

Rotary Inertia: The Future of Resistance Training.

by John Weatherly & Mark Verstegen

Incorporating the best equipment and methods are paramount to superior training programs. Olympic-style pulls, squats, and presses are valuable for power, but they occur in the sagittal or frontal plane(s). Leading professionals recognize the value of rotational/diagonal movements in sports (2,3,4). This article is about an incredible new tool for multi-planar closed chain power training. It is used at Mark Verstegen's Athletes' Performance Institute in Tempe, AZ, and Juan Carlos Santana's Institute of Human Performance in Boca Raton, FL, among other top facilities. This revolutionary device, a Hi-Low pulley configuration, functions on the principles of rotary inertia.

How it Works

VersaPulley uses MV^2 Technology (mass times velocity squared) rotary inertia for resistance. This inertial resistance, coupled with a cone shaped infinitely variable cam, produces 100% Responsive Resistance. It operates similar to a yo-yo (3). Adjust speed/force to train the force velocity curve, from high force-low velocity to high velocity-low force multi-joint, multi-planar movements with Maximum Rate of Force Development (MRFD). During the concentric contraction, the rotary mass accelerates at the athlete's MRFD. It stores the energy during the concentric MRFD, and dishes it right back in the eccentric contraction. Sport specific concentric, eccentric, and plyometric stimulation is achieved on every repetition. Train athletes through the entire contractile continuum, from the earliest closed chain rehabilitation, to the most complex power and elastic development for every specific movement. Acceleration/deceleration loading in integrated sport specific movements can increase performance and reduce injury potential (4).

Rotational/Diagonal Training

VersaPulley performs almost any exercise. It has enormous value for rotational/diagonal training. It provides an unlimited responsive rotational inertia resistance. This new technology for rotational/diagonal movements is equivalent to vertical power movements like Olympic-style pulls/presses.

Photos 1-3 are a high power rotational/diagonal squat pull, to a press of the lower body, trunk, and upper body with MRFD acceleration and eccentric deceleration loading. These exercises should be classified "structural or core movements" like Olympic pulls, squats, and presses (4). The movement demands of sport drive the exercise selection. Watch an athlete plant and cut. Many hip and trunk muscles function as internal and external rotators, which are not developed in the typical squat (4).

Diverse Applications

Perform complexes and/or contrasts for sport specific movements. Santana, owner/operator of the Institute of Human Performance, gives examples in his training manual (3). Juan says the VersaPulley can be great for hypertrophy due to "time under tension at high speeds" (3, p.215). VersaPulley can be used for high quality metabolic conditioning (1,3,4).

Athletes' Performance Institute

Athletes' Performance Institute has used the VersaPulley with MV^2 technology for four years, especially during the Major League Baseball Pre-Spring Training and NFL Combined Prep sessions. Mark Verstegen says "This is the most versatile and practical technology ever developed. It is used from beginner to elite performance training. This revolutionary new piece of equipment will change forever how we are able to train athletes, limited only by our knowledge and creativity."

Call Heart Rate Inc. at 1.800.237.2271 or visit VersaPulley.com for more information.

John Weatherly holds degrees in exercise science, assisted with conditioning programs for professional baseball, basketball players and the Olympic Training Center. He currently consults with Athletes in Action Power and the exercise industry.

Mark Verstegen is Director of Athletes' Performance Institute in Tempe, AZ. He and his staff work with world-class athletes in a variety of sports. Mark is Director of Performance for the NFL Players' Association and former Founder and Director of the International Performance Institute in Bradenton, FL.

References

1. Caruso, J.C. and D.A. Hernandez. Net caloric



cost of a 3-set flywheel ergometer resistance exercise paradigm.. J. Strength Cond. Res 16: 567-572, 2002.

2. Ives, J.C. and G.A. Shelley. Psychophysics in functional strength and power training: Review and implementation framework. J. Strength Cond. Res 17: 177-186, 2003.

3. Santana, J.C. The essence of band and pulley training companion guide. Optimum Performance Systems. Boca Raton, FL. 2002.

4. Verstegen, M. Rotary training. Presentation at the 2003 NSCA Sport Specific Conference. Jan. 9-10, 2003. New Orleans, LA.