



"Because I need my hand"

Dystrophile[®] Information Packet

Elements of the ***Dystrophile[®]***

Dystrophile[®] Program Guidelines

Dystrophile[®] Program Sheet

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Elements of the *Dystrophile*[®]

1. **Handle:** Patient grips the handle and pushes down until the light goes on. While maintaining this pressure, the patient moves the *Dystrophile*[®] on a hard surface in a forward and backward motion.
2. **Timer Readout:** Records in tenths of a minute as long as patient maintains the pre-set load level.
3. **Reset Switch:** Push the button on the timer to reset timer to 0.
4. **Light:** Switches on as long as pre-set load pressure is maintained.
5. **Resistance Knob:** Turn clockwise to decrease pressure. Turn counterclockwise to increase pressure.
6. **Resistance Readout:** Resistance pressure is calibrated in pounds (LBS) and kilograms (KG).
7. **Battery Compartment:** Located on the bottom of the *Dystrophile*[®]; unscrew and replace with a 9 volt battery if light grows dim.
8. **Upper Pressure Limit:** Internal set screw adjusts upper limit of pressure indicator. This screw is preset by the manufacturer and should never need adjustment.

Dystrophile[®] Program Guidelines

Definition of CRPS: Complex Regional Pain Syndrome (also known as Reflex Sympathetic Dystrophy or RSD) is characterized by pain out of proportion to injury, edema, vasomotor, sudomotor and trophic changes, with decreased mobility, strength and function. Theoretically, CRPS may be due to a failure to appropriately modulate and terminate the response to injury. Treatment should attempt to return the involved extremity to a healthy state through reactivation of mechanisms that normally regulate tissue metabolism.

Definition of Stress Loading: Exercise that provides a sustained load to the extremity with minimal motion of painful joints provides the stimulus for resolution of this problem. Adaptation occurs in response to the demand of exercise. Exercise places a demand on the neural, vascular, sensorimotor and musculoskeletal systems, all of which may play a role in initiating and/or perpetuating CRPS. Load, not motion, is needed. An overload is needed to achieve a training effect. Exercise must be of sufficient intensity, duration and frequency to achieve this training effect at a central as well as peripheral level. Painful motion of inflamed joints is avoided. The program can also be used preventively with patients seen early post trauma who have pain and edema out of proportion to the injury or surgery.

Dystrophile[®] Program:

- 1) “Scrub” –
 - a) The ***Dystrophile***[®] provides a structured exercise program that can be carried out at home by the patient. It can be graded by resistance (up to twelve pounds) and duration (generally three to seven minutes three times a day). The timer and light are activated as soon as the patient reaches the preset resistance.
 - b) The patient is positioned on the floor in a quadruped position (hands and knees). Leaning over the affected hand, the patient pushes down on the handle until the light goes on. While maintaining this pressure, the patient moves the ***Dystrophile***[®] on the Dystromat in a forward and back motion as if scrubbing a floor. If the patient is unable to get on the floor, the ***Dystrophile***[®] can be placed on a table.
 - c) Patients generally begin with three to five minutes of “scrubbing” at four lb pressure three times a day. The duration is increased as tolerated up to seven minutes. Once this level is reached, the force is then increased to tolerance.
- 2) “Carry” – The patient carries a weighted bag or other object in the affected hand, with the arm down. This is carried throughout the day whenever standing or walking. The weight should be increased as tolerated.
- 3) Home program sheet – used to record sessions at home and encourage functional use.
- 4) Precautions – The patient should be cleared by a physician if there are any known physical restrictions affecting the ability to perform upper extremity exercise, such as cardiovascular disease. Positioning may also need to be modified, as noted above, if the patient has spinal involvement or other orthopedic issues affecting the ability to tolerate the quadruped position.

Keys to Success:

- 1) Progress the program to maximum tolerated loads.
- 2) Focus on compliance with the program. Compliance is increased by keeping the program simple and structured.
- 3) Practice “emotional unloading” by giving positive reinforcement, guidance and objective measures of progress at follow-up visits.
- 4) Separate treatment of CRPS from treatment of resulting fibrosis.
 - a) Active disease (pain = limiting factor) – stress loading only.
 - b) Minimal to no pain – introduce treatment to treat fibrosis, if needed; wean off stress loading if no pain and other treatment methods are well tolerated.

Evaluation Methods:

- 1) Pain, tenderness and sensibility – subjective description of pain (verbal report, visual analog scale, pain diagram), tests of discriminative sensibility, and observation of pain posturing and behaviors. The “volar plate test” (pain with passive flexion of the PIP joints) is a simple way to assess active CRPS and to monitor regional changes. In general, if volar plate tests are positive, stress loading should be continued.
- 2) Edema – volumeter, circumferential measurements.
- 3) Vasomotor and sudomotor changes – changes in color/temperature, capillary refill test, sweat disturbance.
- 4) Trophic changes – flattening of the cuticle base, thin shiny skin, flattening of the rugae pattern, decreased pulp bulk, increased nail curvature, hair growth abnormality, palmar thickenings or nodules, generalized atrophy, and demineralization on x-ray.
- 5) Mobility, strength and function – ROM, grip/pinch, function (ADL checklist, functional outcome measures, standardized dexterity tests, observation).

Additional Treatment

- 1) The need for additional treatment depends on the length of time before treatment is initiated, as well as the severity of symptoms. If treated early, symptoms generally resolve quickly within days or weeks, and full mobility and strength should be anticipated.
- 2) If treatment is delayed, additional conservative treatment addressing resulting fibrosis may be needed. Fibrosis occurs if CRPS is not aggressively treated early. Additional treatment targeting fibrotic changes is started only after the CRPS is under control. Careful monitoring of these additions to treatment is required to avoid flaring the CRPS. In more severe, chronic cases, motion gains may be minimal, although improvement in function and pain can still be achieved.

References

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4. Watson HK, Carlson L. Treatment of reflex sympathetic dystrophy of the hand with an active “stress loading” program. *J Hand Surg*. 1987;12A:779-785.

