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## **The Combination of SCENAR and Activity Based Program for the Rehabilitation of Individuals Affected By Paralysis**

The regime of exercise therapy that was combined with SCENAR for this study was adapted and modernized from the Dikoul Institute in Moscow, Russia. This type of exercise therapy involves working one-to-one with a patient for up to four hours a day, for five days a week, and usually for a number of weeks. The regime of exercises includes Passive flexibility, passive strength, passive-active strength, active strength, balance and coordination, and gait retraining using weight-supported harnessed treadmill, parallel bars, and walking frames/sticks.

The hypothesis for this type of exercise therapy was that patterned neural activity by repetitive exercise stimulates the central nervous system to become more functional, as it does during development (ASIA, 1999) and might help to recreate neuro-pathways.

SCENAR-therapy was combined with this type of exercise therapy because the repetitive input of neuro-impulses would wipe out adapted central nervous system patterns and might physiologically help the body to regenerate these neuro-pathways.

Twelve Spinal Cord Injured (C4 - T12) and Two Head Injured Patients were treated for a number of weeks (2 - 45 weeks) using the above combination of treatment. The main findings were that patients reported:

- Reduction in Pain;
- Improved bladder/bowel function;
- Reduced spasm/clonus;
- Improved Strength;
- Increased Sensation;
- Decreased Hypersensitivity;
- Increased Movement;
- Increased Range of Motion;
- Increased Energy/Feeling of well-being.

One Head Injured client, injured in 1998, was unable to provide real logical feedback with regards to his improvement. However, an independent consultant noted an increase from 0.1% (Nov 2001) to 5-10% (Nov 2002) of total brain function.

Through long-term treatment the combination of SCENAR and Exercise Therapy has shown to be extremely beneficial in improving a wide range of human physiological functions, even after over 28 years of paralysis. In order to maximize the benefits, treatment is required immediately after the injury has been sustained. Further studies are required in order to compare the benefits of this combination of treatment to the individual modalities.