



# Certified News

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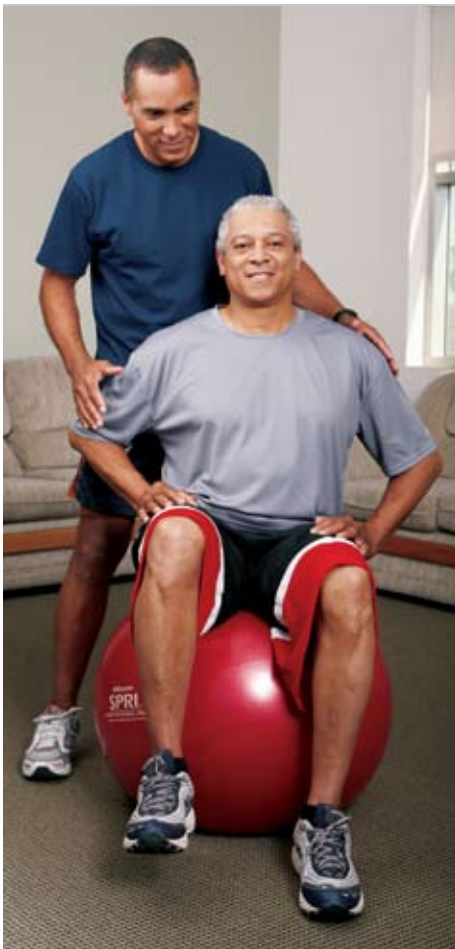
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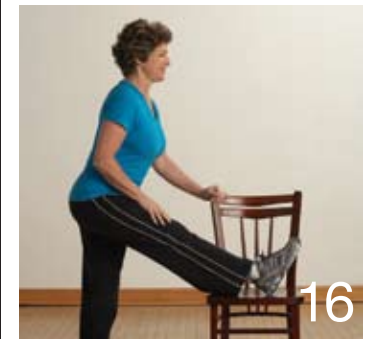
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BY CARRIE MYERS SMITH

## Bring the Gym Outdoors This Summer

**Y**ou've been waiting for it all winter—sunshine and warmth—and so have your gym members. Unfortunately for the fitness industry, as temperatures rise, gym memberships tend to go in the opposite direction as members take their workouts to the trails, parks and beaches. To offset this tendency, last summer I offered an outdoor workout through our gym at a local park. We used a quarter-mile walking path and alternated laps with strength training. Stairs were used for heel raises; benches and boulders for step-ups, push-ups, dips and the plank; stumps for plyo jumps; and logs for balance and plyometric work. Sprinkle in walking lunges, skipping and squats, and our participants got a fun, full-body workout using nature's gymnasium.

### Why Outdoors?

Aside from membership retention, bringing classes outside has some surprising benefits. "Just being in an

outdoor environment motivates participants to excel in areas of their fitness regime they would otherwise neglect from fear of failure," says Antoine Robinson, who conducts the Outdoor Boot Camp class for VIDA™ Fitness in Washington, D.C.

"Participants gain energy from the outdoors," adds Andrea Metcalf, who teaches a class called Naked Boot Camp in Chicago. "It also builds social camaraderie as they battle the elements together—cold, rain, mud, bugs."

Lance Breger, M.S., who teaches several outdoor classes and programs for MINT Fitness in Washington, D.C., says there are many benefits to bringing classes outside for both club and members. Among them are:

- It attracts a new audience within the current membership.
- It draws new members.
- It adds value to the group exercise schedule.
- It gives participants more options

for their fitness routines.

- It enables attendees to perform a wider spectrum of exercises, drills and techniques compared to inside workouts.
- It helps to prevent mental and physiological plateaus.

And, notes Lawrence Biscontini, M.A., an international spa and wellness consultant and mindful movement specialist, outdoor workouts allow you to engage all five senses, something that's difficult to do—and can often be unpleasant—in a gym setting. Imagine telling students working up a sweat in the studio to smell...what?

Bringing classes out of the gym is also like free advertising, says Jackie Schanlaber, M.S., who taught a Cardio Combo class in the suburbs of Chicago. "Because we were working out right in the middle of several office buildings, we caught the attention of employees working in those buildings."

### Potential Obstacles

Before you hang a shingle on a park tree, there are a few potential challenges you need to consider. First, do you need permission from your town or city to hold a class on public property? Metcalf recalls a class she held on the sidewalks of Chicago, "right in plain view of the parking lot and cross streets. We needed sound ordinance approval from the village to play our stereo outside."

Of course, an advantage of needing to ask permission is that you're extending your outreach. Be sure to hand out flyers to everyone working at the town or city hall—they're all potential participants.

There's also the question of liability. Does your personal liability insurance cover a class held outside? And does the facility's liability cover classes outside their gym walls?

Then there are some very practical issues you'll have to face, like equipment. Do you need gear to teach this class? If so, what and how will it get there? Metcalf used medicine balls, tubing and beach towels for her Naked Boot Camp class. "I would fill my car with the medicine balls and they would roll out into the street each morning, which started the day off with a good laugh, but also presented a potential challenge with traffic."

*Continued on page 4*



You also need to consider:

**Participants' safety.** Will you be crossing streets? What do you do if someone falls, sprains an ankle or has a cardiac emergency? A cell phone, first-aid kit and, of course, a plan are all necessary tools.

**Hydration.** What happens when someone forgets their water bottle? Have extras on hand in your vehicle to share when someone forgets theirs. Depending on the class, hydration systems (i.e., Camelbak®) may make more sense than water bottles.

**Weather.** Will you work out in the rain? What's your backup plan—an indoor location or will you cancel class?

**Terrain.** If you'll be doing floor—or in this case, ground—work, what types of mats do you need? While yoga mats travel well, they're not thick enough when laid over concrete. Nor do they work well on sand for beach workouts (think sand on sticky mats here).

**Time of day.** Biscontini faced a challenge with his outdoor noontime classes when the sun is at its highest point. If you're planning a class outside, consider the time of day and where the class will be held. There should be some shade for participants to retreat to if necessary.

## Beyond Boot Camp

Arguably, the most common outdoor class is boot camp. But when you break outside the gym walls, you also need to break outside any limits you've put on yourself and allow your creative muse to go to work.

While I was teaching yoga at the Mt. Washington Resort last summer, the fresh air, mountain views and warm breeze were just too inviting to resist. One morning I told the students to grab their mats—we were heading outside. That was just the beginning. Until the weather became too cold—or unless it was raining—classes were held outside on the veranda, surrounded by mountains, forests and hanging flower baskets. The students appreciated the natural surroundings so much that they didn't even care that backhoes



and excavators were working with-in view—and earshot—on the new golf course.

Your outdoor classes can be as simple as moving your current classes outside. Beth Shaw, founder of YogaFit®, holds yoga and boot camp classes on the beach in Southern California; Biscontini does the same in Puerto Rico. Almost any mind-body class he teaches indoors can also be taught outdoors, including Pilates, yoga and tai chi. He even uses moon phases for special classes, such as Full Moon Yo-Chi®, and teaches a class called, Play!, “where adults harness the lost mobility of childhood using games like Twister, sock hop, tag and duck-duck-goose.”

While not everyone has the Caribbean as their backdrop for classes like Biscontini does, or even the White Mountains like I do, that doesn't mean you shouldn't head outdoors. Choose classes that are appropriate for the environment you have available. When Metcalf needed the sound ordinance for her stereo it was because she had rolled the Spinning® bikes out onto the sidewalk for class. Schanlaber taught her Cardio Combo class amongst office buildings

and concrete, using outdoor stairs and jump ropes for the cardio section, and exercise bands and dumbbells for strength training. Mats were also brought outside for core work and stretching.


Joe Diemert, owner of Clubfit in Montgomery, Ala., does many circuit-training formats outdoors. “We do lots of outdoor workouts simply by taking our indoor equipment outdoors, including mats, BodyBars®, barbells and dumbbells.”

He also teaches a unique class that only requires one thing: a car tire (see sidebar, page 5).

If your environment isn't



really conducive to outdoor group fitness classes, another option would be to hold outdoor group activities, such as running, biking, swimming and hiking groups or clubs. They can be general classes for participants just looking to get into better shape, or they can have a more specific purpose, such as training for a triathlon. It's a good idea to hold separate groups for the various fitness levels, since the class is not held in one common area. You don't want anyone left behind because they can't keep up, or frustrate the ones who are more experienced and fit.

Whether it's classes, activities, groups or clubs, outdoor fitness is "in" and in demand. All of the instructors we spoke to said that their students want more. And that's a good thing for your bottom line—and theirs. 

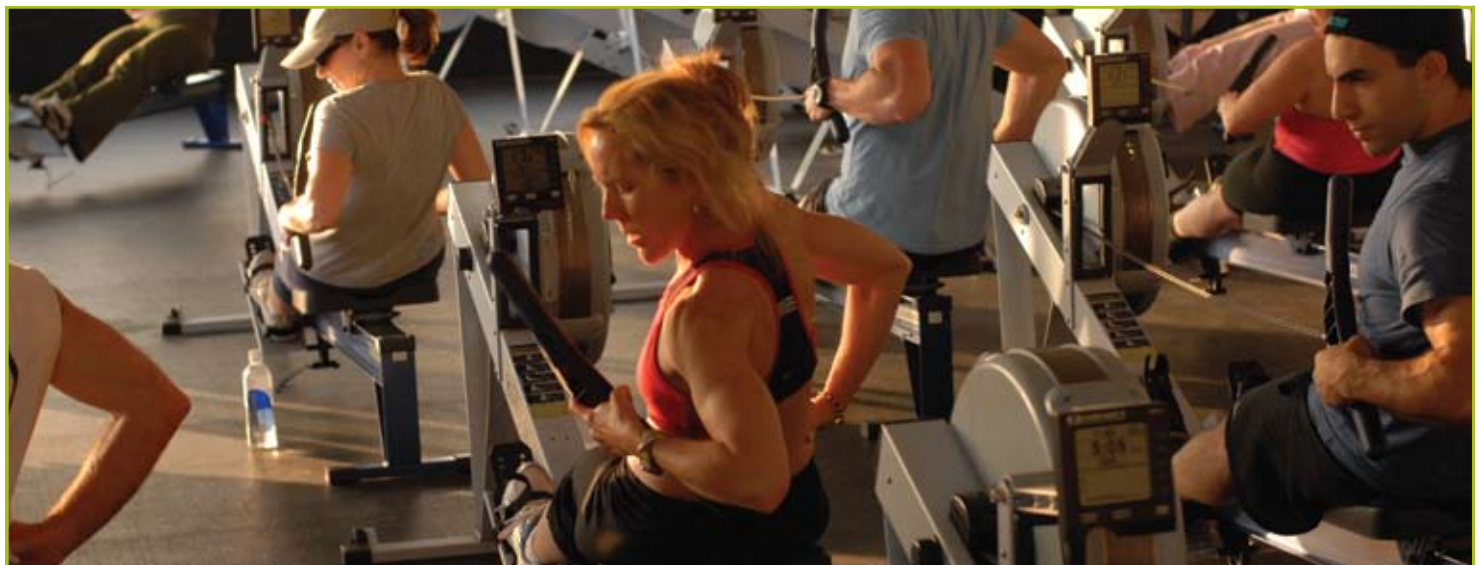
**Carrie Myers Smith, an ACSM-certified personal trainer, is looking forward to teaching her FiTrail class at the Mt. Washington Resort this summer where she's the fitness coordinator.**

## Pump Some Goodyears®

Toss the dumbbells and instead try tossing tires. Literally. Joe Diemert, owner of Clubfit in Montgomery, Ala., teaches a rather unorthodox class called Get Tired. "Everyone in class gets their own car tire that they use for the entire class. We do almost every weight-lifting exercise that we can execute with the tire."

Exercises include:

- Overhead press
- Bicep curls
- Overhead triceps extensions
- Walking lunges with the tire around the waist
- Squats with the tire around the waist
- Rolling tires
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BY NATALIE DIGATE MUTH, M.P.H., R.D.

# Vegan and Fit:

## Train Your Vegan Clients for Peak Athletic Performance

**V**egan is in. From the millions of readers buying caustic best-selling books proclaiming the animal-friendly, nutrient-dense, energy-lite plan for weight loss [e.g., *Skinny Bitch*, by Rory Freedman and Kim Barnouin, which reached number three on *The New York Times* bestseller list of paperback advice] to world-class athletes breaking world records—an increasing number of Americans are adopting vegan diets. Scott Jurek competes in 10 to 12 ultramarathons per year and holds the record in the 100-mile Western States Endurance Run (15:36:27). He has followed a vegan diet for nearly 10 years. In 2007, Kansas City Chiefs tight-end Tony Gonzalez became the NFL leader in receptions and touchdowns by a tight-end—the same year he adopted a vegan diet. Numerous

other elite athletes including Olympic track star Carl Lewis, tennis champ Martina Navratilova, and power lifter Pat Reeves; Hollywood stars like Natalie Portman, Pamela Anderson, and Joaquin Phoenix; and average Joes have not only chosen to avoid meat products, but all animal products, including dairy and eggs.

Even if you haven't yet come across a client who is contemplating or has already gone vegan, chances are you will soon. And although in the past it was thought that vegetarian and vegan diets might impair athletic performance, scientists, coaches and athletes alike now agree that with proper planning a diet without animal products can effectively fuel peak performance. As you prepare training programs for your vegan clients, here's what you can do to help them excel.

**Understand veganism.** Your clients will appreciate your efforts to understand this important piece of their life, which, if not appropriately planned and managed, can negatively affect training sessions. A vegan diet is a type of vegetarian diet that consists of fruits, vegetables, grains, legumes, nuts and seeds. All animal products including beef, poultry, fish, eggs, dairy products, gelatin, honey and animal-derived food additives are off limits. Typically a vegan diet is higher in carbohydrates, fiber, fruits, vegetables, antioxidants and phytochemicals, and lower in saturated fat and cholesterol compared with omnivorous diets (ADA and DC, 2003).

People are drawn to vegan diets for various reasons, including weight control as it tends to be lower calorie than other eating plans; health benefits—research



has shown that vegetarians have reduced risk of diabetes, obesity, hypertension, cardiovascular disease and some cancers; perceived performance benefits due to its high-carbohydrate content; and ethical or philosophical beliefs (reviewed in Venderley and Campbell, 2006). Yet, because the diet is highly restrictive, people who adhere to the eating plan face many potential nutrient deficits, including creatine, iron, zinc, vitamin B<sub>12</sub>, calcium, riboflavin, vitamin D (Venderley and Campbell, 2006) and omega-3 fatty acids (Davis and Kris-Etherton, 2003). Some of these deficits can be detrimental to athletic performance. However, with appropriate planning athletes can consume a balanced and complete diet that prepares them for peak performance.

**Encourage consultation with a registered dietitian.** A registered dietitian with a focus on sports nutrition will help your clients adopt a well-designed and individualized vegan eating plan to fuel optimal health and athletic performance. Consider the following nutrition guidelines for vegan athletes.

- *Consume adequate carbohydrate and high-quality protein.* Because carbohydrates are the preferred energy source during exercise, and vegetarian diets





typically contain higher amounts of carbohydrates than omnivorous diets, a vegetarian or vegan diet may be an optimal diet for athletes. Most endurance athletes, in particular those who train more than 60 to 90 minutes per day, are advised to consume a diet that is 60 percent to 70 percent carbohydrate to optimize glycogen synthesis (Nieman, 1999). A typical vegan diet parallels that goal with 50 percent to 65 percent of calories from carbohydrate compared to less than 50 percent in non-vegetarian diets (Venderley and Campbell, 2006). The typical vegan diet contains about 10 percent to 12 percent of calories from protein, compared with 14 percent to 18 percent in omnivorous diets (Venderley and Campbell, 2006), causing some to worry that vegans may consume inadequate amounts of protein to repair damaged muscle and facilitate muscle hypertrophy. The recommended dietary allowance (RDA) for protein is 0.8 g protein/kg/day. Highly trained endurance athletes many need up to 1.2 to 1.4 g/kg/day and strength athletes require up to 1.6 to 1.7 g/kg/day, according to a joint position statement from the American Dietetic Association, Dietitians of Canada, and the American College of Sports Medicine (2000), though the Food and Nutrition Board of the Institute of Medicine believes that the evidence suggests athletes do not actually have increased need (Food and Nutrition Board, 2002). Legumes, dried beans, peas, nuts, soy and meat alternatives provide ample protein, though few vegetarian foods provide all of the essential amino acids, making it essential that vegans consume a variety of protein-rich plant foods throughout the day to meet protein requirements. Because plant proteins are not as readily digested as animal proteins, vegans should consume about 10 percent more grams of protein than the previously mentioned recommendations (ADA, DC and ACSM, 2000). That is, if an athlete consumes a 3,000-calorie diet that is comprised of 10 percent protein, approximately 300 calories (75 g) are from protein. A vegan should consume about 30 extra protein calories (8 g), for a total of 330 calories from protein.

- *Consume enough calories.* Athletes have increased energy needs due to the demands of physical activity. Depending on the

duration and intensity of exercise, body composition, gender and training regimen, a typical athlete needs between 2,000 and 6,000 calories per day or more (Venderley and Campbell, 2006). While a vegan diet can provide sufficient energy to meet these needs, vegans need to make special efforts to get enough calories to support optimal performance, maintain lean tissue, and support immune and reproductive functions (ADA, DC and ACSM, 2000). Vegan athletes can optimize caloric intake if they eat more frequent meals and snacks; include meat alternatives such as tofu and textured vegetable protein; and opt for healthy, calorie-dense snacks such as dried fruit or fruit juice, jams, avocados, nuts and seeds (Venderley and Campbell, 2006).



- *Consider creatine supplementation, if peak performance is essential.* Research suggests that those who consume a vegan or other vegetarian diet have decreased total muscle creatine concentration (Venderley and Campbell, 2006). Muscle creatine stores are important for energy metabolism, particularly for short-term, high-intensity exercises. Vegetarian athletes may be more responsive to creatine supplementation-related improvements in sports performance compared to their

meat-eating counterparts (Venderley and Campbell, 2006). However, a registered dietitian, preferably one with a focus on sports nutrition, is best equipped to discuss supplementation with a client. Recommending supplements is clearly outside the scope of practice of a fitness professional.

- *Prevent iron-deficiency anemia.* Iron is a critical nutrient for optimal athletic performance as it is necessary for the synthesis of hemoglobin and myoglobin, the iron-protein complexes that deliver oxygen from the lungs to the working muscles. Physical training combined with low dietary intake can lead to a depletion of iron stores and, subsequently, hampered athletic performance. Iron-deficiency anemia, however, is rare among vegetarian athletes, affecting only about 10 percent of them (Venderley and Campbell, 2006). Vegan athletes can prevent anemia by consuming a diet rich in fortified breakfast cereals, bread, textured vegetable protein, legumes, dried beans, soy foods and meat alternatives, nuts, dried fruits and green leafy vegetables. Vegetarian iron sources are not as well absorbed as their animal counterparts, but absorption can be enhanced with a diet rich in vitamin C.
- *Get enough zinc.* Zinc is important for immune function, protein synthesis and blood formation. It is readily lost from the body following strenuous exercise, especially in hot, humid environments. While animal sources provide the most bioavailable zinc, legumes, whole grains, cereals, nuts and seeds are also good sources. Consuming foods rich in vitamin C and soaking beans, grains and seeds in water prior to cooking helps to increase their iron absorption by reducing phytates, which interfere with absorption.
- *Eat fortified foods to optimize vitamin B12, riboflavin, vitamin D and calcium intake.* The best sources of each of these nutrients are derived from animal products, dairy products and eggs. However, vegans can consume adequate amounts from fortified soy products, cereals and, in the case of calcium, from low-oxalate green vegetables like broccoli, bok choy and kale. Vitamin B12 is important for the normal metabolism of nerve tissue, protein, fat and carbohydrate. It is especially important for women of childbearing age to consume enough of the vitamin to prevent neural tube defects in a developing fetus. Riboflavin is an essential nutrient for energy production;

*Continued on page 8*

the nutrient is stored in muscles and used most in times of muscular fatigue. Vitamin D is needed for calcium absorption, bone growth and mineralization. While necessary for maintaining bone structure and vitamin D metabolism, calcium is also important for blood clotting, nerve transmission and muscle stimulation (Venderley and Campbell, 2006). Each of these nutrients makes an important contribution to optimal athletic performance.

- *Eat algae (or at least take a supplement for optimal essential fatty acid intake).* Vegan diets often lack the heart-healthy, brain-protecting omega-3 fatty acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) found in fish, seafood, eggs (DHA only) and chickens fed flax or microalgae. The only plant sources are microalgae, seaweed and non-fish-oil-derived supplements (Davis and Kris-Etherton, 2003).

**Perform weight checks.** If your client is a competitive athlete who regularly engages in prolonged or strenuous exercise, consider periodically monitoring weight to ensure that energy needs are being met (ADA, DC and ACSM, 2000). Many recreational athletes participate in an exercise program primarily for health benefits and weight loss rather than peak athletic performance. In these cases, weight loss may be a desired outcome. However, your elite athletes will not achieve peak performance if caloric intake is insufficient to maintain weight.

**Watch out for the female athlete triad.** The female athlete triad consists of disordered eating, amenorrhea and osteoporosis. Some athletes, especially those involved in sports with an emphasis on leanness or appearance, or which require qualification for a particular weight class, may choose a vegan diet to promote potentially unsafe weight loss. This may be a sign of disordered eating and may require professional evaluation. Vegetarian diets also have been associated with reduced estrogen levels and menstrual irregularities, though it is unclear whether the vegetarian diet, lower caloric intake, heavy exercise or other factors are primarily responsible (Barr and Rideout, 2004). Poorly

planned vegan diets are typically very low in calcium and may predispose the individual to osteoporosis (Barr and Rideout, 2004). If you are concerned that a client may suffer from the female athlete triad, refer her to her primary care physician.


**Suggest a check up with the client's primary care physician.** All vegetarians are advised to periodically visit their primary care physician for a physical exam and routine blood work, which can rule out nutritional deficiencies such as iron-deficiency anemia.

## Resources for More Information

- Food and Nutrition Information Center, USDA. Vegetarian Nutrition. ([www.nal.usda.gov/fnic/etext/000058.html](http://www.nal.usda.gov/fnic/etext/000058.html)). Provides the latest on vegetarianism and link to other reputable Web sites.
- Vegan Society ([www.vegansociety.com](http://www.vegansociety.com)) An Educational U.K.-registered charity promoting vegan lifestyles.
- Seventh-day Adventist Dietetic Association ([www.sdada.org](http://www.sdada.org)). An affiliate of the American Dietetic Association promoting plant-based nutrition.
- VeganHealth ([www.veganhealth.org](http://www.veganhealth.org)). This branch of Vegan Outreach offers links to more information about veganism and health, and includes a list of resources pertaining to veganism and athletes.
- Vegetarian Resource Group ([www.vrg.org](http://www.vrg.org)). Includes a link for veganism, vegan meals and travel.
- VegRD (<http://vegrd.vegan.com>). Maintained by leading vegetarian researcher Virginia Messina, this site provides links to archived newsletters on a variety of vegan topics, including vegan foods for backpacking and vegan workout shakes.

**Maximize training time.** Train your vegan clients for peak performance. To date, all the evidence suggests that vegan athletes perform as well as non-vegetarians (Nieman, 1999; Venderley and Campbell, 2006; Barr and Rideout, 2004). The most recent and most comprehensive review of the research on vegetarian diets and athletic performance concluded that a vegetarian diet in itself is not associated with a beneficial or detrimental effect on physical performance capacity.

Furthermore, when well-planned (especially important for vegan diets), a vegetarian diet offers many benefits for athletes including high-carbohydrate intake, adequate amounts of all nutrients and long-term health benefits including reduced risk of chronic disease and decreased mortality (Nieman, 1999).

Ultimately, in the race to the finish, a well-trained, well-fueled vegan athlete is fit to succeed. Still not convinced? Consider 10-time Olympic medal winner Carl Lewis, who says his best year of track competition was the year he joined the vegan movement (Bennett and Lewis, 2001). 

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BY FABIO COMANA, M.A., M.S.

# Targeting Your Core

**C**ore conditioning has enjoyed tremendous popularity over the past few years and continues to be a mainstay in programming due to its identified benefits. These include:

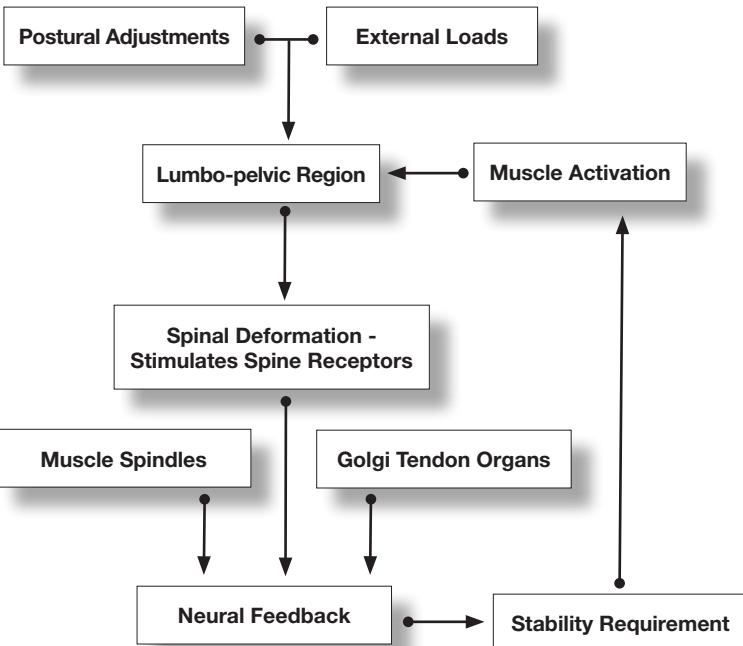
- Protecting the spine from potential injury
- Improving balance, coordination, dynamic postural strength and control
- Optimizing force production and load transfer through the trunk to the extremities
- Enabling more efficient control of integrated movement
- Improving one's ability to better tolerate loading forces

Many fitness professionals, however, do not have a clear understanding of the roles of the core musculature, or of training applications to condition the core effectively. The goal of this article is to share some insight into understanding these roles and offer a progressive exercise-programming model for fitness professionals to follow.

## A Brief Review of Core Anatomy

The concept of the core can be described as the ability to control the position and motion of the trunk relative to the pelvis and legs. Panjabi (1992) identified three systems that work cohesively to achieve stabilization of the spine:

1. The passive joint subsystem (spinal column, fascia, joint shape, joint structure and ligaments)
2. The active muscle subsystem (core, trunk and shoulder girdle muscle action)
3. The neural subsystem (feedback and control)



**FIGURE 1:** Model of Core Stability  
 Reference: Adapted from Willardson, J.M. (2007). Core Stability Training: Applications to Sports Conditioning Programs. *Journal of Strength and Conditioning Research*, 21, 3, 979–985



## ACE Advanced Health & Fitness Specialist

### ACE'S NEWEST CERTIFICATION—

the ACE Advanced Health & Fitness Specialist—is launching this year along with an accompanying manual featuring 22 chapters written by some of the most respected members of the exercise science and healthcare communities. The *ACE Advanced Health & Fitness Specialist Manual* offers specific information and strategies necessary to provide safe and effective programming for clients recovering from, or dealing with, cardiovascular, pulmonary, metabolic or musculoskeletal issues.

Throughout the year we will introduce you to the concepts and topics covered in the *ACE Advanced Health & Fitness Specialist Manual* through a series of articles written by several of our contributing authors. For more information about the ACE Advanced Health & Fitness Specialist Certification Exam, visit [www.acefitness.org](http://www.acefitness.org) or contact an ACE Professional Services Representative at 800-825-3636, Ext. 781.

Considering the limitation of the passive subsystem to only supporting small loads, Panjabi described the need for the active muscle subsystem to contribute to spinal stabilization. The spine maintains stability during postural adjustments, movement or external loading through the integrated actions of all three systems and involves the activation of spinal receptors, transmission of sensory information on position and loading, and reflexive muscular responses from the active muscular subsystem to stabilize the spine (Figure 1).

Essentially, the trunk region is divided into three muscular regions:

1. The deep or inner layer consists of small muscles that span single vertebrae and are generally too small to offer significant stabilization of the spine. They offer segmental stabilization of each vertebra, especially at end ranges of motion, and are rich in sensory nerve endings, providing sensory information to the brain regarding vertebral position. Because, these muscles contribute minimally to spinal stabilization, they are generally disregarded when describing core-conditioning exercises.
2. The middle layer is best described using the analogy of a box that spans several vertebrae from the diaphragm to the pelvic floor with muscles and fascia enveloping the back, front and sides. The group consists of the transverse abdominis, multifidus, quadratus lumborum, posterior fibers of internal obliques, diaphragm, pelvic floor musculature and adjoining fascia (linea alba, thoracolumbar fascia). This box allows the spine and sacroiliac joint to stiffen in anticipation of loading and movement, and provides a working foundation from which the body can safely and effectively operate.

*Continued on page 10*

3. The outer layer consists of large powerful muscles that span many vertebrae and are involved in gross movement of the trunk. These muscles include the rectus abdominis, erector spinae group, external and internal obliques, and iliopsoas

## Core Function

The transverse abdominis is a key muscle that functions with the neural subsystem and helps increase intra-abdominal pressure to reduce compressive forces along the spine. Co-contraction of this muscle and the middle layer (also referred to as the local muscles) produces a “hoop tension” effect similar to cinching a belt. This tension draws the abdominal wall inward and upward, resulting in compression of the internal organs that push upward against the diaphragm and downward against the pelvic floor musculature, increasing intra-abdominal pressure (IAP). This action generates traction between the lumbar vertebrae and can reduce joint and disk compression in this region by as much as 40 percent. The collective actions of the multifidus and transverse abdominis also pull on the thoracolumbar fascia in the back region to increase lumbar extension. Both help create a rigid cylinder (stiffening) in the spine to increase stabilization during loading.

Hodges and Richardson demonstrated delayed or reduced activation of the transverse abdominis muscle and limited co-contraction of core muscles in individuals suffering from low-back pain, indicating some form of a neural control deficit. Deconditioned individuals who spend much of their time in supported devices (e.g., back rests) may also demonstrate similar neural control deficits. Consequently,

balance and core training must begin with exercises that first emphasize re-education of these faulty motor patterns.

McGill states that the development of core endurance should take precedence over core strength because muscular endurance better correlates with spinal stability and a lower risk of injury. He also states that while abdominal hollowing, drawing-in or centering serves essential motor re-education purposes, it does not ensure the same degree of stability as bracing. Centering is a training technique often used in Pilates that involves the isolated activation of the middle layer to draw the umbilicus inward toward the spine. Bracing, on the other hand, is the co-contraction of both the core and abdominal muscles to create a more rigid and wider base of support for spinal stabilization.

## Core Conditioning

We often are witness to fitness professionals who place their deconditioned clients on unstable training devices (e.g., stability balls) too soon and too aggressively, having them perform dynamic movements. The unstable challenge, potentially faulty neural pathways and the consequent reliance on the outer muscles to assume the role of stabilization may produce compensated muscle action as these prime movers have to increase their function as stabilizers and compromise their role in movement and force generation. This may increase the potential for injury. When working with deconditioned individuals and those cleared for activity following low-back pain, fitness professionals need to first emphasize re-education of the neural pathways, and then follow a progressive program that gradually increases the load-

ing and balance challenges.

Unstable surfaces do result in greater muscle activity than stable surfaces. Unilateral pushes and pulls demonstrate greater transverse abdominis activity than bilateral movements. However, force production in both extremities is significantly reduced on destabilized surfaces given the need for the synergistic force-producing muscles to act as stabilizers. In reality, however, few sports and physical activities require the degree of instability presented with unstable training devices. While they provide a good medium for increasing the challenge to the body's balance centers, programs should ultimately become more movement or sports-specific by incorporating closed-kinetic, multi-planar movements performed on stable surfaces and at real-time speeds.

Table 1 features a template fitness professionals can follow for developing a progressive, yet effective, core-conditioning program.

1. The first stage involves re-education of the neural pathways through a series of simple exercises aimed at reactivating core muscles in an isolated manner and using a supported surface to minimize spinal loading. The emphasis is on low-intensity, high-volume, perfect repetitions performed frequently to re-educate the pathways efficiently. Clients are encouraged to perform these exercises frequently to re-establish the correct reflexive response. The concept of hollowing is taught during this phase.
2. The second stage involves a series of static exercises, each progressively challenging the body's balance in a seated or quadruped position to develop static balance under small spinal loads. Static positions that challenge

**Table 1: Progressive Core-conditioning Training Template**

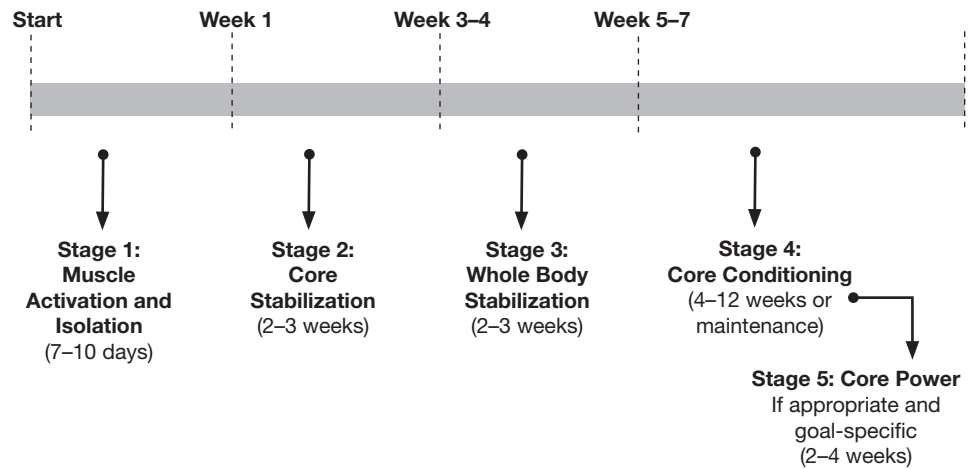
Conditioning Stage	Objective	Duration	Exercises
<b>Stage 1: Muscle Activation and Isolation</b>	Reactivate neuromuscular pathways; centering or drawing-in action	Daily, 1 – 2x / day for 7 – 10 days	Static positions, supported, unloaded or minimally loaded; activation and co-contraction of the core muscles
<b>Stage 2: Core Stabilization</b>	Spinal stabilization under minimal loading; improve proprioceptive awareness and reflexive responses	2 – 3x / week for 10 – 15 minutes for 2 – 3 weeks	Static positions (5 – 20 sec), minimal loading (seated or quadruped position)
<b>Stage 3: Whole Body Stabilization</b>	Introduce bracing action; spinal stabilization under increased loading; static and dynamic standing exercises	2 – 3x / week for 10 – 15 minutes for 2 – 3 weeks	Static (15 – 20 sec) and dynamic (1 set x 10 reps) standing exercises
<b>Stage 4: Core Conditioning</b>	Develop muscular endurance and strength of both layers	2 – 3x / week, 4 – 6 exercises for 4 – 12 weeks, or as core maintenance	Traditional set-rep program for endurance and strength; multiple exercise modalities and planes of movement
<b>Stage 5: Core Power</b>	Develop power under full postural and recovery control	2x / week, 3 – 4 exercises for 2 – 4 weeks	Set-rep program for power, emphasizing postural and recovery control




balance under core muscle activation (hol-  
lowing) are taught during this phase. The bal-  
ance challenges can be manipulated by:

- Reducing the base of support (moving feet closer together)
  - Raising the center of mass (raising arms overhead)
  - Altering the line of gravity (creating asymmetrical shifts by abducting one arm, rotating the upper extremity)
  - Increasing the duration of the repetition (five to 20 seconds)
  - Reducing the points of contact (two feet to one foot)
  - Altering or removing sensory input (visual or vestibular with closing the eyes, tilting the head, tracking the eyes or shifting the point of focus)
  - Providing small external perturbations (small amounts of partner- or external-resistance )
  - Adding additional unstable surfaces (placing feet on pods, balance disc)
3. The third stage introduces full-standing static and dynamic movements to increase the stabilizing and postural control challenges to the body. This stage introduces the concept of bracing and transitions from static whole-body movement to dynamic whole-body movement on both stable and unstable training devices (e.g., pods, Bosu). While the same variables listed previously are manipulated to increase the balance challenge, additional variables are introduced including:
    - Increasing volume (sets x reps with dynamic movement)
    - Weight transference in multiple planes
    - Deceleration and force dissipation (e.g., triple-flexion during movement and tolerating external forces such as ball catches)
    - Range and speed of motion
  4. The fourth stage introduces traditional core-endurance exercises and outer layer-strengthening exercises following a set x rep-based format with appropriate rest intervals. During this stage we often witness clients performing an assortment of exercises that raises potential concern over the appropriateness and objectives of certain exercises. Many fitness professionals continue to push the envelope, seeking the newest and most obscure exercise for their client and often lose sight of the overall training objective. It is during this stage that we must exhibit restraint and find that balance between common sense and creativity to deliver effective training exercises.
  5. The fifth and final stage introduces explosive movements that generate power while maintaining both postural and recovery control.

**Figure 2: Core Conditioning Stages**



This stage is only suggested for individuals with specific needs for power, such as athletes, some fitness enthusiasts and individuals required to perform certain occupational tasks.

For more information, refer to ACE's new Functional Training Workshop and the soon-to-be-released *Advanced Health and Fitness Specialist Manual*, which discuss the core and core-conditioning programs in greater detail. 

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## Teaming up for Senior Fitness: A Group-based Approach




Orsega-smieht, E., Getchell, N., Neeld, K. and Makenzie, S. (2008). *Journal of Physical Education, Recreation and Dance*, 79, 4, 39–44.

By 2030, one in five Americans will be age 65 or older. Forty percent of older adult females and 30 percent of males aged 70 and older do not participate in any regular physical activity. This gives rise to concerns about healthcare costs and age-related health risks such as cardiovascular disease and osteoporosis. It has been well documented that regular physical activity participation is associated with positive physical and psychological health. Researchers from the University of Delaware reviewed physical fitness activities for older adults with the goal of providing alternatives for improving existing programs or developing new programs to improve the physical health and mental well-being of older adults.

The Surgeon General recommends accumulating 30 minutes of moderate-intensity activity each day, while the American College of Sports Medicine's guidelines for older adults emphasizes the importance of strength training, balance and flexibility. Both of these recommendations have been the basis for various interventions (including health education, behavior modification, and at-home and group-based techniques) for older adults that have shown high short-term adherence, but poor long-term adherence and effectiveness. Home-based interventions have produced significantly lower health benefits than center-based activities. Examples of factors, or barriers, that affect physical activity participation include: low self-

efficacy, unsuitable neighborhood environment, bad weather, lower education, lack of social support, low income, poor body image and health problems. It is important for practitioners to consider these barriers when designing intervention programs. Based on their review, researchers concluded that many older adults enjoy participating in activities with other individuals who have similar abilities and attitudes. Social support is critical to physical activity and may provide an opportunity to build friendships. Group activities may improve life satisfaction, decrease loneliness and provide a sense of belonging and support.

They suggest that a team approach may be the key to increasing older-adult activity. This involves planning activities in a group setting, where the individuals establish goals together and provide support to one another. This differs slightly from offering a basic aerobics-type class, where the individuals may do the same activity, but do not interact. A team approach, which is similar to motivating a sports team, has been successful in promoting activity in older adults. The competitive aspect within a team has also been shown to provide high levels of motivation and enthusiasm as seen in state Senior Games.

Fitness professionals who work with older adults should spend time understanding the barriers and needs of their clients. While not all older-adult clients will be fit or desire to participate in a sport, it may be appropriate to integrate a team-based approach into many small group training or senior fitness classes to help meet their physical and psychological needs. 

## Chocolate Consumption and Bone Density in Older Women




Hodgson, J.M., Devine, A., Burke, V., Dick, I.M. and Prince, R.L. (2008). *The American Journal of Clinical Nutrition*, 87, 1, 175–180.

Chocolate can be a source of flavonoids, which have been promoted for bone health. However, chocolate can also be a source of sugar, which may increase calcium excretion and oxalate, which in turn inhibits calcium absorption. Researchers in this study investigated the relationship between chocolate intake and whole-body and regional bone density and strength in a random sample of estrogen-deficit older women who were at risk for osteoporosis.

The subjects ( $n = 1,460$ , having no significant illness) were recruited for a five-year prospective, randomized, controlled trial of oral calcium supplements to prevent osteoporotic fractures. At the five-year mark, data for 1,001 women were available. At the one-year and five-year marks, subjects completed a questionnaire on their chocolate consumption. These responses were condensed into three categories: rarely ( $<1$  time/wk), moderate (1–6 times/wk) and daily ( $\geq 1$  time/d). Researchers measured participants' bone density

and strength of the whole body, hip, femoral neck, tibia, heel, trochanter and intertrochanter.

Subjects who consumed chocolate daily had a significantly lower body weight ( $64.8\text{kg} \pm 11.4$ ), BMI ( $25.2 \pm 4.1$ ), and total energy intake ( $7.6 \text{ Mj/d} \pm 2.3$ ) compared to subjects who consumed chocolate rarely ( $68.1\text{kg} \pm 12.9$ ,  $27.4 \pm 4.4$ ;  $6.3 \text{ Mj/d} \pm 1.9$ ). Subjects who consumed chocolate daily also had higher intakes of total and saturated fat, total carbohydrate and sugar, and lower intakes of protein, starch, fiber and potassium. Measures of bone density indicated that lower bone density and strength was associated with higher chocolate consumption ( $P < 0.05$ ). Subjects who consumed chocolate daily had a 3.1% lower whole-body bone density than those who consumed chocolate less than one time per week.

Researchers suggest that other factors such as diet, lifestyle, and environmental factors should also be measured in future studies. Before you advise your older clients to throw away all the chocolates, further cross-sectional and longitudinal studies are needed to investigate the relationship between chocolate consumption and bone density. 

# How to Find Credible Research on the Web

## (Part 2 of 2)

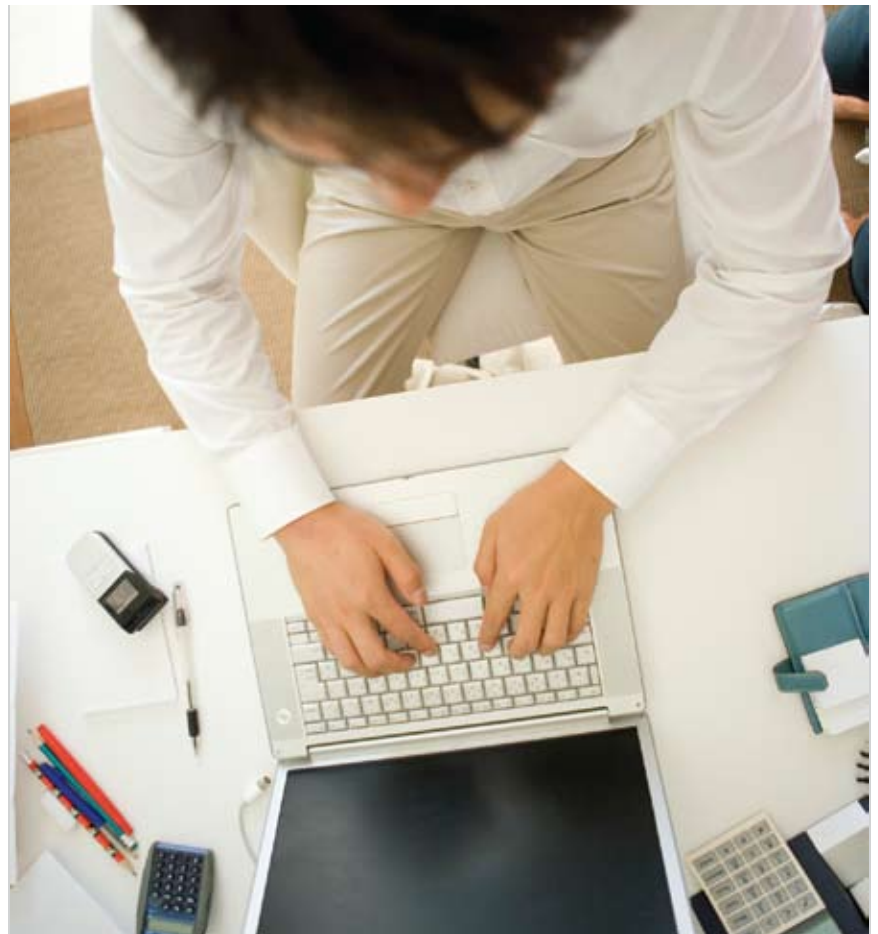
**A** client comes to you with questions about a new health fad he's been hearing about. He read online that experts have identified this fad as being 10 times more effective for losing weight than exercise. "What do you think?" he asks you. "Is it worth trying out?" As his trainer, you decide to analyze the claims and cut through the hype to help your client understand whether or not this fad is really worth pursuing. So you go online in search of health information.

You're not alone. Eight million Americans surf the Internet every day for health information, according to Online Health Search 2006, a report from Pew Internet & American Life Project, a non-profit initiative that explores the Internet's impact on areas such as daily

### Fast Facts About Internet Users in the United States

- 73% currently use the Internet
- 42% report having broadband connections at home
- 80% of Americans who are online search for health information
- 20% of Americans who are online report that the Internet has greatly improved the way they obtain health-related information
- 64% report having searched for information on a specific disease or medical problem
- 49% report having searched for information on diet, nutrition, vitamins or nutritional supplements
- 44% report having searched for exercise or fitness information

Source: [www.PewInternet.org](http://www.PewInternet.org)



life, education and healthcare (Madden, 2006). Most Web surfers are pleased with the health information they find online, says the same report. The question is, what exactly are they finding?

Anyone who has searched online knows the Web contains everything from highly trustworthy content to outright misinformation. After all, anyone can post information online. Even so, three-quarters of people who seek health information online say they check the source and date of that information "only sometimes," "hardly ever," or "never" (Fox, 2006). This translates to about 85 million Americans reading about health on the Web without consistently examining the quality and accuracy of that content (Fox, 2006). Could this figure include some of your clients? Or you?

This article—the second in a two-part series on sizing up academic research and online information—discusses strategies for judging if the Web-based health information you and your clients read is reliable and authentic. We also cover where you're

most likely to find trusted content. Let's begin, though, by analyzing how people search for health information online.

### Googling for Health and Fitness

You and your clients probably initiate your Internet searches for health information through a Web browser or search engine, such as Google. The search engine identifies dozens, hundreds, thousands or even tens of thousands of sites to choose from. Sites are then listed according to how well the program thinks the site matches the Web surfer's search criteria.

Rarely do people move off of the first page of results they see; most hits come from the top 10 responses shown by a search engine (Spink & Jansen, 2004). But what is displayed on that first or second page may or may not adequately match what the consumer is looking for.

For example, suppose you want to research the merits of high-intensity interval training. You type "high-intensity interval training" into Google, and



more than 241,000 hits appear (at the time this article was written). However, few or none of the leads on the search engine's first page include a primary source of information, and most are designed to sell a service or product.

One solution is to search in Google Scholar (found under "more" on Google's homepage). From there, your search for "high-intensity interval training" leads to 123,000 hits (when this article was written). This time, however, the first page displays references to primary sources of information published in major exercise-related research journals. From here, you can better locate the science-based content you're looking for.

Once you have chosen a Web site to check out from a search engine, your next step is to evaluate that site for indicators of its credibility and/or reliability.

Here are some questions to consider:

### **Does the information come from a primary or a secondary source?**

Health-related content on the Web may be categorized as a primary source or a secondary source of information. A primary source refers to original, firsthand information, such as a recorded or transcribed interview with an expert or a research paper published on a journal's Web site or online research database like PubMed (we'll cover more about PubMed later in this article). A secondary source offers someone's interpretation of, or commentary on, a primary source of information.

It is important to distinguish between the two so you don't mistake someone's interpretation of primary material for actual facts. To illustrate this point, here is an example based on a true story.

Suppose you're searching the Web for current fitness-related research to tell your clients about. You happen upon a report from a reputable media newswire service about a new exercise study. Apparently, researchers found that subjects who did just three minutes of exercise a day experienced the same physical benefits as subjects who did 30 minutes of exercise a day.

This is quite a claim, though, so you decide to dig deeper. You find the study's

abstract online and discover that, in actuality, the researchers had compared two 30-minute trials. There was no three-minute trial—the three-minute claim in the newswire article must have been a typographical error.

Research Findings Are Worth Sharing with Your Clients," by Dr. Gregory Anderson, Ph.D., and Amanda Vogel, M.A., in the April/May 2008 issue of *ACE Certified News*.)

### **What does the Web site look like?**

The way a Web site looks can offer some insight into its credibility. Of course, a slick design and clearly written copy doesn't guarantee that the information you're reading is trustworthy. However, it's worth noting that large Web sites run by reputable organizations such as the Centers for Disease Control and Prevention or the American Council on Exercise typically look quite professional and are generally well managed and up-to-date. That's not to say you can't find credible information on a small, independently run Web site. However, information-based sites with numerous typos, poor design and sensational headlines are more likely to contain less-reliable content.

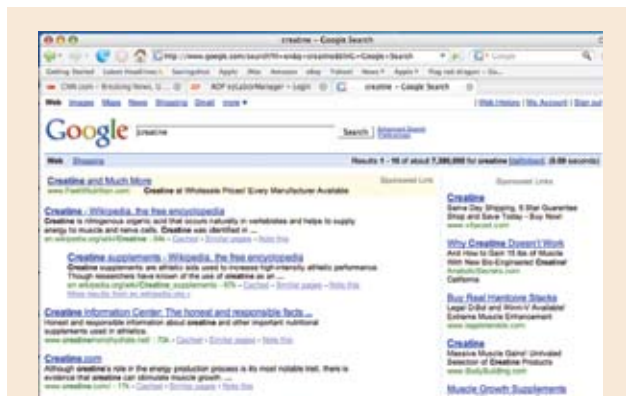
Furthermore, the Web site you're analyzing should present information in an easily accessible manner that is logically formatted. The material being presented on the site should be clearly referenced to primary sources (if applicable), and finding those primary sources should not be difficult. Research citations should be dated and relatively current (anything older than 10 years is usually too old unless it is used as an historical finding). Take note of when the site was last updated, as well.

### **Does the Web site clearly communicate its purpose?**

Analyze if a Web site has sponsors who advertise on the site, and if the purpose of the site is for information or commerce (or both). This will help you determine if there are any potential conflicts of interest about the information that is being presented. Sites that endorse, advertise and market information may not fully disclose both sides of an argument for and against a particular health practice. For example, a

Web site that sells snack bars with flax seed might post research purporting that obese women who ate flax seed every day for three weeks lost 10 pounds. What the Web site doesn't mention is that the women also exercised 60 minutes per day. This is an example

*Continued on page 24*



### **Surfing for Research: A Case Study**

There is a sea of information out there and it is easy to become overwhelmed by the number of results you get when searching the Internet for a widely discussed topic. For example, using three different search tools and several different search terms leads to an amazing variety of results. Selecting the right search terms and search engines for your purposes is important to your results.

Consider the following example using creatine (all statistics are approximate based on the time at which this article was written):

#### **Using Google's homepage:**

- "creatine" returns 7,350,000 Web sites
- "creatine study" returns 532,000 Web sites
- "creatine exercise" returns 557,000 Web sites
- "creatine exercise performance" returns 1,090,000 Web sites
- "creatine peer reviewed study" returns 59,800 Web sites

#### **Using Google Scholar:**

- "creatine" returns 278,000 Web sites
- "creatine study" returns 113,000 Web sites
- "creatine exercise" returns 30,300 Web sites
- "creatine exercise performance" returns 21,000 Web sites
- "creatine peer reviewed study" returns 9,710 Web sites

#### **Using PubMed:**

- "creatine" returns 40,158 citations
- "creatine exercise" returns 2,850 citations
- "creatine exercise performance" returns 484 citations

Because you took the extra step to seek out primary information, you avoided sharing inaccurate information with your valued clients and coworkers based on a mistaken and misleading secondary source.

(For more information how to size up academic studies, see "How to Know When

# Boomers and Beyond: In-home Training

According to the Centers for Disease Control and Prevention, 63 million Americans were over the age of 55 in 2004, representing almost a quarter of the population. In 2006, 7,918 people turned 60 every day. In fact, the number of Americans age 65 and older will double during the next 25 years. This huge population shift is being created by a combination of aging baby boomers and longer lifespans. Because of these changing demographics, you're likely to encounter more middle-aged and older clients who have developed an interest in personal fitness and health, but prefer a less-intimidating environment than the

local gym. In-home training gives you the opportunity to be a fitness entrepreneur by helping your clients exercise in the comfort and convenience of their own homes (or yours). Functional fitness training, which doesn't require large pieces of exercise equipment, allows for effective and versatile workouts in the home environment. It just takes a little planning and ingenuity on your part. Let's take a look at some key steps in developing a safe and enjoyable home workout program for these types of clients.

- **Perform a comprehensive health-history screening.** Baby boomer and older clients are more likely to be

in the moderate-to-high risk category, so you may need medical clearance and specific exercise guidelines up front. You have some discretion when deciding whether to obtain medical clearance for clients in the moderate-risk category, so err on the side of caution when working on your own in someone's home. Older clients may experience medical or orthopedic setbacks that take them out of action for a certain period of time. This is an opportunity to establish a relationship with your client's healthcare provider and obtain guidelines for re-entry into the exercise program.

## Basic Programming

### Warm-up

Instruct your client to warm up prior to your arrival or at the beginning of the training session. The older we are, the more time it takes for our bodies to transition from rest to exercise. Allow at least 10 minutes for a low-to-moderately paced cardiovascular activity. Your client could walk around the block, use at-home cardio equipment or perform a simple aerobic routine. If your client doesn't warm up ahead of time, provide a targeted warm-up by performing the first set of every exercise with no load or a light load.

### Core Training

Awareness and activation of the core is important at any age. It is possible to train the core musculature throughout the entire workout by constantly cuing your client to contract the transversus abdominus during a variety of exercises. This is particularly important the farther away that the arms or legs move from the center of the body, because that's when a lengthened lever arm most challenges the core muscles, making it easy to arch the back or lose the natural curves of the spine. For example, during a lat pull-down, cue your client to engage the abdominals when her arms are stretched overhead. If she is doing supine cycling, notice that she'll likely lose abdominal control when the legs are fully outstretched rather than when the legs are bent and closer to the body's center. Or, if your client is doing pec flies on the stability ball, remind him to engage the deep abdominals when the arms are out to the side by imagining he's going to be punched in the stomach. This will get him to initiate abdominal bracing.

The following sample progression provides specific core-strengthening exercises. Notice that you move from using the arms only, to legs only, to moving both arms and legs away from the body in combination. This gradually increases the difficulty of maintaining activation of the deep core musculature to provide spinal stabilization.

### Sample Core Exercise Progression

Instruct the client to engage his or her abdominals before the initiation of movement and during each exercise. Repeat the exercise movement slowly and smoothly for 15 to 30 seconds. Don't progress your client unless she can demonstrate consistent abdominal control. If you notice that your client moves into back hypertension/anterior pelvic tilt (pooching the stomach or arching the back), stop the exercise or provide a rest period.

- 1. Arms only.** Lift alternate arms overhead while maintaining abdominal control.
- 2. Legs table top.** Lift one leg off the floor to the "table top" position. Bring the other to "table top." Watch for pelvic rocking. Lower the first leg back to the floor followed by the second leg.
- 3. Alternate leg extensions.** Lift one leg off the floor to the "table top" position. Bring the other leg off. Slowly bring the first leg a few inches off the floor and extend fully. Bring back to table top position and repeat with the other leg.
- 4. Alternate leg extensions with alternate arms.** Perform alternate leg extensions, lifting opposite arm overhead simultaneously. Cue the client to engage the abdominals and avoid arching the back.






- **Scout out the environment for safety and utility.** Identify a well-lit space that's clear of tripping hazards. To protect both you and your client, always carry a first-aid kit. Also, know the location of the phone in case you need to make an emergency phone call. Make sure that your CPR skills are solid, so review the critical sequence of steps for dealing with a cardiac emergency. If your client doesn't have a land line, know how to access Emergency Medical Services from your cell phone.
- **Eliminate distractions.** Distractions are one of the biggest challenges with in-home training. It helps to plan ahead. Discuss with your client the fact that the session length will remain the same, regardless of whether your client is called away, so it's best to let other family members know

that this is "protected time." It is also good to plan on what to do about phone calls. You'll want to help your client anticipate problems—and solutions—for those work-outs that you're not supervising. Is the television a good companion or a distraction? Could music set the mood?

Cardiovascular conditioning, strength training, flexibility or range-of-motion exercises, and balance training all contribute to improved health and function as we age. However, you're likely to spend the majority of your time with clients on strength and flexibility training. This is particularly important for aging clients, because all soft tissues undergo age-related changes that are exacerbated by physical inactivity. These changes include muscle atrophy and weakness, decreased muscle blood flow, decreased hydration levels

that influence mobility and stiffness, a decline in the ability to repair injured tissue, delayed healing and changes to the intrinsic systems that contribute to balance.

Strength and flexibility training can slow this rate of decline, but it's important to appreciate that aging tissues require more care and recovery. In addition, the likelihood of your middle-aged clients having some old injuries or musculoskeletal ailments that may affect their ability to perform certain exercises is fairly high. Your client may also have developed postural compensations or muscle imbalances. A thorough assessment of posture, movement, strength and flexibility can help you maximize your client's time and efforts with carefully selected exercises to rebalance the body. If your client is experiencing pain, don't hesitate to refer him or her to a physician. 

## for In-Home Training

### 5. Alternate leg extensions with both arms overhead.

Begin with both arms overhead. Perform alternate leg extensions. This is very challenging, so watch for abdominal control.



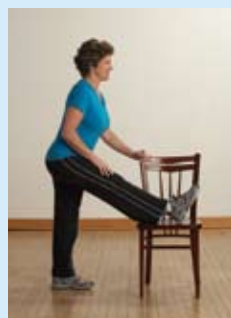
### Flexibility

Exercise selection should always be based on your client's unique needs. Optimize your client's response by experimenting with various positions until your client can feel the appropriate muscle tension without unduly stressing another area of the body. Consider, for example, the many variations on the hamstring stretch.

- **Lying hamstring stretch, with or without a stretching strap.** Lying in a supine position involves the lowest load on the discs of the spine; therefore, clients with disc-related low-back pain may tolerate this position better. Keeping the opposing knee bent can help to maintain normal spinal curvature. However, if the client has significant hamstring tightness, the amount of strength required to pull the leg forward will be tiring and she may benefit from a standing or sitting position.



- **Standing hamstring stretch with foot on a step or chair.** Correct position is critical to obtaining a good stretch, but this variation can be effective for those with



poor flexibility. If your client has osteopenia (mild bone loss) then the standing position provides a weight-bearing opportunity. Make sure your client keeps the hips square, tailbone lifted, shoulders back and the foot relaxed.

- **Hamstring stretch while sitting on a bench, firm couch or bed.** If your client has significant hamstring tightness and has difficulty getting up and down off the floor, this position might work well. This could also be a good position for clients who have osteoarthritis in the knee or hip and experience discomfort during a single-leg stance.



- **Lying bent-knee hamstring stretch.** Lying supine, pull one knee into the chest and then slowly extend that leg as far as possible until tension is felt in the proximal hamstring. This stretch is appreciated by runners who want a stretch closer to the hip.



For more information on **Boomers and Beyond**, ACE's new CEC course on in-home training, see page 2 or visit [www.acefitness.org](http://www.acefitness.org).

# New Package Developed for AARP Members

For those of you who haven't heard, ACE has developed an alliance with AARP as a preferred provider of personal training services to the organization's 39 million members. AARP is the leading nonprofit, nonpartisan membership organization for people age 50 and over in the U.S.

As an ACE-certified Professional, this alliance enables you to expand your client base and revenue potential with virtually no marketing on your part, while giving you access to America's fastest growing population segment.


Available only to ACE-certified Personal Trainers and Advanced Health & Fitness Specialists, the ACE Trainer Program is currently being co-marketed by AARP and ACE to AARP members through a variety of public relations and advertising efforts. Since its inception in August 2007, many professionals enrolled in the ACE Trainer Program have experienced satisfying results, seeing an increase in clientele and establishing successful trainer-client relationships.

"The program is going really well and I was amazed at how quickly I started getting responses [from AARP members]," says Jane Maile, an



ACE-certified Personal Trainer from Acworth, Ga. "I have a client who is very excited about the progress she's made in just two weeks."

To keep the momentum going, ACE and AARP have developed a two-week/four-session package available to all AARP members interested in training with an ACE-certified Professional. "We are very pleased about the program overall, but have found that a number of AARP members have been hesitant to sign up for an extended number of sessions because they aren't quite sure what to expect," explains Graham Melstrand, Vice President of Operations at ACE. He says the new package is designed to offer both the AARP member and ACE-certified Professional the flexibility to get to know each other and experience what personal training is about before moving forward with a longer-term training package.

For more details or to enroll in the ACE Trainer Program, visit [www.acefitness.org/aarp](http://www.acefitness.org/aarp). If you have specific questions about the program or the two-week/four-session package that aren't addressing on the Web site, contact ACE Professional Services at 800-825-3636, Ext. 781, or e-mail [aarpinfo@acefitness.org](mailto:aarpinfo@acefitness.org). 

## 2008 ACE-approved Conferences

ACE reviews and approves courses, workshops and conventions at which you can earn CECs. Call 800-825-3636, Ext. 781, or access the ACE Continuing Education Center online at [www.acefitness.org](http://www.acefitness.org) for a schedule of courses and workshops available near you.

DATE	EVENT	LOCATION	ORGANIZATION	CONTACT #	WEB
6/13-15	Perform Better Functional Training Summit	Long Beach, Calif.	Perform Better	800-556-7464	<a href="http://www.performbetter.com">www.performbetter.com</a>
6/27-29	Atlanta MANIA	Atlanta, Geo.	SCW Fitness Education	877-SCW-FITT	<a href="http://www.scwfitness.com">www.scwfitness.com</a>
7/8-12	2008 IDEA World Fitness Convention	Las Vegas, Nev.	IDEA	800-999-4332	<a href="http://www.ideafit.com">www.ideafit.com</a>
7/30-8/3	DCAC 17th Annual International Fitness Conference	Alexandria, Va.	DCAC	800-DCAC-551	<a href="http://www.dcacfitness.com">www.dcacfitness.com</a>
8/22-23	FIT PRO Seminars 2008	Albuquerque, N.M.	FIT PRO Seminars	505-803-9682	<a href="http://www.fitfundamentals.com">www.fitfundamentals.com</a>
8/22-24	Dallas MANIA	Dallas, Texas	SCW Fitness Education	877-SCW-FITT	<a href="http://www.scwfitness.com">www.scwfitness.com</a>
9/8-11	ACE Fitness Symposium	Las Vegas, Nev.	ACE	800-825-3636	<a href="http://www.acefitness.org">www.acefitness.org</a>
9/20-21	3rd Annual Midwest Strength, Conditioning & Rehabilitation Symposium	Chicago, Ill. (Northbrook)	Fitness Education Seminars	773-343-4012	<a href="http://www.fitnesseducationseminars.com">www.fitnesseducationseminars.com</a>
9/21-28	13th Annual Yoga Journal Colorado Conference	Estes Park, Colo.	Yoga Journal	800-561-9398	<a href="http://www.yjevents.com">www.yjevents.com</a>
10/3-5	Midwest MANIA	Chicago, Ill.	SCW Fitness Education	877-SCW-FITT	<a href="http://www.scwfitness.com">www.scwfitness.com</a>
11/7-9	Boston MANIA	Boston, Mass.	SCW Fitness Education	877-SCW-FITT	<a href="http://www.scwfitness.com">www.scwfitness.com</a>
11/13-16	ECA/THRIVE! Miami	Miami, Fla.	ECA	800-ECA-EXPO	<a href="http://www.ecaworldfitness.com">www.ecaworldfitness.com</a>
11/14-17	The 2008 Yoga Journal Florida Conference	South Florida, Fla.	Yoga Journal	800-561-9398	<a href="http://www.yjevents.com">www.yjevents.com</a>



# New CEC Courses Offer New Career Opportunities

There's been a lot of buzz lately about not only the growing opportunity of working with older-adult clients due to the large number of baby boomers, but also about working with special population groups overall—at any age.

It makes sense. The reality is that as we age, we are more susceptible to certain chronic diseases and musculoskeletal deficiencies. But individuals of every age may seek the services of a fitness professional for any number of special circumstances. This has increased the demand for fitness professionals who are well-versed in training clients who suffer from a variety of diseases and disorders.

ACE currently offers approximately 3,000 continuing education courses, the newest of which were developed to help you design safe and effective exercise programs for these special clients.

## **Fibromyalgia and Exercise 0.1 CEC**

Fibromyalgia is a chronic pain syndrome that affects an estimated 10 to 11 million Americans—primarily females between the ages of 34 and 53. Discover how fibromyalgia affects the lives of those who suffer from this multifactorial chronic illness and how a properly designed exercise program can play an essential therapeutic role.

## **Role of Exercise in Recovering from Psychological Disorders 0.1 CEC**

Learn about the signs and symptoms of depression, anxiety, anorexia and bulimia and how to work more effectively with clients facing these challenges. Discover how to design fitness programs that offer the most positive experience and outcomes.

## **Cancer and Exercise 0.1 CEC**

The American Cancer Society estimates that one-third of cancer-related deaths in 2006 involved poor nutrition, physical inactivity and/or obesity. This online course examines the role of exercise in cancer prevention and recovery as well as offers

points to consider when developing exercise programs.

## **Cholesterol and Exercise 0.1 CEC**


The American Heart Association estimates that 35.6 percent of Americans have high cholesterol or dangerous lipid profiles. Research has shown that exercise can play an important role in improving blood lipids and reducing stroke and cardiovascular disease—risk in individuals with abnormal cholesterol profiles. This course helps you understand how to work more effectively with clients who have abnormal blood lipids.

## **Diabetes and Exercise 0.1 CEC**

According to the National Diabetes Information Clearinghouse, 20 percent of Americans over age 60 and 10 percent of those over age 20 had diabetes in 2005. With the increasing prevalence of obesity and diabetes, personal trainers are more likely to have clients with this chronic disease. This course helps you understand how to work safely and effectively with clients diagnosed with type 1 and 2 diabetes.

## **Osteoporosis and Exercise 0.2 CEC**

Labeled as the “silent disease,” osteoporosis is quickly becoming a national public health threat for approximately 44 million American women and men age 50 and older. This course provides information on bone physiology throughout one's life and the causes of osteopenia and osteoporosis. In addition, you will review current research regarding the effects of nutrition, physical activity and medication on osteoporosis, and learn specific exercise program guidelines for adults at each stage of this debilitating disease.

To take these courses or search for other continuing education opportunities, visit [www.acefitness.org/continuingeducation](http://www.acefitness.org/continuingeducation). Or have your questions answered by a Professional Services Representative at 800-825-3636, Ext. 781. 




## **Computer-based Testing Now Available for Advanced Health & Fitness Specialist Certification**

Preparing for the Advanced Health & Fitness Specialist exam? If so, note that Computer-based Testing (CBT) for this accredited certification exam is now available!

CBT is offered at more than 275 testing centers throughout the U.S., offering flexible scheduling options, dates and locations. Plus, instead of waiting to receive your exam results, you leave the testing center with your results in hand. Following is a list of things to note about CBT:

- You may register for a CBT exam 15 to 90 days prior to an exam date.
- Registration will close and become unavailable within 15 days of a scheduled exam.
- Due to limited seating capacity at CBT sites, exam dates and times are subject to sell out.

For a complete list of CBT exam locations and dates, visit [www.acefitness.org/register](http://www.acefitness.org/register). Availability changes daily due to the large volume of registrations. Call 800-825-3636, Ext. 783, for registration information. 

WORKING TOGETHER, MAKING A DIFFERENCE.



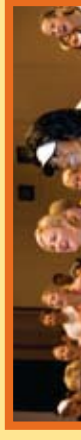
# FITNESS SYMPOSIUM08

ACE Fitness Symposium 2008  
September 8-11  
Las Vegas, Nevada

Join top fitness experts in fun and dynamic sessions, discover refreshing and creative ideas and learn the latest in sound science—all geared to advance your knowledge and enhance the value you bring to your clients.

## GAIN KNOWLEDGE

Earn up to 1.5 CECs over three days in sessions including workout nutrition; working with post-rehab clients; youth fitness; posture assessment; metabolism; fire fighting conditioning programs; “diabesity;” Web site design; and tips, tricks and workouts for kickboxing, plyometrics, Pilates, sports conditioning and more!





## BE INSPIRED

Keynote sessions delivered by Barry Franklin, Ph.D., and Kathy DeBoer, M.B.A., as well as inspirational stories from two of NBC's *The Biggest Loser* contestants who are now ACE-certified Personal Trainers! Additional sessions from Len Kravitz, Keli Roberts, Marjorie King, Peter Twist, Shannon Fable, Scott Cheatham, Cody Sipe, Chris Freytag and ACE's very own Cedric Bryant, Fabio Comana, Robyn Stuhr, Todd Galati and many more!



## MAKE A DIFFERENCE

Speak with ACE decision makers to let us know what you need to take your health and fitness career to the next level. You'll have every opportunity to develop long-lasting business relationships, create new friendships and peer networks, and learn what club owners and managers are looking for when hiring their staff.



## PRICING

	ACE PROFESSIONALS		MEMBER/AFFILIATE		NON-ACE PRO	
	Full	1-Day	Full	1-Day	Full	1-Day
Before 6/15	\$300	\$200	\$350	\$250	\$400	\$300
6/15-8/15	\$350	\$250	\$400	\$300	\$450	\$350
After 8/15	\$450	\$350	\$500	\$400	\$550	\$450

**Student Rate Available:** Are you an exercise science, kinesiology or recreation student? Attend the Symposium for only \$200. Please call a Customer Service Representative at 800-825-3636, Ext. 782, to register.

**Group Discounts Available:** Interested in bringing a group of trainers from your club or facility? Contact Brian Friedman for special pricing at 800-825-3636, Ext. 730.

## ALSO INCLUDED WITH YOUR REGISTRATION

### FREE Social Networking Functions

There's no such thing as a free lunch—except during the ACE Fitness Symposium! Enjoy the opening breakfast and network with both Symposium and IHRSA conference attendees during the Welcome Reception and Networking Lunch.

### The Fire Fighter CPAT—See How You Measure Up!

Go through portions of the IAFF Candidate Physical Abilities Test – just like new prospective fire fighter recruits. Participate in the hose drag, equipment carry and more!



### 4th Annual IHRSA Profitability Conference



The ACE Fitness Symposium is being held in conjunction with IHRSA's 4th Annual Profitability Conference. This conference gives owners and operators of independent facilities the tools to reach higher levels of financial success and professional satisfaction. For more information, visit [www.ihrsa.org/conference](http://www.ihrsa.org/conference) or call 800-228-4772, Ext. 183.

### 27th Annual National Fitness Trade Show



Anchored by the world's leading fitness equipment manufacturers, this event draws dozens of exhibitors. It's the premier environment to select, test and negotiate for the products and services that are right for you and your club.

## TRAVEL + ACCOMMODATIONS

### Rio All Suite Hotel & Casino

3700 W. Flamingo Road,  
Las Vegas, NV 89103  
Special Rate: \$139 Single or Double\*  
Phone: 888-746-6955  
[www.playrio.com](http://www.playrio.com)

\*Please contact the Rio directly and reference the group code SRACE8 for the ACE Symposium/National Fitness Trade Show. Special pricing available until August 27, 2008, per availability.

# REGISTER NOW

For the latest information, visit [www.acefitness.org/symposium](http://www.acefitness.org/symposium).

# CALENDAR OF EVENTS

## ACE Personal Trainer Practical Training

**Cost: \$299**    **CECs: 1.5**

During ACE's two-day, 15-hour course, you'll learn the critical areas of Fitness Assessment, Program Design, Upper- and Lower-body Strength Training and Flexibility Training.



### Fitness Assessment

Learn how to effectively administer a health history screening and appropriately conduct exercise assessment tests, collecting valuable information that can identify areas of possible health and injury risks and aid in the development of an exercise program.

### Program Design

Learn how to design and modify a safe and effective program for an apparently healthy adult.

### Upper-body and Lower-body Strength Training

Get hands-on training on how to instruct and spot clients as they perform upper- and lower-body strengthening exercises.

### Flexibility Training

Learn to demonstrate proper exercise execution and technique for each of the main muscle groups, as well as coach clients as they perform flexibility exercises, decreasing their chance of injury and enhance their exercise benefit.

### Practice Training Session

Spend time programming and executing an actual personal training session. This valuable hands-on experience will allow you to practice your program design, communication, instruction, and spotting skills as you take a client through portions of a mock personal training session you create.

### Personal Trainer Practical Training June 21-22, 2008

Ann Arbor, MI	Philadelphia, PA
Atlanta, GA	Phoenix, AZ
Boston, MA	Raleigh, NC
Chicago, IL	San Diego, CA
Denver, CO	San Jose, CA
Los Angeles, CA	Seattle, WA
Minneapolis, MN	Tampa, FL
New York, NY	Washington, D.C.



## AHA/AED Anytime Home Study Kit with Live Skills Check

**Cost: \$99**    **CECs: 0.4**

Heartsaver AED Anytime™ is a computer-based course that provides individuals with a flexible, research-proven alternative to the traditional, classroom-style Heartsaver AED Live Workshop. With the interactive format, you'll learn both CPR and AED, then simply complete a skills check in person to get your certificate.

### AHA/AED Anytime

**July 26, 2008**  
Atlanta, GA  
Boston, MA  
Chicago, IL  
Denver, CO  
Los Angeles, CA  
Oakland, CA  
New York City, NY  
San Diego, CA  
Washington, D.C.

**For additional information or to register, go to [www.acefitness.org/liveprograms](http://www.acefitness.org/liveprograms)**

## AHA Heartsaver First Aid with CPR & AED Training

**Cost: \$99**    **CECs: 0.6**

A first aid emergency can occur anywhere, including the workplace and within your community. The American Heart Association's Heartsaver First Aid with CPR and AED course teaches life-saving skills in an emergency until EMS arrives. This convenient course satisfies training requirements for CPR, AED and first aid in a single one-day course. The completion card is valid for two years.

\*The American Heart Association strongly promotes knowledge and proficiency in BLS, ACLS and PALS and has developed instructional materials for this purpose. Use of these materials in an educational course does not represent course sponsorship by the American Heart Association, and any fees charged for such a course do not represent income to the Association.



### Heartsaver First Aid CPR/AED Training

**July 26, 2008**  
Atlanta, GA  
Boston, MA  
Chicago, IL  
Denver, CO  
Los Angeles, CA  
Oakland, CA  
New York City, NY  
San Diego, CA  
Washington, D.C.

## Functional Training Workshop

**Cost: \$175**    **CECs: 0.8**

### Date & Locations:

July 26, 2008    Baltimore, MD  
Los Angeles, CA



Functional training continues to grow in popularity as the foundation for fitness and sports conditioning programs. Training to improve posture, movement efficiency and overall muscular performance related to a variety of activities defines functional training. Enhance your knowledge and applied skills with the latest tools and techniques in personal training to stay ahead of the game.

The one-day (8.5-hour) ACE Functional Training workshop teaches the important concepts of functional training by instructing personal trainers on how to:

- Conduct postural assessments and movement screens
- Develop core-training progressions
- Design exercise progressions for postural compensations
- Implement effective dynamic warm-ups
- Introduce sport-conditioning principles into your clients' training programs





# ACE Certified News Continuing Education Self-test

To earn 0.1 continuing education credits (CECs), you must carefully read this issue of *ACE Certified News*, answer the 10 questions below, achieve a passing score (a minimum of 70 percent), and complete and return the credit verification form below, confirming that you have read the materials and achieved a minimum passing score. In a hurry? Take the quiz online at [www.acefitness.org/cnquiz](http://www.acefitness.org/cnquiz) for instant access to CECs.

Circle the single best answer for each of the following questions.

- When planning outdoor classes, which of the following is NOT among the most important factors to consider?
  - Participants' safety
  - Weather
  - Time of day
  - Visibility to bystanders
- Athletes who adhere to a highly restrictive vegan diet may have a hard time consuming enough \_\_\_\_\_.
  - Carbohydrates
  - Protein
  - Fiber
  - Fat
- Which of the following is NOT one of the identified benefits of core conditioning?
  - Improving one's ability to better tolerate loading forces
  - Protecting the whole body from potential injury
  - Optimizing force production and load transfer through the trunk to the extremities
  - Improving balance, coordination, and dynamic postural strength and control
- Three-quarters of people who seek health information online say they check the source and date of that information \_\_\_\_\_.
  - Always
  - Almost Always
  - Frequently
  - Never
- A recent review of studies on older adults and exercise revealed that \_\_\_\_\_ are particularly effective for increasing older-adult activity.
  - Group activities and social support
  - Convenient, home-based workouts
  - Non-competitive, gentle workouts
  - One-on-one training sessions
- One of the biggest challenges of training clients in their homes is \_\_\_\_\_.
  - Finding a safe environment
  - Eliminating distractions
  - Developing effective workouts with limited equipment
  - Frequent rescheduling or cancellation of appointments
- Which of the following is NOT a recommended step to take before moving your group fitness classes outdoors?
  - Determine if you need permission to use public property.
  - Check to make sure your liability insurance covers outdoor classes.
  - Decide what equipment you will need and how to transport it to class.
  - Arrange for transportation for participants to the new location.
- Because plant proteins are not as readily digested as animal proteins, vegans should consume about \_\_\_\_\_ more grams of protein than non-vegan athletes.
  - 5 percent
  - 10 percent
  - 15 percent
  - 20 percent
- When designing a progressive core-conditioning program, the second stage of training should focus on \_\_\_\_\_.
  - Reactivating and developing neuromuscular pathways
  - Developing power under full postural and recovery control
  - Developing muscular endurance and strength of both layers
  - Improving proprioceptive awareness and reflexive responses
- According to some experts, vegan athletes may need to consider \_\_\_\_\_, if peak performance is essential.
  - Adding dairy and eggs to their diets
  - Consuming a higher-fat diet to ensure adequate calorie intake
  - Creatine supplementation
  - Taking fish oil supplements for optimal essential fatty acid intake

**Evaluation of credit offering:**

- Was material  New  Review for you?
- Was material presented clearly?  Yes  No
- Was material covered adequately?  Yes  No
- Will you be able to use the information learned from this credit offering in your profession?  Yes  No

If yes, how? \_\_\_\_\_

**Please attach business card, or type or print legibly:**

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 (e-mail required for electronic CEC confirmation receipt)  
 Business Phone: \_\_\_\_\_  
 Fax: \_\_\_\_\_  
 ACE Certification #: \_\_\_\_\_  
 Degree/Major/Institution: \_\_\_\_\_

I attest that I have read the articles in this issue, answered the test questions using the knowledge gained through those articles and received a passing grade (minimum score: 70 percent). Completing this self-test with a passing score will earn you 0.1 continuing education credit (CEC).

Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
 Change my address as shown at left. Effective date: \_\_\_\_\_

To receive ACE Credits, mail this page, with a \$15 **Processing Fee** for ACE-certifieds or \$25 for non-ACE-certifieds, to the following address:  
 ACE Correspondence Courses  
 American Council on Exercise, 4851 Paramount Drive, San Diego, CA 92123

**Payment Method:**

I've enclosed a check or money order made payable to the American Council on Exercise.  
 Please bill my credit card:  
 American Express®  VISA®  MasterCard®  
 Card Number \_\_\_\_\_  
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 Signature \_\_\_\_\_

An additional \$25 fee will be assessed on any returned checks.  
 Expires July 31, 2009

# How to Find Credible Research on the Web

Continued from page 15

of disclosing only partial results of a study, perhaps for the purposes of marketing.

## Best Bets for Finding Credible Web-based Health Information

We've already mentioned the usefulness of searching for research information with Google Scholar. Other search tools to consider are government-sponsored sites, such as PubMed (found at [www.ncbi.nlm.nih.gov/pubmed/](http://www.ncbi.nlm.nih.gov/pubmed/) or by Googling "PubMed"). PubMed is a service of the U.S. National Library of Medicine that links users to the MEDLINE database. This database contains abstracts and full-text articles from peer-reviewed life science and biomedical journals.

Remember the previous example about searching for credible information on "high-intensity interval training"? Typing this search


request into PubMed links you to approximately 217 abstracts in scientific publications, with the most recent studies listed first.

One caveat about PubMed: It contains mostly abstracts, which are paragraphs that sum up the study in about 100 words. To find more detailed full-text versions of a research paper, try visiting the publishing journal's Web site. You may be able to gain access to electronic journals with full-text articles through university or college libraries, as well. Or, consider contacting one of the researchers directly. Many abstracts include a researcher's contact information, and many researchers have PDF versions of full-text studies that they can quickly e-mail to you.

Finally, check out government sources such as the Centers for Disease Control and Prevention ([www.cdc.gov/](http://www.cdc.gov/)), the Food and Drug Administration ([www.fda.gov/](http://www.fda.gov/)), or the National Institutes of Health ([www.nih.gov](http://www.nih.gov)) for useful information on basic health- and disease-related questions. And don't forget to

visit Web sites from non-partisan, watchdog organizations such as ACE.

## Be a Professional

Your role as a health and fitness educator includes seeking out credible information for your clients and the general public. Spending a little extra time online to find the best and most accurate information for your clients will go a long way toward their continued success—and yours, too! 

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## Biomechanics of Assisted Stretching

Learn how to stretch clients using the three principles of force, where to **place your hands**, what direction to **apply force**, and how much **force to apply**.

- ✧ Live half and full day seminars
- ✧ ACE approved CE course
- ✧ Developed by Dr. Amy Ashmore

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