



VERSAPULLEY OPERATIONAL MANUAL



Table of Contents

	Page
What is VersaPulley?.....	2
What is MV2 Resistance?.....	3-4
How to Use VersaPulley.....	4
How to Adjust Handle along Rope.....	5
Adding / Changing Flywheel Weights.....	6
IPU Display (optional upgrade)	7
Foot Pounds vs Watt Seconds Chart	8
Quick Start Guide	9
Three Key Movement Planes	10
Types of Training Available.....	11-18
VersaPulley Hardware for Assembly.....	19
VersaPulley Assembly.....	20 - 23
Specifications.....	24
Maintenance.....	25
Rope Change.....	26-28
Warranty.....	29

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?

What Is VersaPulley? The VersaPulley trains “Reactive Strength” it is the link to becoming strong and fast. Reactive Strength is defined as the ability to absorb force in one direction, and rapidly change and apply more force in the opposite direction (quickly switch from eccentric to concentric). VersaPulley accomplishes this using MV2 technology which is a patented rotating inertial flywheel for the resistance.

Non-Impact Reactive Strength: Your Missing Link

What?

Reactive strength is a unique and often overlooked component of training. It is defined as the ability to absorb force in one direction, and rapidly change and apply more force in the opposite direction (quickly switch from eccentric to concentric).

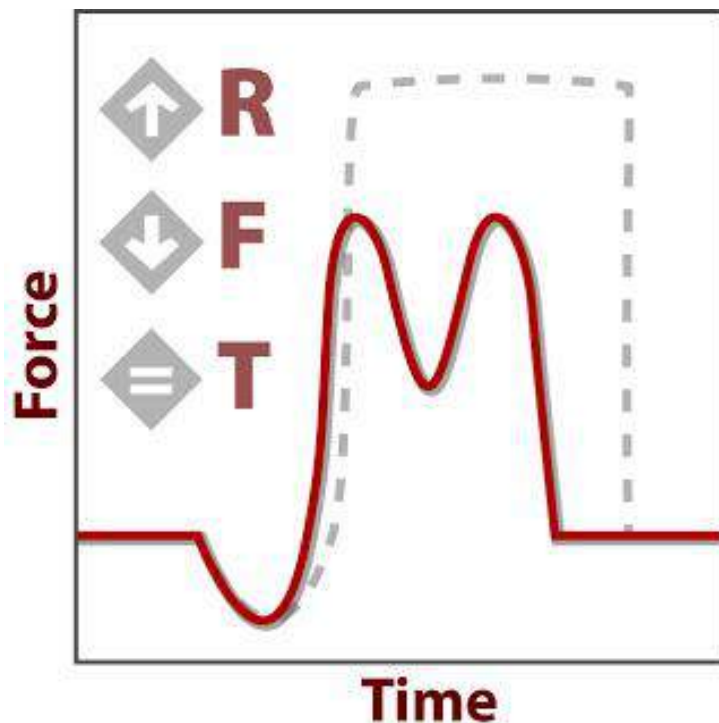
The Force Time graph shown to the right shows an athlete who has poor reactive strength, indicated by the large decrease “Force Dip” in the middle. This is a loss of Force or Energy as the athlete makes a transition from one direction to another. The dotted line is an ideal curve, marked by no loss of Force and sufficient reactive strength,

Why?

Reactive strength serves as the link between traditional strength training and high speed skills like sprinting and throwing. Reactive strength is the link between being just strong and being strong and fast. Failing to properly incorporate reactive strength into your training program could be the missing ingredient to improving your performance.

How?

Generally, plyometrics or jumping have been the primary means of improving reactive strength as they require great coordination, nervous system input, and body control. However, these benefits also make such movements difficult to perform frequently due to the stress. Athletes that are in-season, injured, or sore should heed cause from these hard impacts associated with landing and jumping. However, inertia training with a weighted flywheel effectively incorporates the strength and speed balance of reactive strength, as *the goal is to move the cone as fast as possible, stop it and start again*. The unique aspect is the lack of impact, as the feet remain planted on the ground throughout the movements, placing less stress on the joints while still providing a great inertial loaded stretch/shorten stimulus to the muscles and nervous system.



When?

As mentioned, the main benefit of the flywheel is inertia, which is the building of resistance due to increasing speed, like a big rock rolling downhill. This inertia becomes so great that it overloads the muscles to cause eccentric contractions, which has crucial performance and healing benefits.

From a performance standpoint, this eccentric strength determines your finishing movement, or concentric force production. As far as injury prevention, eccentric exercise has proven to be a well-accepted treatment method for injuries such as tendinopathies, like jumper's knee or tennis elbow.

Summary

You need *reactive strength* training to avoid the "Force Dip", and if you are active, you need to provide *non-impact* eccentric stimulus to avoid and/or prevent injuries.

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 loaded user defined speed, force and range of motion. The flywheel incorporates the strength and speed balance of reactive strength. Loads on the VersaPulley are similar to Olympic lifts and you can use the VersaPulley in all three planes; vertical, lateral and horizontal. The eccentric exercise has proven to be a well-accepted treatment method for injuries. The VersaPulley is a great tool to have in your arsenal to help improve reactive strength, as well as injury and injury prevention. It also complements traditional explosive Olympic lifts.

Why the Cone?

As force is applied to the flywheel the cord is unwrapping off the cone shape pulling on a continuous decreasing diameter. This action maintains a disadvantage of the user the flywheel's mass and requires less increasing acceleration to produce force.

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). The goal is to move the flywheel as fast as possible creating inertia, stop it and start again. Reactive strength serves as the link between traditional strength training and high speed skills like sprinting and throwing. Many athletes lose force in their movement due to the lack of Reactive Strength.

A unique aspect of the VersaPulley is the lack of impact, as feet remain planted on the ground throughout the movements, placing less stress on joints and still providing a max inertial stretch shortening stimulus to the muscle and nervous system.

HOW TO USE 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.



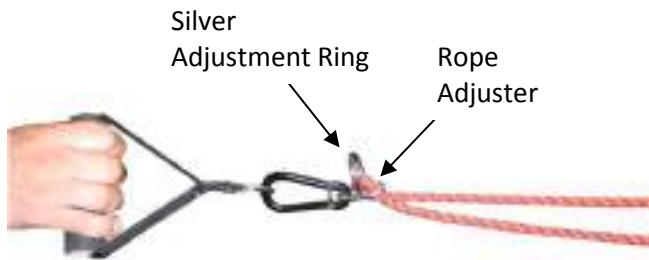
Example 2: Conversely if force setting number **1** is selected (low force level), an accommodating resistive force is automatically developed throughout the full range of motion at faster repetition rates. The lower inertial settings are used for faster exercise motions common in sport specific training. 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.



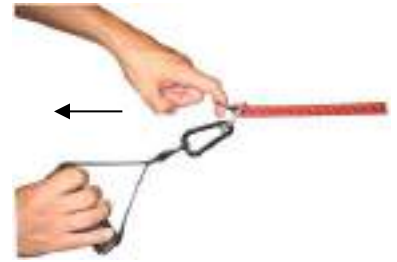
In both prior examples, **it is important to note that the MV^2 resistance allows muscle groups to exert any combination of force and speed, that they are capable of developing, over the full range of motion. This equates to Maximal power output.**

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.

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.

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 permanent 2" x 2" x 2" on the flywheel, and four removable 2" x 2" x 2" steel flywheel weights provided with the machine. The removable weights can be added in pairs located 180 degrees apart. It is not necessary to change weights after the optimum speed/force 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 6 and 8 for the highest forces.

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 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 4 fixed weights and 4 removable steel blocks to modify the force/speed parameters.

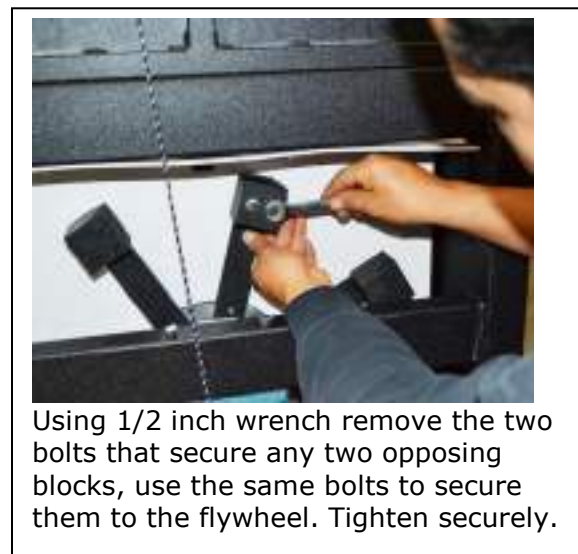
(4) weights measure 2" x 2" x 2"

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

The following is a flywheel mass guide:

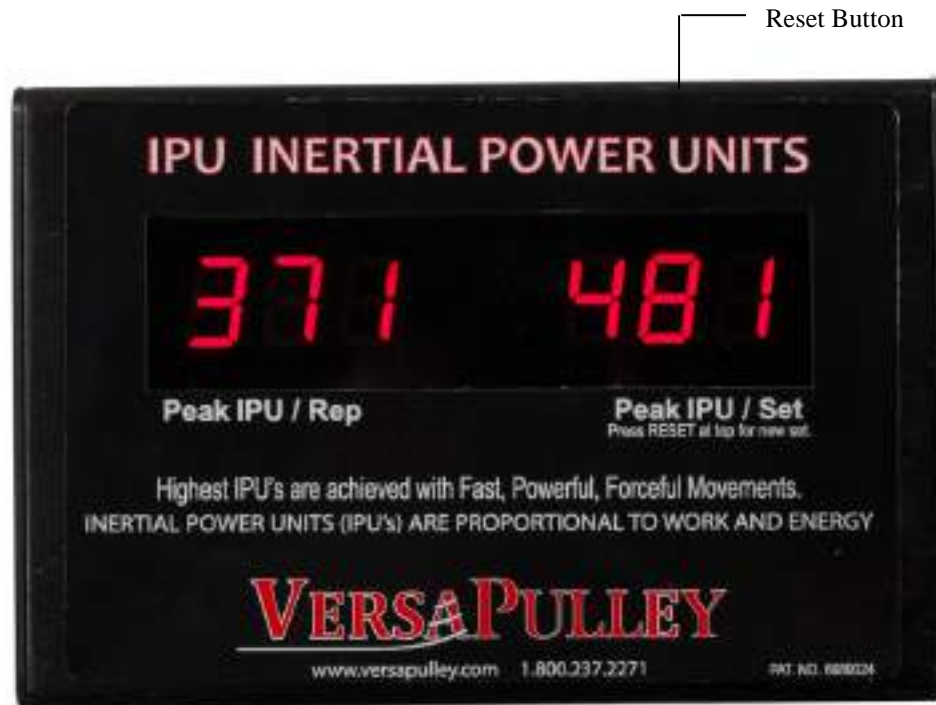
At any flywheel mass the power of the individual is automatically resisted by the resistance mechanism in the machine with a wide selection of forces and speeds.

**IMPORTANT:
FLYWHEEL WEIGHTS MUST BE ADDED OR DELETED in
PAIRS AND IN DIRECTLY OPPOSITE LOCATIONS.**



IPU INERTIAL POWER UNIT

[Optional Upgrade Display]



IPU, Inertial Power Unit, is a whole number directly proportional to Work per unit of Time displayed on the VersaPulley and other Inertial Resisted machines manufactured by Heart Rate Inc.

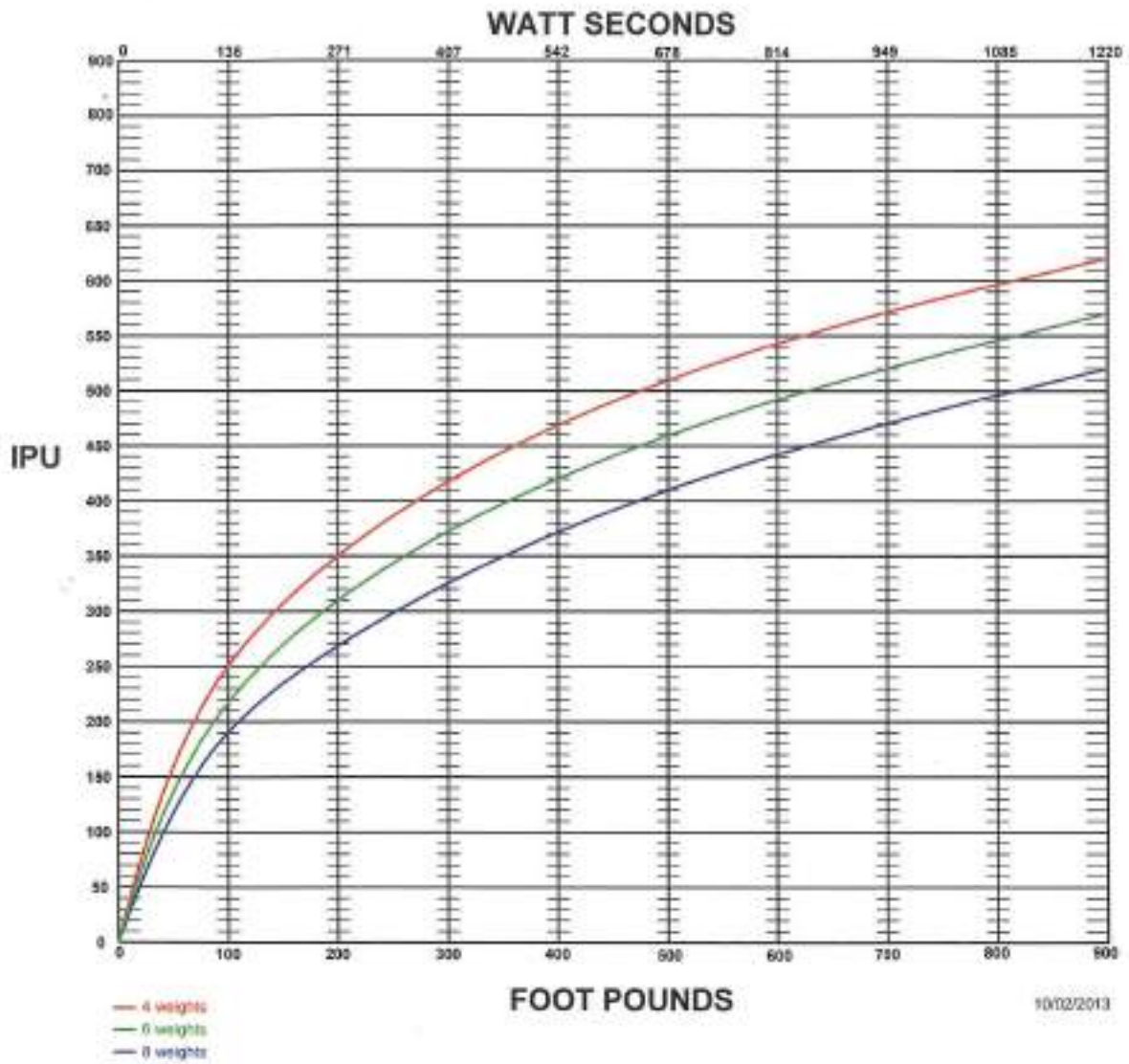
Horse Power is defined as Work per unit of Time that is frequently displayed as Watts which equals one Joule/Sec, or Ft-Lb/Sec, Kcal/Sec, Btu/Sec.. Since these numbers can be confusing to the user the IPU was chosen to represent power exerted by the user on Inertial Resisted machines. It is a number directly proportional to or the Energy exerted by a person exercising to overcome the inertial resistance of a flywheel. The goal is to move the flywheel as fast as possible; this results in a higher IPU output. Maximal resistance is created when the flywheel is moved faster.

Every exercise needs be evaluated by the goal it is trying to accomplish. For traditional resistance training it is easy, move more weight and/or perform more repetitions at that weight. Any methods to move the bar faster still should seek to perform one or both of those general targets.

However, flywheels like VP's MV2 technology were created as an alternative to these resistance training goals, because to really maximize the resistance, the flywheel must be moved faster. Consider the equation behind the technology, MV2, which is mass multiplied by the square of the velocity. Mass is just one number and has a limit to how much weight can be attached to the flywheel itself. Velocity is only limited by the user, and is also squared to make this contribution the chief determinant and goal of any flywheel exercise. Therefore RPMs, rather than power of force, is the best measurement for any flywheel exercise, and gives this equipment a unique goal from other resistance training.

Inertial Power Units (IPU) vs Foot Pounds vs Watt Seconds

4 6 8 Weights

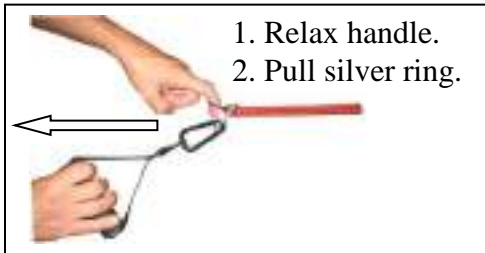


4. QUICK START GUIDE

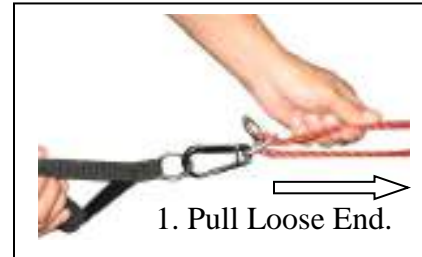
Set up for 'Rotational Chop' exercise

1. Set pull angle with High/Low pulley on vertical post to thigh high
2. Set desired Speed/Force to #3 on side of machine
3. Set END range of motion - Adjust/Move handle to end of rotational chop movement or End Range of Motion.

To lengthen range of motion.



To shorten range of motion.



Rotational Chop / Start Position
Set high-low to thigh high level.



Rotational Chop / End Position

How to start set for any exercise performed:

1. "First Pull" to get cone started
2. "Second Pull" adjust body for end range of movement desired
3. "Third pull" is your first Rep. You should be in proper position and the cord should be the set length for your desired movement

NOTE: Pull harder with each rep. Control eccentric loading /pull back. It will pull you back, so maintain good balance. Keep tension on cord, no slack in cord, to full end of motion stopping flywheel. Immediately pull again, Start next rep.

IMPORTANT

Cord should remain taut/without slack through-out the movement, keep slack out of cord.

(This promotes a smooth, proper and controlled movement.)

You should perform the full range of motion, do not pause or stop during movement.

(This will allow the machine to work muscles to their full potential—time under tension)

VERTICAL, HORIZONTAL and LATERAL MOVEMENT EXERCISES

Here are three “KEY” VersaPulley exercises that focuses on Vertical, Horizontal and Lateral movement planes:

1. Vertical plane

Push Press



2. Horizontal plane

Single Leg Squat to Row



3. Lateral plane

Woodchop



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.

29 VERSAPULLEY MOVEMENTS

This list of movements correspond to the 29 exercises on the VersaPulley CD performed by Mark Verstegen, Founder of Athletes Performance

1) Acceleration Step Ups

Class: Power/Strength-Maximal Rate of Force Development/Stretch Shorten (Very) Long Response

Objective: To develop Maximum Rate of Force Production.

Starting Position: Facing a stable box 12"-18" high, away from VP, with perfect posture-stomach tight and hips tall.

Procedure: Facing box, raise right leg. Accelerate the right leg through the box and extend it into triple extension driving up the opposite leg to parallel. Slowly come back down. Finish.

Reset and repeat with opposite leg.

Coaching Key: Perfect posture-stomach tight-keep chest over knee. Get maximum triple extension out of hip, knee and ankle joints.

2) Lateral Acceleration Step Ups

Class: Power/Strength-Maximal Rate of Force/Strength Shorten (Very) Long Response.

Objective: To develop a Maximum Rate of Force Development concentrically. Overcoming the eccentric loading on the planted leg for cutting movements.

Starting Position: Face perpendicular to the VP, outside foot on a stable box 12"-18" high with a waist belt attached to the cord at the inside leg closest to the VP. Stomach tight with perfect posture.

Procedure: Raise outside leg. Accelerate the outside leg through the box and extend into triple extension, driving up the opposite leg to parallel. Slowly come back down. Finish and reset with opposite leg.

Coaching Key: Perfect posture. Keep chest over the knees, hips back-drive into extension of the hip, knee and ankle.

Exercise Name: 3) Lateral Deceleration Lunges

Class: Power/Strength-Stretch Shorten (Very) long Response.

Objective: To develop deceleration/eccentric aspect of the planted leg for cutting movements and Maximum Rate of Force Development concentrically.

Starting Position: Feet perpendicular to the VP with waist belt on and attached to the hip closest to the MV². Stomach tight. Perfect posture.

Procedure: Step with inside leg toward the VP decelerating the movement with the hips and legs-weight on the inside ball of the foot. Good positive angles and explosively drive out through the hip, knee and ankle joint. Repeat.

Coaching Key: Perfect posture. Good athletic multi-directional stance. Chest over the knees, hips back; good positive angles with the ground; drive laterally into extension of the hip, knee and ankle.

Exercise Name: 4) Forward Deceleration Lunges

Class: Power/Strength Stretch Shorten (Very) Long Response.

Objective: To develop deceleration /eccentric aspect of the planted leg and maximum rate of force development concentrically.

Starting Position: Perfect Posture. Keep stomach tight facing the VP. Waist belt on and attached to cord in front and center/center of hips.

Procedure: Step toward the VP with controlled deceleration of the flexed forward leg. Keep the knee over the toe with perfect posture. Drive back and away from the VP and repeat.

Coaching Key: Keep perfect posture. Bend at the hips and control deceleration of the movement.

Exercise Name: 5) Backward Lunge To Extension-Box

Class: Power/Strength – Maximal Rate of Force Development/Stretch Shorten (Very) Long Response.

Objective: To develop a Maximum Rate of Force Development concentrically out of the hips with eccentric loading of the glutes and hamstring.

Starting Position: Facing away from the VP with the waist belt on and attached to cord at center of back between the hips. Position box approximately 12"-18" high and 12"-18" away from the VP platform.

Procedure: With perfect posture, drop the back leg into a lunge. Extend forward from the hip, knee and ankle. Swing the rear leg forward with acceleration mechanics touching the top of the box and returning. Repeat.

Coaching Key: Perfect posture. Bend using the hips. Try to re-accelerate from the backward portion of the lunge through acceleration to the box-triple extension.

Exercise Name: 6) Crossover to Extension-Box

Class: Power/Strength – Maximal Rate of Force Development/Stretch Shorten (Very) Long Response.

Objective: To teach the crossover and maximize the crossover step utilizing Maximal Rate of Force Development and eccentric loading of the VP to improve crossover and cutting mechanics necessary for development of multi-directional speed.

Starting Position: Place feet perpendicular to the VP. With waist belt on and attached at the hip closest to MV², with a 12"-18" box stand 12"-18" away from VP platform.

Procedure: From the multi-directional stance, drive off the inside leg. Extending the hip, knee and ankle. Cross over with the toe up and knee across the outside leg and touching top of box. Slowly decelerate the leg back down and repeat.

Coaching Key: Good athletic stance. Perfect posture. Keep chest over the knees with good positive angles. Toe up knee across on the crossover.

Exercise Name: 7) 45 Degree Squat to Extension

Class: Power/Strength – Maximal Rate of Force Development/Stretch Shorten (Very) Long Response.

Objective: To develop the hips and legs without vertical loading. Develop Maximum Rate of Force Development concentrically and work on the eccentric aspect of the lowering (preparation) phase.

Starting Position: With waist belt on, face away from the VP, place the cord at back in the center of the hips facing a box or bench. Lean forward supporting your weight with your hands on a box or bench 24" high.

Procedure: Start at the bottom position in a full squat. Stomach tight. Perfect posture. Extend out from hips, knees and ankles into triple extension and control the descent setting the hips back toward the VP.

Coaching Key: Perfect posture. Stomach tight. Initiate movement with the hips. Perform a triple hip, knee and ankle extension movement.

Exercise Name: 8) 45 degree One Leg acceleration Extensions

Class: Power/Strength – Maximal Rate of Force Development/Stretch Shorten (Very) Long Response.

Objective: To develop Acceleration Mechanics-Strength and power through the hip, knee and ankle joints.

Starting Position: Facing away from the VP with waist belt on and cord attached at center rear off the hips with hands against a bench or box approximately 30" high leaning at 45 degrees in a split squat/lunge position.

Procedure: Drive off the forward leg and extend from the hip, knee and ankle while swinging the rear leg forward.

Coaching Key: Perfect posture. Stomach tight. Extend out of the hip, knee and ankle. Keep the toe, knee and heel up on the off leg.

Exercise Name: 9) Front Squat to a Press

Class: Power/Strength – Maximal Rate of Force Development/Stretch Shorten (Very) Long Response.

Objective: To develop the musculature of hips, legs, back and upper body. Develop Maximum Rate of Force Development through extension of hip, knee and ankles.

Starting Position: Facing the VP holding a straight bar. Adjust cord to shoulder height with elbows up and in. Hold bar at the shoulders.

Procedure: Stomach tight. Perfect posture. Initiate movement of the hips, back and down through a full squat position, accelerating out of the bottom with the gluts. Drive through the hip, knee and ankle joints into extension while pressing the bar above the head.

Coaching Key: Perfect posture. Stomach tight. Initiate movement with the hips. Drive tall with the hips right through the top of the bar.

Exercise Name: 10) Standing Pulls From the Floor

Class: Power/Strength – Maximal Rate of Force Development/Stretch Shorten (Very) Long Response.

Objective: To develop the musculature of the hips, legs, upper and lower back.

Starting Position: Facing the VP with the straight bar attached, feet back approximately 18", chest up, arms straight. Drop hip down into a full squat position utilizing the hips and legs.

Procedure: Chest up, stomach tight, drive up and slightly back extending the hips, knees and ankles while pulling the bar into the waist.

Coaching Key: Perfect posture Stomach tight. Initiate movement with the hips. Perform a triple extension of hip, knee and ankle.

Exercise Name: 11) One Leg-Hip Flexion-Box

Class: Power/Strength – Maximal Rate of Force Development/Stretch Shorten (Very) Long Response. For unilateral strength and stability.

Objective: To develop closed chain hip extension and open chain hip flexion.

Starting Position: Facing away from the VP stand on a 10"-18" box with the back leg attached to the VP cord around the toe. Stabilize yourself with a lateral support apparatus.

Procedure: Perfect posture. Stomach tight. Reaching the back foot down toward the VP, drive off the leg on the box into extension bringing the opposite ankle, knee and hip into flexion.

Coaching Key: Perfect posture, toe up, heel up, thigh up, extend off the down leg.

Exercise Name: 12) One Leg-Hip Abduction

Class: Power/Strength – Maximal Rate of Force Development/Stretch Shorten (Very) Long Response. Stability.

Objective: To develop Closed and Open Chain Abduction.

Starting Position: Facing perpendicular to the VP with cord attached to outside leg.

Procedure: Reach the outside leg toward the VP in front of the other leg and then rapidly accelerate abducting the leg away from the body. **Coaching Key:** Perfect posture. Stomach tight. Encourage Maximum Rate of Force Development. Try to keep outside leg straight. Note: Most of the work or focus is on the stationary, stabilizing leg. Closed chain, ground based.

Exercise Name: 13) One Leg-Hip Adduction-Closed Chain

Class: Power/Strength – Maximal Rate of Force Development/Stretch Shorten (Very) Long Response. Stability.

Objective: To develop Closed and Open Chain Adduction.

Starting Position: Facing perpendicular to the VP with cord attached to the inside leg, chest up, stomach tight. For balance stabilize yourself against a lateral support apparatus with pulley at knee or chest height.

Procedure: Reach the attached leg out toward the VP pull leg down and adduct leg across the ground- based leg.

Coaching Key: Perfect posture. Keep leg straight, and toe up. Non-moving, ground-based leg does most of the work.

Exercise Name: 14) One Straight Leg-Hip Extension

Class: Power/Strength – Maximal Rate of Force Development/Stretch Shorten (Very) Long Response. Unilateral closed chain stability.

Objective: To develop hip extensors needed for maximal and absolute speed and power.

Starting Position: Facing the VP perfect posture, stomach tight, with cord wrapped around the foot, toe dorsi-flexed, holding onto support apparatus for balance.

Procedure: Perfect posture. Stomach tight; chest height pulley position, allow leg to reach up to the pulley position. Toe dorsi-flexed, aggressively pull the heel down with leg straight utilizing your glutes, hamstrings and low back into extension. Decelerate as you return back up towards starting point, half way in the motion.

Coaching Key: Perfect posture. Stomach tight. Keep leg straight and toe up.

Exercise Name: 15) Standing Shoulder Shrug

Class: Strength/Power. Maximal Rate of Force Development/Stretch Shorten (Very) Long Response.

Objective: To develop the trap, shoulder, upper neck and shoulder region. In both concentric and eccentric loading this helps decrease the potential for neck injuries and trains deceleration of the throwing shoulder.

Starting Position: Facing the VP, pulley fixed at the low position with the straight bar or double (dual) handle, standing 10"-12" from VP, Chest upright, legs bent, stomach tight.

Procedure: From a semi-squat extend out from the hips, knees and ankles into triple extension. Aggressively shrug the shoulders up to the ears keeping chin tucked in, stomach tight – decelerate on the way back down and repeat.

Coaching Key: Chest up, chin tall, chin tucked in, initiate movement with the hips with triple extension of hip, knee and ankle. Bend leg at ankle, knee and hip to absorb some shock.

Exercise Name: 16) Seated Row With Legs

Class: Maximal Rate of Force Development/Stretch Shorten (Very) Long Response.

Objective: To develop musculature of the upper back and hips.

Starting Position: With the power attachment in place, cord attached to the lower portion of the cable column. With Chest up and back tight, hold double handles and flex the legs and back.

Procedure: Pull the handles back into the outside of the torso by extending the legs, hips, back and arms. Return to starting position by flexing the hips and knees. Repeat

Coaching Key: Chest up. Stomach tight. Utilize the legs and hips.

Note: The VP is also a cardio/aerobic workout using faster speeds and lighter loads.

Exercise Name: 17) Seated Row

Class: Maximal Rate of Force Development/Stretch Shorten (Very) Long Response.

Objective: To develop musculature of the upper back.

Starting Position: Same as 16 with only slight flexing of knees and hips.

Procedure: Chest up, stretch through the scapula. Retract with the shoulder blades (scapula) and pull handle into the outside of the torso, utilizing only back and arms.

Coaching Key: Chest up. Stomach tight throughout retraction.

Exercise Name: 18) Seated One Arm Rotational Row-Parallel

Class: Seated rotational strength and power. Maximal Rate of Force Development/Stretch Shorten (Very) Long Response.

Objective: To develop musculature of the upper torso and integration of the rotational movement of the upper torso of the abdominal, low back and upper back-bicep posterior shoulder.

Starting Position: Start in a similar seated position as in the seated row with the pulley set in the lower position, holding a single handle in one hand.

Procedure: With torso and hand toward the machine, rotate and extend the back while retracting the scapula and pulling the hand into the ribs of the lateral aspect of the torso. Slowly decelerate using the entire torso and upper back and reverse.

Coaching Key: Try to rotate the shoulder, keeping the back tight retracting the scapula. Use a slow deceleration back towards the machine while returning to the start position.

Exercise Name: 19) Seated One Arm Rotational Row-Perpendicular

Class: Seated Rotational Strength and Power. Maximal Rate of Force Development/Stretch Shorten (Very) Long Response.

Objective: To develop musculature of the upper torso and integration of the rotational movements of the upper torso of the abdominals, low back, upper back, bicep and posterior shoulder.

Starting Position: Feet perpendicular to the VP reach across the body grabbing a single handle attached to the low pulley device.

Procedure: Rotating the shoulder toward the low pulley device, rotate the shoulder back while retracting the scapula and pulling the handle into the lower ribs. Slowly decelerate using the torso and repeat.

Coaching Key: Rotating the torso toward the machine keeping the chest and stomach tight.

Exercise Name: 20) Standing One Arm Rotational Row

Class: Standing Rotational Power and Strength. Maximal Rate of Force Development/Stretch Shorten (Very) Long Response.

Objective: To develop the rotational aspect or movement found in multi-directional speed, cutting and any type of hitting or throwing motion.

Starting Position: Feet perpendicular to the VP cord pulley at the lower setting with one handle.

Procedure: Reach out with the outside arm across the inside leg toward the machine. Keep the chest up while bending the legs and the hips. Explosively turn the inside hip rotating with the glutes and the torso into extension of the hip, knee, and ankle joint, while pulling the handle into the ribs. Slowly decelerate back to the starting position and repeat.

Coaching Key: Chest up, stomach tight, feet just outside the hips. Control the movement, keeping your balance.

Exercise Name: 21) Standing One Arm Rotational Row-Parallel

Class: Standing Rotational Power and Strength. Maximal Rate of Force Development/Stretch Shorten (Very) Long Response.

Objective: To develop the rotational aspect or movement found in multi-directional speed, cutting and any type of hitting or throwing motion; as well as development of the hips, quads, hamstrings, low back and upper back.

Starting Position: Standing with feet parallel to the VP with cord and pulley at low moderate or high position, hold the single handle with one arm.

Procedure: Reaching toward the machine while bending at the hips, keep the center of gravity /center of mass close together while extending out of the glutes, hips and upper back. Rotate with the torso, pulling the hand back into the ribs. Slowly decelerate controlling the movement allowing the hips to absorb the energy.

Coaching Key: Feet just outside the hips, chest up and stomach tight, control the movement keeping your balance, center of gravity/center of mass in proper relationship.

Exercise Name: 22) Standing One Leg, One Arm Rotational Row-Parallel.

Class: Standing Unilateral Rotational Strength and Power. Maximal Rate of Force Development/Stretch Shorten (Very) Long Response. Closed Chain.

Objective: To develop kinetic chain rotational stability and power in hips and upper back.

Starting Position: Facing VP with cord pulley at waist level. Attach a single handle and stand on the left leg. Grabbing handle with the left arm, right leg suspended, keep chest up, stomach tight and hip bent.

Procedure: Rotate toward the VP with extension out of the left leg, rotation of the torso, retracting of the scapula and pulling the handle back into the hip.

Coaching Key: Good posture, keeping hip bent. Perform at the pace where you can control and stabilize the movement.

Exercise Name: 23) Standing One Leg, One Arm Rotational Row-Perpendicular

Class: Maximal Rate of Force Development/Stretch Shorten (Very) Long Response.

Objective: Same as 22, stability, balance, single leg rotational strength and power.

Starting Position: Same as 22 but with feet perpendicular to VP

Procedure: Reach across body with the outside arm toward VP keeping the chest up and stomach tight. Rotate out of the inside hip by externally rotating the hip and rotating the torso and pulling the handle into the hip.

Coaching Key: Good posture. Perform at the pace where you can control and stabilize movement.

Exercise Name: 24) Standing Diagonal Lifting-Perpendicular

Class: Standing Diagonal Rotational/Diagonal Power and Strength with Maximal Rate of Force Development/Stretch Shorten (Very) Long Response.

Objective: To functionally develop the musculature of the core, upper back and triceps.

Starting Position: Cord pull at the lowest position. Position both feet perpendicular just outside hip width. Reaching down and across the body, bend the hips and legs, grabbing two handles.

Procedure: Dropping the hips down and keeping the chest up. Extend from the hips and the torso while rotating the inside hip and shoulders diagonally when lifting the handles up and across the body

into a pressing action. Lower the handles in the exact same manner from the top of the press across the chest and down towards the VP slowing/decelerating the VP down with the hips, upper and lower back. **Coaching Key:** Feet outside the hips. Chest up and stomach tight. Use your hips to accelerate the VP keeping the elbow high when pulling across the body.

Exercise Name: 25) Kneeling Diagonal Chops-Perpendicular

Class: Standing Rotational/Diagonal Power and Strength with Maximal Rate of Force Development/Stretch Shorten (Very) Long Response.

Objective: To functionally develop the muscles of the core, upper back and triceps.

Starting Position: Facing perpendicular to the VP kneel with the inside leg straighter to leverage against the VP. Cord pulley set to highest level utilizing a rope handle to rotate the shoulders up to the highest point.

Procedure: From kneeling position with arms fully extended reaching up as high as possible toward the VP pulley attach point. Initiate the movement by retracting the scapulas and pulling the hand in towards the chest while rotating the torso. Finish by fully extending the hands to the floor and combining abdominal flexion with rotation. Slowly return and decelerate through the same pattern.

Coaching Key: Kneel on the outside leg with leverage with the inside leg. Pull the handle down and across the body focusing on using the core.

Exercise Name: 26) One Arm Diagonal Pressing-Perpendicular

Class: Standing Rotational/Diagonal Power and Strength with Maximal Rate of Force Development/Stretch Shorten (Very) Long Response.

Objective: To develop the muscles of the hips and torso in a rotational pattern.

Starting Position: Feet perpendicular to the VP with inside foot approximately 10" from the mast gripping the handle with the inside arm in a pressing motion.

Procedure: Squat down with the chest and the stomach tight, drive from the hips rotating the inside leg and shoulder toward the back of the VP platform. Extend through the hip, knee and ankle. Finish by extending the hand overhead.

Coaching Key: Feet outside the hips, chest up, and hips back to utilize the movement through the handle. Extend through the hip, knee, ankle and shoulder joint at the end range of motion.

Exercise Name: 27) Standing Physio Ball Rotation-Perpendicular

Class: Maximal Rate of Force Development/Stretch Shorten (Very) Long Response.

Objective: To develop rotational power of the entire body utilizing the hip and torso rotators.

Starting Position: With the VP pulley attached at waist height hold a physio ball in your arms. Hold the handle with the outside arm that is now hugging the physio ball.

Procedure: Utilizing the legs and torso, rotate the hip and torso holding the handle and rotating the rope around the physio ball, creating an arc to maximize resistance.

Coaching Key: Hug the physio ball holding the handle on the outside of the ball utilizing the hips and torso to rotate around the ball.

Exercise Name: 28) Physio Ball Pull Over Extension

Class: Upper Torso Strength and Power, Flexion. Maximal Rate of Force Development/Stretch Shorten (Very) Long Response.

Objective: To develop the musculature of the abdominals, upper back and triceps.

Starting Position: With the VP pulley attached at the lowest point and the physio ball on the deck, roll down the physio ball with the hips down towards the ground and hands wrapped in the handle of the VP. Arch back and stretch.

Procedure: Letting the ball support the lower back, reach back toward the VP and aggressively pull over from the abdominals through the scapula and the arms, extending the rope with the upper back, abdominals and triceps.

Coaching Key: Keep hips down, arch back and stretch fully.

Exercise Name: 29) Lying Physio Ball Pull Over Extension-Diagonal

Class: Upper Torso Strength and Power with Diagonal and Rotational Movements. Maximal Rate of Force Development/Stretch Shorten (Very) Long Response.

Objective: To develop the rotators, functional core strength, upper shoulder and arm strength.

Starting Position: With the VP pulley attached at the lowest point with physio ball on the deck, arch back over the physio ball and position legs at a 45-degree angle.

Procedure: Reach both hands over the inside shoulder towards the VP holding the handle. Flex and rotate the trunk. Finish by pulling with the scapula, extending the arms.

Coaching Key: Keep both feet at 45 degrees with the VP, rotating the shoulders toward VP and initiating movement with the core, then to the scapula and extension of the arm.

VERSAPULLEY HARDWARE

4 "Removable"
Flywheel weights
2 lbs each



Base platform
bolts



Split lock
washers

Vertical post bolts



Fly Wheel:

- (4) 2lb. Flywheel Weight Blocks 2" x 2" x 2" [Fly wheel comes with 4 permanently attached weights]
- (8) Split Lock Washers 3/8"
- (8) Bolts for Weight Blocks 3/8" - 16 x 3"

Vertical Post:

- (2) Bolts / Vertical Post 3/8" - 16 x 3"
- (3) Lock Nut for Vertical post

Vertical Post with "Optional" IPU display:

- (2) Hex Head Bolts 3/8" - 16 x 3 1/4"
- (3) Lock Nut Vertical Post

VERAPULLEY ASSEMBLY INSTRUCTIONS



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



2. Remove card box cover.



3. Using $\frac{1}{2}$ " 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 1 1/4" 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.



Clip pulley onto post for desired angle of pull.



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



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



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



Fully assembled VersaPulley.

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 the 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.

ROPE CHANGE

NOTE: To replace 7mm rope with larger 9mm rope drill a 13/32" or 10.5 mm diameter hole in the flywheel shaft. Then proceed as follows.

1. Remove vertical post.

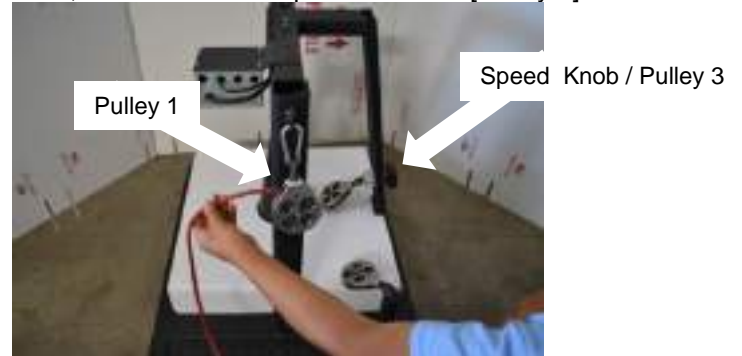


2. Detach front pulleys, set inside of window on white plastic deck. Unscrew and remove force & speed knob adjuster Pulley 3.



3. Remove screw with Philips screwdriver on top cover. Two people to remove and lift top cover carefully, lifting straight up.

4. Once cover is removed, reattach the force / speed knob, steel washer and plastic washer [Pulley 3].



5. Run replacement rope through frame pulley [Pulley 1].



6. Run rope through lower window pulley [Pulley 2].



7. Run rope through force speed pulley [Pulley 3].



8. Wrap rope around cone 2 ½ times



9. At top of cone, loosely wrap rope around twice. Next, push end of rope up underneath.



10. With end of rope underneath two loops, feed tip of rope through hole at the top of the cone.



11. Once rope is pushed through hole, tie knot at end of rope.



12. Firmly tighten and adjust knot and rope so it is secure.



13. Once knot is tight, test rope by pulling.



14. Finished knot is tight and secured.



15. In order to test rope knot, firmly pull rope back and forth ensuring new rope is safely secured.

16. After ensuring rope and knot are secure, Remove the Pulley 3 speed & force knob along with plastic and metal washer by turning counter clockwise.

17. The speed and force knob must be removed in order to place cover back on to unit.

18. Next detach Pulley 2, and place on white plastic deck next to cone.

19. Next, detach Pulley 1, and place on white deck next to cone.



20. With two people, carefully replace cover over frame and cone.

21. Securely tighten top Philips screw.

22. Re attach the speed / force knob Pulley 3 [reference p. 26] along with plastic and metal washer by turning clockwise.



23. Next reattach Pulley 2 [reference p. 26] short vertical post outside of window.

24. Next, reattach Pulley 1 [reference p. 26] to main vertical post.

25. Re attach high low vertical post to frame and securely tighten hex head bolts.

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: _____



For additional instruction or information please call 1.800.237.2271

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