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## ***ERGYS Patient Screening***

The ERGYS is designed for the rehabilitation of the spinal cord injured patient, and, in some cases, the rehabilitation of other neurologically impaired patients. Careful screening will help to ensure the selection of patients who are most likely to benefit, while excluding those for whom the treatment is inappropriate. The following are lists of contraindications, recommendations, and considerations to be used in evaluating a client's candidacy for an ERGYS program.

In addition, general contraindications to kinetic exercise will apply, since the ERGYS provides the means for a patient to participate in a rehabilitation/therapy program\*.

### **ABSOLUTE CONTRAINDICATIONS**

There are three conditions that will automatically exclude an individual from the treatment program.

1. Implanted pacemaker (demand type) - The electrical stimulation may interfere with the operation of the pacemaker.
2. Denervated muscle in lower extremities- In the event there is injury to the anterior horn cells or the motor nerve itself, the atrophy that results is due to denervation of the muscles. The muscles affected by denervation tissue atrophy will not respond to the stimulation produced by the ERGYS system.
3. Fractures - The presence of unhealed fractures in the lower extremities restricts the patient from the treatment program until such time as the fracture is stable.

**NOTE:** Pregnancy should be considered a temporary restriction from the treatment program, as the safety of the fetus has not been established when using electrical stimulation.

\*American College of Sports Medicine, Guidelines for Graded Exercise Testing and Exercise Prescription, 3rd Edition. Lea & Febiger, 1986.

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## RELATIVE CONTRAINDICATIONS

Given the complexity of the medical problems the SCI patient may face, there are several conditions that may influence the success of the treatment, but do not automatically disqualify the patient from the treatment.

- Severe Spasticity - In most cases, spasticity will not disqualify an individual from the program. A vigorous stretching program may be necessary prior to treatment and an increase in medication may be warranted in the first few weeks of treatment. However, sometimes the frequency of spasms may decrease following treatment with the ERGYS allowing some individuals to reduce their medication for spasticity on a long-term basis.
- Heterotopic Ossification/Limited Range of Motion - The ERGYS chair can be adjusted to accommodate for minor limitations in joint ranges; however, a minimum of 100 degrees of hip and knee flexion is recommended.
- Severe Osteoporosis - Mild to moderate osteoporosis is prevalent in the majority of the SCI population and in itself does not represent an immediate exclusion from the program. If the osteoporosis is such that the medical staff feels there may be an increased risk of fractures, the program should be adjusted to account for the degree of osteoporosis.
- Dysaesthetic Pain Syndrome - In some cases the pain syndrome may worsen making the stimulation and treatment program too uncomfortable to continue.

**CAUTION:** Care should be exercised during the treatment of individuals with the following conditions:

- History of autonomic dysreflexia - Frequent and severe bouts of dysreflexia will disqualify the individual from the program
- History of hip or knee dislocation/subluxation

Additional relative contraindications and special considerations are self-explanatory. The contraindications and special considerations are simply recommendations and should be adjusted as the medical staff deems appropriate.

### ***Relative Contraindications (Continued)***

- Abnormal bone formation in hip and knee joints
- Presence of pressure sores in area of treatment
- Presence of plates, pins, or screws in femur(s)

### **Special Considerations**

- Orthostatic hypotension
- Ailments where high fever, high blood pressure, or high heart rate are present
- Respiratory complications
- A cancerous lesion
- An infection in the area of treatment
- A urinary tract infection

### **PRE-TREATMENT SCREENING TESTS**

Finally, patients who are not disqualified by the contraindications should undergo a complete physical and a set of pre-treatment tests to verify their overall health and fitness for the ERGYS program.

Recommended Pre-Treatment Tests include:

1. General Physical Examination
2. Physical Therapy Evaluation

A complete examination is recommended to assess joint range of motion, degree of spasticity, presence of spinal reflexes, residual sensory function, and residual motor function.

NOTE: If full sensory return is present or anticipated to cause discomfort, an optional evaluation may be needed to assess sensory comfort to stimulation.

REFLEX TESTING: When reflexes are present, it is expected that the muscles will respond positively to electrical stimulation. When reflexes are absent, increased program/treatment time is generally indicated. If the absent reflex is due to a peripheral nerve injury or lower motor neuron disease, the individual is NOT a candidate for the program. If there is doubt as to the presence of a LMN lesion, an EMG may be warranted.

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3. SMAC 20

The SMAC 20 test is a comprehensive hematology screen used to assess whether blood values are in reference range.

4. Complete x-rays of the Lower Extremities

AP and lateral views of the femur, tibia/fibula, hips, knees, and ankle joints are recommended to provide information on the degree of osteoporosis and any evidence of heterotopic ossification or fracture.

5. EKG/Stress EKG

A resting EKG and submaximal graded exercise (stress) test is recommended to evaluate for any cardiopulmonary conditions that may adversely affect treatment.

**NOTE:** The Pre-treatment Screening Tests are recommended tests. They may be adjusted as the medical staff deems appropriate.