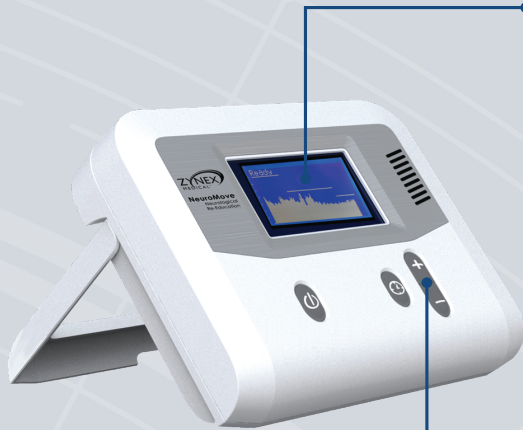


# NeuroMove® 900



## EMG Triggered Stimulation

The NeuroMove works by detecting the attempts (brain signals) to move a muscle group. On the easy to read display the patient can see the strength of their attempt and this motivates them to continue move their joint to reach the threshold on the screen. The highly sensitive micro-processor can intelligently distinguish between muscle noise, spasms and real attempts. When a real attempt is detected and the threshold is met, the NeuroMove rewards the brain by delivering a “reward” muscle contraction (the visual and sensory feedback). These elements combined serve as the basis of the re-teaching or re-mapping of the healthy neurons to regain movement that was lost.

## Dedicated NMES

The NeuroMove® is equipped with a NMES Only mode to allow for dedicated NMES therapy sessions. The device is fully programmable to allow adjustments to the ramp up, ramp down, on-time, off-time, frequency, and pulse-duration.

## EMG Triggered Stimulation - Peer Reviewed Clinical Abstract

### *Techniques to Improve Function of the Arm and Hand in Chronic Hemiplegia*

George H. Kraft, MD, Sally S. Fitts, PhD, Margaret C. Hammond, MD ABSTRACT Arch Phys Med Rehabil 1992;73:220-7.

We evaluated functional improvement in the upper limb of chronic (more than six months' duration) stroke patients who received one of two electrical stimulation treatments, conventional treatment, or no treatment. Twenty-two right handed patients were assigned to one of four groups studied for 12 months posttreatment. Subjects received (1) EMG-initiated electrical stimulation\* of wrist extensors (EMG-stim), (2) low-intensity electrical stimulation of wrist extensors combined with voluntary contractions (B/B), (3) proprioceptive neuromuscular facilitation (PNF) exercises, or (4) no treatment. Subjects were treated for three months. Before treatment, upon completion of treatment, and three and nine months after treatment, subjects were evaluated by the Fugl-Meyer (FM) post-stroke motor recovery test and by grip strength. Subjects also attempted three Jebsen-Taylor hand function tests and a finger tapping test at the same evaluation sessions, but many were unable to complete these tests. During the course of treatment, FM scores of subjects receiving PNF improved 18%, B/B improved 25%, and EMG-stim improved 42%. The aggregate FM improvement of the treated groups was significant from pretreatment to posttreatment, and the improvement was maintained at three month and nine-month follow ups (all  $p < .005$ ). The treated subjects' improvement in grip strength was also maintained at both follow ups ( $p < .10$ ). In contrast, the control group showed no significant change in FM scores or grip strength. The four treated subjects who were able to perform the hand function tests and finger tapping at all four evaluations also improved on these tests. We conclude that chronic stroke patients can achieve and maintain functional improvements, especially by combining electrical stimulation techniques with voluntary effort. \*The device used in the above study was an Automove EMG-Stim and manufactured by biometer International, Denmark

