



TEN STRATEGIES TO

Live Longer

Feel Younger
and Have Optimal Health

By Terry Grossman, M.D.

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With an aging and increasingly unhealthy population, issues of longevity and optimal health are more important than ever. It seems that everyone in our society is searching for ways to live longer, healthier lives.

At the same time, we're flooded with information about the most effective path to longevity and optimal health. Countless products promise quick cures, and our news media promote sensationalistic stories about short-lived health trends.

But the truth is that there are many clinically proven strategies you can use to drastically extend your lifespan and optimize your well-being. The following 10 tips are some important techniques that you can start using today.

1 Stay Connected

In his 2008 book, *The Blue Zones: Lessons for Living Longer from the People Who've Lived the Longest*, author Dan Buettner reported on his five years of research traveling the globe looking for the places where people lived the longest. People who live in these four areas had a three-fold greater chance of reaching the century mark than people elsewhere. He identified four such regions, which he calls the "Blue Zones":

- ***The island of Sardinia off the coast of Italy, which has the most male centenarians in the world***
- ***Okinawa, part of Japan but 1000 miles south of the Japanese mainland, which has the longest disability-free life expectancy***
- ***Loma Linda, California, where Seventh Day Adventists have life expectancies that average nine to 11 years greater than other United States residents***
- ***The Nicoya Peninsula in Costa Rica, where middle-aged people have a 400 percent increased chance of living to at least 90 years compared to other Americans***

Buettner identified several things that appeared to be common among people in these areas. The most common denominator he found was that people living in these regions surround themselves with others who share their interests and life's purpose. They could be family members, friends or members of their church, but social isolation was virtually unknown in any of these regions.

This is consistent with medical research that has found that being socially isolated is a health risk. Close interpersonal relationships with a spouse or significant other, other family members, and individuals who share common interests with you do not only keep you happy. They're critical to your health and can add years to your life.

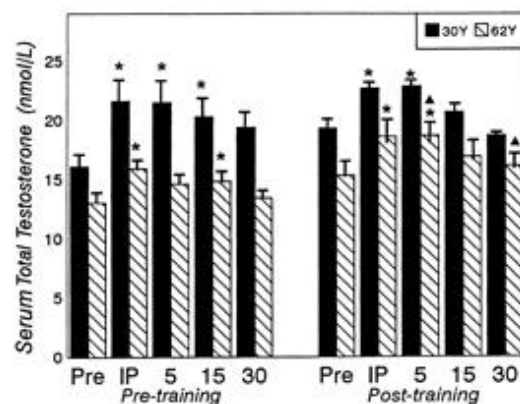
He also discovered three other features that were found in the blue zones: people engaged in regular physical activity as a part of their lifestyle, they did not overeat, and they had a strong sense of purpose for their lives.

2 Add Strength Training to Your Fitness Program

Higher levels of hormones are associated with youthfulness and vitality, and as it is well known that hormone levels decline with age, many people turn to hormone replacement therapy to maintain their levels. There are risks associated with some types of hormonal therapies, but as an alternative you can increase the levels of several hormones associated with youthfulness such as testosterone, DHEA and human growth hormone simply by lifting weights or engaging in strength training.

In a study reported in the *Journal of Applied Physiology* (87:3, pp. 982-92), Kraemer and colleagues found that 62-year-old men who engaged in a 12-week program of weight lifting exercise for 45 minutes twice a week were able to raise their testosterone levels to those of 30-year-old men.

The graph on the right displays the levels of testosterone in 30-year-old men in bold bars and 62-year-old men with shaded bars. Levels before beginning the strength-training exercise program are depicted on the left and after the 12 weeks of training on the right. Hormone levels were measured before the exercise session and at varying intervals for the 30 minutes following. You'll notice that testosterone increased for all age groups, but what is most interesting is that



after the weight-lifting exercise, testosterone levels of 62-year-old men were higher than those of 30-year-old men at the beginning of their weight training. In other words, 62-year-old men who lifted weights were able to achieve hormone levels of 30-year-old men who did not lift weights.

This means that with only 90 minutes of strength training exercise per week, middle-aged men were able to erase the hormonal effects of 32 years of aging. In case you're worried about a possible connection between higher testosterone levels and increased risk of prostate cancer, recent studies have dispelled this notion. It now appears that it is actually lower levels of testosterone that may increase risk of prostate cancer in men. Both men and women are helped by higher levels of testosterone, so everyone should consider adding strength training to their exercise program.

3 Do Variable Interval Training

Most trainers and fitness authorities such as the American College of Sports Medicine recommend aerobic exercise with intervals of steady exertion performed at a given heart rate (your aerobic training range) for 30 to 45 minutes three to five times per week. Newer information, however, suggests that this type of steady aerobic training is actually counterproductive to optimal fitness. You can achieve a greater level of fitness with better lung capacity and decreased body fat by performing variable interval training. And this type of exercise requires only 12 to 20 minutes a day.

If you exercise only within your current aerobic limits, you will do so without improving your aerobic capacity very much. This type of exercise will eventually cause shrinkage of your organs, meaning smaller muscles, a smaller heart and smaller lungs. It will also decrease your heart and lung reserve capacity, which is what your vital organs use to deal with stress. Injuries, trauma, even an intense romantic session, all depend on reserve energy. Reserve capacity for your heart means it has the ability to pump more blood more quickly. In times of stress, reserve capacity for your lungs allows them to deal with high exertion like lifting, running or going up the stairs. Without reserve capacity, you are also much more likely to die of a sudden heart attack or other stressful situation.

If you never push yourself hard enough during your aerobic workouts that you actually need to stop and catch your breath, you're missing out on a key way to improve your level of fitness. This kind of aerobic exercise in which you periodically push yourself harder—at times to your limit—is known as interval training and will train your body for endurance and greater efficiency. Gradually increasing the level of effort you expend during each interval of greater exertion is variable interval training and will build reserve capacity for your heart, lungs and blood vessels and lead to many other health benefits.

Performing variable interval training is simple: short bursts of exertion followed by periods of rest, steadily increasing the intensity and varying the duration of each interval. This creates the right challenge for your heart and lungs to stay fit and strong. While long-duration exercise at a steady level of exertion causes your heart and lungs to shrink, this form of exercise builds up reserve capacity in your heart and triggers the expansion of your lungs. In addition, while standard aerobic sessions take 25 to 30 minutes or more, a variable interval training session takes only 12 to 15 minutes.



Here's how to do it: begin by doing 3 to 5 minutes of gentle stretches and warm-up exercises to get increased blood flow to your muscles. Then perform 2 minutes of aerobic exercise followed by 2 minutes of gentle exercise (such as walking or slow jogging). Next do 1½ minutes of aerobic exercise at a higher level of intensity, again followed by 2 minutes of gentle exercise. Do 1 minute of exercise at an even higher level of intensity followed by 2 minutes of gentle exercise. Finally, do 30 seconds of exercise at close to your maximum level of exertion

followed by 2 minutes of gentle exercise. Try to increase the level of exertion with each subsequent interval—the 1½-minute exercise should be more intense than the 2-minute exercise and the 1-minute exercise more intense than the 1½-minute exercise, etc. Perform some gentle stretches afterwards as well. That's it—about 15 minutes and you're done. But the training effect that will occur will be greater than what you can achieve with 30 to 45 minutes of exercise at a steady heart rate.

You may find it easier as you begin this program to make relatively minor increases in your level of exertion during each progressive interval—and don't worry about reaching your maximum level of exertion by the final interval until you become accustomed to this type of workout. You don't want to overexert right away, which can lead to muscle soreness, injury or other health problems.

This—and any type of aerobic training—is intended for individuals who are already engaged in regular aerobic fitness training. Before beginning an aerobic program, if you have been physically inactive, see a physician to ensure that such training is safe for you. This is mandatory if you are 40 years of age or older.

A few years ago, the “Harvard Health Professionals Study” of 7000 people found that the key to preventing heart disease is intensity—not long duration. So not only is this type of exercise better for you; it is much more manageable to keep up with. The time you spend on your workout is less than half of what you would normally spend performing aerobic exercise, and is more beneficial to your health, which is what you are really trying to achieve.

We teach variable interval training to all our patients at **Grossman Wellness Center** and feel that it is the quickest and most effective way to improve aerobic fitness in half the time of regular training.

4 Take Resveratrol

Caloric restriction, or CR, which refers to deliberately reducing the amount of calories you consume, is the most reliable method for increasing healthy lifespan. Numerous experiments completed over many decades have demonstrated that by reducing the number of calories eaten, animals from a wide variety of species ranging from simple organisms such as yeast to fruit flies and even up to advanced primates such as chimpanzees will live far longer and remain healthier longer. Although no formal experiments have been performed that prove increased longevity in humans, studies of people who practice CR have shown that they have lower levels of cholesterol and blood pressure, along with improved immune function. These preliminary results suggest that people who practice CR will, in fact, live longer.

A form of modified caloric restriction is part of Japanese culture, and the Japanese enjoy among the greatest longevity of any nation on earth. As we discuss in our new book *TRANSCEND: Nine Steps to Living Well Forever*, the Japanese will often recite the words “hara hachi bu” when they sit down to eat a meal. They are saying “stomach eight parts (or 80 percent) full” and they’re trying to remind themselves to stop eating before they are completely full. Reducing calories on the order of 20 percent is one of the reasons the Japanese have achieved remarkable increases in longevity.

Yet most people do not relish the thought of drastically cutting calories or experiencing hunger on a regular basis, so scientists have been working on a pill that people can take that will mimic the effects of CR. They want to have “Caloric restriction without the restriction” in other words. An ingredient in red wine known as resveratrol has created quite a buzz in the longevity research community, as it appears to fill the bill.

There are about a dozen genes that have been associated with the aging process, and it appears that which genes are turned on and which are turned off are quite different between youth and old age. Caloric restriction—and resveratrol—appear to change the expression of genes of older individuals so that they resemble those of younger people.

One way you can get resveratrol is by drinking red wine, but the amounts contained in each glass are very small. David Sinclair working at Harvard has shown that capsules that contain concentrated resveratrol will allow people to get the benefit of several bottles of red wine without the side effects of intoxication, liver damage, etc.

But even resveratrol doesn't accomplish all of the benefits of full caloric restriction. Scientists are currently working on a family of compounds known as *sirtuins* that are even more powerful than resveratrol and should be commercially available within the next few years. When these become available, people may be able to experience most of the benefits of full caloric restriction while eating a normal diet.

In the interim we feel that it is beneficial to do two things: perform modified caloric restriction along the lines of "hara hachi bu" by reminding yourself not to eat to full satiety each time you have a meal, and also take supplemental resveratrol. Ray Kurzweil and I both take one capsule of resveratrol twice a day.

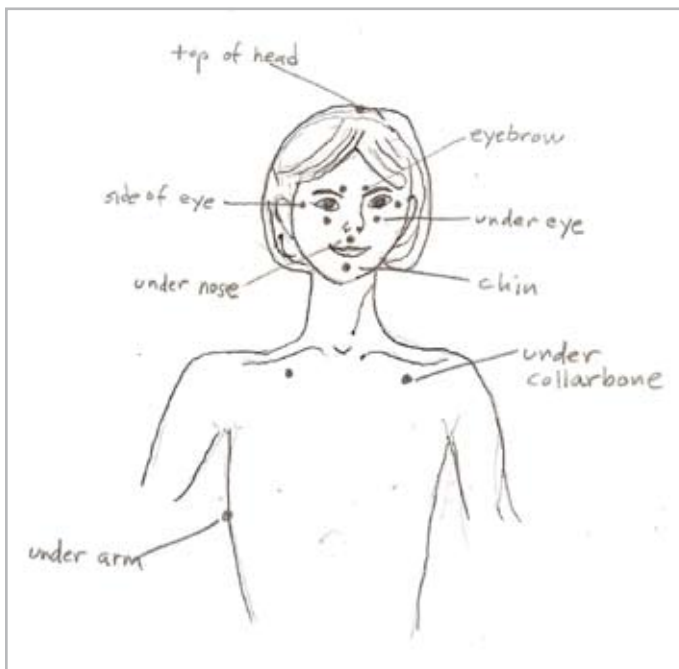
5 Control Stress with EFT

It would be an understatement to say that life is stressful: pandemic flu, terrorist attacks, economic meltdown, risk of losing your job, not to mention the stresses associated with day-to-day existence—the list goes on and on. But long-term exposure to stress can lead to serious health problems such as suppression of the immune system, increased risk of heart attack, high blood pressure and memory loss, to name just a few. A 2005 study published in the *Archives of General Psychiatry* found that over 26 percent of Americans were clinically affected by an anxiety disorder, problem of impulse control, substance abuse disorder or disorder of mood.

There simply aren't enough psychiatrists and psychologists to take care of the tens of millions of people with anxiety disorders, and taking psychoactive medications to control these problems on a chronic basis can be associated with a host of side effects. But there is a technique that you

can do yourself to help control stress and change your life for the better on many levels.

The *Emotional Freedom Technique* or EFT is a procedure you can do at home to decrease your stress level and is an outgrowth of a prior, more complicated, modality that was used by psychologists known as Thought Field Therapy (TFT). EFT was developed by Dr. Gary Craig in the mid 1990s and was designed for individuals to use on themselves without needing the services of a trained professional. EFT involves tapping with the fingers on a series of eight acupressure points on the face and upper body while simultaneously reciting "intention statements" that focus on a problem an individual is trying to resolve. Although branded as pseudo-science by some, the studies on EFT that have been published to date in the peer-reviewed literature suggest that the technique can be effective in treating phobias and other forms of psychological distress.



You can perform an EFT session right now if you'd like. The eight points, as shown in the diagram on the left, which you will tap in order, are:

- **Top of head**
- **Eyebrow**
- **Side of eye**
- **Under eye**
- **Under nose**
- **Chin**
- **Beneath midpoint of collar bone**
- **Under arm**

EFT Tapping Points

You will tap on the first four points with both hands. Use all four fingers (other than the thumb) of both hands and tap about eight to 10 times on each point in turn, beginning with the top of your head. Tap the second four points with just one hand—either one is fine. As you tap on the series of points, you might notice a mild sensation of relaxation.

To perform EFT you will also recite an "intention statement," which is an affirmation of something about your life you'd like to change, at the same

time that you tap. Every intention statement has the same format and goes, "I deeply and completely love and accept myself even though I ..." and you fill in the end of the statement by describing a problem you've been having—something you'd like to change. Examples of intention statements are "I deeply and completely love and accept myself even though I am having trouble falling asleep at night" or "I deeply and completely love and accept myself even though I can't stop eating ice cream." You'll repeat the intention statement one time for each tapping point, so you'll repeat it eight times as you tap on the eight points. After you get done tapping on the eight points and reciting your intention statement eight times, you'll repeat the entire series one more time. This constitutes one EFT session, which takes a minute or two. You can perform EFT several times a day and use it to help reduce your stress level significantly.

We have been teaching EFT to patients at **Grossman Wellness Center** for a number of years and have found that many people have been able to resolve underlying stress, depression, insomnia and other problems by using this technique. If you'd like to learn more about EFT, an extensive amount of information is available at Gary Craig's website, www.emofree.com.

6 Know Your Coronary Artery Calcium Score



Ultrafast CT Scanner

Atherosclerotic heart disease, the buildup of cholesterol-laden plaques within the arteries of the heart, is a precursor to heart attacks, which are the leading cause of death in much of the developed world. The two main pillars of the **Grossman Wellness Center** program are prevention and early detection of disease. Early detection of heart disease is absolutely vital since it is our leading cause of death. If detected early, heart disease is easily

treatable, yet we regularly hear of celebrities such as Tim Russert or Jim Fixx dying suddenly of heart attacks while still in their 50s (or even younger) because disease detection wasn't early enough.

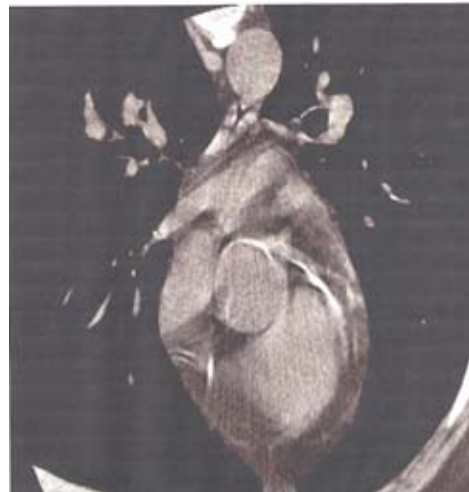
The tragedy is that there is a simple, safe and inexpensive method of detecting atherosclerotic plaque in the arteries of the heart at the very earliest stages. Unfortunately, it is not suggested for routine screening by the American College of Cardiology and is only rarely recommended by the majority of practicing physicians. I frequently give public lectures and will often poll the audience to see how many have had this screening test done.

Rarely is more than one hand in 20 raised. So I suspect if you are like most of the people I speak to, you haven't had this test done either.

Your coronary artery calcium score is a measurement of the amount of calcified plaque within your coronary arteries, the arteries that supply blood to your heart. This test utilizes a machine known as an ultrafast CT scanner. It is called ultrafast because it needs to take pictures of the heart very quickly so the images are not blurred, since the heart is always beating and moving. This test takes less than five minutes, is completely painless and costs between \$200 and \$300 in most areas of the country. You don't need a doctor's prescription to order it and can simply schedule it on your own. The only downside is that most insurance does not pay for it.



Clean arteries



Arteries with calcified plaque

Calcified plaque within the coronary arteries appears on the CT scan as regions of white, while normal arteries are black. The image on the left depicts an individual with completely normal coronary arteries. This individual had a coronary artery calcium score of zero—no detectable plaque. This is the type of test result you would like to have.

The photograph on the right, on the other hand, shows a moderate amount of coronary artery calcification. This person was having no symptoms of chest pain or anything else to suggest that he had heart disease, yet having this ultrafast CT scan allowed him to get aggressive treatment to prevent a heart attack.

As part of a comprehensive program for early detection of heart disease, I recommend that men get a baseline coronary artery calcium screening at 45 years of age and that women get their baseline at 55. If you have

a strong family history of heart disease, particularly before the age of 60, testing should be done five to 10 years earlier. We routinely perform coronary artery calcium score screening as part of our executive physicals at Grossman Wellness Center.

7 Use Ultrasound and Thermography

Cancer is second only to heart disease as a cause of death. And just like heart disease, cancer is far more treatable and often curable when it is detected early in its course. Once cancer has begun to metastasize or spread, it is usually incurable. The problem is compounded by the fact that conventional physicians perform regular screening for only five (cervical and breast cancer in women, prostate cancer in men and colon and skin cancer) of the more than 200 types of cancer.



Ultrasound image of the kidney

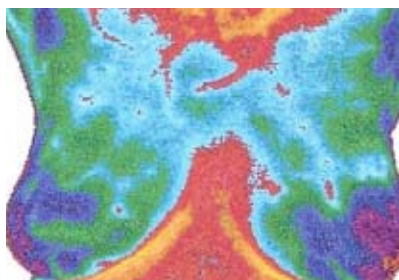
of imaging studies—ultrasound and thermography—that can help locate disease at an early stage can be done more quickly and at much more affordable prices.

Ultrasound uses sound waves above the frequency of human hearing to create images of internal organs. Doctors routinely use ultrasound in obstetrical applications since ultrasound does not use ionizing radiation, which could be harmful to a developing fetus. Compared with other imaging modalities such as CT scans and MRIs, ultrasound is also far less expensive. Radiologists can view ultrasound images and get a much clearer picture of internal organs and structures than with x-rays or other types of physical examination.

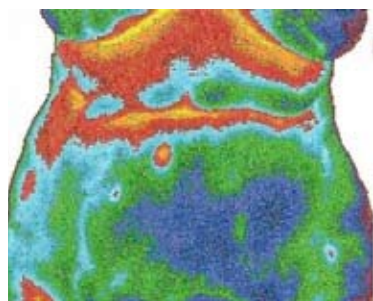
Another safe, inexpensive imaging modality that is also not being utilized to its full potential is the use of diagnostic thermography. Thermography

Some newer types of imaging can help detect many types cancer at earlier stages, when effective treatment and full recovery are still possible. This can also be done to a far greater extent than most people realize. The best screening would be to obtain a total body MRI, but this would require each person spending several hours within the MRI machine getting scanned from head to toe and would cost tens of thousands of dollars. But two types

measures the amount of heat being given off by the body and provides a color image in which warmer regions appear red and cooler regions are green or blue with yellow in between. Because of the increased blood flow associated with many cancers, malignancies will be warmer and appear a different color on a thermogram.



Breast thermogram



Abdominal thermogram

Thermograms have been available as an alternative to mammography for breast cancer screening for several decades, but are still not recognized by the American College of Obstetrics and Gynecologists nor recommended by most practicing physicians. Because thermography does not utilize x-rays like mammograms, there is far less risk. Breast tissue does not need to be pressed between plates as during a mammogram so the procedure is more comfortable. Many studies suggest that thermography offers diagnostic accuracy on par with mammography. In *TRANSCEND* we recommended a screening program in which thermography and mammography are alternated each year in order to reduce the amount of radiation a woman receives in the course of breast cancer screening.

At **Grossman Wellness Center** we have begun to utilize ultrasound and thermography more fully as part of our health-maintenance surveillance program for early detection of disease.



Head and neck thermogram

8

Get a SPECT Scan of Your Brain

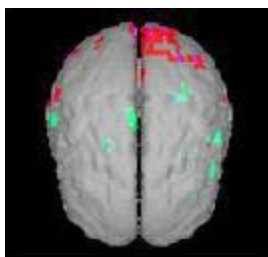
Alzheimer's disease affects approximately 4 million people in the United States. With the aging of the 76 million members of the baby boomer generation, this number is expected to increase fourfold by 2050. New medications such as Exelon can delay the progression of this disease for many years if it is diagnosed early. There are also several promising new drugs in the development pipeline at the present time. However, most people with Alzheimer's are not diagnosed until the disease has been

present for several years, by which time slowing its progression is more difficult. As with heart disease and cancer, early detection of Alzheimer's disease is critical.

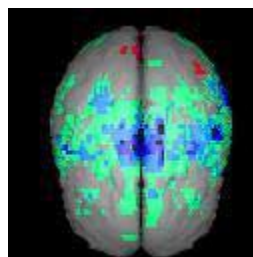
A special type of brain imaging known as SPECT (single photon emission computed tomography) can help. SPECT imaging can reveal changes in the brain years before the onset of symptoms. This procedure has been recognized by the American College of Radiology and most insurers including Medicare will reimburse for testing if done for suspected Alzheimer's disease. The images below show the differences between brain SPECT scans done on a normal individual and someone with Alzheimer's disease.

If you have a family history of dementia or have been troubled by any significant signs of memory impairment, consider getting a brain SPECT.

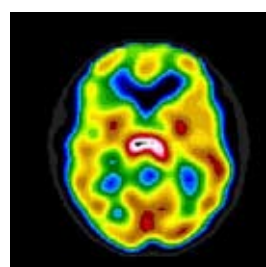
Some physicians have also been using SPECT to help them diagnose other brain conditions such as traumatic brain injuries and psychological disorders such as anxiety, depression and ADD. 20 million people in the United States suffer from an anxiety disorder such as panic, obsessive compulsive disorder, phobias, post traumatic stress and others, making it a very difficult disorder to diagnose properly. Not uncommonly, patients with anxiety disorders consult with half a dozen physicians before receiving the correct diagnosis and treatment. SPECT can help differentiate these conditions.



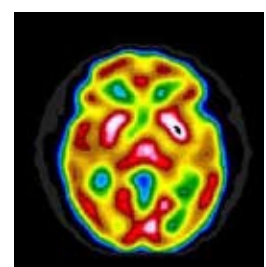
Normal



**Alzheimer's
Disease**



Depression



Anxiety

9 Measure Your Vitamin D Level

Until quite recently vitamin D was thought of in terms of its effects on bone metabolism, preventing rickets in children and osteomalacia or soft bones in adults. We now know that vitamin D is critical to many other functions. It has been found to:

- **Decrease fracture risk**
- **Reduce blood sugar in diabetics**
- **Help prevent colon cancer and be helpful in the treatment of many other types of cancer (lung, prostate, breast and others)**
- **Reduce chronic pain**
- **Increase bone density and help prevent osteoporosis**
- **Lower blood pressure**
- **Prevent multiple sclerosis**
- **Reduce heart attack risk (in men)**

Vitamin D is not naturally found in food, but is synthesized in the body when the skin is exposed to ultraviolet rays found in sunlight. Most people do not receive sufficient sun exposure, so you should try to expose your skin to direct sunlight without sunscreen for 20 minutes a day several days a week. To avoid skin damage and sunburn, you should make sure the sunlight exposure occurs before 10 o'clock in the morning or after four o'clock in the afternoon. In addition, most people will want to take vitamin D in the form of a nutritional supplement.

The doses and recommendations for supplemental vitamin D given by public health authorities are too low for optimal health. Vitamin D is the one vitamin that you want to measure with a blood test. The test you want is known as the *25 hydroxy vitamin D* level and your goal is a blood level of 50 to 80 ng/ml. Most people cannot achieve these levels with typical RDA-amount supplementation of 400 IU per day and doses between 1000 to 5000 IU daily are often needed for several months or longer with follow-up testing to ensure that the level of 50 ng/ml has been achieved.

10 Save Your Stem Cells Now

In *TRANSCEND: Nine Steps to Living Well Forever* we often refer to the journey we will take on the road to greater longevity as a passage over three bridges. The first bridge consists of today's medicine—the best strategies for prevention and early detection of disease available today. Bridge two will consist of breakthroughs in biotechnology, while bridge three will occur as a result of nanotechnology.

Research in biotechnology is currently proceeding quite rapidly, with stem cell therapies occupying a prominent place. While scientists were frustrated for many years because of the federally mandated ban in the United States on most types of embryonic stem cell research due to ethical considerations, it now appears that this may have been a blessing in disguise.

Being unable to obtain federal research money for embryonic stem cell research, they turned their attention to other types of stem cells that did not involve embryos.

Researchers have learned that many of the benefits that are possible using embryonic stem cells can also be achieved with an individual's own adult stem cells. By using one's own or autologous stem cells there is no chance of rejection, which was a key advantage of embryonic cells as well. At the present time there are over 700 clinical trials around the world using adult stem cells, and many of these use a patient's own or autologous cells. Adult stem cell therapies have been used with success in the treatment of such diverse conditions as peripheral vascular disease, congestive heart failure, many types of arthritis, diabetes, wound healing and systemic lupus erythematosus.

Stem cells are found in most tissues of the body with the greatest concentration in the bone marrow, although smaller numbers are continuously circulating throughout the bloodstream. Like the other cells and tissues of our bodies, stem cells are also subject to the aging process, and younger stem cells have a greater ability to heal, repair and rejuvenate tissues. One idea is to harvest and store some of your stem cells now and keep them frozen in cryonics storage so that they will be available in their most youthful state for your future use.

Historically, the preferred method for collecting these cells was by way of bone marrow aspiration, since this is where the greatest concentration of stem cells is found. But bone marrow aspiration is a painful process. There are companies that offer stem cell collection and storage and some have perfected a method where they give their clients an injection of medication that causes significant numbers of stem cells to be released from the bone marrow into the circulating blood stream. Patients then undergo a four-hour apheresis procedure where their blood travels through a sterile, closed system that separates the small fraction of their blood that has the adult stem cells.

The stem cells are then separated into multiple individual vials and placed in cryonics storage so they will be available to you any time you might need to them in the future. You can arrange to have this procedure done at one of the several areas in the United States offering plasmapheresis services by contacting **Grossman Wellness Center**.

To learn more about how you can extend your lifespan through optimal health, please visit Grossman Wellness Center online at www.grossmanwellness.com.

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