



Douglas Brooks- Presenter at Momentum Conference

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Manitoba Fitness Council <sfoy@manitobafitnesscouncil.ca>

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To:

Douglas Brooks- Presenter at Momentum Conference

Hello Members,

The following article was provided to us by Douglas Brookes. Douglas is a wonderful Presenter that we are bringing back back popular demand!

Author:

Douglas S. Brooks M.S., Exercise Physiologist

Title: Balance for Sport Performance

The systems, strategies and tactics in a variety of sports can best be described as organized chaos. During a sporting event, no competitor-even those with great in-competition intuition-knows exactly what will happen in the next second. Multi-directional sports, for example, are a read-and-react game where success hinges on individual tactics, conditioning and game play experience. A well-rounded athlete needs a toolbox of movement capability that includes an ability to command the body to move creatively, which represents elements of balance, mobility, strength, power and reactivity. Developing secondary fitness characteristics like these--differentiate traditional training approaches from integrated functional training--and represent the Twist Conditioning paradigm of Smart MuscleT training.

Balance for Strength: An athletes' perfect position to apply optimal power is their perfect position of balance. Athletes who need to be strong and agile on their feet can improve game strength through balance-resistance training where they train up weak links in the body, which ensures that each joint is stable, and enables the individual to develop explosive strength in a standing position-which can transfer to a competitive or recreational training environment.

It is critical to acknowledge that the brain thinks in terms of movement, not muscles. Connecting the software (brain, neurological pathways) to the hardware (muscles, heart, lungs) is critical. Coaching "toe-to-fingertip strength" improves muscle sequencing and the summation of power as muscles contract across the ankle-knee-hip-core, continuing up the kinetic chain, resulting in optimal power/skill application.

Balance for Movement: An athlete who hopes to improve acceleration must first work on deceleration. High speed braking and deceleration requirements are a main cause of injury for athletes. Safe landing and effective braking mechanics are founded in having sufficient ankle, knee and hip strength. Balance drills help tune up the body so that it can be taught to land/decelerate with proper weight distribution, while the body (software and hardware working together!) activates and properly sequences force production in all of the deceleration muscles.

Balance is critical to any sport where athletes are loading or biasing one leg the majority of time, especially when changing direction, weighting an inside or outside edge (hockey, motocross, mountain biking, road cycling) or striking an object (hockey, baseball, tennis, field hockey). When an athlete is well-trained in the skills of balance and deceleration, both contribute to first step quickness and weight shifts by providing perfect transitional mechanics between stop-and-start or set-up-and-move sequences to produce:

1) Efficient movement that is precise, quick and agile,

- 2) Stronger, safer and more powerful movement mechanics, and
- 3) Better body positioning and balance as it relates to center of mass and base of support.

ALL are key attributes that differentiate top level and lower level sport skill, and greatly affect anyone's ability to improve at any level of fitness or skill.

Balance for Reactivity:

Unstable training also helps develop ankle and knee responsiveness. Stronger, reactive ankles make a tremendous contribution to stabilizing the foot/ankle complex and improving movement related skills. Strong knees can help to counter the effect of ever-present and damaging shear forces many multi-directional athletes must endure, as well as minimizing impact forces. Improving knee joint integrity by training in unstable environments helps prevent common sport MCL and ACL injuries.

Why must balance integrate with muscular strength and endurance?

Many fitness and exercise science books speak of balance in terms of "body equilibrium," which is an ability to maintain the body's centre of mass (COM) within the base of support (BOS). However, this 'text book' definition of balance does not align well with many sport environments. Sport skills often require athletes to shift their COM far outside the BOS while still maintaining body control. Learned balance skills help *extend* the limits of balance, so athletes can shift COM further outside a narrowly defined base of support, allowing them to move more aggressively and creatively.

The biomechanics of balance training and structured progressions are focused on advancing an athlete to the point they can:

1. purposefully shift their COM outside the BOS to gain a tactical advantage over an opponent; or to achieve an advanced technical skill.
2. teach their body to automatically, successfully and quickly recover from unintended deviations to COM.

These learned skills harness positive adaptations that are gained by structuring training to overload the physiological systems that control balance.

Purpose not Circus!

Balance exercises should be created with purpose and designed to manipulate specific mechanical, sensory and motor control factors that modify the body's requirement for muscular contraction and coordination. How the coach progresses should be centered on a concept coined "neural complexity." Designing structured balance exercise based on selection of a level-appropriate continuum can be systematically manipulated to define specific challenges that increase muscle activation, improve reactive correction responses, increase strength and decrease the risk of injury. Exercise must be structured so coaches can match the drill demands with each athlete's capabilities, readiness and experience.

The bottom line, fitness and strength are only useful when they are developed with an exercise training style that actually improves the physical requirements (specificity) that "sport play" draws upon. Integrating strength, movement and balance helps athletes build strength, power, movement capability and skill in a manner that will transfer directly into winning performance.

(Note: Visit <http://www.twistconditioning.com/> for sport conditioning training products and educational DVDs.)

Douglas Brooks, MS, is the Director of Programming for both BOSU® and RealRRR yder® Cycling, and the ex-Ironman® triathlete is currently the Director of Athlete Development for Sugar Bowl Ski Academy. In 2007, Douglas was inducted into the National Fitness Hall of Fame and in 2008 he was honored by Can-Fit-Pro as the International Presenter of the Year. Coach Brooks is the author of eight books and is a Twist Sport ConditioningT Senior Master Coach.

If you have any questions, please feel free to contact me by phone at 235-1245 or email at sfoy@manitobafitnesscouncil.ca

Sincerely,