



Sport Application Hand Book

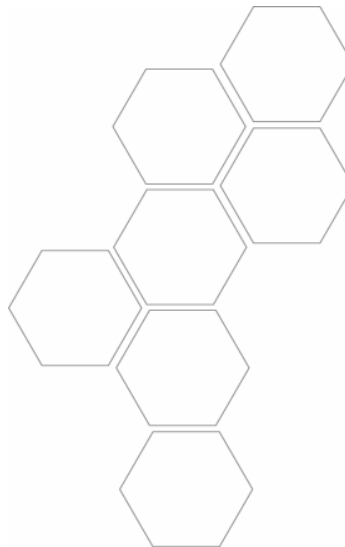


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Introduction

There are athletes at all levels in every sport that have not developed to their full potential. The athlete's development can be greatly enhanced and the likelihood for injuries reduced. This involves a very specific and progressive methodology for each individual athlete/sport, which integrates various technologies, exercise prescriptions, and restorative tactics. Restoration, while often overlooked, is just as important as other components of the training process.

The purpose of this handbook:

The VersaClimber training handbook was written to help the performance specialist, trainer, coach, and athlete achieve specific energy system development (ESD) goals while reducing the potential for overuse injuries.

In developing this handbook, we worked closely with performance specialists and trainers of elite athletes that have used the VersaClimber as an essential part of their training regimen. When these performance specialists and trainers developed their programs, they utilized the theory of specificity which states: "Maximum benefit of the training stimulus can only be obtained when it replicates the movements and energy systems involved in the sport."

The VersaClimber is the only machine that integrates both the upper and lower body for very specific and demanding ESD similar to sprinting or running without the joint stress of sprinting and running. Furthermore, the VersaClimber has no top end which allows endless maximal or near maximal efforts unlike bikes, steppers, ellipticals and most treadmills. This makes the VersaClimber an ideal tool to implement for high intensity ESD workouts and also an excellent active restoration modality on lower intensity training days.

Athletic sports training has changed dramatically in recent years. Let's look at a couple examples:

Scenario #1

Anaerobic team sport athletes such as football and basketball players perform exercises for strength/power, agility, speed, and ESD. It is not uncommon for these athletes to perform various Olympic related lifts, strength exercises such as squats and the like, jumping and other plyometric exercises, agility drills, and sprints for speed. Add additional sprinting as ESD for anaerobic capacity purposes and sport-specific practice or pickup games on top of all of this and it is not difficult to see the possibility for overuse injuries resulting from cumulative micro trauma.

Scenario #2

Aerobic athletes such as distance runners can put tremendous stress on their joints with high volume running programs. If these athletes are informed, they also perform strength/power training for injury prevention and enhanced performance.

Both of these above scenarios can eventually lead to overuse injuries from cumulative micro trauma. Alternatively, the athlete may have a minor injury and continue to “train through” this injury which eventually can result in faulty mechanics that can lead to a major injury or reduced sport performance. Certainly, if one stops, starts, changes directions, and sprints in the sport one should also prepare the body for this activity in training. Similarly, the distance runner must run to prepare to run. However, stressors are cumulative and there is a point where the body can no longer tolerate the cumulative stress and a breakdown occurs. It is important to avoid this in the first place. The goal is to have highly prepared and healthy athletes ready to give their best performance on “game day” or “race day.”

The VersaClimber is the ideal tool to implement for high intensity ESD workouts, which avoid the joint stress of sprinting or running. The VersaClimber is also the ideal active restoration modality to use on low intensity training days. No other equipment modality offers the option of intense ESD integrating upper and lower body similar to sprinting or running without joint stress. Thus, the VersaClimber is an exceptional tool to use for anaerobic power, anaerobic capacity, aerobic power, and aerobic capacity in a low impact mechanically similar activity to sprinting or running. And most sports involve sprinting and running. Ever see anybody ride a bike in a football or basketball game?

No athlete can outperform the VersaClimber because as the athlete improves there is always another higher level challenging workout. You can continue to safely increase the intensity of the program for the athlete. Other devices have a top end that elite athletes can achieve easily. The VersaClimber is a time efficient machine that can safely train any athlete specifically for any sport in a reduced amount of time.

This handbook will specifically help you develop programs that will produce the following results:

1. Improved conditioning for injury prevention.
2. Prevent de-conditioning from occurring while recovering from an injury.
3. Create safe conditioning programs that will not aggravate current injuries.
4. Increased athlete's ability to exert maximum effort and reducing recovery times throughout their event.
5. Provide both aerobic and anaerobic conditioning programs that are non-traumatic and full body.

6. Prescribe conditioning programs that are specific to the sport and position.

To use this handbook: Simply look up the specific sport (find their position if available), and then use the VersaClimber as recommended. Go to “Definition of Training Terms” on pages 56-57 for explanation of training terms in training programs. If you need additional assistance to develop a training program, we are available for consulting and guidance pertaining to our equipment and it’s applications. We welcome you to alter or adjust the programs to meet specific performance goals. Please remember to use these programs in conjunction with the fitness and conditioning guidelines of the ACSM. The VersaClimber may not replace all other training methods, but adding it to your current regimen will assure an increase in fitness levels for your athletes. We can assure you that you can take your athletes to an ever-increasing level of fitness, safely on the VersaClimber.

Dedicated to improved fitness.
1.800.237.2271

Exercise Precautions and Medical Considerations

Heart Rate, Inc. has spent many years developing the VersaClimber, a state of the art exercise and rehabilitation machine. We have also spent many hours working with professional athletic trainers and conditioning coaches to develop these exercises. The routines that we have developed have been designed in a basic and generic manner and should be used to facilitate gradual and continuing changes in physical fitness. Remember to use the ACSM guidelines when developing training programs.

→It is important to understand that the user should consult a physician prior to physical activities. Users should also work with a sports medicine professional in developing an exercise and rehabilitation program.

Specificity of Sports Energy System Development

The demands required on the athlete because of the sport may cause them to perform periods of aerobic exercise, anaerobic exercise, and rest periods during their particular sporting event. Their ability to develop and maximize performance during these periods while minimizing their recovery time will be a contributing factor to their athletic success. The way to increase performance is by training the Energy System, recovery and active or passive rest periods that are specific to the demands of the sport.

Example: during a game, a football player performs anaerobic tasks (running and making a tackle), active recovery (jogs back to the huddle), and rest period (stands in the huddle). These kinds of training intervals can be recreated on the VersaClimber. The advantage of the VersaClimber is that you can improve the athlete’s total body (upper & lower limbs) conditioning without being hard on the joints. You may currently have your players doing wind sprints to increase their fitness level, where the pounding on the knees and ankles can cause

injury. And if the player already has an injury they may not be able to complete the exercise at full intensity, which they can by using the VersaClimber.

As you know, training and conditioning the body is a science and we have made it easy for you. In this handbook, we provide suggestions that will improve the aerobic and anaerobic conditioning of the athlete for their specific Energy Systems demands.

Guidelines for Safe Exercise on the VersaClimber

How to use the VersaClimber:

The VersaClimber is designed for the athlete to stand vertically erect, and in an upright posture, on two-foot pedals, holding two hand grips. The machine is built at a 75 degree climb angle that serves to decrease the isolated weight bearing on the knees, slightly unload the lower back, and to distribute the load more equitably throughout the entire torso.

In order to initiate the climbing motion, first step on the lower pedal and hold the lower handgrip. Then step onto the higher pedal and hold the higher grip. Level the foot pedals and adjust the handgrips to shoulder height. Turn on the display by pressing the on/off switch. If the display is already on, turn the switch off, then back on to reset.

→ IMPORTANT-THE FIRST TIME USER SHOULD:

1. Be able to complete the “Aerobic Climbing Program” 3 times a week at their target heart rate before performing the “Interval Sprint Program.”
2. Start by using no resistance
3. Taking short 4-6 inch steps, like jogging in place. To increase the workload, increase the stepping speed or increase the step height.
4. Have no resistance while climbing for first few sessions.

How to use Hydraulic Resistance VersaClimber Models:

The knob located near the bottom of the electronic display module can identify hydraulic resistance models. The knob is used to adjust the speed of motion. The athlete can vary the resistive force by pushing or pulling harder or easier against the set speed. To increase the speed (reduce the resistance) turn the knob counter clockwise, to reduce the speed (increase the resistance) turn the knob clockwise.

Hydraulic resistance allows the trainer to control the speed and/or resistance of climbing. Increasing the resistance serves the following functions:

- Increases resistance during climbing.
- Decrease the speed of climbing.
- Produce desired sport specific speed/force of movement

In order to reproduce resistance level for future bouts, close knob completely clockwise, then open counter clockwise to desire level. This allows repeatability.

Caution: It is recommended that you begin all first time users at no resistance and when you decide to increase the resistance, increase it slowly over a number exercise sessions.

How to use Heart Rate Monitoring VersaClimber Models:

A wireless chest strap transmitter is worn to send heart rate signals to the display module. You can use heart rate as a speedometer of exercise on this model.

Select the heart rate training goal on the module and assure that a heart rate signal is displayed on the module. A goal climbing speed and an actual climbing speed will be shown on the display. Start climbing at a speed to match the actual to the goal speed. The goal speed will be updated every 30 seconds based on heart rate monitor inputs. Follow the climbing speed indicator and after an 8 to 10 minute warm up the athlete will be at their target heart rate. The climb rate will automatically increase or decrease to keep the athlete at their selected heart rate training goal.

Using Heart Rate as a guideline:

Experts agree that one of the most difficult problems in designing exercise programs is to establish appropriate exercise intensity. The American College of Sports Medicine (ACSM) recommends an individual exercise prescription and adequate monitoring to ensure that the maximum prescribed intensity is not exceeded.

Functional Capacity can be defined as the ability to perform work, and has a direct relationship with fitness levels. The intensity of exercise may be expressed as a percentage of functional capacity (VO₂ max). The percentage of functional capacity that an individual is able to sustain for a specified conditioning period varies widely. For example: a well conditioned marathon runner can maintain 80% of their functional capacities for hours, while less conditioned people are fatigued in minutes.

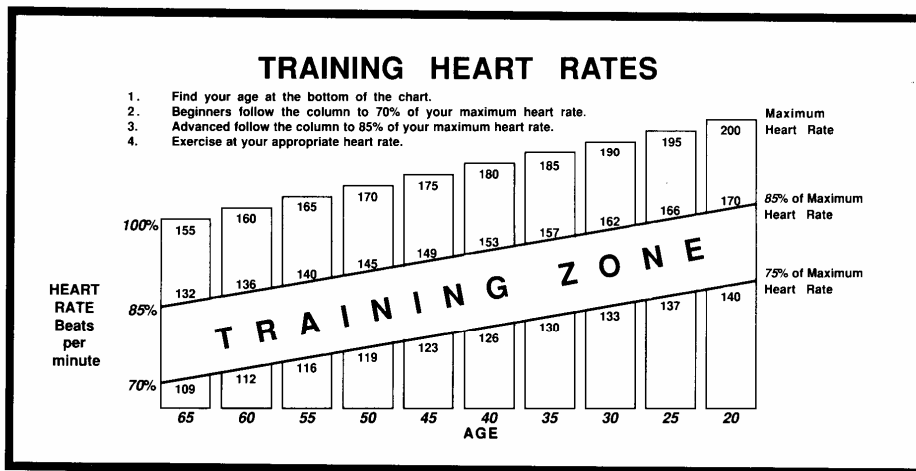
The optimal method for determining exercise heart rate should be based on directly measured objective data gathered during an exercise stress test. This includes maximum heart rate, maximum blood pressure, and maximum oxygen consumption (VO₂ max.). The American College of Sport Medicine has very specific guidelines pertaining to exercise prescriptions using these methods, and it is recommended that if you are intending to train people on the VersaClimber that are at both ends of the fitness spectrum (sedentary to highly trained), that consideration be given towards obtaining this information.

When using age related heart rate rather than laboratory stress test data, we recommend that you use the American College of Sports Medicine target heart rate method:

220 - Age = Maximum Heart Rate

The target range is established by multiplying the maximum heart rate times 85% for the upper range and 70% for the lower range. For an athlete who may have allowed their body to de-condition because of off-season inactivity or injury, you may decide to use a 60% -80% target heart rate range.

Example: a 24 year old athlete's maximum heart rate would be $220 - 24 = 196$ beats per minute (BPM). The target range would be $(196 \times .85)=167$ and the lower range would be $(196 \times .70)=137$.



Another method of establishing the predicted maximum heart rate is the Karvonen Method. The Karvonen Method takes into account the fitness level of the athlete. The fitness level is taken into consideration using the resting heart rate.

The Karvonen Method Formula is:

$$220 - \text{Age} = \text{Age predicted maximum heart rate (APMHR)}$$

$$\text{APMHR} - \text{resting heart rate (RHR)} = \text{heart rate reserve (HRR)}$$

$$(\text{HRR} \times \text{exercise intensity}) + \text{RHR} = \text{Target Heart rate (THR)}$$

Percentage of Maximal heart Rate Method:

$$220 - \text{Age} = \text{Age predicted maximum heart rate (APMHR)}$$

$$(\text{APMHR} \times \text{exercise intensity}) = (\text{THR}) \text{ Target Heart Rate}$$

Example:

A 20 year old athlete is assigned an exercise intensity of 70-85% of MHR:

$$\text{APMHR} = 220 - 20 = 200 \text{ bpm}$$

Lowers number of the athlete's THRR = $200 \times 0.07 = 140$ bpm

Highest number of the athlete's THRR = $200 \times 0.85 = 170$ bpm

The Karvonen formula is not without its detractors. It has been pointed out that the predicted target heart rate, even when adjusted for age is subject to error, especially when dealing with cardiac patients. For those in good health, the Karvonen formula seems to be a compromise solution to selecting an intensity of exercise based on heart rate.

Remember, it is necessary to consider and compensate for any medications or drugs that the person is taking. Drugs may cause side effects on the cardiovascular, metabolic, and respiratory systems.

Sports/Rehab Model VersaClimber:

The Sports/Rehab VersaClimber (which can also be used for sport specific training) allows for, non-weight bearing, partial-weight bearing, and full-weight bearing, exercise, for athletes who are unable to compete or perform in their sport due to injury. Using the Sports/Rehab VersaClimber will allow the athlete to maintain or increase their total body conditioning, while a limb is isolated, they are still able to condition the rest of their body. Thus, when they return to their sport they are at a lower risk for injury and in high potential for athletic success.

The Sports/Rehab VersaClimber is a closed chain, non-impact, progressive range of motion and intensity device. One can benefit from it in the earliest stages of rehabilitation, through conditioning and to the very specific and demanding levels of Energy System Development.

Thus, The Sports/Rehab VersaClimber allows you to safely train the energy system that is needed in a specific sport, while a limb is isolated and without the pounding and potential damage to joints.

There are three Phases of closed chain exercises on the Sports/Rehab Model VersaClimber. They are all available for use during an athlete's rehabilitation. The trainer may decide to start the athlete at any phase or use multiple phases within the same session.

Phase I (non-weight bearing) - Phase I is for athlete's who need to eliminate one of more injured extremities from the exercise to be performed. The athlete exercises in a non-weight bearing seated position, while supporting the stationary injured limb with the isolator (or not using the limb in the case of an upper body extremity). The range of motion stops may be used to regulate the stroke length on one or both sides of the body.

Phase II (partial-weight bearing) - Phase II allows partial weight bearing exercise by using the seat. Exercise at this level involves all four or any combination of the extremities while body weight is supported by the seat. The reduced orthopedic loading allows for injured or weakened extremities to be safely exercised either actively or with continuous passive motion. Range of motion stops may also be used to regulate the stroke length. Partial weight bearing may also occur in the legs and/or lower back in the standing upright position by supporting the upper body with the arms when stepping.

Phase III (full weight bearing) - Phase III is for the athlete that can step or climb in a full weight bearing position. The seat may remain in place while stepping or climbing to allow for a gradual transition, alternating partial and full weight bearing in the same workout. Range of motion stops may be used to regulate the stroke length.

Please note: the sport specific interval training programs can be modified for use with any of the three Phases for use during rehabilitation by taking into consideration stroke lengths and type of weight bearing limb involvement specific to the injury.

Additional guidelines:

1. Obtain a thorough exercise and health history of the athlete prior to starting an exercise program.
2. If the athlete has any risk factors for Cardiac or Metabolic disorders, obtain clearance from their primary care physician to exercise the individual.
3. Consult the guidelines identified in “Guidelines For Exercise Testing and Prescription” published by the American College of Sports Medicine.
4. Make sure the athlete has been properly instructed on the VersaClimber. Even the most highly trained athletes can overwork on the machine. Most people should have at least four (4) introductory aerobic sessions on the VersaClimber prior to undertaking a serious consistent regimen.
5. Use heart rate to measure the intensity of the workout. Peak heart rate should not exceed 90% of the athlete’s maximum heart rate.
6. There is no better way to learn all of the subtleties and applications of the VersaClimber than by you as a trainer or conditioning coach to personally train on it. Personal experience is the best way to learn how to implement the many capabilities of the VersaClimber with the various conditioning requirements of your athletes.
7. Start slow. Because the VersaClimber has no top end, it is easy for anyone to overwork. Use heart rate as a guide of exercise intensity. Perceived exertion is low because the workload is distributed over total body muscle mass. A positive first experience is important, so start first time users at 40 to 50 feet per minute until their level of conditioning can be determined. Step height should be 5 to 6 inches to start.

Current Exercises the VersaClimber can Replace

Current Exercise	VersaClimber	Advantage
Bleachers/Stadium Hill Running	Power Climbing	<ul style="list-style-type: none">• No pounding of joints.• Can be sport specific.• Active recovery.• Upper and lower coordinated workout.• Heart rate controlled.
Distance Running	Aerobic Climbing	<ul style="list-style-type: none">• No pounding of joints.• Upper and lower coordinated workout.• Heart rate controlled.
Line Drills	Interval Sprint Climbing	<ul style="list-style-type: none">• No pounding of joints.• Improvement in heart rate recovery can be measured.• Can be sport specific.• Active recovery.• Upper and lower coordinated workout.• Heart rate controlled.
Rowing Machines	Aerobic Climbing	<ul style="list-style-type: none">• Can be sport specific.• Upper and lower coordinated workout.• Does not place stress on lower back.• VersaClimber has no upper limit.
Stationary Bikes	Aerobic Climbing	<ul style="list-style-type: none">• Can be sport specific.• Upper and lower coordinated workout.• Does not place stress on lower back.

		<ul style="list-style-type: none">• VersaClimber has no upper limit.
Stepping Machine	Aerobic Climbing	<ul style="list-style-type: none">• No pounding of joints.• Can be sport specific.• Upper and lower coordinated workout.• Does not place stress on lower back.• VersaClimber has no upper limit.
Treadmill	Aerobic Climbing	<ul style="list-style-type: none">• No pounding of joints.• Can be sport specific.• Upper and lower coordinated workout.• VersaClimber has no upper limit.
Wind Sprints	Interval Sprint Climbing	<ul style="list-style-type: none">• No pounding of joints.• Improvement in heart rate recovery can be measured.• Can be sport specific.• Active recovery.• Upper and lower coordinated workout.• Heart rate controlled
Elliptical Machines	Aerobic Climbing	<ul style="list-style-type: none">• Upper and lower coordinated workout.• Variable step height.• Can be a strength workout.• Can easily switch between Total• Body Exercise or lower body only.

Sport Specific Training Programs

We have created basic programs for different sports. We have laid out the information for your convenience to maximize the benefits for the athlete. First turn to a specific sport. Note: some sports are broken down by position.

These programs will first show the aerobic and anaerobic energy systems needed to compete in the sport and how the athlete will recover (recovery method) during the activity.

Then we describe a variety of Aerobic Climbing (to condition the athlete) and Interval Sprint Climbing (sport specific climbing) programs which you can integrate into your current conditioning procedures. You may find that the VersaClimber will eliminate the need for some of your other equipment (see 'Current Exercises The VersaClimber Can Replace' section). Please note: these programs have been designed using heart rate for both the control and measuring of aerobic intensity, peak heart rate after anaerobic intervals, and as a safety system. We suggest that you document the athletes heart rates for aerobic and anaerobic intervals, recovery times, climbing speeds, and total feet climbed in order to measure their progress.

Cycling (sprints)

Activity Description:

30% anaerobic 20% anaerobic/aerobic 50% pure aerobic

Recovery Methods:

90% active recovery 10% rest periods

Aerobic Climbing Program (30 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 25	Aerobic Climbing	maintain 80%
25 - 30	Cool Down Climbing	cool down to 60%

Interval Sprint Climbing Program 1 (30 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 25	Interval Sprint Climbing Power Climbing for 20 seconds Active Recovery climbing till heart rate reduces to 80% Speed Climbing for 20 seconds Active Recovery climbing till heart rate reduces to 80% Lower Limb Climbing for 20 seconds Active Recovery climbing till heart rate reduces to 80% Repeat as many times as time allows Record peak heart rates to measure improvements	
25 - 30	Cool Down Climbing	cool down to 60%

Interval Sprint Climbing Program 2 (60 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 25	Interval Sprint Climbing Power Climbing for 30 seconds Active Recovery climbing for 30 seconds Speed Climbing for 30 seconds Active Recovery climbing for 30 seconds Lower Limb Climbing for 30 seconds Active Recovery climbing for 30 seconds repeat as many times as time allows Record peak heart rates to measure improvements	Active
25 - 35	Aerobic Climbing	maintain 75 - 80%
35 - 50	Interval Sprint Climbing	
50 - 60	Cool Down Climbing	cool down to 60%

Off-Season Training Program

Aerobic Climbing Program -- 2 - 3 days a week.
Interval Sprint Climbing Program 1 -- 1 day a week

Pre-Season Training Program

Aerobic Climbing Program -- 2 days a week.
Interval Sprint Climbing Program 2 -- 3 - 4 days a week

In-Season Training

Aerobic Climbing Program -- 2 days a week.
Interval Sprint Climbing Program 2 -- 1 day a week or Program 1 -- 2 days a week

Field Hockey (field players)

Activity Description:

60% anaerobic 20% anaerobic/aerobic 20% pure aerobic

Recovery Methods:

80% active recovery 20% rest periods

Aerobic Climbing Program (30 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 25	Aerobic Climbing	maintain 80%
25 - 30	Cool Down Climbing	cool down to 60%

Interval Sprint Climbing Program 1 (30 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 25	Interval Sprint Climbing Power Climbing for 10 seconds Active Recovery climbing till heart rate reduces to 80% Upper Limb Climbing for 10 seconds Active Recovery climbing till heart rate reduces to 80% Speed Climbing for 10 seconds Active Recovery climbing till heart rate reduces to 80% Lower Limb Climbing for 10 seconds Active Recovery climbing till heart rate reduces to 80% Repeat as many times as time allows Record peak heart rates to measure improvements	
25 - 30	Cool Down Climbing	cool down to 60%

Interval Sprint Climbing Program 2 (60 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 25	Interval Sprint Climbing Power Climbing for 10 seconds Active Recovery climbing for 30 seconds Upper Limb Climbing for 10 seconds Active Recovery climbing for 30 seconds Speed Climbing for 10 seconds Active Recovery climbing for 30 seconds Lower Limb Climbing for 10 seconds Active Recovery climbing for 30 seconds repeat as many times as time allows Record peak heart rates to measure improvements	
25 - 35	Aerobic Climbing	maintain 75 - 80%
35 - 50	Interval Sprint Climbing	
50 - 60	Cool Down Climbing	cool down to 60%

Off-Season Training Program

Aerobic Climbing Program -- 2 - 3 days a week.
Interval Sprint Climbing Program 1 -- 1 day a week

Pre-Season Training Program

Aerobic Climbing Program -- 2 days a week.
Interval Sprint Climbing Program 2 -- 3 - 4 days a week

In-Season Training

Aerobic Climbing Program -- 2 days a week.
Interval Sprint Climbing Program 2 -- 1 day a week or Program 1-- 2 days a week

Rowing

Activity Description:

20% anaerobic 30% anaerobic/aerobic 50% pure aerobic

Recovery Methods:

80% active recovery 20% rest periods

Aerobic Climbing Program (30 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 25	Aerobic Climbing	maintain 80%
25 - 30	Cool Down Climbing	cool down to 60%

Interval Sprint Climbing Program 1 (30 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 25	Interval Sprint Climbing Power Climbing for 10 seconds Active Recovery climbing till heart rate reduces to 80% Speed Climbing for 10 seconds Active Recovery climbing till heart rate reduces to 80% Lower Limb Climbing for 10 seconds Active Recovery climbing till heart rate reduces to 80% Repeat as many times as time allows Record peak heart rates to measure improvements	
25 - 30	Cool Down Climbing	cool down to 60%

Interval Sprint Climbing Program 2 (60 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 20	Interval Sprint Climbing Power Climbing for 10 seconds Active Recovery climbing for 30 seconds Upper Limb Climbing for 10 seconds Active Recovery climbing for 30 seconds Speed Climbing for 10 seconds Active Recovery climbing for 30 seconds Lower Limb Climbing for 10 seconds Active Recovery climbing for 30 seconds repeat as many times as time allows Record peak heart rates to measure improvements	
20 - 40	Aerobic Climbing	maintain 75 - 80%
40 - 50	Interval Sprint Climbing	
50 - 60	Cool Down Climbing	cool down to 60%

Off-Season Training Program

Aerobic Climbing Program -- 2 - 3 days a week.
Interval Sprint Climbing Program 1 -- 1 day a week

Pre-Season Training Program

Aerobic Climbing Program -- 2 days a week.
Interval Sprint Climbing Program 2 -- 3 - 4 days a week

In-Season Training

Aerobic Climbing Program -- 2 days a week.
Interval Sprint Climbing Program 2 -- 1 day a week or Program 1 -- 2 days a week

Swimming (100 yd)

Activity Description:

80% anaerobic 15% anaerobic/aerobic 5% pure aerobic

Recovery Methods:

90% active recovery 10% rest periods

Aerobic Climbing Program (30 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 25	Aerobic Climbing	maintain 80%
25 - 30	Cool Down Climbing	cool down to 60%

Interval Sprint Climbing Program 1 (30 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 25	Interval Sprint Climbing Power Climbing for 20 seconds Active Recovery climbing till heart rate reduces to 80% Upper Limb Climbing for 20 seconds Active Recovery climbing till heart rate reduces to 80% Speed Climbing for 20 seconds Active Recovery climbing till heart rate reduces to 80% Lower Limb Climbing for 20 seconds Active Recovery climbing till heart rate reduces to 80% Repeat as many times as time allows Record peak heart rates to measure improvements	
25 - 30	Cool Down Climbing	cool down to 60%

Interval Sprint Climbing Program 2 (30 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 25	Interval Sprint Climbing Power Climbing for 30 seconds Active Recovery climbing for 60 seconds Upper Limb Climbing for 30 seconds Active Recovery climbing for 60 seconds Speed Climbing for 30 seconds Active Recovery climbing for 60 seconds Lower Limb Climbing for 30 seconds Active Recovery climbing for 60 seconds repeat as many times as time allows Record peak heart rates to measure improvements	
25 - 30	Cool Down Climbing	cool down to 60%

Off-Season Training Program

Aerobic Climbing Program -- 2 - 3 days a week.
Interval Sprint Climbing Program 1 -- 1 day a week

Pre-Season Training Program

Aerobic Climbing Program -- 2 days a week.
Interval Sprint Climbing Program 2 -- 3 - 4 days a week

In-Season Training

Aerobic Climbing Program -- 2 days a week.
Interval Sprint Climbing Program 2 -- 1 day a week

Swimming (1500,1650 yd)

Activity Description:

10% anaerobic 20% anaerobic/aerobic 70% pure aerobic

Recovery Methods:

90% active recovery 10% rest periods

Aerobic Climbing Program (30 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 25	Aerobic Climbing	maintain 80%
25 - 30	Cool Down Climbing	cool down to 60%

Interval Sprint Climbing Program 1 (30 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 25	Interval Sprint Climbing Power Climbing for 15 seconds Active Recovery climbing till heart rate reduces to 80% Upper Limb Climbing for 15 seconds Active Recovery climbing till heart rate reduces to 80% Speed Climbing for 15 seconds Active Recovery climbing till heart rate reduces to 80% Lower Limb Climbing for 15 seconds Active Recovery climbing till heart rate reduces to 80% Repeat as many times as time allows Record peak heart rates to measure improvements	
25 - 30	Cool Down Climbing	cool down to 60%

Interval Sprint Climbing Program 2 (60 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 20	Interval Sprint Climbing Power Climbing for 15 seconds Active Recovery climbing for 45 seconds Upper Limb Climbing for 15 seconds Active Recovery climbing for 45 seconds Speed Climbing for 15 seconds Active Recovery climbing for 45 seconds Lower Limb Climbing for 15 seconds Active Recovery climbing for 45 seconds repeat as many times as time allows Record peak heart rates to measure improvements	
20 - 40	Aerobic Climbing	maintain 75 - 80%
40 - 50	Interval Sprint Climbing	
50 - 60	Cool Down Climbing	cool down to 60%

Off-Season Training Program

Aerobic Climbing Program -- 2 - 3 days a week.
Interval Sprint Climbing Program 1 -- 1 day a week

Pre-Season Training Program

Aerobic Climbing Program -- 2 days a week.
Interval Sprint Climbing Program 2 -- 3 - 4 days a week

In-Season Training

Aerobic Climbing Program -- 2 days a week.
Interval Sprint Climbing Program 2 -- 1 day a week or Program 1 -- 2 days a week

Track (440 yd)

Activity Description:

80% anaerobic 15% anaerobic/aerobic 5% pure aerobic

Recovery Methods:

90% active recovery 10% rest periods

Aerobic Climbing Program (30 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 25	Aerobic Climbing	maintain 80%
25 - 30	Cool Down Climbing	cool down to 60%

Interval Sprint Climbing Program 1 (30 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 25	Interval Sprint Climbing Power Climbing for 15 seconds Active Recovery climbing till heart rate reduces to 80% Speed Climbing for 15 seconds Active Recovery climbing till heart rate reduces to 80% Lower Limb Climbing for 15 seconds Active Recovery climbing till heart rate reduces to 80% Repeat as many times as time allows Record peak heart rates to measure improvements	
25 - 30	Cool Down Climbing	cool down to 60%

Interval Sprint Climbing Program 2 (60 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 25	Interval Sprint Climbing Power Climbing for 40 seconds Active Recovery climbing for 60 seconds Speed Climbing for 40 seconds Active Recovery climbing for 60 seconds Lower Limb Climbing for 40 seconds Active Recovery climbing for 60 seconds repeat as many times as time allows Record peak heart rates to measure improvements	
25 - 35	Aerobic Climbing	maintain 75 - 80%
35 - 50	Interval Sprint Climbing	
50 - 60	Cool Down Climbing	cool down to 60%

Off-Season Training Program

Aerobic Climbing Program -- 2 - 3 days a week.
Interval Sprint Climbing Program 1 -- 1 day a week

Pre-Season Training Program

Aerobic Climbing Program -- 2 days a week.
Interval Sprint Climbing Program 2 -- 3 - 4 days a week

In-Season Training

Aerobic Climbing Program -- 2 days a week.
Interval Sprint Climbing Program 2 -- 1 day a week or Program 1 -- 2 days a week

Track (880 yd)

Activity Description:

30% anaerobic 65% anaerobic/aerobic 5% pure aerobic

Recovery Methods:

90% active recovery 10% rest periods

Aerobic Climbing Program (30 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 25	Aerobic Climbing	maintain 80%
25 - 30	Cool Down Climbing	cool down to 60%

Interval Sprint Climbing Program 1 (30 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 25	Interval Sprint Climbing Power Climbing for 20 seconds Active Recovery climbing till heart rate reduces to 80% Speed Climbing for 20 seconds Active Recovery climbing till heart rate reduces to 80% Lower Limb Climbing for 20 seconds Active Recovery climbing till heart rate reduces to 80% Repeat as many times as time allows Record peak heart rates to measure improvements	
25 - 30	Cool Down Climbing	cool down to 60%

Interval Sprint Climbing Program 2 (60 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 20	Interval Sprint Climbing Power Climbing for 30 seconds Active Recovery climbing for 60 seconds Speed Climbing for 30 seconds Active Recovery climbing for 60 seconds Lower Limb Climbing for 30 seconds Active Recovery climbing for 60 seconds repeat as many times as time allows Record peak heart rates to measure improvements	
20 - 40	Aerobic Climbing	maintain 75 - 80%
40 - 50	Interval Sprint Climbing	
50 - 60	Cool Down Climbing	cool down to 60%

Off-Season Training Program

Aerobic Climbing Program -- 2 - 3 days a week.
Interval Sprint Climbing Program 1 -- 1 day a week

Pre-Season Training Program

Aerobic Climbing Program -- 2 days a week.
Interval Sprint Climbing Program 2 -- 3 - 4 days a week

In-Season Training

Aerobic Climbing Program -- 2 days a week.
Interval Sprint Climbing Program 2 -- 1 day a week or Program 1 -- 2 days a week

Track (1 mile)

Activity Description:

20% anaerobic 55% anaerobic/aerobic 25% pure aerobic

Recovery Methods:

90% active recovery 10% rest periods

Aerobic Climbing Program (30 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 25	Aerobic Climbing	maintain 80%
25 - 30	Cool Down Climbing	cool down to 60%

Interval Sprint Climbing Program 1 (30 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 25	Interval Sprint Climbing Power Climbing for 15 seconds Active Recovery climbing till heart rate reduces to 80% Speed Climbing for 15 seconds Active Recovery climbing till heart rate reduces to 80% Lower Limb Climbing for 15 seconds Active Recovery climbing till heart rate reduces to 80% Repeat as many times as time allows Record peak heart rates to measure improvements	
25 - 30	Cool Down Climbing	cool down to 60%

Interval Sprint Climbing Program 2 (60 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 20	Interval Sprint Climbing Power Climbing for 5 seconds Active Recovery climbing for 15 seconds Speed Climbing for 5 seconds Active Recovery climbing for 15 seconds Lower Limb Climbing for 5 seconds Active Recovery climbing for 15 seconds repeat as many times as time allows Record peak heart rates to measure improvements	
20 - 40	Aerobic Climbing	maintain 75 - 80%
35 - 50	Interval Sprint Climbing	
50 - 60	Cool Down Climbing	cool down to 60%

Off-Season Training Program

Aerobic Climbing Program -- 2 - 3 days a week.
Interval Sprint Climbing Program 1 -- 1 day a week

Pre-Season Training Program

Aerobic Climbing Program -- 2 days a week.
Interval Sprint Climbing Program 2 -- 3 - 4 days a week

In-Season Training

Aerobic Climbing Program -- 2 days a week.
Interval Sprint Climbing Program 2 -- 1 day a week or Program 1 -- 2 days a week

Track (cross country)

Activity Description:

5% anaerobic 15% anaerobic/aerobic 80% pure aerobic

Recovery Methods:

90% active recovery 10% rest periods

Aerobic Climbing Program (30 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 25	Aerobic Climbing	maintain 80%
25 - 30	Cool Down Climbing	cool down to 60%

Interval Sprint Climbing Program 1 (30 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 25	Interval Sprint Climbing Power Climbing for 10 seconds Active Recovery climbing till heart rate reduces to 80% Speed Climbing for 10 seconds Active Recovery climbing till heart rate reduces to 80% Lower Limb Climbing for 10 seconds Active Recovery climbing till heart rate reduces to 80% Repeat as many times as time allows Record peak heart rates to measure improvements	
25 - 30	Cool Down Climbing	cool down to 60%

Interval Sprint Climbing Program 2 (60 minute program):

<i>Time</i>	<i>Description</i>	<i>Target Heart Rate</i>
0 - 10	Warm Up Climbing	warm up to 80%
10 - 20	Interval Sprint Climbing Power Climbing for 5 seconds Active Recovery climbing for 15 seconds Speed Climbing for 5 seconds Active Recovery climbing for 15 seconds Lower Limb Climbing for 5 seconds Active Recovery climbing for 15 seconds repeat as many times as time allows Record peak heart rates to measure improvements	
20 - 40	Aerobic Climbing	maintain 75 - 80%
40 - 50	Interval Sprint Climbing	
50 - 60	Cool Down Climbing	cool down to 60%

Off-Season Training Program

Aerobic Climbing Program -- 2 - 3 days a week.
Interval Sprint Climbing Program 1 -- 1 day a week

Pre-Season Training Program

Aerobic Climbing Program -- 2 days a week.
Interval Sprint Climbing Program 2 -- 3 - 4 days a week

In-Season Training

Aerobic Climbing Program -- 2 days a week.
Interval Sprint Climbing Program 2 -- 1 day a week or Program 1 -- 2 days a week

During the training programs, we use different terms to describe the training methods. Here is a definition of each term:

Aerobic Activities	Activities using large muscle groups at moderate intensities that permit the body to use oxygen to supply energy and to maintain a steady state for three or more minutes.
Aerobic Capacity	The ability to maintain a given aerobic power output.
Aerobic Climbing	Climbing at the user's target heart rate.
Aerobic Power	Power outputs supported by the oxidative system. This is usually measured as V02 max in laboratory tests.
Active Recovery	Exercising at an aerobic rate between intervals. During the active recovery period the user will allow their heart rate to drop back to their target heart rate.
Anaerobic Activities	Activities using muscles groups at high intensities that exceed the body's capacity to use oxygen to supply energy and which create an oxygen debt by using energy produced without oxygen.
Anaerobic Capacity	The ability to maintain a given anaerobic power output. In simple terms, a football player being able to explode off the line in the second half just like he did in the first half of the game.
Anaerobic Climbing	Climbing at a high intensity that exceeds the muscle's capacity to use oxygen to produce energy.
Anaerobic Power	Power outputs supported by the ATP-CP system, fast glycolysis or the LA system or a combination of the two. Energy for the activity is obtained from mainly anaerobic pathways.
Cool Down Climbing	Climbing at a rate that is designed to reduce the user heart rate to the 40 to 60 percent on the user maximum heart rate. Usually done during the last 5 - 10 minutes of the program.
Interval Sprint Climbing	Prescribed exercise where after warm up climbing the athlete performs a series of anaerobic, power climbing, speed climbing, upper limb climbing, or lower limb climbing at maximal effort drills with active recovery or rest periods between each interval.

Lower Limb Climbing	During Interval Sprint Climbing, the athlete crouches down with the knees bent at approximately 90 % holding the stationary rails or handles (arms should be straight and parallel to the ground) and climbs anaerobically legs only at maximum effort with 10 to 15 inch stroke lengths. The length of time will vary as prescribed. Always faster than the limbs are required to move in the specific sport.
Power	Force x Displacement/Time or simply Work/Time
Power Climbing	Performed during Interval Sprint Climbing, when the user performs long strokes with maximum intensity. The length of the strokes will be as long as possible push and pulling anaerobic without hitting the bottom stops. The length of time will vary as prescribed. Always faster than the limbs are required to move in the specific sport.
Recovery Time	The time required for the heart rate to return to the target heart rate after a high intensity sprint climbing interval.
Rest Period	A period of time where the user discontinues both anaerobic and/or aerobic activities during the sporting event.
Speed Climbing	During Interval Sprint Climbing when the user performs anaerobic, short, quick strokes (stroke lengths should be between 4 - 8 inches) with maximum intensity and speed. The stroke rate will be as quick as possible. The length of time will vary as prescribed.
Upper Limb Climbing	During Interval Sprint Climbing, the athlete steps off the of the machine, standing in front of the VersaClimber, grasps the two handles which allow the greatest range of motion and push and pull anaerobic with only the arms at maximum effort during the interval time. The athlete will step back onto the machine for active recovery. The length of time will vary as prescribed.
Warm Up Climbing	Climbing at a rate that is designed to increase the user heart rate to the target heart rate. Usually done during the first 15 minutes of the program.

Finally, we have developed recommended off-season, pre-season and in-season training programs. You may decide to change any of these programs, depending on the other conditioning programs you are utilizing.