

Understanding Functional Training

Part one of a two-part series

By Douglas Brooks, MS

Generally, functional training is tied to balance training and sport-, activity-, or occupation-specific practice. Therefore, knowledge of what proprioception represents, how it relates to functional or useable movement, and why you have this “body sense” is important. But, functional training is more than just balance, stabilization, or proprioceptive-type training. A very narrow view of functional training sees this type of training defined as stability training for the “core,” or abdominal and back muscles. A much broader and accurate definition portrays functional training as activity that “trains movement,” and includes activity that requires both static and dynamic muscular force production.

Your ability to be spatially aware of how the entire body, or a single body part, is positioned at any given moment must be developed and maintained by specific training. Of course, all humans have a degree of this awareness or proprioceptive ability, commonly referred to as proprioception. The concept of body-awareness becomes readily apparent as one observes how the nervous system develops from birth, and how a baby progresses from simple reflexive movements to coordinated movements such as crawling and walking.

As is true of all biological systems in the body, if these systems are not trained and continually challenged, function is lost. The age-old adage “Use it or lose it!” certainly holds true. Categories of “system-loss” include areas related to cardio-respiratory fitness, strength, flexibility, balance, *and* neural control. Many aspects of training make up what is referred to as “functional training.” All of these systems can impact one another and must be trained with specific and different approaches so that each biological component that impacts health, fitness, and performance is maintained at its highest possible peak. Any type of training that has specific application to real-life movement and/or sport can be labeled as “functional.”

Something that science can definitively tell us about training is that if you are training “one way,” you are training wrong. While it is impossible to identify the “best” approach to training, it is clear that a variety of science-backed approaches must be used to adequately challenge all systems and movement requirements of the body. Functional training is one such line-of-attack that helps to fulfill this requirement.

The Kinetic Chain and Functional Training

Functional movement can be readily understood if you view the body as a “kinetic chain.” Kinetic refers to motion and the word chain represents the body’s ability to link motion at the joints so that motion is harnessed, with an end result being skilled movement. Put succinctly, a kinetic chain represents movement that is made up of a series of joint motions and associated musculature working together (synergistically) through a multitude of planes and balance challenges.

The ability to swing a baseball bat, spike a volleyball, slam a tennis serve, perform a long jump, climb a rock, swing a golf club, drill a slap-shot while skating quickly, slam dunk a basketball, or throw a javelin is a direct result of practice, drills, and sport “play” that ingrain neural and/or motor patterns into our brains. Practice that is correct and practice that is accurate brands efficient motor patterns into our central nervous system. It becomes apparent why neurological or motor learning as well as stability, balance, and functional training are important.

Transitioning General Strength to Functional Strength

Isolated strength by itself is of little practical value to skilled movement. You might ask, therefore; “Is a leg curl worthless?” The answer is an absolute “No.” But, strength that is gained in a non-

specific or non-functional way is more effectively utilized if it can be “transitioned” to movement-specific strength. For example, take strength that is gained in a traditional weight room format. A well-thought-out periodized plan of attack would, at some time in the strength development progression, follow this new strength acquisition with a “transitioning phase” or would simultaneously develop functional fitness on “off” or recovery or restoration days. A transitioning phase would begin to utilize training drills that mimic the activity in which the participant is going to take part. In the name of specificity it would, of course, also be necessary to actually practice and participate in the real sport or activity. The point at which transitioning, or functional training, would take place depends on the sport, time of season in relation to competition, and/or the goal(s) of training.

A participant who is not looking for elite performance and instead is looking to progress or maintain a personal health and fitness program could simultaneously use traditional and functional approaches to fitness. Observe how much of the strength that is developed in the weight room is transferred to the person’s ability to improve performance. It is apparent that some will transfer and this is a positive training experience. In fact, in sports where body weight and absolute strength influence performance greatly, the weight room may be preferred in terms of training priority, in some phases of a periodized program. Regardless, it is wise to incorporate both functional and traditional training approaches, whether the goal is sport performance or maintaining physical independence with advancing age.

Body Equilibrium

Key building blocks contribute to safe, effective, and functional movement as well as skilled performance. The concept of body equilibrium includes balance, kinesthetic sense, proprioception, and gradation of force.

1. Balance. Balance represents an ability to stabilize and maintain a desired body position. Balance can also be thought of as correct or efficient positioning of a body part or the entire body.

2. Kinesthetic sense. This feedback mechanism allows you to be aware of how the body is positioned at any moment. Kinesthetic or proprioceptive sense allows the body to perceive or feel movement, weight-shifts, resistance, and position. To the point, kinesthetic awareness is the ability to know where your body parts are in three-dimensional space.

3. Proprioception. Proprioception, which overlaps with kinesthetic awareness, provides a sense of body symmetry, or necessary balance and positioning between body parts, and specifically refers to a sense of joint position. Proprioception, as mediated by sensory organs like muscle spindles that are located between muscle fibers, represents the ongoing or normal awareness of the position, balance or movement of the body or any of its parts.

Note: Earlier, the term kinesthesia was used to define a person’s awareness of motion or position as it pertained to his/her limbs. Proprioception was defined as one’s sense of movement as it related to movement of the body and how it was oriented in space. Today, current literature uses the terms as though they are synonymous (Plowman and Smith, 1997).

4. Gradation of force. An ability to control muscular force production and maintain an equalized, though dynamic, position regardless of the physical task at hand is critical to any type of human movement. Correct application of force is complex, learned, and directly under neural control. The regulatory control of muscular force is referred to as “gradation of force.”

These four components of body equilibrium are important to consider—and train—in the context of sport performance and daily movement requirements. Balance, kinesthetic sense, proprioception, body symmetry, and proper force application are key aspects of any activity that requires a dynamic, integrated, coordinated, and skilled response. Being able to change your centre of gravity to compensate for required movement is the key to moving skillfully. Agility is the

technical term for this developed sense that incorporates proprioception and balance and allows us to move efficiently, confidently, gracefully, and smoothly, while wasting little motion. The smooth fusion and training of all of these elements can represent skillful or functional movement and reflect the athletic qualities that everyone should seek to develop.

Physical responses encompass a wide range of proficiency that can run the gamut from an elite athlete to an elderly adult moving from a seated to standing position. All types of physical activity can be characterized as essential, important, or critical, though the goals and desires to move in a specific manner may be very different. It is readily observed that body equilibrium requirements are quite different when various physical activities are compared, but are no less significant independent of the activity being performed. For an elderly adult it is highly important to train the body to maintain physical independence and avoid a fall. It is equally significant for a 20-year-old to train to win a gold medal in slalom skiing. Maintenance of body equilibrium is important to all people.

The complete concept of body equilibrium moves beyond only physical balance and body awareness as it pertains to daily movement, functional fitness, stability training, and posture. Body equilibrium *does* represent an awareness of the body as it is positioned during activity (kinesthetic awareness), and its development is accomplished by a variety of specific physical training methods that include traditional approaches to training, as well as introducing functional strength, balance, and stability training. Additionally, complete and harmonious body equilibrium also includes the development of and sense of being well-balanced as it pertains to the condition of the mind and overall feeling. In other words, being physically, emotionally, and spiritually well-balanced is the ultimate long-range training goal that reflects the *complete* development of body equilibrium and the “individual” in each person.

CEC Quiz — *Understanding Functional Training by Douglas Brooks, MS*

The following exam is based on Douglas Brooks' article "Understanding Functional Training". These ongoing exams are offered to AFLCA certified leaders in each edition of the *Fitness Informer* or can be downloaded from the Web site at www.provincialfitnessunit.ca as an opportunity to gain Continuing Education Credits. Submission deadline: **February 28, 2007**. Please be aware that answers may involve application of the information from the article and not simply recall. Worth: **One AFLCA Credit**.

CEC Multiple Choice Exam – Circle your answer. Mail this exam and your logbook (which will be returned) to the AFLCA. Good luck and be sure to include your name and return address.

Name _____ Address _____

1. Correct application of force is _____, and under the direct influence of _____ control.
 - a) complex, motor
 - b) simple, motor
 - c) complex, neural
 - d) simple, neural

2. Which of these four components of body equilibrium is defined here: "This sense allows the body to perceive or feel movement."
 - a) proprioception
 - b) kinesthetic sense
 - c) gradation of force
 - d) balance

3. Maintenance of body equilibrium is only important to an elderly person recovering from a fall.
 - a) True
 - b) False

4. A kinetic chain represents movement that is
 - a) the motion of a joint
 - b) muscles working together
 - c) through many planes
 - d) all of the above

5. Isolated strength by itself is of little practical value to skilled movement.
 - a) True
 - b) False

6. A transitioning phase is
 - a) a phase of learning new skills
 - b) a rest phase
 - c) a phase in which training mimics the skills that will be used in a sport setting
 - d) a phase in which training is increased to see gains

7. Which of the following terms does not help define agility?
 - a) strength
 - b) balance
 - c) proprioception
 - d) smooth motion

8. Any type of training that has specific application to real-life movement and/or sport can be labeled as functional.

- a) True
 - b) False
9. An example of functional training for a hockey player is
- a) leg press
 - b) running stairs
 - c) quick sprints in a zigzag pattern
10. Functional training is movement that requires
- a) Static muscular force production
 - b) Muscular force production
 - c) All of the above