CHAPTER EIGHT

ANTI-AGING EXERCISE

“Life is 10% what you make it, and 90% how you take it.”

Irving Berlin
INTRODUCTION

Yes, you have heard it before – exercise, exercise, and more exercise! Is it really that important? Why do you have to do it now? How much to do? What kind of exercise? What intensity?

If there is a magic pill for anti-aging, there is no doubt among leading researchers that exercise is it. Nothing comes closer to achieving anti-aging effects in our body than exercise. Research has repeatedly shown that those who exercise consistently live longer, happier and get sick less often. The bottom line is to do it or die!

From an anti-aging perspective, the real question is not whether to exercise but, more importantly, what kind of exercise, how much and how often. This is where the secret lies. To know the details is what separates the master from the amateur.

Anti-aging exercises consist of three separate components:

1. Flexibility Training
2. Cardiovascular Training
3. Strength Training

Make no mistake about it! Each of the components is equally important. It is well known that aerobics is good for the heart. What is less well known, but just as important, is that flexibility training and strength training contribute as much to longevity as aerobics. As you read further on, you will come to a better understanding of the reason. Suffice to say at this point that any
anti-aging exercise program must be individually tailored to meet your personal needs, based on your current physical conditions. The program must also include, in a balanced fashion, all three components mentioned above.

Let us now look at each of the three components in detail.

**FLEXIBILITY TRAINING**

Flexibility training is the foundation of any exercise program because it increases blood flow to the muscles. It also warms up the key muscles of our body and allows your body to be more pliable and less prone to injury. Stretching only takes five to ten minutes a day. Think about it. The key to what you are trying to do is to have a healthy and active life. If you are injured, does that not defeat the purpose? **A simple stretching program before starting to exercise and during the cool-down period is, therefore, mandatory.** The lesson is simple: do not embark on any aerobic program or weight-training program without first doing stretching exercises for your key muscle groups.

**CARDIOVASCULAR TRAINING**

Cardiovascular (aerobic) exercise forms an important pillar within the entire anti-aging exercise program. It is one of the greatest anti-aging bullets available.
10 MYTHS ABOUT AEROBICS

1. You have to work out at least 20 minutes to get cardiovascular benefit — Long term follow up research has shown that life expectancy increases with consistent exercise, and that the difference between those who exercise ten minutes a day versus those exercising 20 minutes or more a day is the same. The key is to do it everyday.

2. Low-intensity aerobics burns more fat — Exercises at 60% of maximum heart rate causes the body to burn a greater percentage of fat as fuel rather than stored sugar (glycogen) or protein (muscle), but working more intensely at a higher heart rate (say 80%) causes more total calories to be burned, which is the bottom line in shedding body fat.

3. Do aerobics first and follow it with weights to get lean — Weight train first after a short warm up, then do cardiovascular exercise. This will conserve the energy you need to reach your target heart rate and will be closer to the fat burning mode desired in cardiac exercises.

4. Aerobics is better than weight training for controlling body fat — The best program utilizes both aerobics to burn fat (which is used for fuel) and weight training (powered by glycogen) to increase the basal metabolic rate by increasing lean body mass (for each pound of muscle mass, your body burns an extra 70 calories per day).

5. Burn off extra desserts with another 20 minutes of aerobics — A dangerous philosophy that sets yourself up for over training. If you must eat dessert, try to cut back on the amount and just work at a slightly higher intensity during the next few cardio sessions.
6. Aerobics plus light weight lifting will lower total body fat without reducing muscle mass — To alter the fat-to-muscle ratio in favor of muscle, you have to lift heavier weights to build up the muscle mass and, at the same time, do aerobics to reduce body fat.

7. Eat a healthy meal to get the energy you need for aerobics — For the first 20 minutes of aerobics, our body utilizes carbohydrates as fuel; thereafter, it uses fat as the fuel source. If burning fat is your goal, then loading up with carbohydrates is counterproductive. If you are running a marathon, then you need the extra carbohydrates to last as long as possible during the long run.

8. Doing aerobics at lower intensity also builds heart health — The heart is a muscle that needs to be stressed to be strong. The amount of stress depends on the physical condition of the person. Recent studies have shown that exercising 30 minutes a day, either in one continuous stretch or in blocks of 10 minutes each is equally beneficial. The key is to work your heart at 75 - 80% of your maximum heart rate.

9. More aerobics is better — Studies have shown that excessive aerobics (more than 3,500 kcal per week) flattens your longevity curve and leads to excessive oxidative stress. You should limit your aerobics workout to no more than one hour each session for optimum anti-aging purposes.

10. Aerobics exercise benefits the heart only — Research has shown that doing cardiovascular exercise at a heart rate of 80% of your maximum heart rate (calculated by 220-age) increases growth hormone release from the pituitary gland, which rejuvenates your body.
How to Stay Young and Live Longer

The list of benefits from aerobic exercise resembles that obtained from growth hormone: gain of muscle mass and strength, loss of fat, increased energy, increased sense of well-being and a decrease in anxiety and depression. Moreover, aerobic exercise also increases the level of HDL-cholesterol, lowers blood pressure, improves the immune system and helps to protect the body against a host of chronic diseases, including cardiovascular diseases, stroke, hypertension, diabetes and osteoporosis. While research has shown that cardiovascular exercise increases longevity, the remaining questions still under research include: how much exercise is sufficient? How much is overdoing it? A famous study

**TOP 10 MOTIVATIONAL EXERCISING TIPS**

1. **Understand** why you are doing it.
2. Set **realistic goals**. Anti-Aging is a marathon, not a sprint.
3. Find a **program that is right for you**, which you will follow and stay on.
4. Tell your friends and rely on them to **motivate** you.
5. **Visualize** what you can become.
6. Become a student. **Learn** as much as possible about your sport.
7. **Connect your mind and body**. Listen to your body.
8. **Reward** yourself, at least once a month.
9. **Define success** on your own terms – do not compare.
10. **Go slow, go steady** – **stay on course**.

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looked at 17,000 male alumni of Harvard University between the ages of 35 and 74. Results showed that as the physical activities of the men increased, the death rate decreased. **Men who spend at least 2,000 kilocalories per week doing moderate exercise such as tennis, swimming, jogging or brisk walking, lowered their overall death rate by 25 to 33 percent and decreased their risk of coronary artery disease by an astounding 41 percent when compared to their more inactive fellow alumni.**

**The interesting new finding was that exceeding 3,500 kilocalories per week actually made things worse, giving a slightly increased death rate.** The lesson to be learnt is that moderate exercise is the key to longevity, while extreme and over-exercise can lead to increased oxidation and tissue damage. Your heart may get a wonderful workout, but the rest of the body suffers tremendous damage from oxidative stress that occurs during extreme forms of exercises such as ultra-marathons (100 miles).

Those who do engage in such strenuous activities must take extra precautions to protect themselves from the excessive free radical damage that can occur from increased cellular respiration. Therefore, additional antioxidant supplementation is a wise choice for those who want to limit the amount of free radical damage in their bodies.

Cardiovascular exercise benefits any age group. However, it should be structured properly and should be scaled moderately to fit the particular needs of each person. You are advised to consult your physician to get medical clearance before, especially, if you are over 35 years of age.
## How to Add 20 Years to Your Life...

### Prevent Heart Disease — Add 9 years

Heart disease is the leading cause of death worldwide. Although there is a genetic component of cardiovascular disease, it is also a culmination of a lifetime of poor dietary and lifestyle habits. The following is a simple list of points to keep in mind to help prevent heart disease.

1. Keep total cholesterol level between 100 - 200 mg/dl
2. Keep LDL cholesterol under 150 mg/dl
3. Keep HDL cholesterol above 50 mg/dl
4. Three times a week of aerobic exercise, 30 to 45 minutes each time
5. Strength training two to three times a week
6. Yearly cardiovascular screening test after age 40

### Maximum Heart Rate

From an anti-aging perspective, our goal with regards to cardiovascular exercise is to monitor the optimum point at which our heart is doing maximum work. **Because of age-related deterioration of the heart muscles, a young person’s maximum heart rate is different from that of an older individual.** Fortunately, the targeted heart rate is a relatively easy number to calculate based on the formula of 220 minus your age. Therefore, if you are 50 years old, your maximum target
heart rate should be 220-50=170. In other words, this is the maximum heart rate that you should generally not exceed, regardless of what form of exercise you take. If you happen to have a stress test by your cardiologist previously, you will realize and note that this is the similar number at which point your cardiologist will tell you to stop. From an anti-aging perspective, we want the heart to be stressed but yet at the same time not over-stressed. Over-stressing the heart has certain advantages and disadvantages. If you are young and training for competitive event, it is not unusual for the heart to be stressed to the maximum. During integral training, stressing the heart at maximum target heart rate would allow peak performance especially in sprint-type events where powerful burst of energy is required.

**Intensity (Target Heart Rate)**

The intensity of an activity can vary. Most anti-aging experts are in agreement that between 60% and 80% of one’s maximum heart rate is a good, reliable index of intensity. If you are over 45 years old, over-stressing your heart can be detrimental to your heart. If you are 50 years old, your maximum heart rate is 220-50=170 beats per minute. If you take 70% of this then you arrive at 109, 80% of 170 equals 135. Therefore, if you exercise in an aerobic capacity which enhances your cardiovascular fitness, your exercise target heart rate should be between 109 and 135. This is, of course, a very general formula and does not apply to those who are training for competitive sports. As your cardio-fitness increases, your ability to train closer for maximum cardiac heart rate level will also improve automatically.
Duration and Frequency of Aerobics

Fifteen minutes of continuous or discontinuous aerobic activity on a daily basis is the minimum required for health and fitness. A better gauge is through measurement of calories expended, the ultimate standard in any aerobic exercise. Three to five times a week of aerobic activities is considered by most sport experts to be appropriate for the purpose of fitness. From an anti-aging perspective, your frequency is determined by the amount of kilocalories burnt over a one-week period. As we know today, the optimum longevity burn rate is 2,000 to 3,000 kilocalories per week. If you burn 1,000 kilocalories per exercise session, from an aerobic perspective, you need only two aerobic sessions per week to achieve this goal. The 2,000 kilocalories include calories burnt during strength training as well. So, weight training three times a week for 30 to 45 minutes a session accounts for 300 kilocalories per week.

This leaves you only 1,700 kilo calories to burn in aerobic exercise (three aerobic sessions of 500 to 550 kilo calories per session).

Aerobic Zone

For anti-aging purposes, the goal is to keep the heart in a healthy condition without over-stressing the cardiac muscles. For this reason, your exercise intensity should be adjusted so that your heart rate is no more than 60% to 80% of your maximum.

If you are training at 70% to 80% of your maximum heart rate, you are increasing your endurance capacity. In this zone, your functional capacity will greatly improve and you can expect to increase the number and size of the blood vessels to the heart, as well as increase your aerobic capacity and respiratory rate. At
this level, 50% of your calories burnt are from carbohydrates and 50% are from fat and less than 1% is from protein.

If you are training at 80% to 90% of your maximum heart rate, you have entered another zone. In this zone, the exercise intensity is high and more calories are burnt per unit of time. Eighty-five percent of the calories burnt are from carbohydrates, 15% from fat and less than 1% from protein. For anti-aging purposes, it is not recommended that you remain in this zone for prolonged periods. A burst of exercise within this zone just to stimulate the heart and challenge it to meet adverse conditions on an intermittent basis (as in interval training) is acceptable.

**Training at 90% to 100% of your maximum heart rate is not recommended for anti-aging purposes.** In this zone, the highest number of calories per unit of time is burnt. Almost 90% of calories burnt at this intensity are carbohydrates. Only 10% are fat and less than 1% is protein. Very few people can last within this zone for more than a few minutes.

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**Frequent Anti-Aging Question**

*Q: Can over-exercise decrease longevity?*

Over-exercising can have some negative effects on your longevity. A famous study of 17,000 Harvard alumni showed that those who exercised over 3,500 kilocalories a week had a slight increase in death rate as compared to the control group. Researchers postulated that over-exercise leads to an increase in cellular oxidation. This in turn leads to increased free radical formation, some of which can lead to cellular mutation and cancer.
**STRENGTH TRAINING**

There is no doubt among anti-aging experts that strength training should be an integral part of any anti-aging exercise program. The reason is simple: your body mass decreases by 6% to 10% with each decade after age 30. By age 70, you have only about 50% of our muscle strength left. Have you ever noticed how an elderly man shakes hands with you? The fact that the handshake is very weak is usually not because he does not want

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**FREQUENT ANTI-AGING QUESTION**

**Q:** Why should you limit your cardiovascular training to 30 to 45 minutes per workout and not longer?

From an anti-aging perspective, the goal is to maintain our body at an optimum level of exercise as we age. It is not the design of an anti-aging program to prepare you for a marathon. Long training sessions, while good from time to time, can lead to excessive oxidation of muscle cells that in turn can lead to cellular mutation and cancer. Latest research has shown that cardiovascular benefit is evident after ten minutes of continuous aerobics exercise. In other words, you can break down your daily aerobic session into blocks of ten minutes each and still have cardio-vascular benefit.
to shake firmly, but rather because the body’s ability to affect a strong handshake is no longer there. Decrease in body strength leads to a decrease in body function, less energy, less balance and an increase in accident rate (the seventh leading cause of death among the elderly). Increasing strength, therefore, decreases the risk of accidents and increases longevity.

Exercise and Growth Hormone

Exercise, especially strength training exercise, sends a wake-up call to your pituitary gland to release growth hormone (growth hormone is a key anti-aging hormone). While the exact mechanism is not completely understood, properly performed anti-aging exercises stimulates growth hormone release, which has major significant benefits in increasing longevity. If the large muscles group such as chest and back are involved, aerobic exercise have been shown to result in persistent, long-term release of growth hormone in spurts in the blood for two hours or even longer after you stop exercising. Strength training also stimulates spurts of growth hormone to be released into the body as well. It is particularly interesting to note that while moderate intensity aerobic type exercise (60% to 70% target heart rate) is sufficient to cause maximum stimulation of growth hormone release. Weight training at 70% of maximum lift strength also causes a free-flow increase in growth hormone release. At 85% of maximum lift capacity, growth hormone release into our body increases four-fold.
**FREQUENT ANTI-AGING QUESTION**

*Q: What is the single most important factor in an anti-aging exercise program?*

The most important factor is consistency. If you cannot be regular with the program, it does not matter how great your exercise regimen is – you will fail. When you are busy, do less. When you have time, do more. Always do something to keep yourself in the program.

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**The Difference Between Anti-Aging Strength Training and Body Building**

*From an anti-aging perspective, the primary goal is to maintain muscle tone and muscle strength.* You have the option of building muscle size for the purpose of entering a body building competition, if you so wish. Since the goals for anti-aging and body-building are different, the techniques and methodology are also different. From an anti-aging perspective, we want to achieve the following major benefits:

1. Increase in strength, decrease in accidents and increase longevity.
2. Increase lean muscle mass by replacing body fat to increase number of calories burnt even at rest.
3. Reduce depression and relieve stress.
Benefits of Strength Training

One important result of strength training is the increase in physical performance as measured by your strength. Stronger muscles enable you to lift and move things that are heavy. Stronger muscles also provide endurance regardless of what hobby, sports or day-to-day activities you engage in. From an anti-aging perspective, the primary goal is not really to increase the size of the muscle but, rather, to tone the muscle in such a way that the fat is replaced by the lean muscle mass. It is not unusual for those who are in a strength-training program to gain a few pounds of muscle as well as increase their strength and endurance by 30% to 40% after 10 to 12 weeks of consistent weight-strength training. This is achievable. A strength-training program changes body composition. An average 170 pound man with 20% body fat is carrying 34 pounds of fat and 136 pounds of lean body mass. After strength training, provided his weight remains unchanged, only 17% of his body weight is fat, which means he is now carrying only 29 pounds of fat, but 141 pounds of lean body weight. This change in body composition has a direct effect on the appearance resulting in a firmer look.

Strength Training and Metabolic Improvement

As we grow older, we generally lose about half a pound of muscle every year, which lowers our basal metabolic rate by about half a percent. A reduction in the basal metabolic rate means you need fewer calories to maintain your body functions so that your body converts less of the food you eat into energy. Instead, the surplus calories are turned into fat. This is the reason your body composition changes automatically as you grow older, even if you
do not eat any differently. You notice that you are getting fatter and less muscular. This is the natural course of events if you do not do anything to counteract it. **If you are interested in maintaining the body composition you had when you were young, you have to be on a strength-training program.** One of the biggest mistakes that people make when starting a weight management program is failure to incorporate an exercise or strength-training program.

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**ACTION PRINCIPLE**

**Positive Attitude**

A positive mental attitude comes from having a balanced life plan reinforced by daily commitment to self-improvement and service. With each day, you are closer to your goals of staying younger and living longer. You know who you are and where you are going. You know that longevity is within your reach if you follow instructions on a daily basis. You know you can do it, because you have done it before, and you are going to do it again, one day at a time. You feel the enlivening power of having control over your own future. You expect better things to happen in life. With a positive attitude, the world is a better place.