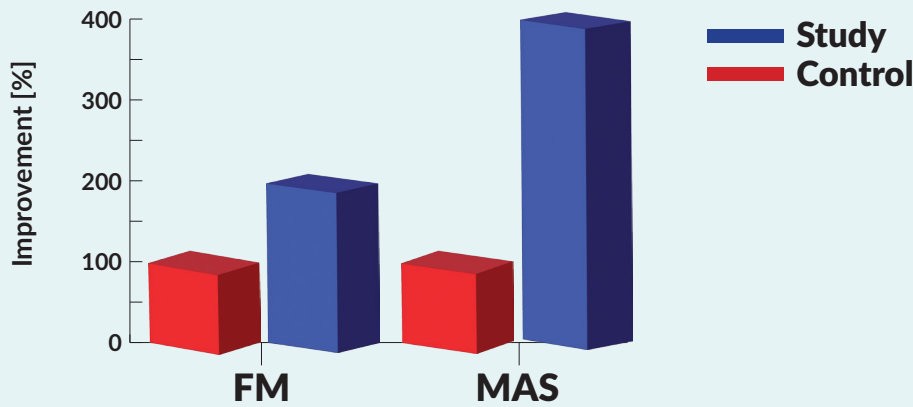


Diagram 1 - Comparisons of clinical scores (MAS & Fugl-Meyer) of combined low and high skills patient groups

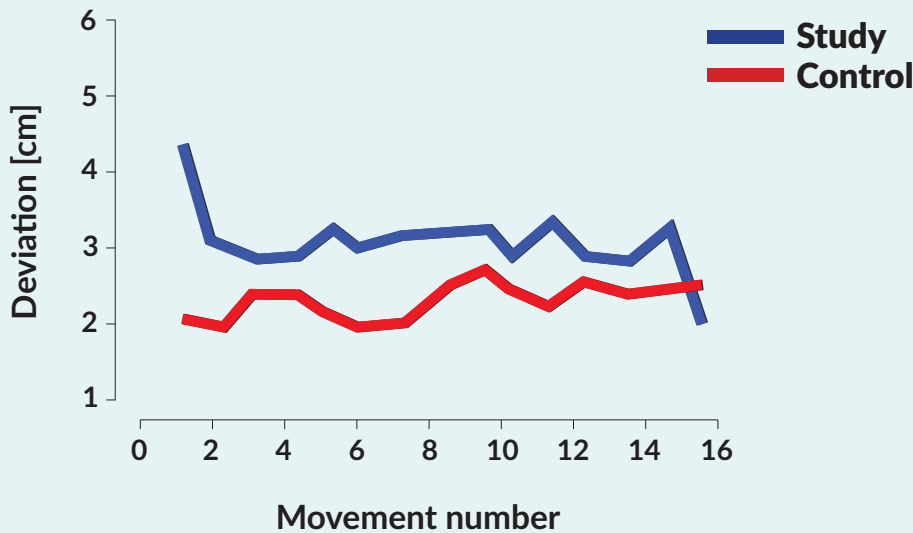


Diagram 2 - Comparisons of deviation (motor error) during practice, in games were groups were either exposed to error enhancement forces (study) or not (control)



Source for both diagrams:
Robotically driven Error Augmentation training enhances post-stroke arm motor recovery
Eli Carmeli et al Engineering reports Wiley DOI: 10.1002 / eng 2.12720

