



**AMERICAN COLLEGE  
of SPORTS MEDICINE**



## Letter from the Editor

by Jeffrey A. Potteiger, Ph.D., FACSM

Welcome to the spring issue of *ACSM Fit Society*.<sup>®</sup> Page. Winter's thaw brings new opportunities to be active and exercise outdoors. Our feature on pedometers will help you to use these step-counting devices to enhance and build your new walking program. If new exercise techniques appeal to you, read the profile on yoga and Pilates. With both continuing to grow in accessibility and popularity, they are a good way to renew and energize your exercise routine. Also, we are highlighting ACSM's Consumer Information brochure series on selecting and effectively using a personal trainer and health/fitness facility. These products were created by experts to help you make decisions when investing in your health and fitness. Finally, be sure to read the profile on the role of physical activity in weight loss and weight maintenance. Also, check out the advice in the Q&A column, and read the latest on sports nutrition in Athlete's Kitchen.

We hope you enjoy this issue and consider using the tips and tools in *ACSM Fit Society*.<sup>®</sup> Page to enhance the health and wellness of you and your family. If you have any questions or comments, please be sure to contact us.

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## LATEST IN HEALTH & FITNESS

# Walkee Talkee: Answers to Pedometer FAQs

by Guy Le Masurier, Ph.D.



You know pedometers have “arrived” when they become the topic of conversation at social functions (or you are hanging around with physical activity nerds). Many people want to know about pedometers, and this information lets you “talk the walk” at any social function.

## Question #1: How do pedometers work?

Pedometers detect movements, such as walking, running, and hopping, that cause the hip to move up and down, and record these movements as steps. Most digital pedometers have an internal spring-mounted lever arm resembling an uneven teeter-totter. With each up and down movement, one end of the teeter-totter makes contact with a metallic surface, completing an electrical circuit and recording one step.

## Question #2: Are pedometers accurate?

Current pedometer models have step, distance, and calorie-counting functions. In general, pedometers are most accurate for counting steps, less accurate for calculating distance, and even less accurate at counting calories. Research has determined that not all pedometers are created equal. The most accurate pedometers are from Yamax, Kenz, New Lifestyles, and Walk4Life. If you have a different brand of pedometer, it does not necessarily mean that your pedometer is inaccurate. Everyone can check the accuracy of a pedometer by conducting a simple step test (see Table 1).

Researchers have discovered pedometers lose their accuracy at very slow walking speeds (<2mph), because the up and down movements at the hip are too small to trigger a step. In pedometer research lingo, pedometers are not “sensitive” enough to accurately detect steps during slow walking. Placement is another important issue to consider when discussing pedometer accuracy. Manufacturers of pedometers recommend that the devices be worn on the waist above the right knee, but people often like to wear the pedometer in other places (e.g., on the side or the back of the waist). Pedometers can be accurate when worn on

### Table 1: Pedometer ‘step test’ for accuracy

- Step 1: Put on pedometer and find a space where you can walk at your typical walking pace
- Step 2: Reset your pedometer so it reads ‘0’ and carefully close pedometer cover (if necessary)
- Step 3: Walk 20 steps
- Step 4: Carefully open pedometer (rough handling can cause erroneous steps)
- Step 5: Diagnosis
  - Perfect = 20 steps
  - Good = 19 or 21 steps (±5% error)
  - Acceptable = 18 or 22 steps (±10% error)
  - Unacceptable = ≤17 or ≥23

## Pedometer FAQs (continued from page 1)

other locations of the waist, but a step test should be used to check for accuracy.

### Question 3: How many steps/day should I take?

The Japanese slogan “10,000 steps/day” has gained popularity in America and many believe 10,000 steps/day is an appropriate step goal. However, when beginning a walking program, the 10,000 steps/day target can be difficult for people to achieve. Setting unrealistic goals can lead to disappointment and termination of the healthy behavior. Beginners should follow some basic steps to gradually increase their steps/day (see Table 2).

American pedometer experts have proposed a steps/day index for classifying the pedometer-determined physical activity levels of adults (see Table 3). Based on their pedometer-determined physical activity index, 10,000

**Table 2: Determining baseline steps/day and increasing steps/day**

Phase	Instructions
Step 1: Baseline Steps/day	Keep track of your steps/day over a typical 4-7 day period
Step 2: Benchmark	Make your daily step goal for week #1 the highest steps/day value (benchmark) obtained during the baseline steps/day phase
Step 3: Build	After week #1, try to add 500 steps/day each week until you meet your steps/day goal

steps/day appears to be an appropriate target for adults to work toward. It is difficult to accumulate 10,000 steps/day without engaging in some form of continuous physical activity. This is important because the national physical activity recommendation aimed at reducing chronic disease instructs all adults to accumulate at least 30 minutes of moderate physical activity (e.g., brisk walking) on most, if not all, days of the week. Ideally, adults should accumulate the 30 minutes in continuous bouts lasting at least 10 minutes. Research has demonstrated that adults who accumulate 10,000 steps/day are more likely to meet the 30-minute recommendation by engaging in continuous bouts of physical activity (i.e., 10-15 minutes).

### Question #4: Do all steps count?

Yes, but it is important to accumulate a

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## Q&A

This issue highlights a popular collection of Q&A from Bryan Smith, M.D., Ph.D.

### Q: What is the biggest obstacle for an adult to start an exercise program?

A: Commitment! Commit to finding time in one's schedule to make physical activity a priority. Commit to overcoming the embarrassment that you are not in very good physical condition. Commit to asking for help in designing an exercise program that fits your needs.

### Q: How about taking “natural” supplements to boost my metabolism?

A: These supplements contain stimulants that potentially can be harmful in sensitive individuals and in persons with heart, blood pressure, or metabolism maladies. For athletes, some of these substances may be banned by the sporting organization that sanctions events in which they participate. It's probably best to consult with a physician or nutritionist.

### Q: What are some ways parents can encourage their children to be more physically active?

A: Limit couch-potato activities such as watching television and playing video games. Identify physical activities that your child is interested in and foster participation by identifying a buddy to exercise with. Be an active role model, even if just walking or biking in the neighborhood. Have your child's physician provide an activity plan if needed.

### Q: Can too much exercise make you sick?

A: Studies have shown that people who exercise excessively can depress their immune function. This increases susceptibility to upper respiratory illnesses and other viral illnesses. During flu season, someone training heavily or in a competitive season may want to get immunized.

### Q: Why should one consider adding resistance training to a workout routine?

A: Maintenance of strength is important for normal healthy living. As we age, we can lose one percent of our strength per year after the age of 25. Strength training, as a component of an overall fitness plan, plays an important role in the development of fitness as well as prevention of injury.

### Q: How valuable is stretching in a training program?

A: Scientific studies have failed to conclusively demonstrate that stretching prevents injury. However, stretching does have some benefits. Flexibility is particularly important in most sports. ►

**Table 3: Steps/day physical activity index for adults**

Steps/day (Pedometer-determined)	Physical activity level
<5,000	Sedentary
5,000-7,499	Low Active
7,500-9,999	Somewhat Active
10,000-12,499	Active
>12,500	Highly Active

Based on the 2004 Sports Med article "How many steps/day are enough?" by Tudor-Locke and Bassett.

portion of your daily steps by engaging in continuous bouts (*i.e.*, at least 10 minutes) of moderate and/or vigorous intensity physical activity. As mentioned, adults can meet the national physical activity recommendation by accumulating 30 minutes of brisk walking in three 10-minute bouts. A 10-minute bout of brisk walking will register around 1,200 steps. Therefore, if you took three 10-minute brisk walks you could accumulate an additional 3,600 daily steps. All other steps will add to your total daily step count and move you closer to 10,000 steps/day, the 'active' pedometer-determined physical activity level (*see Table 3*).

Pedometer companies understand the importance of accumulating continuous bouts of moderate physical activity and have developed new pedometers to capture continuous moderate physical activity. The Omron HJ-112 has an "aerobic steps" function that calculates the number of steps that exceed 60 steps/min for more than 10 consecutive minutes. For example, if you walk 20 minutes at a rate of 120 steps/min, you would accumulate 2,400 aerobic steps. Adults should aim for at least 3,600 aerobic steps in order to meet the 30-minute recommendation.

Other pedometer companies are working on steps/min and physical activity bout functions. The steps/min function helps people determine walking intensity. Steps/min values of 120 steps/min qualify as moderate physical activity for most adults. The "physical activity bout" function will add up the number of continuous physical activity bouts accumulated throughout the day. For example, if you walk for 10 minutes at a rate of 100 steps/min, a "1" registers on the pedometer display. As you accumulate additional continuous bouts of walking, the number of physical activity bouts registered on the display increases (*e.g.*, 2, 3, 4, *etc.*).

## FEATURE

# Mind-Body Exercise: Yoga and Pilates

by Leigh Crews, RYT



Yoga and Pilates are the dynamic duo of the fitness world right now. For people seeking a rewarding new workout, these disciplines have a lot to offer. Participants seem to agree. According to a recent industry survey, 60 percent of responding program directors now offer yoga and 63 percent offer Pilates. The survey also shows that both programs are expected to continue growing in popularity. This article offers an overview of the two disciplines and some tips on finding the right program and instructor for you.

## Yoga

Yoga is a centuries-old practice that includes a spiritual component supporting its holistic approach to fitness, nutrition, and lifestyle. Studies have shown that yoga is a powerful tool for reducing stress, lowering blood pressure, improving concentration and balance, and increasing muscular strength, endurance and flexibility. The movements of yoga have crossed over into traditional group fitness classes, but complete yoga practice can also include breathing techniques, chanting, and meditation as well as exercise. Yoga has many styles, ranging from mild and therapeutic forms to the very vigorous forms which are so well known, such as hot yoga

and power yoga. People at any level of fitness can find and explore an appropriate style of yoga.

## Pilates

Pilates was created in the early 20th century as a physical conditioning system concentrating on development of the core of the body, or in Pilates' terms, the Powerhouse. While a healthy lifestyle is encouraged, it is not an integral part of the program. The focus is on the physical in this very ordered and methodical approach to training. For years, dancers have depended on Pilates to give them the lean, sculpted bodies they require for their art.

Regular Pilates practice increases muscular strength and endurance, improves posture, and increases flexibility. Since the primary focus is on the core, strong abs and back muscles are a major benefit of Pilates work.

## "Mind-Body" Programs

Both yoga and Pilates are considered "mind-body" programs, meaning that participants should be mentally focused and introspective as they perform the exercises. Both are slower than traditional calisthenics, and both coordinate breath with movement. Also common to both is the use of props. Yoga incorporates the use of blocks, blankets, and straps, while Pilates uses small props such as the Magic Circle or larger apparatus such as the Pilates Reformer. Yoga and Pilates can both be done one-on-one or in a group setting.

Yoga and Pilates have much in common, but it may be the differences that are of more importance in choosing the program that is right for you. One of the most significant differences lies in structure. Whereas yoga is more contemplative and can be loosely structured, Pilates is more regimented. Pilates is done by sets and reps in a very ordered and precise way. Yoga, while it does have an innate order, is more organic and free-form.

## Selecting a Program

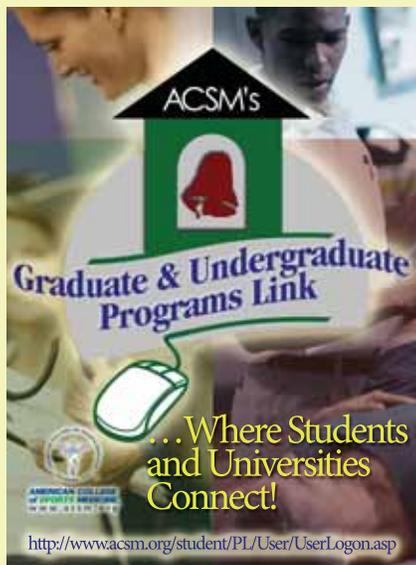
Individuals seem to choose between yoga or Pilates based on which method they feel complements their personality, with "Type A's" generally gravitating toward Pilates or the more powerful and physical types of yoga. More mellow personality types tend to choose the gentle yoga disciplines. Less intuitive, but perhaps more beneficial, might be the path that seems opposite to the dominant aspects of personality as a way of bringing balance to life, as with the athlete who comes to appreciate the softness and flow of yoga as a counterbalance to the hardness and regimentation of competition. ➤

Whether you choose yoga or Pilates, or perhaps both, it is of primary importance to find a qualified instructor. Both modes of exercise require in-depth training to fully grasp the range of the subject. Well-trained yoga and Pilates teachers are expected to have a thorough knowledge of anatomy, human movement, and exercise physiology, as well as the individual specialties of the discipline. Schools and training courses vary in the depth and quality of instruction they offer. Some courses last a day or a weekend. Others last for months or years and may require an apprenticeship before certification is achieved. How do you choose?

The Yoga Alliance is a non-profit organization whose mission is to lead the yoga community, set standards, foster integrity, provide resources and uphold the teachings of yoga. A searchable database is available on their Web site, [www.yogaalliance.org](http://www.yogaalliance.org), where students can find instructors who meet the training requirements of the Yoga Alliance. Teachers are listed at the minimum 250-hour level of training or at the 500-hour level.

The Pilates Method Alliance, [www.pilatesmethodalliance.com](http://www.pilatesmethodalliance.com), also offers a searchable database to help you find qualified teachers, as well as guidelines for training standards and a list of questions to ask your Pilates instructor that will help you confirm his or her qualifications. The mission of the Pilates Method Alliance is to protect the public by establishing certification and continuing-education standards for Pilates professionals.

With a little knowledge and footwork, it should not be difficult to find a yoga or Pilates class near you and begin to enjoy these effective methods of exercise and self-improvement.



## FEATURE

# The ABCs: About Body Composition

by Thomas S. Altena, Ed.D. and Steven D. Ball, Ph.D.



The importance of body composition measurements has reached an apex in the minds of researchers, healthcare providers, and the general public in light of heightened awareness of the obesity epidemic in America. The Body Mass Index (BMI) is a calculation commonly used to distinguish proper body weight for a person's height. Although BMI is a quick method for identifying weight classifications, it does not distinguish between fat and lean body tissues. Understanding the amount of total body weight that is fat and lean tissue provides greater health information compared with BMI alone. A plethora of body composition tests exist for estimating body fat, and each method has a list of positive and negative attributes. Recent technological advancements have improved accuracy in some tests, but each method is still only an estimation of body fat, and each method has its own inherent problems; thus, not every body composition test is appropriate for each person. Although all body composition methods have the same goal, each unique test can provide results that are very different from other methods. questions frequently asked of professionals often relate to the best methods, the newest technology, and which method produces the most accurate results.

## Types of Tests

All body composition tests for living humans must be considered estimations, as they are indirect measurements of body fatness. The only direct measurement of body fat percentage is human cadaver analysis, which is impractical for obvious reasons. The laboratory technique of hydrostatic weighing (HW), also known as underwater weighing,

has been revered by professionals as being the "gold standard" method, but newer methods such as dual-energy X-ray absorptiometry (DXA) are convincing many professionals to promote them as being the new standard. Another laboratory method is the BOD POD, which is similar to the principle behind the HW method, but uses air displacement rather than weight underwater. Other methods categorized as field tests include bioelectrical impedance analysis (BIA) and skinfolds (SF). These field tests are frequently used because they are easy and inexpensive to perform compared with other methods.

Before any measurements are collected, a professional must weigh the pros and cons of each test as related to the subject being tested. Performing HW is a grueling procedure. The person tested is repeatedly immersed fully underwater after blowing all air out of the lungs, remaining perfectly still for approximately 10 seconds. HW is not an easy test, and many people do not volunteer repeatedly for it. The DXA method is not without problems either. DXA exposes a person to low amounts of radiation during a whole-body X-ray that distinguishes tissue densities. DXA also requires a trained technician and an expensive piece of equipment. Problems with BIA relate to how much food and drink a person has consumed; thus, BIA should be performed in the early morning hours after an overnight dietary fast. The SF method, if performed properly, produces values approximately  $\pm 4\%$  from those obtained from HW. The accuracy and accessibility of SF makes it a very popular method. Accuracy of SF values hinge upon the experience of the person performing the test, which is related to the correct anatomical SF locations, and the amount of skin pinched. SF might not be the best test for people who are visibly overfat because of the difficulty of pinching proper amounts of skin. Obviously, each body composition method has problems.

## Body Composition for You

Most local fitness gyms and commercially-available weight maintenance groups offer body composition tests with SF and/or BIA. Some universities might be able to provide testing with HW or BOD POD either through physical education or exercise science departments, and some university athletic departments also have these methods. As the BOD POD still is relatively new and expensive, this technology might not be available in your location. DXA is the most expensive and is usually found in hospitals. Universities that have BOD POD or DXA might charge a fee for the service, or

you could potentially be a subject in ongoing university research.

One of the keys to body composition testing is to avoid getting caught up in the actual values, believing that they are perfect all the time. Understand that body composition values depend on which method is used, the experience of the person performing the test, and the appropriateness of that method for the specific subject. With the exception of DXA, there is no best body composition method for all people. Many people track their body composition, performing repeated measurements over a long period of time to see changes. If tracking is performed, make sure that the same method is used, and by the same person. Consistency is important. Do not get lost in the calculated percent fat values. Over time, observe whether small changes occur with individual measurements. Not changing body composition values over time is half the battle. As long as the testing method is consistent, reducing body composition values over time is truly winning the body composition war.

## FEATURE

# Weighing In on Losing Weight

by Marla M. Graves, Ph.D.



## Exercise and weight loss/weight maintenance

Most people know they should exercise, and most people know exercise facilitates weight

loss. So, why do so many people choose not to exercise? The responses to that question are as numerous as the people who don't exercise. When it comes to weight loss, most people are looking for a quick fix. People fail to understand becoming overweight and obese has a "creeping" effect. We didn't just wake up one morning 20 pounds overweight; it took us five to ten years to add those extra pounds. Adding one pound of fat requires the addition of 3,500 kcal. Though that may sound like a lot of calories, unfortunately, it is relatively easy to add a large number of calories to our diet, even on a daily basis, considering a single fast-food meal can contain 1,500 or more calories.

## What role does exercise play in weight loss?

Understanding weight loss, weight gain, and weight maintenance from a physiological standpoint is fairly easy: we gain weight when we consume more calories than we expend, and we lose weight when we expend more calories than we consume. We maintain weight when our energy intake and output are approximately equal. Physical activity has the potential to play a large role in the energy expenditure side of this energy balance equation. The amount of energy we expend on a daily basis is influenced by three main components: resting energy expenditure or resting metabolic rate (RMR), thermic effect of food (TEF), and physical activity energy expenditure (PAEE). Our RMR is the energy we need for all body systems to run throughout a day. RMR is influenced by age, gender, and lean muscle mass, and is fairly constant. The TEF is the energy it takes to digest, absorb, and store food. Though TEF varies depending on your food choices, it accounts only for roughly five to ten percent of calories burned in a day. The final component is PAEE. Of the three components, this is the one we have the greatest ability to alter. PAEE increases or decreases depending on the amount of activity we choose to do each day. You can make a significant impact on the amount of calories you expend by choosing to take the elevator versus taking the stairs throughout the day, or walking for 30 minutes versus sitting and watching TV for the same amount of time.

## What is safe weight loss?

Like weight gain, weight loss is a slow process. It comes about as we make a conscious effort to increase day-by-day, week-by-week, the amount of physical activity in which we engage. Because it is difficult to burn large amounts of calories through physical activity for unfit or overweight individuals, ACSM recommends combining exercise with a decrease in the

amount of calories consumed in your diet. "Dieting" as it is commonly known, is not what is recommended; what is recommended is to examine certain parts of your diet that can be altered that will result in a decrease in the amount of calories and fat that you consume on a daily basis. These alterations do not have to be drastic, and it is probably better if they are not. We have a tendency to relapse into our old eating habits when we try to make too many changes at once. Simple changes, such as going from whole milk to one percent or skim milk, cutting down the number or eliminating soft drinks, or opting for a piece of fruit instead of a candy bar, all contribute to cutting calories and fat.

As mentioned previously, weight loss is a slow process. The general recommendation for weight loss is no more than one to two pounds per week. When weight comes off slowly, we have a better chance of keeping it off, and we know it's not just the result of lost water weight or crash dieting. The more activity you do, both in the form of scheduled exercise and spontaneous activity, the more calories you use each day. ACSM guidelines for individuals focused on weight loss call for exercise most days of the week (minimum of four days), expending 200-300 calories per session. If you've ever attempted to burn at least 200 calories during a workout, you know this is not an easy feat if you're unfit. Also, for most beginning exercisers, burning this many calories in one workout requires a lengthy workout. For this reason, many people find that they need to split workouts into two sessions per day. The body doesn't care when the calories are burned as long as they are burned. So, instead of walking for 40 minutes once a day, you can opt for two 20 minute sessions. As long as intensity is held constant, both workouts should result in the same amount of energy being expended.

## What about intensity of exercise?

There are myths surrounding exercise intensity and losing body fat. One of the most common myths is that to lose body fat it is better to work at a lower intensity as opposed to a higher intensity (i.e., it's better to walk than to jog). The truth is that while you do burn a higher percent of calories from fat when you walk compared to when you jog, you burn a higher total number of calories from both fat and carbohydrates when jogging compared to walking. Moral of the story: the higher the intensity, the more total calories you will burn. However, high-intensity exercise is not safe for everyone; many people must start at lower levels of intensity because of physical limitations or

risk of injury. Before beginning any exercise program, you should consult your physician and gain approval for the type of exercise you want to implement into your program. Even for apparently healthy, young individuals, starting at lower/moderate intensities is recommended when beginning any new exercise modality.

### What types of exercises are the best for weight loss?

Any type of activity is better than no activity, but if weight loss is your goal, your focus should be on aerobic exercise. Aerobic means “with oxygen.” These exercises should involve large muscle groups and be continuous in nature. You should work your way up to being able to perform these activities a minimum of 20 minutes per session. Your goal is to keep your heart rate elevated in your target heart rate zone\* during this 20-minute session. Walking, cycling, swimming, and aerobics are all great options. Though sports such as softball and volleyball are excellent leisure activities, they do not allow us to keep our heart rate in our target zone for extended periods of time, and therefore they do not have the same effect as an aerobic workout.

For most of us, weight loss is not easy. It is a slow process that forces us to make changes to behaviors that we’ve spent years (maybe even our whole life) developing. However, it is important to remember even small changes in body weight and increased activity can be meaningful in terms of heart health and reducing your risk for premature morbidity and mortality. Continuing to lead a sedentary lifestyle may literally be costing many Americans years of their life.

\*Target heart rate is determined using the following formula:  
220-age = max heart rate (MHR)  
MHR – resting heart rate (RHR) = heart rate reserve (HRR)  
HRR x 60% + RHR = lower end of target zone  
HRR x 85% + RHR = upper end of target zone

\*\*Estimates of Energy Expended for Various Physical Activities (kcal) over 20 minutes. Values are for a 154-lb (70-kg) man and a 121-lb woman (55-kg)

Activity	Men	Women
Basketball	172	136
Cycling (7.0 mph)	100	78
Running (7.5 mph)	280	220
Sitting	34	26
Standing	36	28
Swimming (crawl) (3.0 mph)	400	314
Walking (3.5 mph)	100	78
Weight lifting (circuit training)	164	128

Adapted from Wilmore and Costill's Physiology of Sport and Exercise (2nd ed). Human Kinetics, Champaign, IL.

## THE ATHLETE'S KITCHEN

# Dietary Guidelines: The Link to Longevity

by Nancy Clark, MS, RD



You've heard it before. The U.S. government wants you to pay attention to your food choices. The recently released 2005 Dietary Guidelines encourage you to:

- eat more fruits, vegetables, nuts and whole-grains
- choose less saturated and trans fats, and
- exercise 60 minutes per day.

Putting these Dietary Guidelines in the context of our genetics and the evolution of man, you'll notice we are very far removed from living and eating according to nature's original plan.

### The Changing Landscape

Our food options have changed through the centuries. About 72 percent of the calories consumed by people in the U.S. are from foods that never existed in Paleolithic diets: refined sugar, artificial sweeteners, white flour, high fructose corn syrup, and shortening (trans fats). Questions arise: Are humans designed to thrive on donuts, sugary cereals, potato chips, soft drinks, fast-food sandwiches, and ketchup? Or is that one reason why we are now confronting the “diseases of civilization”? Almost 40 percent of all deaths are due to heart disease; 25 percent are due to cancer (of which one third are related to nutrition).

Our activity patterns have also changed; our daily lifestyle lacks physical activity. We no longer need muscles to roll down the car window, open the garage door, or change the TV station. We can just push a button...and too easily be too sedentary for our own good. This includes children who sit in front of the TV.

### Aging Healthfully

Every one of us gets older every day. If your goal is to have the body and health of a 39-year-old when you are in your 80s, you need to consciously make that happen. Although as high school and college athletes, you likely considered yourself bulletproof, by the time you reach mid-life, you may be starting to feel more vulnerable. You watch your parents die of heart attacks; your classmates succumb to cancer. You feel your joints ache.

Not even the healthiest marathoner or the strongest triathlete among us is bulletproof. Hence, the time to make dietary changes is now—before you have the heart attack, hear the words “cancer,” or break a bone due to osteoporosis. The purpose of this article is to encourage you to stay active and fuel your body by eating closer to the earth, closer to the food choices of our long-ago ancestors, closer to the Dietary Guidelines, farther away from refined sugar, trans fats and sodium-filled processed foods.

### Refined sugar

Sugary snacks and cereals, soft drinks, sports drinks and gels are just a few examples of refined sugar. In the year 2000, the average American consumed 152 pounds of sugar. That's about 400 calories of sugar per day! In contrast, early man consumed no refined sugar. Some athletes drink sports drinks non-stop—200 sugar-calories per quart. Suggestions:

- Keep a bottle of plain water on your desk so it's ready and waiting.
- Limit your intake of sports drinks to during exercise that lasts longer than one hour. (No one needs a sports drink for lunch.)
- Recover from workouts with water and the natural sugars from watermelon, orange juice, strawberries, and watery fruits.
- Prevent sugar cravings by eating bigger breakfasts and lunches. (You won't get fat from eating more at these meals; you'll simply curb your afternoon urge for sugary snacks like cookies and candy.)

### Trans fats

Industrialization is responsible for the creation of trans fats—the processed, partially hydrogenated fats that are in

commercially baked and fried foods. Trans fats offer a pleasing texture to baked goods and prolong their freshness. But trans fats rarely, if ever, are found in natural foods and our bodies don't like them. Trans fats create an inflammatory response that contributes to heart disease and cancer. They are health-eroding. Suggestions:

- Trade in store-bought muffins and donuts for whole-grain breads and bagels.
- Eat heartier lunches (salad AND sandwich, not salad OR sandwich) so you'll be content to have an apple for dessert, instead of apple pie (trans fat-filled crust) or crunchy (trans-fatty) chocolate chips cookies.
- Snack on nuts, dried apricots, or yogurt.
- Skip the fried chicken, French fries, and other fast but fatty foods that clog your arteries.

## Salt

The typical American diet offers 1.5 teaspoons of salt per day; that's about 3,750 mg sodium (and more than the recommended 2,300 mg). This includes the salt in processed foods, cooking and what's added at the table. Most of our sodium intake comes from processed foods: canned spaghetti (1,980 mg/can), ramen noodles (1,700 mg/packet), American cheese (360 mg/slice), commercial salad dressing (300 mg/2 tablespoons). Only 10 percent of our salt intake comes from the sodium in natural foods (65 mg per egg; 125 mg per 8 ounces of milk).

In the Stone Age (2.6 million years ago), hunter-gathers survived with little or no salt added to their food. Questions arise: Were our bodies designed for today's high salt intake? Or is this a reason we are plagued with hypertension, strokes and cancer?

For athletes who exercise for more than four hours straight (for example, during a triathlon), sodium is deemed necessary to replace that lost in sweat. Athletes who experience muscle cramps are told to increase their sodium intake to alleviate the problem. But if these athletes never consumed lots of salt in the first place, would they be better off? Some health professionals believe so.

## Costs and Benefits of Dietary Changes

The typical American diet is tasty, convenient and comforting amidst the stresses and stains of our too-busy lives. But the costs are mounting: Escalating health insurance premiums. Obese people who crowd the hospitals. Children who never get to meet their grandparents.

Today is the time to start making a few dietary changes to bring you closer to the earth. For example, drink more orange juice, less orange soda. (Better yet, eat more oranges.) Each day, you can make a few choices that reduce your intake of refined sugar, trans fats and sodium-laden processed food. You'll enhance your likelihood for better health when you are 80. Even fit athletes can succumb to the diseases of civilization.

*Author note: Much of the information in this article is from Loren Cordain: "Origins and evolution of the Western Diet: health implications for the 21st century." Am J Clin Nutr 81:341-54. Feb 2005*

## ACSM CONSUMER INFORMATION BROCHURE SERIES

# Selecting & Effectively Using a Personal Trainer



It has been firmly established that individuals who engage in some form of physical activity, either by lifestyle or occupation, are likely to live longer and healthier lives. Research shows that even moderate caloric expenditure from physical activity has a significant impact on longevity. A physically active person who possesses risk factors like hypertension, high cholesterol, diabetes, and even a smoking habit can derive significant gains from incorporating regular physical activity into his/her daily activities. Regular physical activity is also likely to help modify a number of risk factors. As an adjunct to weight loss, exercise is likely to help you stay on a diet and lose weight. Additionally, regular exercise is associated with reductions in blood pressure, improved glucose

regulation, promotion of better lipid profiles and stronger, denser bones.

## Benefits of a Personal Trainer

A qualified and properly trained personal trainer can help you safely start and maintain an effective exercise program. A personal trainer will understand your fitness goals and help you achieve them. A personal trainer can be a great source of motivation and encouragement, as well as a resource for the latest objective health and fitness information. He or she can also help you fit exercise into your busy schedule and teach you how to make the most out of your time in the gym. But beware! The title "personal trainer" does not guarantee that a person is qualified to do the job. Currently, there is no national standard or minimum requirement for carrying this job title. Working with an under-qualified trainer could actually threaten your safety. This brochure will arm you with the knowledge of what to look for when seeking a personal trainer that is educated, qualified, and most-importantly, right for you!

## Locating a Personal Trainer

Begin by asking about personal trainers at a health club or fitness facility. Many fitness facilities have in-house personal trainers available to you. Consult [www.acsm.org](http://www.acsm.org) or call ACSM at (317) 637-9200 to ask about the appropriate qualifications for personal trainers. Also at [www.acsm.org](http://www.acsm.org), you can use ACSM's Pro Finder, an online database of ACSM-certified professionals. Personal trainers will also be listed in the phone book under such headings as: "Personal Trainers," "Health Clubs," "Exercise," and "Physical Fitness."

## Choosing A Personal Trainer

### Experience

- How long has he or she been a practicing personal trainer?
- What types of clients does he or she work with? Look for a trainer that works with individuals who are similar to you demographically (age, gender, exercise history, etc.) and whose goals and objectives are similar to yours.

### References

- Can he or she provide you with a list of current and past client references, including their contact information?
- Can he or she provide you with a current resume?
- Can he or she provide you with other professional references, such as past or current employers (if applicable), or of

other reputable personal trainers that can comment objectively on his or her knowledge, skills, and abilities?

### Certification

- Does he or she have one or more, relevant and current certifications from nationally-recognized organizations?
- Can you verify their certification(s) with the certification organization(s)? Most, if not all organizations will have a verification service, allowing you to either call or search online to confirm the credentials of their certified professionals.
- Is he or she currently certified in CPR? Also, depending on your level of comfort, is he or she currently certified in first aid, and the use of automatic external defibrillators (AED)?
- Does he or she have current professional liability insurance?

### Education

- Does he or she have formal academic training?
- Specifically, does he or she have evidence of a certificate or degree in exercise science, kinesiology, exercise physiology, physical education, or a related health and fitness field?

Generally, the following types of evidence for academic training and their associated duration of program study are as follows:

- Certificate (usually 3 to 18 months in length)
- Associate's Degree (usually 1 to 2 years in length)
- Bachelor's Degree (usually 4 years in length)
- Master's Degree (usually 1 to 2 years in length above and beyond a bachelor's degree)
- Ph.D. (usually 4-6 years in length above and beyond a bachelor's degree)

### Resource Network

Does the trainer work with a network of other health professionals? The trainer should be aligned with other health professionals as sources for answering specific questions and for referrals outside his or her area of expertise. Some of the health professionals a personal trainer can be aligned with include: physicians, physical therapists, nutrition specialists, and other professionals with expertise in fitness.

### Personality and Gender

- Would you prefer a male or female trainer?
- Do you like the trainer's personality? Will he or she be a good fit for your personality and your fitness goals?
- Is the trainer friendly and open to answering questions?

- Does the trainer communicate well and explain exercises in an easy-to-understand manner?
- Will the trainer motivate you to exercise and make you want to continue your program?
- The trainer should motivate you without being intimidating or pushing you beyond reasonable fitness limits.
- Is the trainer sensitive to your needs?
- Are you comfortable with the trainer?

### Personal Training for Children and Adolescents

If you are choosing a personal trainer for your son or daughter, the trainer should have a good understanding of the unique characteristics of young people.

- Does he or she relate to and communicate well with young people?
- Has he or she trained young athletes before?
- Is the trainer aware of special sports medicine needs and training precautions for young athletes?
- Does the trainer understand the specific needs for the sport in which your son or daughter participates? At the same time, does the trainer advocate a well-rounded fitness program?
- If your son or daughter is not an athlete and just wants "to get into shape," does the trainer understand the guidelines for training young people?

### Fees

- What does the personal trainer charge?
- How long is each session?
- What services are included in the price?
- Is there an additional gym membership fee?
- Are there package or long-term package prices?
- Does the trainer require you to sign a contract for long-term training?

The fees personal trainers charge may vary according to qualifications, experience, location, length of session, and sometimes the specialization of the workout. Typically, a personal trainer will charge \$20 to \$100 an hour. Some trainers will offer reduced hourly rates for long-term packages or prepaid sessions.

### Scheduling, Cancellation Policies & Business Practices

- Is the trainer available to meet your schedule?
- What is the cancellation policy?
- Will you be charged if you do not cancel within a certain time frame?

The trainer should provide you with a written copy of all policies on contracts,

billing, scheduling, and cancellations. Hiring a personal trainer is an investment in your health, fitness, and quality of life, as well as an investment of time and money. Make sure the trainer has a good reputation, proper education and certification(s), and is well respected by other trainers and clients. The trainer should conform to all relevant laws, regulations, and published standards, including United States federal laws (ADA and OSHA), and local government laws and regulations.

### Special Needs

The trainer may or may not be able to accommodate special needs. Ask questions to see if he or she can meet your needs regarding modification of equipment and/or programs.

### Important Points to Remember

Ask a lot of questions so that you will have accurate information. Making an informed decision can help you avoid making a wrong decision, which may end up costing you money. There are many considerations that you should investigate prior to hiring a personal trainer. These considerations do not ensure the exercise program with a personal trainer will be risk-free, or that you will be satisfied with the trainer or the program(s). But, these guidelines can help you make a decision based upon industry standards. Your exercise program should be part of your lifestyle, and the trainer you choose can play a major role in the success of your program. Selecting a professional and qualified personal trainer is a sound investment for your health.

### A Complete Physical Activity Program

*There are three principal components to a rounded program of physical activity: aerobic exercise, strength training exercise, and flexibility training. It is not essential that all three components be performed during the same workout session. Try to create a pattern that fits into your schedule and one to which you can adhere. Commitment to a regular physical activity program is more important than the intensity of the workouts. Therefore, choose exercises you believe you are likely to pursue and enjoy. ACSM's Position Stand "The Recommended Quantity and Quality of Exercise for Healthy Adults" ©1998 states that aerobic training should be performed three to five days per week with a minimum of 20 minutes per day. Remember, if your schedule is tight, it is better to exercise for a shorter period of time than not at all. Typical forms of aerobic exercise are walking and running (treadmills), stair climbing, bicycling (bicycle ergometers), rowing, cross-country skiing, and swimming. Many devices offer a combination of these motions. For general purposes, strength training should be done two to three times per week. Strength training is performed with free weights or weight machines. For the purposes of general training, two to three upper body and lower body exercises should be done. Additionally, abdominal exercises are an important part of strength training. Flexibility training is important and frequently neglected, resulting in increased tightness as we age and become less active. Stretching is most safely done with sustained gradual movements lasting a minimum of 15 seconds per stretch. At a minimum, strive to stretch every day. This brochure is a product of ACSM's Consumer Information Committee and was reviewed by the ACSM Committee on Certification and Registry Boards.*

# Selecting and Effectively Using a Health/ Fitness Facility



The First Step! Before you begin an exercise program, take a fitness test, or substantially increase your level of activity, answer the questions below. This physical activity readiness questionnaire (PAR-Q) will help determine your suitability for beginning an exercise routine or program.

- Has your doctor ever said that you have a heart condition and that you should only participate in physical activity recommended by a doctor?
- Do you feel pain in your chest during physical activity?
- In the past month, have you had chest pain when you were not doing physical activity?
- Do you lose your balance because of dizziness, or do you ever lose consciousness?
- Do you have a bone or joint problem that could be made worse by a change in your physical activity?
- Is your doctor currently prescribing drugs for your blood pressure or heart condition?
- Do you know of any reason you should not participate in physical activity?

If you answered yes to one or more questions, if you are over 40 years of age

and have been inactive, or if you are concerned about your health, consult a physician before taking a fitness test or substantially increasing your physical activity. If you answered no to each question, you have reasonable assurance of your suitability for fitness testing and training.

## Selecting a Facility

According to the International Health, Racquet and Sportsclub Association (IHRSA), there are more than 17,000 health clubs in the United States with a total membership of more than 33 million individuals. These facilities can offer an attractive, safe, and effective venue for exercise and health promotion. The quality of the facilities, staffing, and programs varies greatly; therefore, you will want to evaluate the facility before making your decision. It is important to understand that you could actually be putting yourself at risk of harm if you select a facility that does not provide a safe environment, adequate screening, a properly trained staff, and safe programs. This brochure was developed to help you make an informed decision.

## Benefits of a Health/Fitness Facility

A quality health/fitness facility will allow you the opportunity to exercise in a safe environment under the direction of qualified personnel. It will also allow you the opportunity to use state-of-the-art exercise equipment and participate in any number of beneficial activity programs. Group exercise programs will afford you the opportunity to meet new people and exercise in a social environment.

## Before Joining

It is strongly suggested that you shop around and visit several facilities prior to making your investment. Some facilities offer a trial membership for a day or a week. Before joining, take a tour and ask questions. Observe the classes and/or programs. Take notes on what you like and dislike regarding the facility. You should consider whether the facility is located in an area that is convenient for you.

## Safety

The staff of the facility should be able to respond to any reasonable and foreseeable emergency situation that threatens the safety of its members. Staff should also provide you with any information regarding potential risks associated with using the facility. Check for these safety features:

- Does the facility have a posted emergency response/evacuation plan?
- Is staff qualified to execute the emergency

response/evacuation plan?

- Does the facility have automated external defibrillator(s) (AED) on-site? These devices can be used to aid someone suffering a cardiac arrest.
- Is the facility clean and well maintained?
- Is the facility free from physical or environmental hazards?
- Is the facility appropriately lit?
- Does the facility have adequate heating, cooling, and ventilation?
- Does the facility have adequate parking, especially at peak times?

## Preactivity Screening

Every adult member should be offered a preactivity screening. Check to see if the facility provides for or adheres to the following:

- Does the facility offer a preactivity screening, such as the PAR-Q, to assess whether members have medical conditions or risk factors that should be addressed by a physician?
- Aside from an initial general health and wellness screening, does the facility have a health and fitness screening method appropriate for the type of exercise you will undertake?
- Does the facility offer fitness assessments?

## Personnel

The facility should have a professional staff that has the appropriate education and training related to the duties they perform. Professional qualifications optimally should include a college degree in a health-related field such as exercise science, physical education, or kinesiology. Additionally, staff should hold an exercise certification from an organization that is nationally recognized, and preferably non-profit, such as the American College of Sports Medicine. Any certification should be based upon job-related performance criteria that have been validated by scientific research in the field and analyzed for reliability and validity. Many certification programs do not comply with the industry standards. When asking what certifications facility staff possess, remember to inquire about how the certification examination was developed and administered and what the prerequisites were for participating in the certification program. Check to make sure that not only the personal trainers, but also the supervisors and managers of the facility, have credentials and education from credible institutions.

## Checklist for personnel:

- Do staff members have appropriate education, certification, and training that is recognized by the industry and the public as representing a high level of competence ➤

## Facility (continued from page 9)

and credibility?

- Is there sufficient staff on-site?
- Are staff members easy to recognize?
- Do they wear name tags? Are the staff members friendly and helpful?
- Do staff members receive ongoing professional training?
- Do staff provide each new member with an orientation as to instruction in using the equipment and facilities?
- Are the staff members trained in CPR, in the use of AEDs, and in first aid?
- Are staff knowledgeable about my health conditions?
- Can staff help me set realistic exercise goals?

## Youth Services

There are important considerations for facilities that offer youth programs. Youth programs should be appropriately supervised at all times. In certain parts of the country, background screening, specific training and/or licensure is required. Check to make sure that the facility provides for your needs regarding childcare and/or youth programs.

## Programs

The health/fitness facility should provide a variety of equipment and programs to meet your personal fitness goals and interests. First, establish your exercise/fitness goals, then talk to personnel to see if they provide the programs and equipment in which you are interested. Consider the following:

- Does the facility offer the type of exercise or program in which you are interested, e.g. personal training, aerobics, spinning, martial arts, strength training, yoga, Pilates?
- Do qualified exercise instructors develop the programs?
- Will staff members modify the programs to

meet your needs?

- Does the facility offer programs to address medical conditions, e.g. weight loss, diabetes, hypertension, or smoking cessation?
- Does the facility offer programs for the age group in which you are interested, e.g. elderly, adolescents, children, infants?
- Does the facility offer fitness assessments and a personalized exercise program or prescription?

## Special Needs

The facility may or may not be able to accommodate your special needs. Ask questions to see if the staff of the health/fitness facility can meet your needs regarding modification of equipment, facilities, and programs. If you are interested in a rehabilitation program, check to see if such programs are available and check with an appropriate medical doctor for recommendations regarding programming. The facility should conform to all relevant laws, regulations, and published standards, including United States federal laws (ADA and OSHA), local government laws and regulations (local health departments), and local building codes and ordinances.

## Business Practices

Joining a health/fitness facility is an investment in your health, fitness, and quality of life. Purchasing a membership is also an investment of time and money. You want to make sure the facility has a good reputation and is well regarded by its members. Consider how the facility is operated before signing a contract.

- Does the staff pressure you into purchasing a membership?
- Does the membership fee fit into your budget?
- Is there a trial membership program?

- Is there a grace period in which you can cancel your membership and receive a refund?
- Are there several membership options and are all the fees for services posted?
- Does the facility provide you with a written set of rules and policies, that govern the responsibilities of members as well as the facility?
- Does the facility have a procedure to inform members of any changes in charges, services, or policies?
- Make sure you read and understand everything before signing a contract. Do not rely on verbal responses.

## Important Points to Remember

Ask a lot of questions so that you will have accurate information. Making an informed decision can help you avoid choosing a facility that does not fit your needs, and ends up costing you money. There are many considerations that you should investigate prior joining a health/fitness facility. These considerations do not ensure the health/fitness facility will be risk-free, or that you will be satisfied with the program(s). But, these guidelines can help you make a decision based upon industry standards. Your exercise program should be part of your lifestyle, and the facility you choose can play a major role in the success of your program. Selecting a facility with professional and qualified staff, state-of-the-art equipment, and a variety of programs is a sound investment of your money and in your health.

*ACSM's Consumer Information brochures may be printed for distribution from the ACSM Web site. Please visit <http://www.acsm.org/health%2Bfitness/productpurchase.htm> for a complete listing of this series.*

## Q&A (continued from page 2)

Aging typically robs the body of flexibility. Daily stretching can help maintain flexibility, and this can lead to improved performance. So keep stretching! Make sure you perform your stretches in a safe manner. Overzealousness can lead to injury.

### Q: Is training at a gym better than training at home?

**A:** This really depends on your own personal preference. Where are you most likely to consistently work out? Working out at the gym has several advantages such as the variety of exercise offerings and equipment, less-expensive training advice, and a social

environment in which to work out with others. But for some, the gym environment can be intimidating and inconvenient. The advantages of working out at home are privacy, personal training, and convenience. Safety can be an issue at either locale. Make sure the staff at a gym has CPR and first aid training. Check if they have a portable defibrillator and an emergency plan. If you have significant health problems and/or major cardiac risk factors, working out at home alone may be dangerous. Having a friend to work out with at home or a personal trainer may solve the problem if everyone has the appropriate CPR/ first aid training and an emergency plan. Talk with your doctor to decide what's best for you.

### Q: What are the signs of an impending overuse injury?

**A:** In the first few days of starting a new activity, most persons experience a degree of delayed-onset muscle soreness depending on how much activity they have performed. Following that, significant pain should not be experienced unless the amount, duration, or frequency of the exercise has significantly changed. If the pain occurs during the exercise or continues into the next day, one should seek medical evaluation.