

SPORTSMED/CLINICAL APPLICATIONS FOR THE SPORTS/REHAB MODEL VERSACLIMBER

NEW EXERCISE MODALITY FOR REHABILITATION AND CONDITIONING

The Sports/Rehab model VersaClimber® is a total body, closed chain, rehabilitation exercise machine. It utilizes one of the most natural and intensity selective muscular activities to which the body can be subjected. Total body vertical climbing exercise and rehabilitation routines have been developed to provide a continuous arm and leg action in a seated or standing position, using a wide selection of stroke lengths, stroke rates, and resistance levels.

NON WEIGHT BEARING, PARTIAL WEIGHT BEARING AND FULL WEIGHT BEARING ACTIVITY PROVIDES 3 LEVELS OF REHABILITATION FOR THE ORTHOPEDICALLY IMPAIRED

For the orthopedically impaired patient or athlete, closed chain VersaClimber rehabilitation is available for use during all three phases of orthopedic rehab. The three phases consist of non-weight bearing, partial weight bearing and full weight bearing exercises. Phase 1 is for patients who need to eliminate one or more extremities from the exercise to be performed. The patient exercises in a non-weight bearing seated position, while supporting the stationary lower injured limb with the leg isolator, or not using the limb in the case of an upper body extremity. While seated, pushing and pulling with the arms and / or legs in any combination elicits a non-weight bearing conditioning response to exercise. Phase 2 allows a partial weight bearing activity by also utilizing the seat. Exercise in this phase involves all four or any combination of the extremities while the person's body weight is partially supported by the seat. The reduced orthopedic loading allows for involved or weakened extremities to be safely exercised either actively by Continuous Active Motion (CAM) or passively by Continuous Passive Motion (CPM). Partial weight bearing may be elicited in the legs and/or lower back in the standing position by supporting the upper body with the arms when stepping. Phase 3 is for patients that can bear full weight in the stepping or climbing position. The seat may remain in place while stepping or climbing to partially support body weight or to allow for seated rest intervals for fatigued patients.

One of the greatest areas of orthopedic application of the VersaClimber arises when it is integrated into a full body (75° angle) treatment plan. Leg and extremity injuries that prevent walking or running do not have to limit climbing. The patient does not have to counteract impacting, gravitational or mechanically produced forces. All continuous active and passive movements are smooth, impact free, rhythmic and symmetrical thereby decreasing the incidence of repeated assault to the affected limb or extremities via orthopedic overload. Acute and chronic leg, knee, arm, chest, shoulder and back injuries can be safely exercised on the VersaClimber without risk of exacerbation of the injury site.

AMBULATORY PATIENTS CAN CLIMB

By utilizing the lower limb isolator, patients with pathology involving the total immobilization of one or more limbs can be exercised at pre-injury levels effectively and safely. Exercise on the VersaClimber is recommended for any injury that requires a zero or controlled range of flexion of the hip, knee or ankle joints, or the controlled contraction of any muscle or stretching of any ligament during flexion of the hip, knee, or ankle. This is facilitated through the use of orthopedic travel limiters built into the VersaClimber at two inch increments to control the angle of deflection on one or both lower extremities.

By placing the heel of the injured leg on the foot pedal, it is possible to climb normally without aggravation of the toe, ball of foot, ankle, achilles or calf injuries. As a result, those patients who traditionally were unable to walk, run or exercise as a part of the rehabilitative regimen, can now vigorously maintain muscular and cardiovascular fitness, increase functional capacity and overall strength, thus facilitating a rapid return to activity or sport.

UPPER BODY INJURIES

The arms, chest, shoulders and back can be totally or partially immobilized while pedaling, stepping or climbing by placing one or both hands on the stationary hand rails. If upper body limb motion is desirable without active muscle contraction, the injured arm can be placed on the moving hand grip and subjected to CPM. A full range of CAM can be achieved with the remaining healthy limbs even if the upper body injury requires complete removal from the activity.

CONTROLLED RANGE OF MOTION

The range of motion can be controlled for upper and lower limbs, on one or both sides of the body, while seated, stepping or climbing. The range of motion limiters, built into the VersaClimber, are adjustable in 2 inch increments of motion. This provides a full range of angles of deflection of the knee and hip joint from zero degrees to the maximum deflection attained at a 20 inch step. To effectively exercise a patient on the VersaClimber utilizing the limiters, place the foot of the injured leg on the bottom or lower pedal. Then place the uninjured foot on the higher pedal. Have the patient step up onto the VersaClimber, grasping the stationary hand rails for support. When the feet are level, adjust the moving hand grips to chin height. Then set the range of motion limiters to zero inches of motion, for no deflection of the injured leg, by screwing the limiter into the appropriate hole. The patient is now ready to climb. One leg will be free to take a 1 inch through a 20 inch step as desired, while the injured leg is restricted to zero degrees of deflection at the knee and hip joint. Although the afflicted limb is moving up and down, it is not subjected to any trauma, muscle contraction or exacerbation. The arms and uninjured leg are being utilized in an alternating push-pull motion that is specific to the VersaClimber, thus facilitating balanced concentric/eccentric contractions to the anterior and posterior musculature. Exercise at relatively slow repetition rates can illicit low to maximal heart rates and a strengthening of major muscle groups in the trunk and the three healthy flexing extremities.

Similarly, the range of motion of the shoulder and elbow joint can be totally isolated or controlled in 2 inch increments of motion with the range of motion limiters.

For injuries requiring a limited range of plantar and dorsi-flexion, a locking pin in the foot pedal limits the range of motion of the ankle to 15° while pedaling, stepping or climbing. Removal of the pin allows full flexion of the ankle.

WORK INTENSITY IS CONTROLLED USING HEART RATE MONITORING DURING EXERCISE

The VersaClimber features an integrated Polar compatible heart rate monitoring system. This computerized biofeedback heart rate control provides clinicians with accurate heart rate control monitoring to accommodate even the most dysfunctional and or deconditioned patients. According to the American College of Sports Medicine standard conversion of VO_2 max., low level cardiac patients with a 2 MET level functional capacity can begin exercising on the VersaClimber by pedaling in the seated position.

Obese patients and others such as diabetics may not be able to perform some of the simplest, common exercises. Others may not be able to exercise on bikes, treadmills, steppers, etc. because of body weight, orthopedic or girth restrictions. The Heart Rate Control option allows a variety of patients to exercise on the VersaClimber at their appropriate, prudent target heart rate which is programmed into the computer by utilizing the heart rate control mode. This mode of operation will monitor and modify the workout intensity at 30 second intervals, to keep the heart rate at predetermined levels.

SELECTABLE RANGE OF MOTION, STEP RATES AND RESISTANCE TO MOTION

For the average population, the step height and step rate is determined by the person climbing. The hydraulic resistance to motion of the arms and the legs is selected on the control panel. By shifting body weight from one leg to the other, a step height and step rate can be selected that suits the fitness level of the person climbing. Step heights can be selected simply by stepping at any height desired. The step rate can also be easily selected by stepping fast or stepping at a decreased rate. Rates can be as slow as 1 step in 3 seconds, up to as fast as the person is capable of moving, without machine restrictions. Because of the wide range of controlled flexion and extension of the extremities, the VersaClimber can be used effectively at any level of physical fitness from sedentary de-conditioned cardiac patients to elite world class athletes.

REHABILITATION OF PHYSICALLY IMPAIRED PATIENTS ON THE SRM VERSACLIMBER

SEATED POSITION ON THE VERSACLIMBER PROVIDES CONTROLLED LEG EXERCISE FOR SPINAL CORD INJURED, STROKE, AND NEUROLOGICALLY IMPAIRED PATIENTS.

The addition of a new padded seat to the VersaClimber allows accessibility by spinal cord injured patients/athletes, cardiac, neurologically impaired, and amputees. The seat affixed to the VersaClimber frame is vertically and horizontally adjustable for maximum comfort. The addition of the seat will not prevent or hinder normal total body climbing movement, nor detract from any of the program options available on the VersaClimber. The adjustable seat is an important tool for those clinics, hospitals, physical therapy centers, or gyms requiring more dynamic full body exercise for their disabled or low functioning patients.

SEATED POSITION ON THE VERSACLIMBER ALLOWS PATIENTS TO MOVE THEIR LEGS BY PUSHING OR PULLING WITH THEIR ARMS, MOVE THEIR ARMS BY PUSHING OR PULLING WITH THEIR LEGS OR ANY COMBINATION IN BETWEEN.

Amputees and Spinal Cord injured patients may exercise by using the seat to support either their entire body weight or any portion that they cannot support with their legs. While seated, pushing and pulling with the arms causes a continuous passive motion (CPM). Those patients with some lower extremity capability can also push or pull with their legs to the extent that the injury allows. Range of motion travel stops are built into all orthopedic models. The travel stops limit the range of motion on one or both sides of the body in 2 inch increments. Patients with braces, casts, or limitations of body movement can use the limit stops under normal clinical supervision. They can exercise in a safe non-traumatic seated or standing posture without many of the contraindications inherent with traditional exercise modalities.

CARDIAC, SPINAL CORD INJURY, AND DECONDITIONED PATIENTS CAN EXERCISE SAFELY USING ARMS AND LEGS AT LOW INTENSITY.

The seat, along with the Heart Rate Control option presents the clinician with a variety of applications to accommodate even the most disabled or dysfunctional patient. Wheelchair patients that are capable of sitting erect in their chair and use their arms effectively, are capable with supervision, of exercising on the VersaClimber. Utilizing non weight bearing, seated upright posture, the patient is capable of facilitating a more efficient balanced workout utilizing the cross crawl or asynchronous movement available on the VersaClimber. The patient can control the CPM of injured limbs by the controlled active motion (CAM) of their healthy limbs. The supportive rails will allow some patients with transfer difficulties the ability to move safely up and onto the VersaClimber while others will need assistance. The use of the seat will enable deconditioned cardiac patients (phase II, and III) the ability to exercise arms only, legs only, or combinations of both without exceeding the appropriate heart rate range. The Heart Rate Control option allows the patient to exercise in the appropriate prudent target heart rate which is programmed into the VersaClimber. This mode of operation will monitor and modify the workout rate in feet per minute, at 30 second intervals to adjust to changes in heart rate. The clinician can use the new seat, HR Control option, and travel stops for a wide variety of patients.

**To Learn More About The SRM (Sports Rehab Model) VersaClimber
Contact Heart Rate at 1-800-237-2271**