

LINKED SYSTEM™ STRENGTH TRAINING



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➤ The value of strength training is well accepted in the fitness training model as it provides positive adaptations to metabolism and builds an aesthetically pleasing body. Although it may appear that machine-based isolation training is the focus within today's fitness facilities, we have to ask whether such training methods actually help our clients improve their daily function.

Our goal as fitness professionals should be to build more functional bodies that are well equipped to handle the unpredictable demands of sport, recreation and everyday life. Though a traditional training approach helps clients look good from the outside, using Linked System™ Strength training will provide substantial physiological changes for clients that allow them to perform at a much higher level in every aspect of life.

THE KINETIC CHAIN

The human body is designed to move through the linking of bones, joints and muscles into a kinetic chain from toe to fingertip. The brain acts as the command centre and communicates through the neurological system to the muscles, creating movement. Actions performed by one section of the kinetic chain have a direct effect on the next segment of the chain, with any breakdowns in muscle activation reducing performance throughout the entire body. Muscles and joints at various levels work together as a

team to produce basic to highly skilled movement. With this concept in mind, the training style used must focus on improving the effectiveness of the entire kinetic chain.

The Linked System™ approach accomplishes this by getting the athlete off of static machines and into a dynamic athletic position to perform closed kinetic chain exercises. Whole body lifts harness the work accomplished at each individual link in the chain. Movement is initiated by the legs, transferring the force through the core, collecting power through the kinetic chain before expressing it with the arms or a sport implement (golf club, tennis racket). The result is the production of force that can be directly used in sport or in everyday life.

Traditional machine-based strength training focuses on developing muscular strength and endurance using a safe, confined range of motion, slow and controlled lifting tempos and a single plane of motion for one muscle in isolation. Rarely in life, recreation or sport do humans move this way, so the benefits of this type of training are aesthetic in nature and not in enhancing performance. To teach the body to move as a kinetic chain we need to overload it using training that feeds the demands of the system. To react to a sports environment an athlete needs strength, speed, power, coordination, agility, reactivity, balance, anaerobic energetics and body control.

The Linked System™ training approach improves the body's ability to express strength, respond to unpredictable situations and resist injury when faced with sport and real life challenges.

TRAIN MOVEMENT

Participation in life and sport requires the body to link independent movement patterns together to produce skilled whole body movement. The brain stores information as movement patterns, so strengthening independent muscles with isolation training can actually hinder the development of skilled movement. Body building is a sport we have tremendous respect for, yet the end result is not an athlete who can win an agility contest, rather it is an impressive appearance predicated on size and symmetry. Different sports fall along a continuum of strength and skill, rugby players requiring a powerful start obviously require a different strength program to a quick and skilled soccer player.

TRAIN NEUROLOGICAL COMPLEXITY

Some elements of traditional lifts prevail however. Progressively increasing the load, maximising lift intensity and time under tension through traditional periodisation models remain an integral part of the Linked System™ program and are especially pertinent to building a base of strength and hypertrophy. But we

also focus on challenging whole body coordination with force production in closed kinetic chain positions, and place demands on the body's software to step up as well. This is particularly applicable for active adults who don't really desire to be a world class shot putter, but who do want to move well in their preferred activities as they age.

Every action in the body is initiated by a signal from the brain that fires up a movement pattern stored from previous experience. If the required task is complex (like running down a loose ball in basketball) the neural recruitment to complete the movement is extensive. To improve the neural connectivity between the mind and the muscle, the training style must require multiple muscles to fire sequentially, not to isolate one muscle to work independently of the team. And prime mover strength is not enough. If it was, bench press champions would make the best athletes. During a push movement, for example, other muscles must balance and stabilise the body while postural muscles integrate into the demands to allow optimal closed kinetic chain push strength.

TRAIN MULTI-DIRECTIONAL MOVEMENT

The body is built to move in three dimensions and to meet the demands of sport, strength training exercises should incorporate movement in multiple directions and not in single dimension linear movements.

TRAIN WITH A VARIABLE RANGE OF MOTION

In an ideal situation the athlete is able to be perfectly positioned to create optimal leverage to develop power through a full range of motion. To be most transferable to sport or life, however, the athlete needs to be able to generate force through a variable range of motion instead of a predictable range. The training style must therefore incorporate variable ranges of motion.

WORKOUT APPLICATION

To transition your current exercise choices to a Linked System™ approach,

gradually include these training concepts into your workout design.

BENT-OVER MULTI-JOINT SQUAT TO SINGLE ARM ROW USING AN OLYMPIC BAR

This exercise takes a traditional upper body pull exercise (seated row) and makes it a standing whole body exercise. Cue your client to initiate the movement from the legs, transfer through the core and express the power through the arms.

Set up: Begin in athletic position, 45 degree forward flexion at the hip, holding the end of the Olympic bar at arms length below the shoulder, core set (photo 1).

Concentric phase: Initiating with the leg, triple extend at the ankle, knee and hip (photo 2) while performing a rowing action by flexing at the elbow, retracting



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the shoulder blades and keeping the elbow out and up (photo 3).

Eccentric phase: Simultaneously lower back into the low phase of the squat while extending at the elbow back to the start position (photo 4).

BOSU® SMART TONER™ LATERAL LUNGE TO WOOD CHOP

Design exercises that link common movement patterns together to challenge the mind to command two motor patterns systematically. This type of exercise increases the neural

complexity, requiring power production in a closed kinetic chain position.

Set up: Stand on back leg, holding SMART Toner™ in both hands, arms extended (slight bend in elbow), upper torso rotated towards partner, core set (photo 5).

Concentric phase: Initiate the movement by transferring weight from the back leg to the front leg. Take a lateral step onto the BOSU®, trigger the hips and bring the core and the arms through (elbows maintain slightly bent position) (photo 6) finishing with hands

in mid position, head and chest facing finish position. As the weight shifts laterally, release the rear heel to allow for hip rotation (photo 7).

Eccentric phase: Return to start by pushing off the front leg under control, moving the upper body and arms as one with shoulders rotated towards partner legs again.

SINGLE ARM PUSH WITH ROTATION USING AN OLYMPIC BAR

Consider adding exercises that require movement in multiple planes, demanding 3-dimensional motion in

the sagittal, frontal and transverse planes at the same time. These exercises are complex to execute, but challenge clients to control their bodies with powerful coordination and a strong mind-to-muscle connection, fuelling movements similar to sport skills.

Set up: Begin in athletic position, hand holding the Olympic bar at arms length, core set.

Eccentric phase: Keep the elbow up, flex the arm until the hand is in line with the chest while simultaneously stepping laterally and back 45 degrees, loading the rear leg (triple flex the lower body) (photo 8).



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Concentric phase: Initiating with the legs, perform a pressing action extending at the elbow, simultaneously extending the ankle, knee and hip, finishing with a rear foot heel release allowing the hips to trigger and rotate through the torso (photo 9).

BOSU® PRONE KNEE OVER/KNEE UNDER

Try linking many phases of an exercise together to work in multiple ranges of motion in each movement execution. This type of movement complexity requires excellent communication between the mind and the muscle with fast and efficient information pathways to drive multiple motor

patterns in sequence.

Set up: Begin in prone position with hands on the flat side of the BOSU® directly under the shoulders, neutral spine, core set (photo 10).

Execution: Movement begins by externally rotating one hip to bring one leg off the ground and directly over top of the stabilising leg (photos 11 & 12). Allow the supporting foot to pivot onto outside edge of shoe as the leg finishes with a 90 degree bend in the knee with the BOSU® flat and level (photo 13).





Bring the same leg under the body by internally rotating the hip and driving the knee diagonally toward the opposite arm (photo 14).

Extend the leg (photo 15), return to start position, repeat using the other leg.

LINKED SYSTEM™ TRAINING BENEFITS

How well the body transfers strength training to performance is directly



related to the style of lifting. A slow, controlled, unidirectional training style creates an aesthetically enhanced muscle, but not a more functional body. We constantly learn and improve in everything we do by collecting information, so it stands to reason that each time a movement sequence (the muscles activated in a specific order) is performed, the pattern is stored in the brain and recalled the next time the



same or similar task is required.

Repeating movement patterns improves mind–muscle communication and creates SMART Muscles™ that comply quickly and accurately. Life, recreation and sport require that we respond to situations and physical challenges in a split second. To be best equipped, we must train using a Linked System™ that develops a strong yet responsive and skilled body. [N](#)

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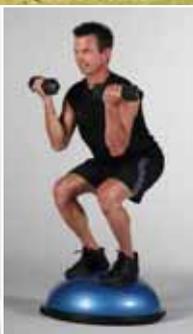
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