

## **Amer. Fitness Magazine-**

### **How Do Americans View Exercise?**

Author/s: Peg Jordan

Issue: July, 2001

A new survey suggests that many people view exercise as the key to better health and good looks. A Fitness American-Style survey polling 1,200 people, conducted by Roper Starch Worldwide at the request of IHRSA, was released in March, 2001. John McCarthy, executive director of IHRSA, noted that exercisers are usually more positively engaged in many areas of life than non-exercisers. "They just tend to enjoy everything--recreation, other pursuits, their kids--a lot more," he said. This is reason enough to promote a mass cultural shift in the public's perceptions of exercise.

A physician, who owns a successful club in the Northwest, voiced his concern, "We've got to deal with the denial of most people. They don't think they're sick, so they just keep going. But with one in five kids being obese, we've got to convince them that they're time bombs." It's obvious to him--people need to wake up to the ultimate intelligence of preventive health measures. People suffer a lack of motivation from a lack of loving themselves. With this in mind, fitness programs must address holistic values and help the "inside, not just the outside." Clearly, we need to address the need for community and belonging.

One man who conducted the survey said he wasn't shocked by the disconnection between values and behavior. Just look at what smokers have to ignore to keep lighting up. He also agreed with the female athletes, that the mind/body holistic approach he has seen in many health clubs may be the ticket to attracting more of the inactive.

"There is a great focus on looking at your own life from an overall perspective--including emotional wellbeing and better relationships," he said.

The one paradox that stood out to everyone present was the glaring inconsistency between the high priority Americans place on maintaining good physical health and appearance and, the reality that, as a nation, we've grown more overweight than ever. They concluded that this "major disconnect" was due to not realizing that **exercise is a key to maintaining physical health.**

## **Walk this way.**

**(includes related articles on health benefits of walking, walking program, stretching exercises and cassettes and books on walking)**

Author/s: Michele Meyer

Issue: June, 1997

Imagine. A gentle breeze whispers through your hair. The sun tiptoes across your face. Your mind drifts like a cloud.

But you don't have to lie on a tropical island to reach nirvana. Just go for a walk.

Truly the feel-good sport, walking allows you to escape stress, lose weight, boost your energy, lower your blood pressure, raise your HDL (good) cholesterol and reduce your risk of diabetes and osteoporosis. And you can do it anytime, anyplace.

The more quickly you walk, the faster the calories burn. A 140-pound woman burns about four calories a minute if she walks a mile in 20 minutes (or 3 miles per hour). The calories jump to 5.2 per minute for a 15 minute mile (4 mph) or 7.7 per minute for a 12-minute mile (5 mph).

Walking is an equal opportunity exercise, says Kathy Smith, a fitness instructor who created a walking program exclusively for Better Homes and Gardens[R] magazine. "There aren't any biases against uncoordinated people, and everyone knows how to do it. It's a 'no excuses workout' because you don't need equipment or a gym."

You don't even have to walk outside to get health benefits. A treadmill burns more calories and raises cardiovascular fitness more effectively than stationary bikes, stair climbers, rowers, and ski machines, according to a 1996 study by the Medical College of Wisconsin and Veterans Affairs Medical Center in Milwaukee. Why? The researchers believe that people work harder while walking because it's something they do every day.

Getting started. Don't move an inch until you've got shoes made for walking. They should have good arch support, fairly low but well-cushioned heels, and good flexibility at the ball of the foot, says Mark Fenton, a five-time member of the U.S. National Racewalking Team and coauthor of *The 90-Day Fitness Walking Program* (Perigee, 1995). Try on shoes in the afternoon, when your feet are largest, with the type of socks you'll wear while walking. Choose shoes that don't slip at the heel, and leave a thumbnail's width between your big toe and the shoe's tip. For rough trails, you'll do better in a high-cut light hiking or rugged walking shoe.

Replace your walking shoes at least every six months or after walking 500 miles, whichever comes first, Fenton says. Make a note on your calendar, because "even if they look fine at the end of six months, the cushioning loses its ability to absorb the impact. One of the best ways to hurt yourself is to wear old shoes," he says. Like many walkers, Fenton alternates two pairs--a new one and an older one. "When you start looking forward to wearing the new ones, you know it's time to retire the old ones."

Veteran walkers know that socks should be made of a cotton blend to avoid any blister-causing dampness. Also, fight the heat by wearing a hat, sunscreen, sunglasses, and light colors to reflect the sun. Lightweight clothing that breathes, preferably a synthetic, is a good choice, says Maria Stefan, executive director of Sporting Goods Manufacturers Association. Also, materials such as Coolmax and Comfortrel are designed to cool you by wicking sweat away.

Champion walkers sop up moisture in their shoes with cornstarch and prevent chafing under their arms and between their thighs with petroleum jelly, says Susan Johnson, Ed.D., director of continuing education at the Cooper Institute for Aerobics Research in Dallas.

Another trick of the pros is to wear nylon hosiery or silk socks inside cotton-blend socks. The slipperiness between the two fabrics absorbs the friction that normally causes blisters to form, says Pierce Scranton Jr., M.D., an orthopedic surgeon and team physician for the Seattle Seahawks football team.

Posture perfect. You know how to walk, but do you know the best way to walk? Stand up straight, keep your chin parallel to the ground, and move with a sense of purpose. Your ears should be directly over your shoulders, hips, knees, and feet. Arms should swing freely, and when you want to pick up the pace, bend your elbows to an 85-degree angle and keep them close to your body. Your hands should never

rise above mid-chest level or fall past your hips, says Smith. "Your arms are like pistons--boom, boom."

An easy way to remind yourself is to think RACES: R--roll your foot to the ball of your foot; A--arms swinging with purpose; C--contract your tummy; E--eyes straight ahead; and S--shoulders back, down, and together.

To really work, lean your entire body slightly forward as if a rope is around your chest pulling you. Your steps move in closer, with one foot in front of the other as if you were walking a tightrope. But stick to the same pace.

To help keep your head up, scan the path by looking 15 feet ahead and lowering your eyes, not your chin. Keep your hands free by wearing your portable radio, heart monitor, or water bottle on a hip belt. Skip leg and hand weights, which throw off your gut and could, hurt your back and shoulders.

Strive to exert yourself at a level six on a scale of 1 to 10, with 0 being very relaxed and 10 being your maximum output. You should be able to talk, but not be able to sing, says Smith. "If you're panting, you're working too hard."

Those into mental aerobics also can use a heart monitor, striving for 60 to 80 percent of maximum heart rate. To determine how fast your heart should beat in a minute, subtract your age and your resting heart rate from 226. Multiply the resulting figure by 60 percent and then add in your resting heart rate. For example, if you're 40 and your resting heart rate is 85:  $226 - (40 + 85) \times .60 = 60.6$ ;  $60.6 + 85 = 145.6$ .

Drink 8 ounces of water an hour before you start walking, then another 4 to 5 ounces just before you start, says Martin Yadrick, a registered dietitian and sports nutritionist in Los Angeles. To determine how much fluid you need to replace after exercising, weigh yourself before and after. For every pound lost, you should drink 16 ounces.

If you find you're losing steam, focus on the next mailbox you pass or on reaching the end of the song you're listening to. Or, entertain yourself with music. It not only helps pass the time but boosts your energy, according to a recent study conducted at Springfield College in Springfield, Massachusetts.

Women exercising on stationary bikes stretched their workout times by about 25 percent and men by 30 percent when music was added, as reported in the Journal of Physical Therapy. You also might make a pact with yourself that you'll only watch your favorite TV show when you're on the treadmill. Or the American Volkssport Association, a nonprofit, (800/830-92 55) can put you in touch with walking clubs in your area.

If you ever want to see how far you're walking, measure your route with your car's odometer. Just be sure not to walk alone outdoors after dusk, and keep one ear free to hear traffic if you're listening to music.

You also can use Fenton's trick to determine whether you're walking fast enough for aerobic fitness benefits or just enough to lower your heart-attack risk.

Count how many steps you take. If you are taking 30 to 40 steps in 20 seconds, you're getting health benefits. To tone and hone your body, you need to exceed 45 steps in 20 seconds. (Every time a foot hits the ground counts as a step.)

To avoid injury, you'll want to increase the length of your walks by no more than 10 to 20 percent from week to week.

### **RELATED ARTICLE: HERE'S WHY**

\* Walking just three hours a week cuts the risk of heart attack and stroke in women ages 40 to 65 by 40 percent (Harvard Medical School).

\* Women who walk 40-45 minutes five times a week are sick with colds or the flu half as often as sedentary women (Appalachian State University).

\* You can lose about 18 pounds a year--without dieting--if you walk 45 minutes, four times a week (James Rippe, M.D. and the University of Massachusetts Medical School).

### **RELATED ARTICLE: OUR SUMMER PROGRAM**

This basic, yet demanding, walking program was designed by Kathy Smith, fitness-video instructor and author of WalkFit for a Better Body (Warner Books, 1994).

### **WEEKS 1-3: THE FOUNDATION**

\* As with every walk, start with a five-minute stroll and then your stretches (see page 98). For the first two weeks, walk three times a week for 10 minutes (this doesn't include warm-up time) The goal is to build up to 20 minutes, three times a week by the end of the third week.

\* For the first few days, focus on keeping your chin up. Once you've mastered that, focus on a tight tummy and on keeping your shoulders down and relaxed. End each workout with the same stretches you started with.

### **WEEKS 4-9: THE WORKOUT**

\* Your goal--in addition to increasing the time from 20 to 30 minutes and adding a fourth day a week--will be to build speed. To do this, continue thinking about posture, but also focus on landing on your heel, rolling to your toe, and then pushing off with your toe.

\* Once that becomes automatic, focus on squeezing your butt as you push off your toes.

\* By the end of the ninth week, you should be walking for 30 minutes, four times a week--at a faster pace.

### **WEEKS 10-12: THE CHALLENGE**

\* Over the next three weeks, build up to five days a week and walk for 40 to 45 minutes.

\* To further increase your speed, focus on your arm swing, taking care to have an unclenched, loose hand. Then concentrate on walking a line.

\* Once you've mastered the footwork, try "the interval," a marathoner's training tool, in which you vary your speed to increase results. Here's how it works: After walking 10 minutes at a steady pace, do five sets of intervals for a total of 15 minutes. First, walk as fast as you can for 90 seconds. Then recover for 90 seconds by walking at a leisurely pace. Repeat four times. Walk at a steady pace for the rest of your workout. Cool down with a five-minute stroll.

### **RELATED ARTICLE: SEVEN GREAT STRETCHES**

To avoid injury, start every walk with a five-minute stroll and these stretches:

\* Neck stretch. Bring your left ear to your left shoulder until you can feel a pull. Hold 10 seconds, bring your head back to center and then lower your right ear to your right shoulder. Don't turn or twist your head.

\* Shoulder shrug. Lift your shoulders toward your ears, hold for two seconds and then release your shoulders for four seconds. Repeat four times.

\* Calf and Achilles tendon stretch. Facing a wall, put your palms against it and stretch your right leg in back of you, with both feet flat on the floor. Bend your left knee slightly forward, but not beyond your toe. Be sure to keep your back straight, not leaning forward. Your toes should point forward and both hips should be parallel to the wall. Hold the stretch for 20 seconds, and then repeat on the other side. Don't bounce on this, or any, stretch.

\* Hamstring (back thigh) stretch. Find a bench or sturdy chair and put one foot on it so the leg is straight. Lean forward slightly until you feel tightness in the back of that thigh. Keep the knee slightly bent and the foot flexed. Hold for eight seconds and then relax for eight seconds. Then stretch the same side again, for up to 30 seconds for a more extensive stretch. Repeat on the other side.

\* Quadriceps (front thigh) stretch. Stand facing a wall. Lift your right foot behind you and grab your right ankle with your right hand. Keep the right knee pointed toward the floor and pull your foot back until you feel a stretch in the leg, but not tension in the knee. Tighten your right buttock to enhance the stretch. Make sure you stand straight, not leaning forward or to the side. Repeat on the side.

\* Chest stretch. Stand up and put your hands behind your back and interlock your fingers, with palms facing each other. Raise your hands up and stretch. Another option is to stand in a doorway and extend your hands out to the frame. Hang on, and lean forward as if you were the masthead on a ship.

\* Lower-back stretch. Have you hugged your knees today? You can get a great stretch by sitting in a chair and hugging yourself, right above your knees. If a chair isn't handy, stand with your feet shoulder-width apart and your hands on your thighs

just above your knees. Tuck your pelvis and tighten your tummy as if your belly button were pressing into your spine. Round your back into a C shape, hold for 10 seconds, and release to your natural position Repeat.

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### **Resistance is Not Futile. (benefits of strength training)**

Author/s: Vanessa Selene Williams

Issue: Sept, 2001

Strength training can prevent or aid several age-related illnesses among seniors, including the muscle destroying sarcopenia.

You have just reached retirement age and our children are grown with children of their own. Now is the time to enjoy life, right? Maybe not. If you are like most seniors, you may suffer from sarcopenia, which causes significant muscle loss. You are now plagued with the consequences. However, seniors can prevent sarcopenia by participating in resistance training.

Age-related muscle loss might be the most detrimental thing that can happen to seniors. Conditions such as diabetes, falls, fractures and loss of independence can all be attributed to sarcopenia. Many factors contribute to sarcopenia, such as the changes in activities and metabolism associated with age. As the saying goes, "If you don't use it, you will definitely lose it."

In the past, healthcare professionals were reluctant to recommend resistance training due to the fear of adverse effects (such as an increase in blood pressure).

Seniors often view strength training as an activity for the young. This is not necessarily true. A recent study published by the Journal of Gerontology suggests men over 60 can train at a high intensity and exhibit the same benefits as younger men. Robert Staron, co-author of the study, states, "Our research, as well as that of others in this field, shows that it can be safe for individuals at any age to participate in resistance training." However, when it comes to seniors at a very advanced age, certain restrictions may apply.

### **What Happens During Aging?**

As the body ages, muscles begin to atrophy, slowly being replaced by fat. According to the American College of Sports Medicine (ACSM), by the age of 30, our muscle mass has reached its peak. After age 50, muscle mass decreases as much as 15 percent each decade up to the age of 70. After 70, this process accelerates to 30 percent each decade. In seniors, muscle loss contributes to the occurrence of falls, fractures, weakness, slow metabolism, glucose intolerance and loss of ability to perform normal activities. This may sound grim, but there is hope. When incorporated correctly, strength training can slow many factors in the aging process.

Strength training can prevent or aid several age-related illnesses among seniors, including the muscle destroying sarcopenia.

### **Benefits of Strength Training**

**Falls and Fractures.** Strength training improves balance and coordination, allowing seniors to perform activities, such as walking and climbing stairs, with less effort and reduced risk of falling. In case of a fall, the increase in bone density (also attributed to resistance training) prevents fractures. Strength training is particularly beneficial because senior men are likely to die and senior women are likely to be placed in an extended care facility from fall-related accidents. Overall, seniors who participate in resistance training are more likely to engage in more aerobic activity (gardening, walking, etc.) than those who only participate in cardiovascular exercise.

**Diabetes.** Approximately 18 percent of seniors are diagnosed with diabetes. The increase in diabetes has been linked to two factors: increase in fat and decrease in muscle. Enlarged fat cells are less receptive to insulin, thus promoting insulin resistance. Furthermore, muscles use glucose in the body without the aid of insulin. By improving remaining muscle mass, resistance training improves glucose utilization in the body, thus preventing and/or improving diabetes.

**Blood Lipids.** Cholesterol levels rise with age, putting seniors at risk of developing heart disease. According to a Journal of Gerontology study, resistance training may improve cholesterol level by decreasing LDL (bad) cholesterol levels and increasing HDL (good) cholesterol levels. Since resistance training focuses mainly on muscles, it is important for seniors to also participate in cardiovascular exercise to further improve cardiovascular health.

**Psychological Benefits.** Seniors who participate in strength training are less anxious and less preoccupied with self-centered thoughts. This allows them to be more open to new experiences, thus feeling less isolated.

Arthritis. Strength training often increases the range of motion in those suffering from osteoarthritis and relieves pain.

Improved Metabolism. Strength training means more muscles. Increased muscle mass burns more calories. Consequently, seniors can consume extra calories without gaining extra inches from fat.

### Safety Precautions

Seniors have a lot to gain from resistance training. Nevertheless, precautions should be taken. Most can participate, provided they don't have any preexisting conditions, such as cardiac arrhythmia, end stage congestive heart failure, etc. Shannon Entin, co-author of *The Complete Idiot's Guide to Online Health and Fitness*, explains: "Seniors should always check with their doctors before beginning a weight training program. Issues such as arthritis, osteoporosis and muscle weakness can increase the possibility of injury if precautions are not taken." She also stresses the importance of consulting with a personal trainer before participating in

As little as two to three 30-to-40 minute sessions per week are needed to obtain these benefits. To further prevent injury, seniors should be shown proper stretching techniques before and after exercise. In addition, it is important to inform seniors to have a five-minute warm-up period before their workout routine and 10 minute cool-down period after.

If seniors don't participate in strength training, they can't reap the benefits. Getting them to participate may be an uphill battle, but it is well worth the effort. Entin suggest seniors should turn exercise into a social gathering, making fitness less like a chore and more like a field trip. You, the certified fitness professional, can also increase participation by becoming more involved in your community.

Volunteer at your local community center, retirement facility or nursing home. Participate in or implement exercise classes.

Recruit and organize seniors in your neighborhood to participate in a fitness walk.

Provide transportation for seniors unable to find transportation.

Start a newsletter filled with exercise and health tips.

Show seniors how they can get more exercise by gardening, walking, lifting common household items, etc.

Set up a buddy system. Pair older adults with each other or younger volunteers.

It is not quantity of life but quality of life that really matters. Left untreated, sarcopenia robs seniors of independence and self-esteem. When implemented properly, resistance training can help seniors lead happier and healthier lives.

### REFERENCES

American College of Sports Medicine. Current Comment: Exercise and the Older Adult. Indianapolis, IN, July 2000. [www.acsm.org/pdf/COA.pdf](http://www.acsm.org/pdf/COA.pdf).

Evans, W. "Functional and Metabolic Consequences of Sarcopenia." J. Nutr. 127:998S-1003, 1997.

Evans, WJ. "Reversing sarcopenia: How weight training can build strength and vitality." Geriatrics 1996;51 (May):46-53.

Evans, WJ. Cyr-Campbell, D. "Nutrition, exercise and healthy aging." J Am Diet Assoc. 1997;97:632-638.

Hagerman, FC. Seamus, JW. Staron, RS. Hikida, RS. Gilders, Rm. Murray, TF. Toma, K. Ragg, KE. "Effects High-Intensity Resistance Training on Untrained Older Men." I. Strength, Cardiovascular and Metabolic Responses. Journal of Gerontology: BIOLOGICAL SCIENCES 2000, Vol. 55A. No. 7. B336-B346. July 2000.

Perrig-Chiello, P, Perrig. Ehrsa, R. Staehelin, HB. Krngs, F. "The effects of resistance training on well being and memory in elderly volunteers." Age and Aging. 27:469-476, July 1998.

Tufts University Diet & Nutrition Letter, Sep 94, Vol. 12 Issue 7, p6, 2p. W.H.

Center of Disease Control and Prevention. National Diabetes Fact Sheet: National estimates and general information on diabetes in the United States. Revised Edition. Atlanta, GA: U.S. Department of Health and Human Service Centers for Disease Control and Prevention, 1998. [www.cdc.gov/diabetes/pubs/facts98.htm](http://www.cdc.gov/diabetes/pubs/facts98.htm). "Falls and Hip Fractures Among Older Adults." National Center for Injury Prevention and Control. Atlanta, GA. Nov. 13, 2000. A Report of the Surgeon General: Physical Activity and Health. Atlanta GA; National Center for Chronic Disease Prevention and Health Promotion, 1999.

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## **Get a move on.**

### **The role of exercise in controlling weight.**

Author/s: Deborah Riebe

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We've all seen the ads for miracle weight loss products. We're asked to buy soap that washes away fat, cream that melts fat, pills that burn fat and shoe inserts that magically make fat disappear as you walk. Yet health and fitness professionals continue to give the same advice when asked about losing weight: proper nutrition and exercise. This advice may not be new or exciting, but it is sound. Although people are often willing to make dietary changes, many simply don't want to exercise. How necessary is it to exercise in order to lose weight?

Historically, obesity has been viewed as a result of poor eating habits, but overeating may not be the problem. The general population has become more overweight since 1900, with the percentage of Americans who are obese increasing from 25 to 33% between 1980 and 1991. However, per capita caloric consumption has decreased

during this century. In other words, people now eat less but weigh more. This suggests that inactivity may play a larger part than overeating in the causes of obesity.

In the U.S., the increased prevalence of obesity appears to parallel a decline in the average daily energy expenditure. Physical activity is no longer a part of our everyday lives. Technology has reduced job-related physical demands. Labor-saving devices, such as cars, elevators and remote controls, have removed substantial amounts of physical activity from our everyday lives. Reports from the Centers for Disease Control and Prevention suggest participation in vigorous activity by adults, adolescents and children has dropped substantially during the past few decades. Presently, only 15% of adults regularly engage (three times a week for at least 20 minutes) in vigorous physical activity during their leisure time, and only 22% of adults regularly engage (five times a week for 30 minutes) in sustained physical activity of any intensity during their leisure time.

### **Exercise and Weight Loss**

Numerous studies have examined the impact of exercise training on body weight and fat. These studies demonstrate exercise favorably affects body composition by promoting fat loss. For example, William Zuti, Ph.D. and Lawrence Golding, Ph.D. examined three groups of women who maintained a caloric deficit of 500 calories per day for 16 weeks. A diet-only group decreased caloric intake by 500 calories per day, but did not alter their physical activity. The exercise-only group did not alter their diet, but burned 500 extra calories per day by increasing physical activity. The diet-exercise group reduced caloric intake by 250 calories per day and increased daily activity by 250 calories. All three groups had a similar weight loss, but the two exercise groups lost considerably more fat than the diet group which lost a substantial amount of lean tissue.

Large population based studies consistently show a relationship between body weight and exercise. Loretta DiPietro, Ph.D. studied 19,000 men and women, and found that the prevalence of overweight was highest among sedentary people and lowest among individuals who participated in regular, intense exercise. In all age categories, people who cycled, jogged or participated in aerobics weighed less than inactive people. For people over the age of 40, walking was also associated with lower body weight.

The rate of weight loss resulting from exercise without caloric restriction is relatively slow. Experimental studies have found that exercise alone generally produces a modest loss, averaging six to seven pounds. Although some studies have reported substantial losses (13 to 26 pounds) with intensive exercise, the physical demands of these programs make them impractical for most overweight persons. Despite the seemingly discouraging nature of these findings, keep in mind that even a modest weight loss positively impacts health. In a slightly overweight person, a seven-pound loss may also be cosmetically significant.

There is some evidence that starting an exercise program will lead to changes in an exerciser's diet. The amount of physical activity in which people participate is inversely related to their fat intake; the more they exercise, the less fat they consume. This suggests that active people have a preference for carbohydrates. It may also contribute to the relative ease with which they appear to balance calories.

A combination of mild caloric restriction and regular physical activity is more effective in reducing body weight than either approach alone. Furthermore, the addition of exercise to a comprehensive weight management program has multiple health benefits, such as a reduction of the risk for developing heart disease.

### **Weight Loss Maintenance**

As fitness professionals, we have been relatively successful in helping people to lose weight, but we have not been successful in helping them maintain their weight loss. This is the problem on which we need to focus. According to the National Institute for Health, most people experience significant weight regain in the first year following termination of a weight loss program with complete or almost complete weight regain in five years.

There is an impressive relationship between exercise and weight loss maintenance. Individuals who include exercise as an integral part of their weight management program are much more likely to keep weight off.

A study by K. Pavlou, Ph.D. and colleagues illustrates this point. They studied 160 overweight policemen who participated in a 12-week weight loss program. Each policeman was assigned to either an exercise group or a non-exercise group, and then to one of four diets. Eighteen months after the program was over, the subjects were reassessed. The researchers found that regardless of diet, the non-exercise group gained back all of the weight lost in the 12-week program. In contrast, the exercise group maintained a weight loss of approximately 10 to 12 pounds.

### **Exercise and Fat Distribution**

In addition to the effect exercise has on weight loss and fat loss, exercise favorably alters body fat distribution. Scientific evidence suggests the way some people store fat affects their health. Fat stored in the abdominal area increases the risk of coronary heart disease, Type II diabetes, high blood pressure and high cholesterol. A waist-to-hip ratio that exceeds .80 for women and .95 for men places them at greater risk for these diseases. Regular exercisers tend to have lower waist-to-hip ratios than sedentary individuals. This is primarily due to lower waist circumferences among the exercisers.

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Higher intensity exercise (such as jogging or aerobic dance) is associated with a preferential use of abdominal fat relative to gluteal fat. During exercise, there is an increased release of epinephrine in the body; this hormone activates the breakdown of fat. Abdominal fat is more responsive to increases in epinephrine than fat stored around the hips and thighs. This explains why regular exercisers have lower waist-to-hip ratios than non-exercisers, and may help to explain why overweight men, who tend to store fat around the abdomen, lose weight more quickly and easily than overweight women who tend to deposit fat in the resistant hip and thigh region.

### **Exercise Intensity**

Exercise is important for weight loss and critical for weight loss maintenance. It is well known that aerobic exercise is the best type of exercise for burning fat, but the

question of intensity always comes up. Is high intensity, short duration exercise or low intensity, long duration exercise better for helping someone to lose weight?

From the perspective of fat loss, the answer may be "it doesn't matter." Consider the following study by Maryann Grediagan, Ph.D. She assigned overweight women to either a high intensity (80% VO<sub>2</sub> max) or a low intensity (50% VO<sub>2</sub> max) exercise group. All the women exercised four times per week for 12 weeks with a duration sufficient to expend 300 calories. The duration of the low intensity workout was considerably longer than the high intensity workout. At the end of the study, both groups had lost five pounds of fat, although the high intensity group gained more than twice as much lean tissue as the low intensity group. It can be concluded that fat loss is a function of the number of calories expended rather than exercise intensity.

There are several reasons why low intensity, long duration exercise may be more appropriate when working with an overweight population. Obese individuals are at an increased risk for injuries to their bones and joints. For this reason, it is also recommended that you select non-impact and low-impact activities. Additionally, there is an inverse relationship between exercise adherence and intensity; the harder the workouts, the more likely a person is to drop out of an exercise program.

The best way to make decisions about exercise intensity and duration is to consider the individual. Variables such as time constraints, medical problems, fitness level and personal preference should all contribute to the decision of how difficult and long to make an exercise program.

### **Obesity Prevention**

Although fitness professionals often prescribe exercise to help people lose weight, its role in obesity prevention should not be overlooked. Physically active individuals generally weigh less, and have less body fat and fewer medical problems than their sedentary counterparts. There is a need to promote exercise to everyone, even those with ideal body weight. The adoption of even a modest exercise program helps individuals to look and feel better, and manage their weight. And, they gain the many other benefits of regular physical activity.

RELATED ARTICLE: Mechanisms Linking Exercise and Weight Control

There are several pathways by which exercise influences body weight.

- \* Exercise Oxygen Consumption (EPOC)--metabolism remains temporarily elevated after exercise ends. Following an exercise that burns 300 calories, the contribution of EPOC ranges from six to 42 calories. This is a small but significant contributor to energy balance.

- \* Prevention of the decline in metabolic rate that accompanies caloric restriction.

- \* The increased capacity to use fat as a fuel.

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### **INTERNAL WARFARE.**

Author/s: Raya Tahan

Issue: July, 2001

### **EXERCISE PROVES TO BE A POWERFUL WEAPON IN THE BATTLE AGAINST LUPUS.**

Many people new to exercise agree that getting started was the most difficult part of their fitness program. However, people suffering with lupus face special challenges when trying to incorporate exercise in their lives. Symptoms of this autoimmune disease range from inflamed joints and debilitating pain to itchy rashes and depression. Lupus patients often feel hungry and struggle with the scale because they take medication that triggers weight gain. Some lupus patients have trouble finding a workout routine that doesn't exacerbate these symptoms or generate other negative side effects.

Researchers have yet to identify the cause of lupus, which usually strikes women of childbearing age. It's a mysterious, chronic illness in which the body's immune system attacks its own healthy tissues. Most people know little or nothing about it, although more than one million Americans have it and more will be diagnosed during

early adulthood. For some patients, lupus is mild, for others, it's fatal. It can strike the joints, muscles, skin, nervous system, internal organs or a combination of bodily systems.

According to the Lupus Foundation of America, lupus manifests itself in three forms: systematic I. erythematosus (SLE), discoid I. erythematosus (DLE) and drug-induced lupus. Systemic I. erythematosus lupus is the most severe type. It attacks almost any part of the body and can be life-threatening. Discoid I. erythematosus lupus causes rashes and lesions on the skin, usually on the face and upper part of the body. Drug-induced lupus is unique in that it is caused by a reaction to medication and symptoms usually disappear when the patient stops taking the adverse medicine.

Despite their unique hardships with exercise, lupus patients benefit tremendously from it. Although exercise does not directly improve immune function, it does prevent or minimize symptoms like fatigue, muscle weakness and depression. Keeping in mind the following general guidelines, lupus sufferers have everything to gain by taking part in regular, responsible exercise.

### **CONSULT YOUR DOCTOR**

"Each case of lupus is very different from person to person," says Virginia Ladd, president of the American Autoimmune Related Diseases Association and, herself, a longtime lupus sufferer. "The patient should always discuss the specifics of an exercise program with their physician before starting."

### **EXERCISE REGULARLY**

"Exercise improves joint mobility, muscle strength and function, thus producing less pain," explains Dr. Rosalind Ramsey-Goldman, the lead author of a National Institutes of Health pilot study on the effects of exercise in lupus patients. "The lupus patients reported less fatigue and overall felt much better. One year later they regretted [not continuing to exercise] because, in retrospect, they had felt much better during the study," she adds.

Because steroids are one of the main stays of treatment, some patients develop osteoporosis or thin bones. While steroids slow a hyperactive immune system, they also strip the body of calcium. Muscle stimulation and weight bearing exercise increase bone mass and thus offset this type of bone loss.

Exercise can also protect lupus sufferers from the adverse effects of steroids by improving density of the spine. However, they must remember that if their medication includes steroids, their bones might be compromised and vulnerable to fractures. This means avoiding workouts that put too much impact on the joints. "We found that lupus patients had a five-fold increased risk of self-reported symptomatic fractures," Ramsey-Goldman reports.

According to Ramsey-Goldman, exercise also improves balance, which could reduce the frequency of falls or make falling less dangerous for lupus patients with weak bones. "There is evidence that even one-to-three 10-minute sessions, three-to-five

times per week is good," she says. "Consistency is good and doing something is better than nothing."

## **ARTHRITIS RELIEF**

Arthritis is common in the lupus population, therefore, doctors encourage any fitness program that keeps joints flexible and mobile. "There are ways to make joints function better," says Dr. Michael Belmont, who heads the Hospital for Joint Diseases at New York University Medical Center. "Arthritis means there's inflammation [within a joint.] While there's no evidence that exercise reduces inflammation, it does make the muscles around the joints healthier. When joints are not inflamed, exercise will keep them flexible and strong" he says. Belmont, a pioneer in lupus research, recommends a minimum of 20 to 30 minutes of exercise, three-to-four times per week. "There is scientific validation that, just as in the healthy population, exercise can increase energy and reduce pain."

## **TRY DIFFERENT EXERCISES**

Lupus patients should do a combination of aerobic exercises, weightlifting and stretching, Ramsey-Goldman advises. Claudia Pagano, R.N., author of *Lupus: What's It All About?* (a collection of stories by lupus patients and their doctors), recommends that lupus patients participate in a moderate exercise program that includes low impact activities (like walking and swimming), functional exercises (designed to combat imbalance and improve posture), range-of-motion exercises (to increase flexibility and joint mobility), modified strength training, water exercise (reduces stress to joints and enhances circulation), mind/body exercises or movement therapies (such as yoga and t'ai chi).

Pagano, herself a lupus sufferer, finds that swimming in cold water, like the ocean or a pool, dramatically reduces joint and muscle pain. Ultimately, the most important step is deciding to exercise in the first place. "Any exercise you enjoy and are willing to do is the best one for you," Belmont encourages.

## **EXERCISING DURING A FLARE**

Lupus is characterized by occasional "flares," during which patients experience severe pain, fatigue, swelling or rashes that last for several days. While there is no rule that patients should not exercise during a flare, most patients prefer to relax while trying to regain their strength.

"Patients do not have to avoid exercise during a flare, they just have to adjust what they do," Ramsey-Goldman says. "For example, range-of-motion exercise would be OK. Do less repetitions for weightlifting, less time walking or running, if that was the aerobic exercise," she suggests.

Some patients believe that too much exercise can actually cause a flare. However, this has not been scientifically proven. "There's insufficient scientific information to be convinced of that scenario, although there are anecdotes of people having flares after too much exercise," Belmont says. "If a particular patient feels worse for having exercised, that patient should learn [to exercise] in moderation."

## **EXERCISING IN THE SUN**

Many lupus patients also suffer from photosensitivity. As a result, they must wear sunscreen, a hat and long-sleeved clothing to prevent the painful rashes triggered by sunlight. Moreover, Ramsey-Goldman advises lupus patients to hike, swim, bike and in-line skate during dusk or dawn and replenish sunscreen every hour. For example, when Pagano swims outdoors, she wears a complete bodysuit and sunscreen that blocks all UV rays.

## **USE WILLPOWER TO AVOID WEIGHT GAIN**

"The biology and pharmacology of steroids increases appetite and changes metabolism in a way that increases fat and blood sugar," Belmont explains. "Patients need to resist the urge to overeat. When they become hungry they should make low-calorie choices."

## **DON'T LET DEPRESSION STAND BETWEEN YOU AND EXERCISE**

The mental-health benefits of exercise help everybody, including lupus patients. "There's no denying the mind/body connection," Belmont says. "When you exercise you can increase your endorphins and reduce pain."

Many recently diagnosed patients feel extremely depressed or stressed because they are going through flares, experiencing scary new symptoms (fatigue, photosensitivity, swelling around the knees, elbows and other joints), gaining weight or feeling as though their own body has "let them down." Despite these obstacles, lupus patients feel best when they use their body at its maximum physical capacity "Exercise has emotional and psychological benefits," Pagano says. Anything that improves strength, coordination, endurance and functional capacity will improve a person's self-esteem, confidence and, of course, reduce stress and depression."

Raya Tahan is a writer based in Phoenix, Arizona Her work has appeared in newspapers and magazines worldwide She has published articles on health issues ranging from disease prevention to alternative medicine

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## **Walking for Survival.**

**(exercise can lower death rates in cardiac patients)**

Author/s: Robert Wilbur

Issue: Sept, 2001

### **New study shows the benefits of leisure physical activity to cardiac health.**

Since the 1950s, cardiologists and physical fitness experts have advocated leisure physical activity as an integral tool for prevention of and recovery from heart attacks. By 1992, leisure physical activity was firmly entrenched in recovery programs and the American Heart Association added inactivity to the list of risk factors for heart disease, which include high blood pressure, smoking, diabetes and high cholesterol. Yet, hard data confirming the benefits of physical activity, in relation to heart attacks, is surprisingly sparse.

Most existing data consists of that old shibboleth "clinical experience," supplemented by only a few small-scale clinical trials and surveys. When this data is pooled, the results are not impressive--reflecting, at best, a 20 percent reduction in mortality

among patients who received cardiac rehabilitation. It became evident to researchers that more definitive studies, involving larger groups of patients, observed over longer periods of time, were needed. The Corpus Christi Heart Project report is the first such study to be published and others are on the way.

The Corpus Christi Heart Project was a federal-funded effort to study heart disease in Nueces County, Texas. This project surveyed a sample of cardiac patients, which included women and Mexican-Americans--two groups overlooked in previous studies. The new population-based study was confined to a clearly defined geographical area; thus, eliminating the possibility that regional differences, such as environmental pollution, might taint the data. The study surveyed 406 white and Mexican-American, men and women, over a period of seven years. All were volunteers, most in their 50s and early 60s, who had suffered from one heart attack.

Shortly after their heart attack, all the subjects were interviewed in the hospital and monitored annually with telephone interviews thereafter. In each interview the subject was asked: "During the past year, what physical activity [did] you do outside your working hours?" According to study director, Lyn Steffen-Batey, Ph.D., the survey revealed that most of the volunteers who exercised engaged in mild to moderate activity, mainly walking.

After seven years, the information gathered by the survey was analyzed statistically. The results were remarkably robust. Compared to sedentary volunteers:

Subjects who engaged in leisure physical activity, before their heart attacks and maintained their activity level after recovery, had a 79 percent lower risk of death from all causes, not just cardiovascular disease.

Subjects who increased their physical activity, after recovery, had an 89 percent lower risk of death from all causes.

Subjects who increased their activity, after recovery, had a 78 percent lower risk of having a second heart attack.

In addition, there was no evidence in the Steffen-Batey study that mild to moderate leisure physical activity can cause another heart attack. However, Dr. Steffen-Batey notes that there are several articles in medical literature which suggest strenuous exercise, such as weightlifting, can trigger a heart attack. This area requires further investigation, but it is not applicable to people who engage in mild to moderate physical activity, like walking or dancing.

Victor Froelicher, M.D., a founder of the American Association of Cardiopulmonary Rehabilitation and a reviewer of the Steffen-Batey article, speculated that aerobic exercise, such as walking or dancing, acted on the peripheral blood vessels in a way that made the body's circulatory system more relaxed, thereby decreasing the work of the heart. Other possible explanations for the salutary effects of physical activity suggested it strengthened the heart and/or caused the proliferation of new, microscopic blood vessels. The new vessels may support the flow of oxygen-bearing blood to the heart, if one or more of the coronary arteries became blocked by a clot, thereby averting a heart attack.

While more research is needed to clarify the beneficial effects of mild to moderate physical activity on the heart, Dr. Steffen-Batey advocates a regular regimen of walking to promote good cardiac health. However, she cautions against starting a physical activity program without first consulting a physician.

Robert Wilbur has a B.S. in biology. He is a professional medical writer who has authored three books, many articles and, under a pen name, writes short fiction for literary and small circulation magazines in the United States, Canada and the United Kingdom.

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### **Squat safety. (Training Tips)(Cover Story).**

Author/s: Jeff Chandler  
Issue: Nov-Dec, 2001

The squat is typically a barbell exercise in which the individual starts in a standing position with the barbell on the back and bends the knees to squat down until the thighs are parallel to the floor. It has been the subject of some controversy in exercise prescription, primarily because of the belief that it causes knee and/or low back pain or injury. However, when examining the safety of the squat, it is appropriate to review the history, science and practical application of this activity.

Any resistance exercise performed improperly can result in injury. Such injury can occur due to overtraining and excessive resistance or use of improper form in performing the exercise. Thus, exercise technique is paramount.

### **Historical Perspective**

In the 1960s, scientific research indicated that squatting movements could be detrimental to the knees. Even when properly executed, the squat exercise reportedly stretched the knee ligaments in both medial/lateral and posterior/anterior directions. Possible flaws regarding this research include choice of subjects and investigators' bias. For example, parachute jumpers were used as subjects in one of the studies. Medial/lateral knee ligament injuries are common in this group because the legs are often caught in parachute lines as the canvas opens. Also, parachutists place excessive force on the knee joint when landing.

### **Recent Scientific Evidence**

Since work conducted in the 1960s, several research studies have expanded our knowledge and understanding of knee injuries. These include studies of athletes, animals and individuals who have been through injury rehabilitation. One study used an instrument to measure anterior/posterior displacement of the tibia relative to the femur. Subjects performed varying depths of squats over an eight-week period. Additional data was collected on groups of weightlifters, powerlifters and age-matched controls. Over the eight-week period, there was no increased instability created relative to squat depth. Therefore, according to this study, squats do not negatively affect knee stability.

Using the same instrument, another group of researchers determined that acute bouts of exercise using a variety of activities (including squats) decreased stability of the knee joint, possibly due to muscle fatigue or elevated body temperature. Therefore, knee instability is not necessarily due to one specific exercise movement such as the squat. However, other factors in the execution of various exercises can cause acute knee instability.

Various forms of exercise have been shown to increase ligament strength. In animal studies, endurance exercise has been shown to increase the strength of the ligament-bone attachment, as well as augment the diameter and collagen content of ligaments. When bone-ligament preparations are tested at high speeds, they fail at a higher maximum load.

In athletes rehabilitating injured knees, closed-chain exercises, such as the squat, are currently used. During a squat, the hamstrings co-contract with other leg muscles to increase the stability of the knee, thus putting less stress on the anterior cruciate ligament.

There are certainly times in the healing of injuries when the squat, as well as other exercises that stress the knee, should be avoided. However, once soft tissues have healed, exercises that are the most effective in improving strength to protect the knee joint from further injury should be chosen.

### **The Stress of Squats on the Back**

Another area of concern for safety in the squat exercise is the lower back. If the lift is not properly performed, the forces placed on the low back may be intense enough to cause injury. The most common errors that can lead to back problems include lifting excessive weight and leaning over too far so the weight is lifted by the back, not the legs and hips.

Squatting with resistance placed on the upper back across the shoulders does increase the compressive forces on the spine. Maintaining an erect posture helps to distribute the forces evenly on the spine and decreases the chance of injury. Forces on the lumbar spine during half-squats with a loaded barbell were determined to be 6 to 10 times body weight. To reduce both spinal compressive forces and shear forces, the athlete should have the necessary flexibility of the knee, hip and spine to maintain an upright posture during the squat.

Stress fractures of the vertebra (spondylolysis) and forward slippage of one vertebra over another (spondylolisthesis) do occur in athletes. Because athletes are generally active in a variety of ways (including resistance training), it is difficult to determine whether resistance training is the cause of these conditions. Maintaining strong torso musculature is essential to protect the spine during squatting movements. The squat program should be modified for athletes with back problems.

Back pain is a complaint often associated with the squat exercise. Sprains and strains may occur with a variety of athletic activities and are more likely to occur with sudden movements involving spinal extension and rotation. When properly performed, the squat exercise does not fit into this category. In one study, weightlifters had a relatively low incidence of back pain (eight out of 80 lifters). This study indicates that spinal flexibility, lifting with a straight back and strong paravertebral muscles help prevent back pain. In former lifters, the incidence of low back pain was less than in the general population.

Abdominal strength is also important to protect the spine. During heavy exertion, lifters hold their breath during the effort portion of the lift. This increases intraabdominal pressure. While there is some controversy about the use of weight belts, they probably should be used during heavy squat lifts.

### **Proper Use of Squats in a Training Program**

As mentioned earlier, any exercise can be performed improperly. Also, athletes enter training programs with different strength levels and past injuries. All of these factors must be considered when developing a strength program. Proper technique taught by qualified personnel is important to the safety of the exerciser.

The depth of the squat is generally recommended so the tops of the thighs are parallel to the floor. With proper form and progression, certain athletes may be able to descend further. The value of deep squats for improving athletic performance continues to be a debated topic. In general, if an athlete is required to perform from a deep squat position, such as in weightlifting, he or she should gradually progress to that stance.

Squatting while overly fatigued or training to failure may place the athlete at risk of losing control of the weight. This can cause a twisting motion at the knee, increasing the potential for meniscal injuries to the knee. Time for adequate recovery should be allowed both within the exercise session and between exercise bouts, with resistance and repetitions adjusted appropriately.

### **Summary**

The squat exercise is important to many athletes because of its functionality and similarity to athletic movements. If appropriate guidelines are followed, the squat is a safe exercise for individuals without prior injury histories. The squat is a large-muscle-mass exercise and has excellent potential of adding lean muscle mass when executed properly.

The squat trains a high number of muscles, focusing on the lower body and back. Individuals with prior injury or special considerations (e.g., pregnant women) need to consult their physician before starting any exercise program.

### **Proper Form**

- 1 Use an approximate shoulder-width foot stance.
- 2 Descend in a controlled manner.
- 3 Ascend at a variety of speeds (including fast but controlled).
- 4 Exhale after the major effort on the ascent.
- 5 Avoid bouncing or twisting in the bottom position.
- 6 Maintain a normal lordotic posture with an erect spine.
- 7 Descend to the point where the tops of the thighs are parallel to the floor.
- 8 Keep feet flat on the floor.
- 9 In general, be sure knees do not go beyond the toes.
- 10 Keep progression of both resistance and depth of the squat gradual, making sure not to exceed the body's capacity of adapting to the imposed demands. Warning symptoms for progressing too fast include back pain, knee pain and other symptoms of overtraining.
- 11 Consider fatigue to be a risk factor in squatting.
- 12 Maintain proper form or stop performing the exercise.

Note: The conclusions outlined here are those of the researchers only and should not be construed as an official statement of either the American College of Sports Medicine (ACSM) or the Aerobics and Fitness Association of America (AFAA).

Written by Jeff Chandler, Ed.D., C.S.C.S., FACSM, Ben Kibler, M.D., FACSM, Jim McMillan, Ed.D., C.S.C.S., and David Richards, M.D., for the American College of Sports Medicine's (ACSM's) March 2000 Current Comments.

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## **Exercise & Pregnancy**

A recent study shows vigorous exercise in pregnant women does not raise the risk of pre-term delivery and may actually lead to more timely births. When researchers at the Columbia School of Public Health followed 557 middle class prenatal women, they did not find a substantial difference in the pattern of delivery between non-exercisers and women who exercised at low to moderate levels (1,000 calories or less per week). However, heavier levels of exercise (more than 1,000 calories per week), appeared to reduce the risk of pre-term birth. It was also found that conditioned, heavy exercisers delivered faster than non-exercisers. Heavy exercise means three or more hours per week of aerobics or swimming, four or more hours of calisthenics or five or more hours of bicycling.

## **Effects of EFX**

Recent studies suggest most people get a better workout than they realize on an Elliptical Fitness Crosstrainer. As part of in-depth, ongoing research into the crosstrainer's aerobic benefits, Dr. Len Kravitz of the University of Mississippi Department of Exercise and Leisure Management monitored 10 men and women on the EFX Elliptical Fitness Crosstrainer. According to Dr. Kravitz, the subjects' heart rates indicated that workouts were more intense than subjects had perceived. In other words, the exercisers didn't feel they were working as hard as they actually were. Precor, the maker of the EFX, feels this is due to the crosstrainer's smooth low-impact motion and its easiness to master rapidly. Researchers also found the kilocalorie expenditure on EFX was greater than leisure cycling at 9.4 mph and moderate intensity aerobic dancing, matching running an 11-5-minute mile and moderate intensity skiing.

Precor is introducing a new crosstrainer, the EFX546, that contains a host of new features including an increased range of 10-40 degrees on the CrossRamp (ramp incline) and a lighted display on the electronic console that shows the muscles being emphasized as the CrossRamp changes settings. For more information, call (800) 4-PRECOR; or visit their Web site at [www.precor.com](http://www.precor.com).

## **Knee Strength**

Strengthening the quadricep muscles, which are responsible for stabilizing the knee joint, may improve symptoms of osteoarthritis, states the IHRSA Institute on Exercise and Health (IIEH).

According to a study conducted by the Indiana University School of Medicine, overweight women are especially at risk. Researchers found the women in the study group who developed osteoarthritis were heavier and had 18 percent less extensor strength than women who were osteoarthritis free. There was no such difference in men.

Given the knowledge of safe and effective exercise for the aging population, researchers stress quadricep strength can be increased by training, even in the elderly. "Muscle strength not only prevents instability and provides proper joint alignment, but also ensures normal performance in daily tasks such as standing up from a chair or climbing a step. Emphasis should be placed on strength-to-weight

ratio as a strong indicator of physical fitness," says Massimo Massarini, M.D., a member of the IHRSA Institute on Exercise and Health.

### **America's Fitness Paradox**

Most people want to exercise, but many are just too tired. It's a fitness paradox. To break free of this paradox, eat right and at the right time.

"Food is the key to breaking that cycle," advises Kristine Clark, Ph.D., R.D., director of sports nutrition at Pennsylvania State University. "The right foods, such as eggs, whole grains, fruits, vegetables and dairy products can help fuel energy and give that extra push needed to get up and exercise."

Dr. Clark emphasizes not only eating the proper foods, but eating them at the correct time. A meal containing protein, carbohydrates, fat and nutrients eaten one to two hours before activity should provide optimal energy.

For a free brochure, Foods That Fuel: A Guide to Eating ]Our Way to Fitness, send an SASE to the American Egg Board, Department Q, Box 1214, Park Ridge, IL 60068.

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## **The Thursday Morning Ladies.**

**Exercise helps bond an inspiring group of women at Metro Fitness in Rochester, New York.**

Author/s: Mark Grevelding

Issue: Nov-Dec, 2001

The Thursday morning ladies provide the motivating stories I often share with my personal clients and anyone in need of inspiration. My point in telling these stories is to encourage those who feel it is too late to get in shape. When confronted with these skeptics, I respond with testimonials of the ladies in my Thursday morning step class--stories which prove it is never too late to turn back the hands of time.

A sorority of sorts, they are a group of about 15 women between the ages of 50 and 76 who participate in classes almost every weekday morning. The ladies sweat together in class and convene afterwards at designated tables in the gym for coffee and, occasionally, a tasty treat baked by one of them. These ladies will probably never compete in a race or enter a bodybuilding competition. In fact, the mere thought would send them into fits of laughter. However, the individual battles they

fight and win against arthritis, fibromyalgia, osteoporosis and other chronic diseases are certainly worthy of mention, if not medals.

It's important to note, none of these ladies were cut from the athlete mold. Instead, they discovered their inner-athlete after participating in an exercise program. This is an important distinction since many women refrain from exercise because they perceive themselves as non-athletic. Now, when confronted with one of these women in a consultation, I usually reward them with a Thursday tale: "You should see these ladies pump out push-ups," I boast, not fully disclosing the creative ways the ladies cheat on their push-ups or how some of them conveniently run to the drinking fountain the moment we assume push-up position. Yes, the mirror reveals all!

It's also important to note that most of the Thursday morning ladies did not begin exercising until they retired or their children left home. They are living proof that muscles and bones have no expiration date. Needless to say, there is nothing pleasurable about the ailments caused by muscle attrition or a lack of bone density. As evidenced by the Thursday morning ladies, these conditions can be remedied through strength training and cardiovascular fitness.

Recently, while talking with a potential client who just got discouraging results from a bone scan, I comforted her with a Thursday morning story. "She's 76 and has impeccable posture. She [didn't start] exercising until later in life, but now she goes to classes 6 days per week. If she slips on the ice, she gets up, curses and keeps going," I explained, hoping to provide a glimmer of hope for this woman. Clearly, the story is meant to impress, but the message sinks in. After all, most 76-year-old women do not walk away uninjured after a slip on ice.

As mentioned before, many of the ladies have health problems, but the exercise and endless support they receive from each other makes a significant difference. One of the women has fibromyalgia, which causes muscle pain and fatigue. My heart breaks when I see her sneak out of class, realizing she is having a particularly bad day. However, she has learned to accept her limitations, as have many of the other women. What's important is the ladies don't give in to their limitations, they work around them.

One of the Thursday ladies is recovering from major surgery stemming from a stroke. This regal dame occupies a corner of the classroom, always decked out in flawless aerobic outfits. She has participated without a step since the surgery, but she glows in her corner nonetheless. Her story always comes to mind when counseling someone who is recovering from surgery or a chronic illness. I tell them how she marches in a corner with a big smile and a look of utter joy. "You'd think she just won the lottery," I explain. The look in their eyes reveals the truth. She did win the lottery. When faced with life-threatening surgery or illness, the return to health is the best jackpot of all.

Thursday morning stories are often humorous, funny anecdotes revealing, not only the ladies' improvements, but also my own growing pains as an instructor. Together, we've evolved through many changes in the aerobic industry. They managed to survive the increase in beats per minutes on my tapes, but were eternally grateful when I began pitching them down. They suffered through my Gin Miller Extreme Step phase and barely made it through my dark whistle-wearing months. I've taunted them with fly jacks, tic tocs, revolving doors' and helicopters. (Of course, I

always offer modifications, which most of them have smartly chosen). They've been good sports and, for the most part, have respected my "No Gabbing in Class" rule.

Of course, the Thursday morning ladies don't always do what I tell them. I've begged them to pretend they are Madonna, pleading, "You guys! Please! It will be fun!" Naturally, I end up being the only one crawling on the floor singing "Like a Virgin." I was recently certified in kickboxing, so now I'm hitting them with commands such as, "Take him down, girls!" and "Hooowah! Everybody shout it. Go, `Hooowah!" At first, they just stared at me. Now, I've at least gotten them to whisper a "hoo."

If fitness is the glue that fixes bodies, friendship is the mortar that heal souls. The story of their friendship is the stuff movies are made of. Their coffee sessions after class are legendary and have come to define Metro Fitness in Rochester, New York. I usually try to keep my distance from the gathering at the tables--not due to disinterest, but rather in deference to the sanctity of female bonding. I know all too well that the frequent whoops of laughter erupting at the table probably stem from a story or a joke not meant for male ears. I'm sure most men would want their wives, mothers or sisters to be a part of a group like this and experience the love, happiness and health these ladies share together.

I'm sure there are groups like this just waiting to form everywhere. Like the movie *Field of Dreams*, just set up a coffee maker and a couple of tables and they will come. Providing a place for people to exercise is important. However, providing them with a place to exercise and form lifetime friendships is far more rewarding. I am rewarded every Thursday morning when I walk out of class to the sound of chatter and laughter and the sight of these ladies decked out in their aerobic gear, gathered in a circle, hoisting coffee cups of friendship and fitness. All elegant, each unique--virtual *Steel Magnolias*, worthy of their own movie or, at the very least, a timeless tale that must be told. [Mark Grevelding is a self-employed AFAA certified personal trainer, group fitness instructor and freelance writer who teaches and trains at various locations in Rochester, New York.] COPYRIGHT 2001 Aerobics and Fitness Association of America COPYRIGHT 2001 Gale Group

### **Exercise Evaluation and the New AFAA 5 Questions[™].**

Author/s: Sharon Cheng  
Issue: Jan, 2001

Since its inception, AFAA has been concerned about safety and effectiveness in the fitness industry. To this end, in 1983 AFAA not only developed the first Basic Exercise Standards and Guidelines in the United States as it relates to exercise in general, but also as a method of evaluating individual exercises performed in the class setting (The AFAA 5 Questions[™]). These two sources should be weighed side by side when instructors and exercisers choose which exercises to include in a workout session or program.

Back in the early `80s, exercises were forced into "Do" or "Don't" categories--black or white--to define an exercise as acceptable or not. As different disciplines and movements entered the fitness classroom, the "Do" and "Don't" labels became inadequate, making it more important than ever to evaluate exercises on a continuum. An exercise continuum is a spectrum by which an instructor in a group setting can evaluate an exercise from two viewpoints: effectiveness (benefits) and

potential risk (injury quotient) for the potential user. Addressing the gray area between "Do" and "Don't" involves determining exercise appropriateness for the individual according to their skill level, strengths and weaknesses.

Exercises performed in a class setting should be closely scrutinized in terms of their benefits and potential risks. Individuals in a fitness class usually have diverse characteristics and goals. With this in mind, more conservative guidelines are recommended than might be indicated when working one-on-one or with a specialized population such as elite athletes (in fields such as, gymnastics, track and field, etc). In a class setting, an instructor must teach while keeping all participant's abilities and goals in mind. This may mean that a particular exercise might be a "Do" for half the class, while being a "Don't" for the rest.

To help instructors deal with such continuum issues, AFAA provided the Five Questions as a way to simplify the assessment of a move or exercise. The AFAA 5 Questions[™], created back in 1984, only dealt with one class format, which was popular at the time: warm-up from high impact aerobics, high impact aerobics, a sequence of muscle conditioning that started standing and ended on the floor, ending with a final cool-down recovery period stretch.

The original AFAA 5 Questions[™] were:

1. What muscle(s) are you trying to stretch, limber or strengthen?
2. Are you doing that?
3. Is your back protected? Are there any other stress points?
4. Can you isolate the muscle and stay in alignment?
5. For whom is this exercise appropriate or inappropriate?

As we entered a new millennium, we needed to reevaluate the original AFAA 5 Questions[™] to see if they were broad enough to direct the user when evaluating movements or exercises in the multitude of class formats and modalities available today. We also needed to take into consideration terminology which might be outdated, while still trying to maintain a similarity to (and the simplicity of) the original user-friendly AFAA Five Questions[™]. Along with these improvements, we also included the philosophy of AFAA's Fitness Triage[R] to take the AFAA Five Questions[™] to a more in-depth evaluation of how and for whom exercises should be modified.

The NEW AFAA Five Questions[™] are:

1. What is the purpose of this exercise? (e.g., muscular strength or endurance, cardiorespiratory conditioning, flexibility, warm-up or activity preparation, skill development and/or stress reduction).
2. Are you doing that effectively? (e.g., proper range, speed or body position against gravity)

3. Does the exercise create any safety concerns? (e.g., potential stress areas, environmental concerns or movement control)
4. Can you maintain proper alignment and form for the duration of the exercise? (e.g., form, alignment or stabilization)
5. For whom is the exercise appropriate or inappropriate?

AFAA suggests its AFAA Fitness Triage[R] color coding system. Fitness Triage is to the exercise instructor what medical coding in the emergency room is to the physician. It provides an objective look at an exercise to determine its appropriateness for the individual or group being considered. Like a traffic signal light, green means "go," yellow means "caution" and red means "stop."

\* Green means that the intended exerciser is able to perform the exercise safely and effectively.

\* Yellow means that the exerciser may need to slightly modify the exercise (in the same position) in order to enter the safe and effective range.

\* Red means that the exerciser should not perform that particular exercise and should instead substitute with a more appropriate exercise. Red may also mean that the group setting is not the appropriate environment to perform the exercise (due to the need for one-on-one supervision).

#### High Risk Moves

The following is a list of exercises AFAA still considers not appropriate in a general exercise group setting due to their high risk-to-benefit ratio. In many cases, these exercises can be modified to reduce potential risk:

The following is a list of exercises AFAA still considers not appropriate in a general exercise group setting due to their high risk-to-benefit ratio. In many cases, these exercises can be modified to reduce potential risk:

- \* Sustained unsupported forward spinal flexion (Fig. A)
- \* Sustained unsupported lateral spinal flexion (Fig. B)
- \* Weighted deep knee bends
- \* Bouncy (ballistic) stretches
- \* Rapid head circles
- \* Full plough (Fig. C)
- \* Full cobra (Fig. D)
- \* Hurdler's stretch (Fig. E)

- \* Windmills (Fig. F)
- \* Supine double straight leg lifts (Fig. G)
- \* Prone combination double leg/double arm lifts (Fig. H)
- \* Full splits
- \* Weight-bearing pivots on unforgiving surfaces

[Figures a-h ILLUSTRATIONS OMITTED]

Keep in mind that some of these moves may be appropriate in advanced class settings or in specific disciplines (i.e., yoga, dance, martial arts or sports conditioning).

### Scenarios

Here are some examples of the AFAA Five Questions[™] in action:

#### EXAMPLE 1

Exercise to be evaluated: Multiple lateral shuffle slides in a warm-up

Question #1. What is the purpose of this exercise?

A: Warm-up or activity preparation in a boxing fitness class.

Question #2. Are you doing that effectively?

A: Yes, this move will increase core temperature and rehearses movements that may be used later in class.

Question #3. Does the exercise create any safety concerns?

A: Yes. Many students' ankles may not be prepared to do this movement in the first stages of class, causing the ankle to be the potential stress area or even creating a loss of balance.

Question #4. Can you maintain proper alignment and form for the duration of the exercise?

A: Most students will be able to.

Question #5. For whom is the exercise appropriate or inappropriate?

A: This is not an appropriate exercise for anyone during warm-up, although it may be used in the body of a typical boxing class.

Conclusion: With the help of the AFAA 5 Questions[™], an exercise leader should come to the conclusion that multiple lateral shuffle slides would not be appropriate in a warm-up even though it may be used in the body of the workout. As with other high-impact lateral movements, these quick traveling moves can also be a cause of undue stress to the ankle joint. A better alternative to prepare students for lateral movements used in boxing classes would be a stationary side-to-side transfer of weight or simple side to side steps.

EXAMPLE 2:

Exercise to be evaluated: Full-body push-ups from hands and toes (Figs. I-1 and I-2)

[Figures I-1 & I-2 ILLUSTRATION OMITTED]

Question #1. What is the purpose of this exercise?

A: To strengthen the upper body, including the chest, arms, upper back and shoulders.

Question #2. Are you doing that effectively?

A: Yes.

Question #3. Does the exercise create any safety concerns?

A: Not if performed correctly and in good alignment.

Question #4. Can you maintain proper alignment and form for the duration of the exercise?

A: Some participants may be able to, but others will not.

Question #5. For whom is the exercise appropriate or inappropriate?

A: \* Green--Advanced, well-conditioned, strong enough upper body and core strength participants.

\* Yellow--Intermediate to low fitness level participants may want to drop to the knees for shorter lever length, thus decreasing the intensity of the exercise.

\* Red--Pregnant women, those with carpal tunnel syndrome, or with severe low back, wrist or shoulder problems who are unable to maintain torso stability and a neutral spine. Even substituting wall push-ups or alternating hand positions may not reduce the stress enough for some conditions.

Conclusion: As an instructor can see, this is an advanced exercise which can be executed in a form that would pass the AFAA 5 Questions[™], but only for a participant who qualified for the green category. This is an example of how the AFAA 5 Questions[™] can lead the user to appropriate modifications based on participant level and need.

EXAMPLE 3:

Exercise to be evaluated: Supine hamstring stretch with support knee bent; stretching leg is extended toward ceiling. (Figs. J-1 and J-2.)

[Figures J-1 & J-2 ILLUSTRATIONS OMITTED]

Question #1. What is the purpose of this exercise?

A: To stretch the hamstrings during the final class segment.

Question #2. Are you doing that effectively?

A: Yes.

Question #3. Does the exercise create any safety concerns?

A: Not if performed correctly and in good alignment.

Question #4. Can you maintain proper alignment and form for the duration of the exercise?

A: The majority of participants will be able to.

Question #5. For whom is the exercise appropriate or inappropriate?

A: \* Green--For most participants.

\* Yellow--People with tight hamstrings may need to bend and then hold their stretching leg or use a towel as an extender if unable to reach their hands to the back of their leg.

\* Red--Pregnant women or those with severe back pain may need to limit the time in the supine position. This position may affect seniors or pregnant women in their third trimester who don't feel comfortable getting down on the floor.

Conclusion: Clearly, this is an excellent exercise that is often used safely in a wide variety of group exercise settings.

After reviewing the previous examples, instructors will notice that generally there is one particular question that will pinpoint potential problems which may arise from a given exercise (if there are any), even if the exercise is deemed appropriate by the other questions. Hopefully, the new AFAA 5 Questions[™] will serve as a safety net, as well as a refinement tool, allowing instructors to more appropriately select and modify exercises for their diverse classes.

Questions: Code No. 0042

Exercise Evaluation and the New AFAA Five Questions

1. AFAA's Basic Exercise Standards and Guidelines were:
  - A. developed so that they would never have to be changed or updated.
  - B. the first exercise guidelines ever developed for the fitness industry.
  - C. designed only to be used by PE teachers.
  - D. introduced after other organizations had developed similar guidelines.
  
2. As the fitness industry has matured over the past two decades, exercise evaluation has broadened from:
  - A. simple to complex.
  - B. gray to black and white.
  - C. complex to simple.
  - D. black and white to gray.
  
3. When determining the appropriateness of an exercise for an individual, a factor that should be taken into consideration is the individual's--.
  - A. strengths.
  - B. weaknesses.
  - C. skill level.
  - D. All of the above.
  
4. An exercise continuum can best be described as:
  - A. a variety of exercises meeting the needs of a diverse exercise population.
  - B. a scale for evaluating an exercise in terms of its difficulty.
  - C. a spectrum weighing exercise benefits to risks.
  - D. an exercise pendulum that swings from effective to ineffective.
  
5. When fitness instructors work with a class in a group setting vs. working one-on-one as a personal trainer, their exercise selections should:
  - A. have more variety of movement.
  - B. be more conservative.
  - C. be more intense or difficult.
  - D. be more liberal to accommodate a variety of needs.
  
6. Which of the following was NOT one of the original AFAA 5 Questions[TM]?
  - A. Is your back protected? Are there any other stress points?
  - B. How can you modify this exercise to make it appropriate for all levels?
  - C. Can you isolate this muscle and stay in alignment?
  - D. What muscle are you trying to stretch, limber or strengthen?
  
7. Which of the following was NOT one of the new, revised AFAA 5 Questions[TM]?
  - A. Are you doing that effectively?
  - B. What is the purpose of this exercise?

- C. Is your back protected?
  - D. Does this exercise create any safety concerns?
8. AFAA's concept of Fitness Triage[R] grew out of the triage system found in:
- A. hospital emergency rooms.
  - B. physical education skill classification systems.
  - C. first aid skills taught along with CPR.
  - D. wartime classifications of battle strategies.
9. Which of the following is NOT found on AFAA's list of high-risk exercises?
- A. modified hurdler's stretch
  - B. full cobra
  - C. bouncy ballistic stretches
  - D. weighted deep knee bends
10. Most of the exercises listed on AFAA's list of high-risk exercises:
- A. should never be performed and cannot be modified.
  - B. should be used, but with caution.
  - C. have alternate modifications appropriate for advanced exercisers.
  - D. are great exercises that can be performed in a group setting without concern.
11. AFAA's Fitness Triage[R] system classifies exercise appropriateness for individuals through:
- A. beginning, intermediate and advanced categories.
  - B. level I, II and III groupings.
  - C. a color coding system.
  - D. All of the above.
12. When an exercise being evaluated by the new AFAA 5 Questions[TM] has a major safety issue, the particular question needing the most scrutiny is:
- A. Question #2.
  - B. Question #3.
  - C. Question #4.
  - D. Question #5.
13. The AFAA 5 Question[TM] that most carefully looks at the duration of an exercise and whether or not fatigue might be affecting the exerciser's posture and alignment is:
- A. Question #1.
  - B. Question #2.
  - C. Question #4.
  - D. Question #5.
14. An exercise can be found to be both safe and effective for most exercisers, but still not pass muster for a specific individual. When this is the case, which AFAA 5 Question[TM] should be your focus?

- A. Question #1.
- B. Question #3.
- C. Question #4.
- D. Question #5.

15. When an exercise being selected does not match what the original intent or purpose of the exercise was to be, the AFAA 5 Question[™] which will discern that mistake will be:

- A. Question #1.
- B. Question #2.
- C. Question #3.
- D. Question #4.

AFAA Board of Certification and Training with Sharon Cheng, M.B.A, M.S.P.T

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## **Healing Moves.**

**How to Cure, Relieve and Prevent Common Ailments with Exercise.**

Author/s: Carol Krucoff

Issue: Nov, 2000

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How a regular exercise program can enhance sexuality and help prevent prostate cancer.

Weight training can help build strength and rev up your metabolic rate so you burn more calories even at rest. Two or three 20-minute strength training sessions per week can build and maintain muscle mass. Stretching after each exercise session will help boost flexibility and prevent injury. Weight training can help build strength and rev up your metabolic rate so

you burn more calories even at rest. Two or three 20-minute strength training sessions per week can build and maintain muscle mass. Stretching after each exercise session will help boost flexibility and prevent injury.

If you've been sedentary, however, it's important you work gradually toward this goal. And if you're a man over age 40 who's been inactive and wants to start a program of vigorous exercise, check with your doctor first. Even if you start slowly, however, you may quickly notice the positive effects of physical activity on sexual function.

In general, exercising at a level you enjoy--either moderately or vigorously--for 30 to 60 minutes, three to six times a week, will boost your physical, mental and sexual health with little danger of overtraining. Aerobic exercise is important to reduce the risk of diseases that can lead to sexual problems--such as cardiovascular disease and diabetes and should be performed at least three times a week for 30 minutes a session.

It's been touted in locker rooms for years: Getting fit improves your love life. Research supports this age-old "jock wisdom." Exercise increases sexual drive, sexual activity and sexual satisfaction, according to numerous studies. Getting fit appears to enhance sexuality through a variety of mechanisms that affect both body and mind. Physical boosts in endurance, muscle tone, body composition and blood flow can all improve sexual functioning. Psychological benefits, such as stress reduction, mood elevation, increased self-confidence and heightened self-esteem, can also enrich your love life.

Exercise boosts health and appearance, both of which can enhance sexuality. Healthier people may be more willing and able to have sex. People who feel more attractive may also feel more sexy. Aerobic exercise exerts a calming yet energizing effect, which many consider the ideal mind-set and body-set for good sex. A man who looks and feels better about himself may also be better able to perform sexually.

Starting an exercise program can get you in shape for sex. A study of 78 sedentary but healthy middle-aged men who started exercising vigorously 3 to 4 days a week (60 minutes per session) revealed that the new exercisers reported more frequent sexual activity and orgasms, more reliable functioning during sex and a higher percentage of satisfying orgasms. "The degree of sexual enhancement correlated with the individual's fitness gain," reported study author James White, professor emeritus of physical education at the University of California, San Diego.

\* Running boosts sex drive. Eighty-three percent of female runners and 75 percent of male runners responding to a poll in Runner's World magazine claimed that running enhanced their sex life.

\* Women also get a sexual spark from exercise. A survey of more than 8,000 women, ages 20 to 45 (responding to a questionnaire published in Shape magazine) found that 40 percent said exercising made them more easily aroused, 33 percent said exercising led to more frequent sexual activity and 27 percent reported

increased ability to climax. As a result of working out, 89 percent reported they felt heightened sexual confidence and 98 percent reported improved self-confidence.

**Turbulent transition: how exercise can relieve many of the symptoms associated with menopause.**

Author/s: Carol Krucoff

Issue: March, 2001

**How exercise can relieve many of the symptoms associated with menopause.**

Technically, the word "menopause" means the end of all menstrual bleeding and refers to a single day in a woman's life when she has not had a menstrual period for 12 consecutive months and no other biological or physiological cause can be identified. In general usage, however, the term "menopause" describes the broader transitional period surrounding this one-day event. During this time, decreasing production of the female sex hormones estrogen and progesterone frequently prompts a variety of physical and psychological effects, including hot flashes, weight gain, mood swings and unpredictable menstrual bleeding.

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12 consecutive months and no other biological or physiological cause can be identified. In general usage, however, the term "menopause" describes the broader transitional period surrounding this one-day event. During this time, decreasing production of the female sex hormones estrogen and progesterone frequently prompts a variety of physical and psychological effects, including hot flashes, weight gain, mood swings and unpredictable menstrual bleeding.

In recent years, the term "perimenopause"--which literally means "around menopause"--has come into vogue to describe the years leading 'up to menopause. Perimenopause is loosely defined. Some say it begins as soon as a woman's menstrual period starts changing, which can occur more than a decade before menopause. Others confine it to the immediate three to six years prior to the last menstrual period. For some women, this transition is smooth and uneventful. For others, it's an emotionally charged time akin to riding a hormonal roller coaster, an experience some women describe as "puberty in reverse."

### **The Basics**

Just as adolescence can be a volatile time for hormonal fluctuation, so too can perimenopause. When the hormones that regulate fertility begin to "wind down" prior to menopause, periods often become irregular, and other unsettling effects can occur.

The most obvious changes are those in the menstrual cycle itself, with shorter or longer periods, lighter or heavier flow and frequently skipped cycles. While most of these changes are natural, women should contact a healthcare provider if they notice abnormal uterine bleeding, such as periods more often than every three weeks, heavy periods with "gushing" and clots, or bleeding after intercourse.

At menopause, the ovaries no longer produce enough estrogen and progesterone to build up the lining of the uterus each month, so monthly flow stops. In industrialized societies, most women experience menopause between the ages of 45 and 55, with the average age being 51. Some women stop menstruating as early as their late 30s. In rare cases, women have periods into their 60s.

As a commanding landmark of physical and psychological transition, perimenopause and menopause represent an ideal time to reassess health habits and lifestyle strategies, especially those that might reduce the risk of serious ailments common in postmenopausal life. With the possible exception of quitting smoking, no single habit or health strategy addresses the range of mind-body-spirit issues more than adopting a regular program of physical activity.

### **How Exercise Helps**

Women experience a broad range of changes during perimenopause that can affect much more than just their reproductive system. Some changes are temporary, such as hot flashes and night sweats. Some are annoyances, such as vaginal dryness and frequent urination. Others can be permanent, disabling or fatal conditions, such as coronary artery disease and osteoporosis.

Hormone replacement therapy (HRT) is a standard treatment for many of these conditions, yet these drugs remain controversial and many women are reluctant to take them. Hormone therapy is inadvisable for women with an increased risk of cancer and potential side effects of these drugs are frequently of concern. Important studies, such as the Women's Health Initiative (which will conclude in 2008), are examining the safety and effectiveness of HRT. Until more is known, women need to consult their doctor and make individual decisions based on their risk factors for osteoporosis, heart disease and cancer.

Whether or not a woman chooses to take HRT or other "designer estrogens" at menopause, regular exercise is a powerful medicine that helps mitigate virtually all the negative changes women experience at midlife and beyond. These negative changes include:

\* **Increased cholesterol levels.** As estrogen levels decrease, total cholesterol levels go up, increasing the risk of heart disease. Regular aerobic exercise elevates the level of HDL ("good" cholesterol), lowers the triglyceride level, improves the total cholesterol-to-HDL ratio, and lowers the level of LDL ("bad" cholesterol)--effectively combatting the onset of heart disease.

\* **Weight gain.** Most women's waistlines expand during menopause, although it's unclear whether this results from aging, decreased activity, increased intake or hormonal changes. According to some experts, the average woman gains about 10 to 12 pounds during the menopausal years. Regular exercise can help eliminate or minimize this midlife weight gain. Strength training can boost muscle mass, which increases the metabolic rate so that, even at rest, a woman will burn more calories. Aerobic exercise is an unsurpassed calorie burner.

\* **Hot flashes.** An estimated 85 percent of perimenopausal and menopausal women have hot flashes, some just two or three times a day and others as often as once an hour. These three- to 10-minute flashes of heavy sweating and increased heart rate can be annoying and embarrassing. At night, such sweats can frustratingly disturb sleep, further contributing to the irritability and depression common at this life stage. Relaxed, slow abdominal breathing has been shown to cut the number of hot flashes in half. Research suggests that regular aerobic exercise may also reduce their frequency and severity.

\* **Insomnia.** Regular exercise helps people fall asleep more easily and also deepens sleep. Fit people typically take less time to fall asleep, have fewer awakenings and experience more delta sleep (the nondreaming sleep that promotes the greatest amount of body recovery). Also, exercise that reduces night sweats can also reduce sleep interruptions.

\* **Anxiety and depression.** Regular physical activity can help relieve mild to moderate anxiety and depression. Furthermore, it is associated with a variety of positive psychological outcomes, including improved self-esteem, reduced stress, enhanced energy and elevated mood.

\* **Bone loss.** The dramatic drop in estrogen at menopause prompts women to lose bone at an accelerated rate, with some losing up to 20 percent of their bone mass in the eight years after menopause. Weight-bearing activities and resistance exercise can help build and maintain bone density, with some research suggesting that it may

be as effective a bone builder as HRT. "Physical activity, through its load-bearing effect on the skeleton, is likely the single most important influence on bone density and architecture," concludes the U.S. Surgeon General's Report on Physical Activity and Health.

Women who can't or won't take synthetic estrogens may find that exercise can provide many similar benefits. However, those who are on HRT can use exercise as adjunct therapy to enhance the medication's effects on bones and the cardiovascular system while potentially minimizing some of the drug's side effects.

### **Exercise Recommendations**

Three kinds of exercise are particularly helpful in reducing troublesome symptoms of perimenopause and menopause:

1. **Aerobic activity** helps with weight loss and maintenance, relieves negative psychological symptoms such as anxiety and depression, improves cardiovascular fitness, and has been shown in a study of Swedish women to reduce the number and severity of hot flashes. Do some form of rhythmic activity that uses the large muscles of the body--such as walking, dancing, or running--three to six days a week, for 20 to 60 minutes. If hot flashes are a problem, try an hour of aerobic exercise, three times a week.

2. **Strength-training exercises** help with weight loss and maintenance by boosting muscle mass and metabolic rate, as well as helping reduce the risk of osteoporosis by strengthening bones. Lift weights or use strength-training machines two to three days a week. Perform one set each of eight to 10 exercises that strengthen the major muscle groups--arms, shoulders, chest, back, abdominals, hips and legs. Younger women can work up to a weight they can lift at least eight but no more than 12 times. Older and more frail women (age 50 and above) may find it more appropriate to choose a lighter weight they can lift at least 10 but no more than 15 times.

3. **Deep abdominal breathing** can reduce the frequency of hot flashes by 50 percent to 60 percent, according to extensive studies by psychologist Robert Freedman, professor of psychiatry and behavioral neurosciences at Wayne State University School of Medicine. Also known as "paced respiration" or "yoga belly breathing," deep abdominal breathing is an effective technique to relieve stress. Numerous published studies from Wayne State University have shown that focused breathing can cut hot flashes in half. By deliberately trying to slow the breathing rate (with deep, slow inhalations that fill up the belly and long, smooth exhalations), women can learn to breathe just seven to eight times per minute (compared to the average rate of 15 to 16). Researchers found that when a woman begins this kind of breathing as soon as she feels a hot flash coming on, she can interrupt the flash, eliminating it entirely or reducing its severity. Consider enrolling in a yoga or tai chi class to learn more about focused breathing.

### **Cautions**

Precautions concerning exercise during this life stage are not related to menopause itself, but rather to the increased risk of certain medical conditions that occur when estrogen levels diminish. Women in midlife need to be aware that heart disease is

the leading cause of death in women. Strenuous physical exertion by women with uncontrolled heart conditions can cause serious cardiovascular events. If you are planning to start an exercise program, it is essential that you consult a physician immediately if:

- \* You have two or more risk factors for heart disease (including high blood pressure, high blood cholesterol, diabetes, smoking, family history of heart disease, and obesity).
- \* You are a sedentary woman over age 50 (or a man over age 40).
- \* You have a known heart condition.

Osteoporosis is also of concern to women at midlife, especially since it's a "silent disease." This means that a significant number of people with low bone density are unaware they have a problem until a minor fall results in a major fracture. Women approaching menopause (especially those with family history of osteoporosis) should consider having a bone density test to determine their risk. If you already have low spinal bone density or osteoporosis--particularly if you've suffered a fracture--consult a physician or physical therapist for an individualized exercise program.

If you've been inactive, be sure to start any new exercise program slowly and progress gradually. Begin with a little as a 5-minute walk and each week add another 5 minutes until you're walking continuously for 30 to 60 minutes. Always warm up before activity, stretch gently and cool down at the end of exercise.

### **Additional Resources**

- \* The North American Menopause Society (NAMS) P.O. Box 94527 Cleveland, OH 44101 [www.menopause.org](http://www.menopause.org)
- \* The Melpomene Institute (for women's health research) 1010 University Ave. St. Paul, MN 55104 [www.melpomene.org](http://www.melpomene.org)
- \* The American College of Obstetricians and Gynecologists (ACOG) Resource Center P.O. Box. 96920 Washington, DC 20090 (800) 762-2264 [www.acog.org](http://www.acog.org)
- \* Healthfinder, an Internet site for health-related government agencies such as the National Institutes of Health and the Department of Health and Human Services, can provide a wealth of information about menopause and associated conditions. Visit [www.healthfinder.gov](http://www.healthfinder.gov), then follow the "search" cues to find information about specific disorders.
- \* Menopause Naturally, by Sadja Greenwood, M.D. (Volcano Press, 1996).
- \* Strong Women Stay Young and Strong Women Stay Slim, both by Miriam Nelson, Ph.D., with Sarah Wernick, Ph.D. (Bantam Books, 1997 and 1999).
- \* Outsmarting the Midlife Fat Cell, by Debra Waterhouse, M.P.H., R.D. (Hyperion, 1998).

\* Dr. Susan Love's Hormone Book, by Susan Love, M.D., with Karen Lindsey (Times Books, 1997).

\* The Menopause Self-Help Book, by Susan M. Lark, M.D. (Celestial Arts, 1990).

\* The Bodywise Woman, by Judy Mahle Lutter and Lynn Jaffee (Human Kinetics, 1996).

\* The Change: Women, Aging and the Menopause, by Germaine Greer (Fawcett Columbine, 1991).

--C. K./M. K.

Consult AFAA

To read more on this and related topics, refer to the following Fitness Gets Personal[R] cards:

\* E5: Warming Up

\* E13: Common Exercise Misconceptions

\* H15: Cardiovascular Disease

\* L1: Exercise for Longevity

\* L2: Women's Health--A Guide to Self Care

\* L9: Exercise and Menopause

\* N2: Nutrition for the Mature Adult

For more information, call AFAA at (800) 446-2322.

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