VERSAPULLEY™
with MV² Technology

VersaPulley Operation Manual

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VERSAPULLEY™
with MV² Technology

In order to fully understand the new exercise technology described in this manual it is recommended that you start by reading the Glossary of Terms on page 18.

What is a VersaPulley?

VersaPulley® is a High-Low Pulley exercise machine that features an Infinitely Variable Cam and a 100% Compliant MV² resistance mechanism.

What is an Infinitely Variable Cam?

An Infinitely Variable Cam (cone) automatically matches the force exerted by the user to the compliant resistance generated by the MV² (flywheel).

What is MV² Resistance?

MV²™ resistance is based on Newton's Second Law of Physics, applied to rotary inertia, where Force equals Mass times Velocity Squared or **F=MV²** The resistance mechanism functions on the basic principle of Rotary Inertia where all the concentric energy to initiate flywheel movement is stored, then released throughout the eccentric contraction, providing a fully compliant user defined speed, force and range of motion.

INTRODUCTION

The VersaPulley is a **Concentric, Eccentric, Plyometric** Power, Strength and Endurance exercise machine that provides accommodating user defined Speed, Force and Range of Motion. The user pulls against the MV² resistance mechanism during the first half of the cycle (Concentric) then the resistance mechanism pulls back against the user in the second half of the cycle (Eccentric). **The user PULLS and the machine PULLS BACK**. The user imparts energy to a flywheel on the PULL stroke (Concentric) and depletes the imparted energy on the PULLBACK stroke (Eccentric).

Both Single and Tandem Exercise

The VersaPulley exercise machine is the only machine that can be used effectively by one or two people at the same time. Because the compliant resistance is fully accommodating, two people can exercise to their individual user defined levels, at the same time. The machine does not know if one or two people apply the force. For example one person can pull at 200 pounds and the other at 300 pounds or any combination of forces that adds up to 500 pounds. It automatically resists any force applied to it. This buddy workout allows two people to exercise at the same time and **both get the same workout as if they were on separate machines.**

PRINCIPLE OF OPERATION

As previously stated the MV² resistance mechanism functions on the basic principle of Rotary Inertia where all the energy imparted to a flywheel is stored during the concentric contraction then released during the eccentric contraction. This Patented resistance is unique because a small change in speed results in a large increase in force, unlike that of any other exercise machine. It is this unique relationship between speed and force that automatically loads contracting muscles, through the full range of motion, with any force to which the muscles are capable of generating. **MV² compliant resistance provides the ultimate user defined exercise.**

WHY MV² IS SUPERIOR

The MV² resistance system **bridges the gap between conventional exercise machines** by combining Variable Speed with Variable Force over a Variable Range of Motion. Unlike Isokinetic exercise-Constant Speed, Isotonic exercise-Constant Force or Isometric exercise-Constant Distance the MV² provides a **VariKineToniMetric Exercise** -Variable Speed, Variable Force over a Variable distance. The result is a machine that combines the positive effects of Isokinetic with Isotonic exercises. This adds a completely new dimension to exercise that is not available on any other exercise machine. Namely, it allows for **a Rapid Maximum Rate of Force Development** throughout the full range of motion for one or two people. In other words it functions like an **Infinitely Variable Cam**.

It is an accepted fact that the most complete and effective power, strength and endurance exercise should include Concentric, Eccentric and Plyometric muscle stimulation. By definition a concentric contraction is the shortening of muscle fiber under load. An eccentric contraction is a lengthening of a muscle fiber under load. Plyometric exercise is the rapid reversal of a lengthening to a shortening muscle fiber under load. The MV² provides all three of these modalities on every repetition.

What Is Sports Performance Power?

The Physics definition of power is: Power = Force x Distance / Time. This can also be stated as work per unit time. Power is therefore application of a Force through a Distance in a specific Time. The Sports Performance definition of Power is: Power is the ability to develop maximal force through the sports movement in minimal time.

MV² resistance allows an athlete to contract a muscle(s) as fast as they can, with an automatic matching maximal load, which in turn produces a maximal rate of force development over the sport movement. During each rep the force to which the athlete is capable of developing is automatically matched to the speed to which the athlete is capable of moving--**this develops Sports Performance Power.**

The VersaPulley provides Sports Specific Training Activities above and beyond that of any other exercise machine.

- ▲ Provides a true Plyometric Stretch-Shorten Cycle for Total Body Power.
- ▲ Muscles are Pre-Loaded during Pre-Stretch to Improve the Rate of Force Production.
- ▲ Allows an Explosive Reversal between Eccentric (Stretch) and Concentric (Shorten) muscle activity.
- ▲ Generates a Maximum Rate of Force Development that stimulates and increases the number of motor units activated.
- ▲ Produces a Rapid Rate of Force Development that increases Speed Strength and High Power Output.

- ▲ Provides functional Closed-Chain, Multi-Plane, Multi-Joint exercise.
- ▲ Increases Neuromuscular Involvement and Joint Stability.
- ▲ Provides VariKineToniMetric exercise that is defined as Variable Speed and Variable Force over a Variable Range of Motion.

All sport activities involve Acceleration and Deceleration.

Optimal Sports performance is achieved when the body is trained to Accelerate and Decelerate rapidly at higher Force Levels. Effective Sport Specific Transfer can be best achieved by training as close to the actual sport activity as possible. Training in the appropriate intensities, speed, force, range of motion and energy systems is the most effective way to improve Athletic Power.

MV² Resistance replaces Weights, Plates and Bands.

The VersaPulley is the only High-Low Pulley that uses MV² resistance to provide a true Plyometric Stretch-Shorten cycle, with both compliant Force and Speed, in a Closed-Chain, Multi-Joint, Multi-Plane exercise. It automatically produces a Maximum Rate of Force Development, 4 to 400 pounds, throughout the full range of motion in user defined Concentric, Eccentric and Plyometric muscle stimulation. And all of this at a range of motion from 1 inch to 10 feet, at speeds up to five times faster than any weight stack machine.

With unlimited exercise Speed, Force and Range of Motion available on the VersaPulley it is the ideal tool to help Athletes achieve their performance goals. Training Athletes on the VersaPulley insures the highest rate of Sports Specific Transfer benefits to their sport.

Types of Training Available

Drop Sets:
Performing a rep or a set near maximum load and dropping to a lighter load for additional reps. This is accomplished automatically because as the muscles fatigue the compliant resistance decreases to match the applied force.

Explosive Training:
Is the ability to accelerate a load concentrically and decelerate it eccentrically in fast explosive movements. Exercise speeds are up to 5 times faster then any weight stack machine.

Plyometrics:
Load applied to a lengthening muscle prior to reversal with load applied to the same shortening muscle.

Super Sets:
Performing several exercise movements for the same muscle group in rapid succession.

Periodization:
Intensities: High intensity reps at 90% of a one rep max, Moderate intensity reps at 70% of max, Low intensity reps at 60% of max.

Sport Specific Training

Because the **training movements** on the MV² are much closer to **sports performance movements** there is **a major training transfer effect**. Force, speed and range of motion are limited only by the capability of the user.

In a research study it was found that using only two 2 pound weights on the flywheel and a Force/Speed setting of 4, trained Male and Female college subjects achieved loads equivalent to their free weight 5 Rep Max in the Front Squat, Push Press and Lunge.

Some VersaPulley Club Exercises:

1. Lat Pull
2. Horizontal Row
3. Bent Over Row
4. Upright Row
5. Tricep Pull Down
6. Bicep Curl
7. Wrist Curl
8. Front Lunge
9. Step Ups
10. Calf Raise
11. Shoulder Shrug
12. Clean And Jerk
13. Trunk Rotation
14. Standing Military Press
15. Unilateral Pull Down

Some VersaPulley Sport Specific Moves:

1. Tennis, baseball, golf swings
2. Baseball, football, basketball throws
3. Shot put, javelin throw
4. Jabs, crosses, upper cuts
5. Quick direction changes
6. Rowing
7. Combative moves
8. Swimming
9. Lunging
10. Cricket bowling

Some VersaPulley Routines Used in Daily Activities:

1. Lifting
2. Pulling
3. Pushing
4. Twisting
5. Bending
6. Squatting
7. Walking
8. Stepping
9. Reaching

10. Balancing

Some VersaPulley Athletic Training Routines:

1. Lateral Acceleration Step Ups
2. Lateral Deceleration Lunges
3. Forward Deceleration Lunges
4. Backward Lunge to Extension
5. Crossover to Extension
6. 45 Degree Squat to Extension
7. 45Degree Single Leg Acceleration Extensions
8. Front Squat to a Press
9. Standing Pulls from the floor
10. Single Leg-Hip Flexion
11. Single Leg-Hip Abduction
12. Single Leg-Hip Adduction-Closed Chain
13. Single Straight Leg-Hip Extension
14. Standing Shoulder Shrug
15. Seated Row with Legs
16. Seated Row
17. Seated One Arm Parallel Rotating Row
18. Seated One Arm Rotational Row
19. Standing One Arm Rotational Row
20. Standing One Arm Rotational Row Parallel
21. Standing Single Leg, One Arm Rotational Row-Parallel
22. Standing Single Leg, One Arm Rotational Row-Perpendicular
23. Standing Diagonal Lifting-Perpendicular
24. Kneeling Diagonal Chops-Perpendicular
25. Single Arm Diagonal Pressing-Perpendicular
26. Standing Physio Ball Rotation-Perpendicular
27. Physio Ball Pull Over Extension
28. Lying Physio Ball Pullover Extension-Diagonal
29. Punching, chopping, twisting, pulling, pushing, jabbing,
30. Swinging, lunging, lifting, lowering, balancing.

How To Use The VersaPulley

The end of motion on the VersaPulley is opposite to that of weight stack or plate loaded machines. On weight stack machines, the start of a concentric motion is a fixed point, with the weight stack down, and the end of motion is a selected point along the range of motion. On the VersaPulley the start of the concentric motion is a variable point along the range of motion while the end of the concentric motion is a fixed point. There is a Plyometric effect at the end of the eccentric contraction (reversal) and start of the concentric contraction. By adjusting the position of the handle along the pull rope an infinite variety of Multi-Plane and Multi-Joint exercises are available.

1. INERTIAL FORCE/SPEED SETTINGS

There are 5 Inertial Force/Speed settings. Number 1 Force Setting is the easiest force, fastest Speed (low inertia). Number 5 Force Setting is the highest force, slowest speed (high inertia). At any setting there is a direct relationship between resistive force and speed. **The resistance to motion will automatically increase at increased speed and decrease at decreased speeds.**

Example 1: If a force setting of **5** is selected (high force level), an accommodating resistive force is automatically developed throughout the full range of motion at relatively slower repetition rates. The higher inertial settings are used for a slower exercise motion common in weight stack machines or free weights. Pulling at slower speeds lowers the force and pulling at faster speeds increases the force at a velocity squared factor**.** Forces can be generated from as low as four pounds up to four hundred pounds at the same inertial setting, by pulling at appropriate speeds.

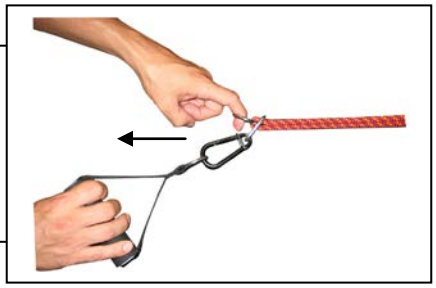
Example 2: Conversely if force setting number **1** is selected (low force level), an accommodating resistive force is automatically develop throughout the full range of motion at faster repetition rates. The lower inertial settings are used for faster exercise motions common in sport specific training. Pulling at slower speeds lowers the force and pulling at faster speeds increases the force at a velocity squared factor. Forces can be generated from as low as 4 pounds up to 800 pounds at this same inertial setting by pulling at appropriate speeds.

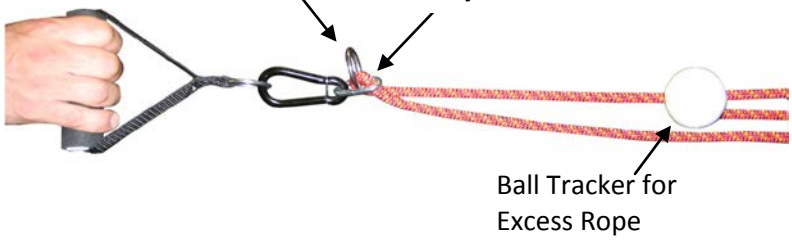
In both prior examples, **it is important to note that the MV² resistance allows muscle groups to exert any combination of force and speed, that they are capable of developing, over the full range of motion. This equates to Maximal power output.**

In other words, at any inertial setting, if you pull as fast as you can you will automatically be at the maximal force to which you are capable of developing at that speed.

2. HANDLE POSITION

To increase range of motion, relax hand grip, pull ring straight back. This will release friction and allow handle to be positioned for a longer range of motion.





To shorten range of motion, relax hand grip, pull "excess" rope connected to white ball. This will shorten grip, and reduce the range of motion.

3. CHANGING PULLEY LOCATIONS

The VersaPulley has 12 vertical pulley locations and one in the center of the base platform. The 12 vertical attach points are common to other Hi-Low machines. The attach point located in the center of the platform adds the capability of a number of vertically oriented exercises like Squats, Biceps, Calf Raises, Shoulder Shrugs, Vertical Presses and others where the desired origin of resistance is from the floor. A quick connector allows the pulley to be located at any of the 13 pulley attach points in seconds.

4. QUICK START GUIDE FOR BEGINNERS.

Unlike weight stack machines the VersaPulley has a pull and pullback rhythm. There is a slight pause at the end of the pull stroke to eliminate sudden reversals. Do not let slack in the rope during the pullback phase. Resist pullback with the same force that was exerted during the pull phase. Go with the rhythm of the machine.

Beginners start with a standing 45 Degree Row Exercise.

1. Set the Force/Speed knob at Mid Range Number 3. Learn to use the machine at this setting. Later try higher or lower settings.

2. Position the pulley at the bottom of the post.

3. Stand at the back of the platform, facing the post, and pull the rope until it stops moving (Rope will be at top of cone).

4. Keep the rope extended and move the handgrip along the rope to match the end of the desired exercise motion. To shorten the stroke, slide the ropeman towards the cone. To lengthen the stroke pull the release cable on the ropeman and slide the handle away from the cone.

5. Hold the handle and let slack in the rope until a few turns wind around the cone.
The start position is always with the rope wrapped around the cone.

6. Start the exercise by pulling the handgrip with only two fingers of one hand until the rope reaches the top of the cone (concentric motion). When the rope reaches the top of the cone let it pullback (eccentric motion). Repeat until you get the feel and rhythm of equal pull and pullback forces with two fingers through the full range of motion. When you feel a steady load during the entire pull and pullback motion you are exercising properly.

7. Now grip the handle with your hand and gradually pull harder. The harder you pull the harder the machine will resist

9. Keep an even tension on the handgrip during the pullback motion.

8. Pull faster or slower to increase or decrease the force.

9. Move forward or backward to find most comfortable stroke position.

Force settings increase from 1 through 5 at progressively slower speeds. Speed settings increase from 1 to 5 at progressively lower forces.

For Other Exercises

Position the pulley at any one of 12 locations on the post or in the deck and then:

1. Adjust the handle along the length of the rope to match the end of the exercise motion.
3. Pull as fast as you can and the concentric force will automatically adjust to your capability.

4. Keep the rope tight during the pullback motion.
5. Pull faster and the force will increase.
6. Pull slower and the force will decrease.

The VersaPulley is a strength machine that is used in a rhythmic motion similar to cardiovascular machines. The machine can be used at any of the 5 inertial settings. If the speed is too fast adjust to lower speed setting and conversely if the speed is too slow adjust to a faster speed setting. At any speed setting the machine will automatically generate a compliant resistance corresponding to the pull speed. To increase the load at any given setting pull faster and the resistance will automatically increase, conversely to decrease the resistance pull slower.

HOW TO OBTAIN A HIGHER ECCENTRIC (PULL BACK) FORCE THAN THE CONCENTRIC (PULL) FORCE.

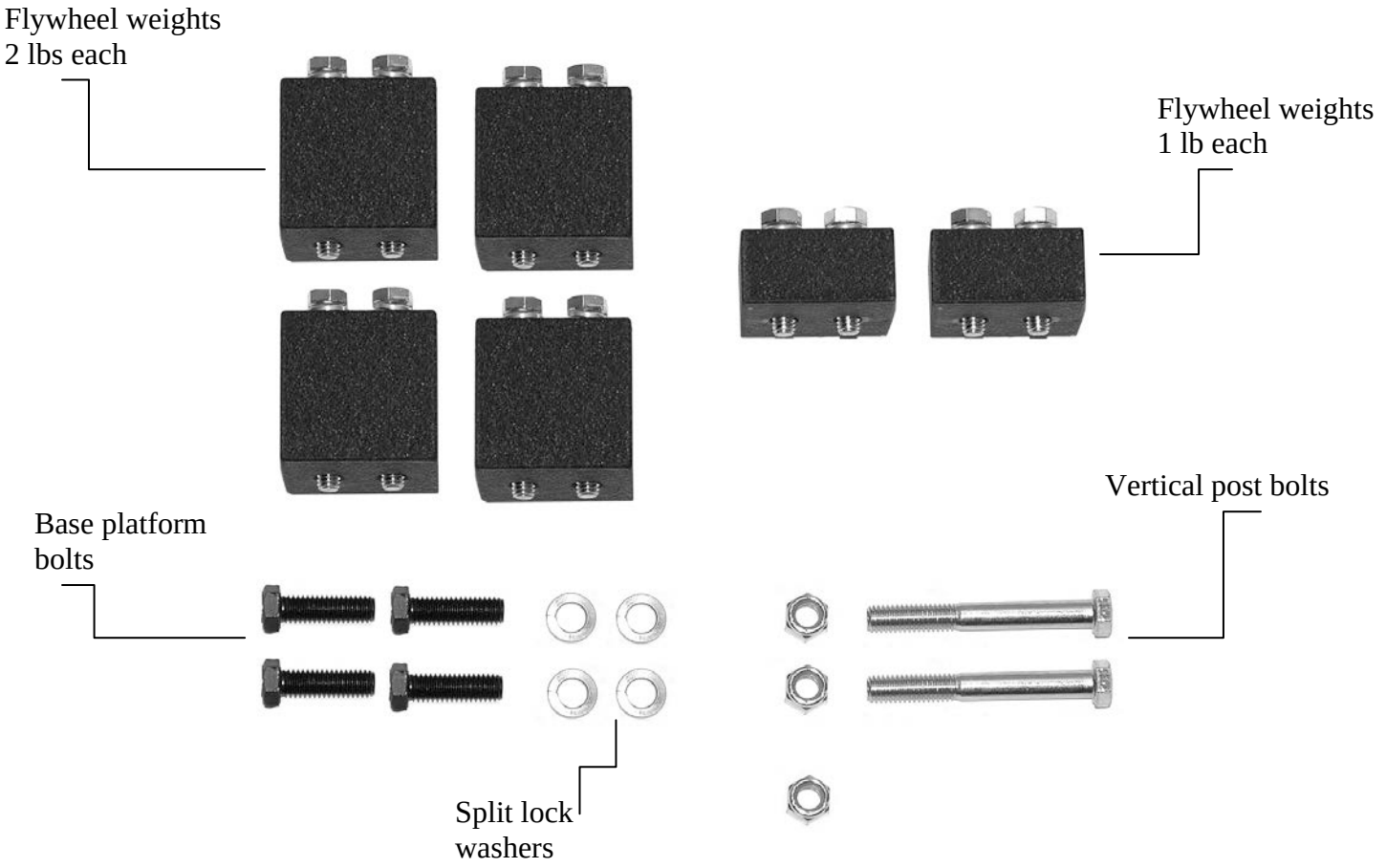
On a normal pull/pullback cycle, the concentric (pull) and eccentric (pullback) force and range of motion is essentially equal. To increase the eccentric force, decrease the range of motion during pullback on every other cycle. This causes the total energy that is imparted over a longer range of motion to be depleted over a shorter range of motion, on every other stroke, thereby requiring a higher eccentric force. By shortening the eccentric stroke lengths, maximal eccentric loads can be attained.

To increase the eccentric load up to maximal, over the full range of motion, use two people to pull (concentric load) and one person to pull back (eccentric load). This allows two people to workout to maximal eccentric loading on every other repetition. The energy imparted to the resistance mechanism by two people is taken out by one person to produce the eccentric overload.

Two people can workout at the same time.

Because the resistance mechanism automatically responds to any force applied to it, two people can workout at the same time. The resistance mechanism cannot distinguish between the forces applied to it by one or two people; therefore each person can workout to their own capability.

VersaPulley Hardware



(4) 2lb. Flywheel Weight Blocks 2" x 2" x 2"

(2) 1lb. Flywheel Weight Blocks 2" x 2" x 1"

(4) Bolts / Bottom of base platform…….3/8" - 16 x 1 ¼"
(4) Split Lock washers……..3/8"

(2) Bolts / Vertical post……..3/8" - 16 x 3"
(2) Lock Nuts……..3/8" - 16

(1) Lock Nut Vertical post……..3/8" - 16

VersaPulley Assembly Instruction

1. Remove all Philips head wood screws along base of box cover.

2. Remove card box cover.

3. Using ½" wrench / socket remove all lag bolts.

NOTE: Keep rope/ handle assembly tied to front of unit. Do not untie rope.

4. With two people, carefully lift housing off deck.

NOTE: Do not untie (rope) handle assembly from the front of unit.

5. Next, carefully tilt back housing enclosure as seen above.

6. Remove last remaining lag bolts from cross wood supports.

7. Carefully remove deck platform.

8. Insert the platform into the MV² enclosure until the bolt holes on the bottom of the platform are in alignment on either side of the machine.

9. Use four 3/8" x 1¼" bolts and four 3/8" lock washers and securely tighten deck to housing.

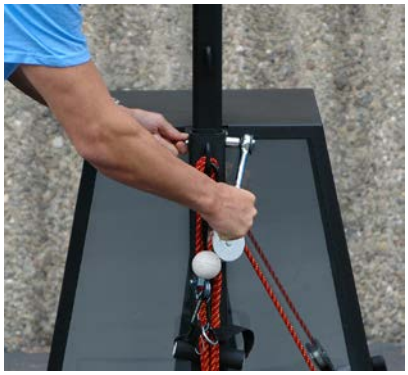
10. Attach the rewind Pulley, located under the housing enclosure, to the hook located in the far corner, under the platform.

11. Be sure that the rewind cord and rubber tubing are not twisted.

12. Wind 3 turns of the cord around the shaft above the flat washer attached to the bottom of the shaft. For detailed instruction please call us at 1.800.237.2271

13. Once deck is secured and rewrap mechanism set, lower unit back down.

14. Insert the vertical mast into the housing with the mast tilted forward towards the platform.



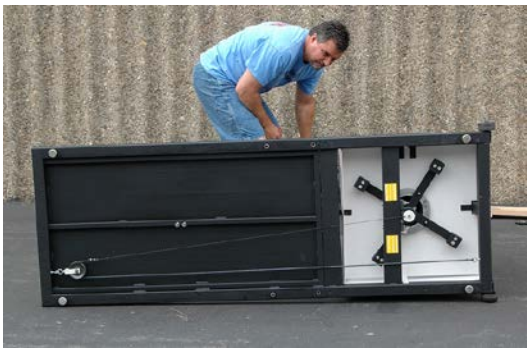
15. Secure the vertical post to the housing using two 3/8” x 3” long bolts.

16. Use a 3/8-16 nut to secure the mast to the top of the housing cover.

17. Using Philips head screw driver, attach (2) accessory holding hooks to vertical post.

18. Accessory holding hooks.

Untie rope handle assembly from unit.



To access and change fly-wheel weights
Lean unit over onto side.

Clip pulley onto post for desired angle of pull.

After appropriate fly-wheel weight has been determined (see page 15). Securely tighten block weights.

Black Velcro strip is used
to secure excess rope that may
be present while working out.

Fully assembled VersaPulley.

Flywheel Mass

The mass of the flywheel defines a large range of speed/force curves that can be varied with the speed/force adjuster knob. The entire speed/force envelope can be increased or decreased by increasing or decreasing the flywheel mass as follows:

There are four 2” x 2” x 2” and two 2” x 2” x 1” steel flywheel weights provided with the machine. The weights can be added in pairs located 180 degrees apart, starting with two small weights, two small and two large weights or four large weights. It is not necessary to change weights after the optimum speed envelope has been determined. Try various combinations to customize the flywheel of your choice. In general, very fast sport functional training uses a minimum of weights, normal functional training uses ½ the weights and Health Clubs prefer the heavier, slower flywheel like weight stack machines.

If slower speeds/higher forces are desired, tilt the machine on its side and bolt two or four opposing weights to the flywheel. **CAUTION:** ***When changing weights, tie off the pull rope so that no one can rotate the flywheel and be sure that weights are added or removed in opposing pairs.***

Mass (Flywheel weight) Change Instructions

The resistance mechanism in the VersaPulley was designed for a wide range of resistive forces and speeds for a variety of applications from small muscle shoulder rehabilitation to large muscle body building squats.

At any given flywheel mass the machine automatically adjusts to the power capability of the user. This means that the resistance generated is equal to the force applied by the user at the associated speed that the user can generate. The Force/Speed adjuster allows for a wide range of Forces and Speeds at any flywheel mass.

The mass of the flywheel can be changed by adding or deleting steel blocks in pairs.

The VersaPulley comes with 3 pairs of steel blocks to modify the force/speed parameters.

(2) small weights measure 2" x 2" x 1"
(4) large weights measure 2" x 2" x 2"

The flywheel has four locations to add or delete steel weights in opposite pairs.

The following is a flywheel mass guide:
At any flywheel mass the power of the individual is automatically resisted by the resistance mechanism in the machine with a wide selection of forces and speeds.

IMPORTANT:
FLYWHEEL WEIGHTS MUST BE ADDED OR DELETED OF AN EQUAL SIZE AND IN DIRECTLY OPPOSITE LOCATIONS.

Rehabilitation Forces
1 pound to 100 pounds use NO weights.

Fast Sport Specific Moves
1 to 200 pounds use (2) small weights.

Average Applications
1 pound to 400 pounds use (2) large weights.

Using two people, carefully & gently tilt over the VersaPulley until it is securely resting on its side. This will provide access to the flywheel weights.

Using 1/2 inch wrench remove the two bolts that secure any two opposing blocks, use the same bolts to secure them to the flywheel. Tighten securely.

Specifications

PHYSICAL SIZE

Length	79 inches
Width	28 inches
Height	31 inches
Height of post	94 inches
Weight	250 pounds

PHYSICAL CHARACTERISTICS

Structural	Steel
Rope, tensile strength	1200 pounds
Pulleys, working load	480 pounds
Standard color	Black

FUNCTIONAL FEATURES

Force developed	1 pound to 800 pounds
Speed	User defined
Range of motion	1 inch to 10 feet
Muscle Action	Concentric, Eccentric, Plyometric
Joint angles	Unlimited Multi-Angular
Plane of motion	Unlimited Multi-Planer

VERSAPULLEY ACCOMMODATIONS

Age	6 years or older
Level of fitness	Sedentary to Elite Athlete
Height and weight	No limitation
Force application	Closed-Chain through arms, legs, trunk

Maintenance

Symptom: If there is not a constant resistance when pulling on the rope, the cone and rope may be dirty causing the rope to slip on the cone. The cone and rope need to be cleaned.

To clean the cone and rope it is necessary to remove the cover for access.

First disconnect any handles or attachments from the ropeman. Then disconnect the two external pulleys and place the two pulleys and the entire rope assembly inside the cover through the opening in the front clear plastic panel. Then turn the Force/Speed adjusting knob counter-clockwise until it comes off. Remove the washer from the threaded shaft and place the Force/Speed adjusting assembly inside the machine. At this point the entire rope assembly should be inside the cover. The cover is now ready for removal. Remove the screws from the top of the cover. Use two people to lift the cover straight up being careful not to bend or break the plastic window.

Use Rubbing Alcohol and a rag to wipe the cone clean of any deposits on it. A scouring pad may be necessary to remove stubborn grime. Soak a rag in Rubbing Alcohol and rub the rope clean where it wraps around the cone. When the cone and rope are thoroughly clean reassemble the machine in reverse order. Reach through the opening in the front cover and place the Force/Speed assembly through the slot being sure that the washer welded on the U shaped part is on the bottom of the U. Pull the rope assembly through the plastic window and attach the two pulleys where you found them.

Symptom: Rope damaged during visual inspection.

The rope used on the VersaPulley is a high quality mountain climbing utility rope. It has a tensile strength of over 1,500 pounds. Visually inspect the rope every 6 months and replace it if the external braid is cut through or worn through to the core of the rope.

To replace the rope the cover has to be removed from the machine. First remove the vertical post. Then disconnect any handles or attachments from the ropeman. Then disconnect the two external pulleys and place the two pulleys and the entire rope assembly inside the cover through the opening in the front clear plastic panel. Turn the Force/Speed adjusting knob counterclockwise until it comes off. Remove the washer from the threaded shaft and place the Force/Speed adjusting assembly inside the machine. At this point the entire rope assembly should be inside the cover.

The cover is now ready for removal. Remove the screws from the top of the cover. Use two people to lift the cover straight up being careful not to bend or break the plastic window.

Undo the knot where the rope is attached to the shaft and remove the old rope assembly. Lay it out on the floor and observe the way the rope passes through the pulleys and how the ropeman and the white rubber rope take up are assembled. It is important to reassemble the same way.

Before attaching he rope to the shaft turn the cone three revolutions in either direction and then insert the rope. This loads the rewind mechanism. Insert the rope in the shaft and tie a knot. With the entire rope assembly laying on the plastic platform, carefully replace the cover.

Reach through the opening in the front cover and place the Force/Speed assembly through the slot being sure that the washer welded on the U shaped part is on the bottom of the U. Pull the rope assembly through the plastic window and attach the two pulleys where you found them.

GLOSSARY OF TERMS

Isometric: A muscle action where the muscle attempts to contract against a **fixed** limit

Isokinetic: A muscle contraction against a resistance that moves at a **constant** velocity.

Isotonic: A muscle contraction against a **constant** resistance.

VariKineToniMetric: A compliant muscle contraction at a Variable Speed, Variable Force, over a Variable Range of Motion.

Concentric: (Pull Stroke) Muscle shortening under a resistive force.

Eccentric: (Pullback Stroke) Muscle lengthening while resisting a force.

Intensity: Magnitude of a force or energy.

Progressive Resistance Exercise: Exercise in which the amount of resistance is increased to further stress the muscle after it has become accustomed to handling load at a lesser resistance.

Infinitely Variable Cam: A mechanism that automatically and instantaneously provides a compliant resistance that matches the force applied by any muscle or muscle group.

Compliant Resistance: A resistance that matches the muscles capability to develop and exert a force against that resistance.

Overload: Subjecting a part of the body to efforts greater than it is accustomed to.

Plyometric Exercise: An exercise that produces eccentric loading of a muscle through its rapid reversal to a concentric contraction.

Speed: The distance covered by a moving object divided by the time to cover the distance.

Force: A pull that changes or tends to change the state of motion of an object.

Range of Motion: The total distance traveled by a body part during an exercise activity.

Energy: Capacity to produce work per unit of time.

Rapid Force Production: The capacity to produce work rapidly.

Power: Work performed per unit of time.

Inertia: The property of matter to remain at rest or remain in motion until acted upon by an external force.

Rotary Inertia: The property of a flywheel to remain at rest or remain in motion until acted upon by an external force.

THREE YEAR LIMITED WARRANTY

1. Heart Rate, Inc. (H.R.I.) warrants to the original purchaser that VersaPulley is free from defects in material and workmanship under normal use and maintenance under a three year limited warranty subject to the terms and conditions hereafter set forth. Except for the above warranty, it is expressly agreed that NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE or of a particular use nor any warranty of any kind whatsoever express, implied or statutory is made by H.R.I.
2. This warranty does not cover any damage caused by shipping, miss handling, misuse, tampering, negligence, accidents, abnormal conditions, lack of adequate maintenance or unauthorized service or alterations to the product.
3. Liability of H.R.I. is limited to either repair or replacement of the defective part or the replacement of the machine at the option of H.R.I. on an exchange basis, with the customer bearing all costs of shipping and handling to and from the factory.
4**.** Length of Warranty, Parts:

ITEM PARTS REPLACEMENT	
FRAME AND STEEL STRUCTURE.	3 YEARS
CONE AND FLYWHEEL	3 YEARS
BEARINGS	3 YEARS
PULLEYS	2 YEARS
ROPE	1 YEAR

5. Length of Warranty, labor
During the first year, all labor is covered by the warranty. All labor repairs will be performed at the factory on warranty and non-warranty parts.
6. This warranty does not cover paint deterioration, discoloration, chipping, rust or shipping damage.
7. After all of the foregoing conditions have been complied with, if H.R.I. shall thereupon attempt repairs and /or replacements which shall for any reason fail, H.R.I. shall be allowed to continue to attempt to remedy any defects for so long a period of time as, In H.R.I.'s sole judgment, such attempt is justified.
8. The foregoing shall be buyer's sole and exclusive remedy, whether based on tort or otherwise, and H.R.I. shall not be liable for any injuries to persons or property. In no event shall H.R.I. be liable for any other loss or damages except as above set forth.
9. This warranty is expressly in lieu of all other warranties, express or implied, and of all other obligations or liability on the part of H.R.I. No person, firm or corporation is authorized to assume any other liability on behalf of H.R.I.

WARRANTY VALIDATION FORM

To validate your Warranty Registration, please fill out the following form and return it to Heart Rate, Inc.
VersaPulley Model:_____Machine Serial Number:_____
Name:_____Title:_____
Facility Name:_____
Address:_____
City:_____State:_____Zip:_____Phone Number:(___)_____
Email:_____Fax: (____)_____Purchase Date:_____
City_____State_____Zip_____
I first saw/heard about the VersaPulley:_____
_____
I have seen the VersaPulley advertisements in the following:_____
_____

VERSAPULLEY™ with MV² Technology

For additional instruction or information please call 1.800.237.2271