

essential skills

BY BEN E. BENJAMIN



DISCOVER THE ROOT CAUSE OF INJURY

A New Approach to Fitness Evaluation and Training

Several years ago, I had a conversation with a massage therapy instructor who had trained with me back in the 1980s. He began talking about the limitations of the methods I'd taught him.

As regular readers of my articles know, my work over the past 40 years has focused primarily on orthopedic approaches to pain and injury conditions.

These techniques enable us to determine precisely which structures are injured (direct causes of pain) and how they can best be treated. However, as this colleague pointed out, they do not help us understand why those injuries occurred (indirect causes). Frequently, a person will get injured repeatedly—for instance, continually straining the neck, the low back, or the medial side of the knee. On their own, orthopedic techniques do not reveal why this happens or help us prevent those injuries from recurring.

As a result of this discussion, I learned that there are now advanced tools that can pinpoint the indirect causes of pain as precisely as orthopedic methods can pinpoint the direct causes. I learned that a growing number of practitioners are using these tools to create customized programs that dramatically enhance a person's whole-body functioning. And I learned that two individuals in Florida—Vincent

Cambrea and Chris White—offer a comprehensive training program to teach massage therapists and fitness trainers these new methodologies. I was fortunate to be able to take their Go Primal Fitness training program and have been thoroughly impressed with the results.

In this article, I'll share some of the insights I've gained through this program. Cambrea and White did not originate all of the principles presented here. Rather, they synthesized and adapted a wide range of complementary ideas developed by various leaders in the field, including Paul Chek, Greg Glassman, Gary Gray, Charles Poliquin, and others. Therefore, while I'll be talking about this one particular system, you may recognize a number of the concepts from other groups or individuals who have adopted some of the same principles.

My decision to write this article was inspired by a firm belief that all massage therapists could benefit from a deeper understanding of exercise. I have been incorporating some exercise into my private practice for nearly three decades, and in the past several years I've become even more convinced of its importance. At this point, I use exercise protocols with almost all of my clients, whether they're seeing me for injury rehabilitation or to enhance their overall health. I've found that adding exercise to the other techniques I use makes my therapeutic work much more effective and long-lasting. I hope you will find the information here to be useful in guiding your own thinking about treatment options, the underlying causes of injury, and long-term health maintenance.



By precisely measuring the amount of flexibility in different muscles, we can help determine which factors are contributing to a person's injuries. For instance, limited flexibility in the quadriceps will place chronic stress on the low back, which can lead to recurring strains on the ligaments and muscles in this area.



An inclinometer can be used to give a precise measure of cervical spinal curvature, both in a neutral position and in flexion.



THE EVALUATION: PRECISE MEASUREMENT AND GOAL SETTING

What first attracted me to the Go Primal Fitness method was the evaluation process. I was impressed by the precision with which the assessment protocols can measure a person's flexibility, spinal curves, balance, mobility, and other aspects of musculoskeletal function. For instance, for every major muscle in the body, they can determine whether that structure is within a normal range of flexibility and strength, or whether there is limited mobility, hypermobility, weakness, or excess tension. In addition, a special device called an inclinometer measures the exact amount of curvature in each portion of the spine, both at rest and in motion; this detects any abnormalities in these curves and limitations in spinal mobility. I generally consider myself to be fairly adept at noticing spinal abnormalities, so was surprised when this device picked up significant deviations that were much more subtle than I could recognize on my own.

Moving beyond those isolated measurements, ongoing evaluations also examine more complex biomotor functions. Specifically, they look at a variety of basic movement patterns (such as bending, squatting, lunging, walking, and sprinting) that were central to human survival as we evolved. Any limitation or abnormality in these movements—for instance, instability in a lunge or a tendency to lean back while walking—is a sign of potential trouble.

Getting to the root cause of these issues sometimes requires looking outside the musculoskeletal system. For instance, a common body alignment problem is “forward head posture”: the head protrudes forward, thereby increasing tension

Scope of Practice

If you're considering integrating exercise into your massage therapy practice, make sure you do so safely, responsibly, and within the legal guidelines of our profession. In some states, teaching exercise is included in a massage therapist's scope of practice, but in others it is not. The best way to build skill while protecting yourself and your clients is to become certified as a personal trainer. There are a wide variety of certification programs available, and some are more helpful for massage therapists than others. If you'd like specific recommendations, feel free to contact me directly.

through the entire chain of extensor muscles on the posterior side of the body. In some people, this habitual pattern may be driven by vision problems, allergies, or other conditions that need to get addressed in order for lasting change to occur.

Just as important as the physical evaluation is an entirely low-tech assessment: asking about clients' goals and desired levels of performance. Will they be performing hard manual labor, competing in triathalons, or taking leisurely bike rides with friends? How do their capacities for power, strength, and endurance match up with the activities they wish to accomplish? Note that these three related aspects of fitness are considered and measured separately: power involves producing force very rapidly (as in dunking a basketball); strength is more of a slow, grinding type of



In contrast to lifting weights on a machine, which provides false stability, performing a dead lift requires actively maintaining balance—both forward-to-back and side-to-side.

effort (as in lifting a heavy object); and endurance requires enduring stress over a long period of time (as in a marathon or 100-mile bike ride).

THE TRAINING PROGRAM: DEVELOPING A CUSTOMIZED PLAN

After identifying what outcomes the client wants to achieve and what factors are getting in the way, the next step is developing a corrective exercise program. Because each individual comes in with a unique set of goals, physical capacities, and limitations, no two people will wind up with the same training plan. What remains constant is the focus on natural movements, rather than machine-based workouts.

THE PROBLEM WITH MACHINES

When asked why they use exercise machines, many people say, “To stay in shape.” The question is, in shape for what? As the creators of Go Primal Fitness point out, most people's exercise programs are actually easier than their lives, considering everyday strains such as lifting a child or carrying a heavy suitcase or grocery bag. White refers to the traditional gym design as a “mall-style” environment. The focus is on ease and comfort, rather than the type of hard work necessary to improve function and fitness.

In particular, the physical constraints of exercise machines provide false stability, overriding the body-based stabilizers we need to use in order to remain steady and balanced in any natural movement. Think about all the unconscious coordination required to simply stand on one leg: proprioceptors and mechanoreceptors in the ankle, knee, and hip provide continually updated information about where you are in space, as well as variations in pressure and speed of contraction. This information drives ongoing adjustments in numerous postural muscles responsible for keeping you upright. In contrast, working out on a machine builds up isolated muscles in the absence of this larger stabilizing system, which creates an imbalance in the body.

An additional problem is a lack of integration. Movement in life occurs in integrated patterns, orchestrated by the nervous system. We're always moving in multiple planes—sagittal (forward and backward), frontal (side to side), and transverse (rotational). Typically, exercising on a machine involves repeating artificial motions that bear little similarity to our natural movement patterns; therefore, there is little carryover to other activities. A person may start to look more muscular, but still not experience any greater ease or decreased discomfort in their daily life.

Consider a leg extension machine, on which the distal leg extends and flexes in order to strengthen the quadriceps muscle. There is no functional activity in real life that requires this type of isolated leg movement. It makes much more sense to engage the quadriceps with the foot connected to the ground; this enables an integrated motion, in which all the muscles and their innervating nerves are working in harmony, rather than isolation. For instance, in squatting, the quads are activated

in unison with the hamstrings, hips, and abdominal wall, as well as the muscles of the calf and foot.

AN ALTERNATIVE TRAINING APPROACH: PREPARATION FOR REAL LIFE

In contrast to motions constrained by machines, Go Primal Fitness emphasizes movement patterns that replicate real-life physical demands, with a focus on those movements the client cannot perform competently. For instance, suppose a client shows medial instability in a lunge (i.e., the knee tends to turn inward). It's important for that person's exercise program to include lunges, in order to improve strength and stability—not just for lunging per se, but for running, walking, or hiking as well. A lunge is simply an exaggerated form of a step, so whatever reaction happens in a lunge also occurs in a walk or a run, just in a less obvious way. Similarly, we do versions of a squat every day—bending down, standing up from a chair, or getting into a car. Improved squatting will translate directly into improved life functioning.

Any number of factors may affect a person's ability to lunge or squat or perform other movements properly. That's why it's essential to first perform a thorough evaluation, pinpointing where the dysfunction originates. The assessment results drive the intervention. If a muscle-tendon unit is weakened due to a nerve impingement, the first task is not strengthening the muscle, but releasing the impingement. If the arches of the feet are dropped, this can cause dysfunction throughout the rest of the body. In this case, you may need to correct the feet before trying to strengthen the parts above it.

Cambrea shared two case studies with me that illustrate how the Go Primal Fitness system works to help clients meet their goals. The first individual was a golfer; the second, a runner.

The Golfer. This client came looking for a way to improve his golf game. He had done extensive strength training on machines, but was not getting the results he wanted. In the evaluation, Cambrea identified the key underlying issue: a hyperkyphotic (excessively anteriorly concave) thoracic spine. This severely limited the golfer's rotation and forced him to drive more from the shoulders than from the torso. The training plan focused first on spinal extension and stabilization exercises to help reduce the kyphotic curve, followed by integration exercises to teach the body to move more efficiently. As a result, the client experienced increased rotation in the thoracic spine; increased power output through the oblique muscles, hips, and shoulders; and an overall stronger golf game.

The Runner. A female runner looked to Go Primal Fitness when other treatments failed to bring her body into balance. Despite receiving massage and bodywork and engaging in an aggressive stretching program (repeated two to three times per day), she kept repeatedly injuring her hamstrings. Instead of simply working with her hamstrings, as other practitioners had done, Cambrea investigated the predisposing factors leading to the injuries. Through the evaluation process, he discovered that she actually had excessive range of motion in her hamstrings, while her lumbar mobility was limited; the lumbar spine was stuck in hyperextension. There was also a neural signal imbalance between her psoas muscles (which were overly activated) and her gluteus maximus muscles (which were underactivated). This explained why the hamstrings were under constant stress; they were forced to compensate for the gluteus muscles' diminished capacity. (See Neural Signal, page 97, for more detail.)



NEURAL SIGNAL

Most readers will be familiar with the concept of an agonist (the muscle that is primarily responsible for generating a specific movement) and an antagonist (the muscle that acts in opposition to that movement). For instance, in hip extension, the gluteus maximus muscle is the agonist and the psoas is the antagonist. In a neutral position, the agonist and antagonist share a neural signal from the spinal cord. When one of these muscles contracts, the signal to the opposing muscle is inhibited. Thus, when there is ongoing, excessive tension in the psoas, the gluteus maximus fails to receive the neural signal it needs to do its job properly. One consequence of this is that the hamstring muscles, which are designed merely to assist in hip extension (as “synergists”), start to assume primary responsibility for that movement. This effect, called synergistic dominance, predisposes the synergist muscles to injury.

It became clear that this client did need stretching, but in the psoas, not the hamstrings. As the shortened psoas was released, the neural signal to the gluteus maximus was restored, and the strain on the hamstrings lessened. At the same time, chiropractic work helped to mobilize the lumbar spine. The woman was able to get back to running, having broken the cycle of continual re-injury.

A NEW, INTEGRATIVE PARADIGM

The creators of Go Primal Fitness don't simply want to influence what we do with our clients; they also want to change how we think. When we're looking at injuries and pain conditions, it's easy to view the body in an isolated way, focusing on how each part works. Cambrea and White remind us that the body always functions as an integrated system. When we keep this integration



The “Turkish Get-up” exercise requires many different integrated movements. While keeping the arm with the kettlebell vertical, the person must move through a complex series of positions—going from standing up to lying down, and then standing back up again—all while keeping the body in proper alignment. This exercise is extremely beneficial in building strength, coordination, and balance.



Using a pole helps to cue the client to maintain an appropriate balance of the spinal curves while developing core strength. In this plank exercise, the pole should touch the head, thorax, and sacrum only, with an inch or two at the lordotic curve in the low back (depending on the person's size and build).

in mind, we can see how all the various parts work together and notice where things start to break down. With more extensive and precise evaluations, we can go beyond understanding injuries and limitations to seeing the underlying causes that perpetuate those problems. And by using natural movements rather than artificial ones, we can make a much clearer connection between our therapeutic work and our clients' real life activities.

As I've incorporated the Go Primal Fitness techniques and principles into my own private practice, I've learned that my colleague and former student was absolutely right—there was something important missing from my work. With the addition of this new system, I can offer my clients insights and practical solutions that were never before available to me. As Go Primal Fitness and similar programs gain in popularity, I look forward to seeing more practitioners enjoy these benefits. **m&b**

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Editor's note: *Massage & Bodywork* is dedicated to educating readers within the scope of practice for massage therapy. Essential Skills is based on author Ben E. Benjamin's years of experience and education. The column is meant to add to readers' knowledge, not to dictate their treatment protocols.