Resista Training

Movement will aid in the healing process of connective tissue, only if that movement generates sufficiently controlled stress which promotes correct alignment of collagen fiber and not the continual breakdown of fibers as they are laid down. This will result in a smaller but stronger scar and reduce the incidence of unwanted adhesions occurring. Movement will also promote the release of synovial fluid in the joint thus decreasing the chance of adhesions within the joint and that condition known as "Joint Gumming". If too much stress is placed on healing structures too early, especially in the case of post surgical grafts, these structures can be further damaged, thus increasing the overall healing time. The benefits of hydraulic resistance training for safe injury rehabilitation have been known and utilized for some time.

allows the body's own pain/reflex feedback mechanism to control the amount of stress placed on healing structures. As pain or reflex inhibition occurs the muscles generating the movement 5. The hydraulic system makes it possible for automatically decrease their contractions thus decrease the resistance placed back on them and the injured connective tissue. Therefore, it is possible to safely begin limited restricted movement at the very early stages of rehabilitation. Advanced stages of rehabilitation may require eccentric resistance which is also available. Other advantages of hydraulic resistance exercise over isotonic Hydraulics, by nature, provides a very safe and exercise for rehabilitation are:

1. Hydraulics removes the "end point loading" which is associated with anti-gravity resistance mechanisms. Where there is an impending Isokinetic Rotary Pump System directional change there is a moment in which the re-accelerated eccentrically. This point guite often coincides with the mechanical disadvantage and if movement becomes ballistic in nature then the joint deceleration forces are transferred onto the ligaments which control range of motion. Because hydraulic resistance is dependent on movement or resistance, at the end point there is no movement, therefore no resistance, just smooth deceleration and smooth acceleration

2. The ability to alter the minimum resistance being placed in opposing muscle groups allows for specific training of a group of muscles while the opposing group simply moves through a range of motion. This is particularly useful in the case of knee rehabilitation, where it is often of advantage to work the hamstring group at a higher intensity than the quadriceps.

Accommodative resistance allows the muscles to contact at an even intensity throughout the entire movement as the resistance adopts to the changing length tension and mechanical advantage of the muscles involved.

4. Hydraulics allows exercise to performed at a much faster pace than isotonically resisted movements without any decrease in safety. This allows for end-stage rehabilitation training to prepare athletes for return to participation by training them The accommodative nature of hydraulic resistance at speeds of movement closer to that at which they compete. without the ballistic deceleration problems of free weights.

> people with back problems to exercise safely. Due to proper body positioning, the back is stabilized thus allowing the participant to exercise the usually weak muscles of the legs and upper body which aids in the prevention of further back problems and reduces the load on injured tissues.

effective means to re-strengthen injured areas, from the very early stages, right through to end-stage conditioning for return to participation.

weight is decelerated, held isometrically, then The Hydraulic Rotary Pump System is ideal for muscles conditioning as it places the resistance source throught the centre of the axis of the injured



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