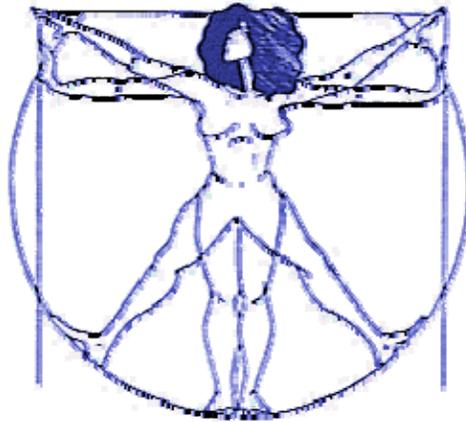


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2003 Articles

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LINDA BUCH - BODY LANGUAGE™- April 13, 2003

Low Resting Heart Rate vs. Target Heart Rate

"If a person has a low resting heart rate (55), do they also then have a lower target heart rate? I have trouble getting my rate into the target range when I walk (unless I do continuous hills!) and I wonder if this is why. I prefer to walk or run, but am now unable to run. I am 49."

Sue, Littleton

Nice try, Sue! Your lower heart rate is a reward for your consistent exercising but has nothing to do with the level of output needed in order to maintain or improve your fitness level. A heart trained by exercise beats more efficiently and recovers more quickly. A well-exercised heart can pump the same amount of blood in 50 beats that an average heart might accomplish in 70 beats. Your reward for your hard work is more hard work!

The standard formula devised in 1970 by William Haskell, PhD of Stanford University is still being used today. The theory is that the average heart cannot safely beat faster than 220 beats per minute. As we age, we require more time to relax between beats so the simple formula of "220 minus your age" was adopted as the easiest way to figure out maximum heart rates. According to this formula, 220 minus your age of 49 equals a maximum rate of 171 beats per minute. If this formula is to be trusted, your interval training range would be from 50-60% to 85-90% of this number, or a training target of anywhere from 86 to 154 beats per minute.

The problem with this formula is that the subjects used to create it were not representative of the general population. In fact, it is thought that 30%-40% of the population does not fit this formula at all. Research by Hirofumi Tanaka, PhD, University of Colorado, reveals that the traditional formula "underestimates maximal heart rate for older adults and overestimates it for younger adults" (*IDEA Personal Trainer, Nov.-Dec. 2001*). In research published in the *JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY*, Tanaka et al proposed using 208 minus 70% of age as the new formula. In your case, this puts your new maximum at about 174 beats per minute (which is not a significant change, in your case).

The only way for you to scientifically find your particular training range is to take a treadmill test in which you are hooked up to assorted gadgets designed to measure oxygen uptake (VO₂ max). If that is of no interest to you, and you do not want to concern yourself with a heart rate monitor, the other option is to use a scale based on self-perception developed by Dr. Gunnar Borg in Sweden in the 1960's. The original Borg scale starts at a low of six (lying on the couch) to a high of 20 (running for your life from a pride of lions). It is up to you to "feel" where you are on the Rate of Perceived Exertion scale (RPE) and train accordingly.

As for intensifying your own workout without running, there are several methods you might find useful. One is to purchase a vest with special pocket for adding small weights. By adding weight to your body mass, you will be working harder even if you keep the same pace. The weighted vest is much safer than carrying hand or ankle weights because it evenly distributes the weight over your frame instead of stressing the elbow, shoulder or knee joints. Weighted vests, which can be found at Gart's Sports or by "Googling" on the internet, usually cost from \$30-\$70.00.

Another way to get your heart rate up without running is to try a different sport like rollerblading, race walking, or bicycling.

LINDA BUCH - BODY LANGUAGE™- April 27, 2003

Joint Pain and Weight Lifting

"I am a 51-year-old woman who has belonged to gyms since my 20's. I have incorporated fitness training throughout. My problem is that I can't seem to find the happy balance between weight workouts and joint pain. My muscles can tolerate the workouts, but my wrists, elbows and ankles cannot. I suffer a lot from swollen joints. I have done warm-ups and stretching, gradual build ups, switched to different types of resistance training for less stress. I can't ride a bike without wrist pain and swimming is not an option at this time. Can you suggest something that would enhance my walking regime? My fat to lean ration, including high triglyceride levels, indicate I should lose at least 35#." Lane, Colorado

Before getting into the exercise part of your question, I suggest you get an examination from a physician who specializes in joint pain for a complete physical, including blood work. You could be suffering from a form of arthritis, fibromyalgia, gout, or pseudogout. It is not a good idea to just assume; get a diagnosis so the appropriate treatment options can be employed.

Regardless of whether you have one of the above afflictions, weight loss is always recommended for relief of joint pain. It would be a good idea, therefore, to either make an appointment with a Registered Dietitian (especially one who works with active women), or check out Weight Watchers. Since we are on the subject of food, you may also want to try to change some aspects of your current diet to see if certain foods might be triggering your symptoms. Some physicians and dietitians are convinced there is a connection between food and inflammation, others feel these assertions are totally bogus. I say it doesn't hurt to check it out for yourself.

Christine Northrup, MD, suggests eliminating red meat sources which are grain fed due to the higher levels of omega-6 fats that come into the meat from corn. She suggests switching to grass-fed (free-range) beef, buffalo, venison and organic eggs. She also suggests eliminating tomatoes, potatoes, eggplant, and green peppers for a while to see if they have been reactive to you. USA WEEKEND columnist and author, Jean Carper, also suggests eating more fish as well as supplementing your diet with omega-3 fat found in fish-oil capsules.

There are other supplements on the market which have been touted as effective, such as glucosamine sulfate. Others find relief from capsaicin cream, over-the-counter pain relievers, or by applying either hot or cold compresses.

As for your strength exercises, it sounds like you are doing everything properly when it comes to stretching, warming up, and gradually building up the weights lifted. As long as your form is correct, you are employing smooth, non-jarring repetitions, exercising in the pain-free zone, and have been given the green-light from your medical

professionals, you should be able to continue lifting weights. The only change I might suggest is to switch to exercises that involve multi-joint movements instead of having one joint bear all of the weight. For example, do light shoulder presses or biceps curls while you do squats or lunges instead of just performing these exercises by themselves.

It is unfortunate that swimming is not an option for you because aquatic workouts can relax muscles and decrease joint stiffness and pain. Instead, give yoga or Pilates a try. Both are excellent for flexibility and strength. Bikram yoga, in fact, is conducted in very warm temperature settings which you may find soothing. Another discipline frequently recommended is tai-chi.

Since you already have an exercise habit, you are ahead of the game. I hope some of these suggestions lead to an answer for you.

LINDA BUCH - BODY LANGUAGE™- April 6, 2003

Exercise and Rheumatoid Arthritis

"I am desperate to get some help (that I can afford) with my weight problem. I am 55 years old and have been in a wheelchair since I was seven due to Juvenile Rheumatoid Arthritis. Between ages 32 and 45, I gained and lost 30 pounds. Due to menopause and the stress from the death of my husband, I now weigh 175 pounds. I have severe sleep apnea and it is becoming increasingly difficult to transfer and physically do the things I've always been able to do. What or who can help me?"

Linda A., Denver, CO

A comprehensive exercise program of strengthening, flexibility and cardiovascular fitness is important for everyone who wants to live a healthy and balanced life. Those who need to use a wheelchair are particularly challenged, especially when fragile joints and the accompanying pain and swelling of arthritis are constant companions.

Unfortunately, there is no specific diet which will treat rheumatoid arthritis (RA). A healthy diet consists primarily of fruits, vegetables, and whole grains. Unless you are a vegetarian, fish and lean meats are also good dietary inclusions. It is important to include foods with high calcium and vitamin D content to help ward off osteoporosis. Foods in this category include green leafy vegetables (broccoli, spinach, kale, collards), dairy products, and shellfish. But diet is the easy part. Exercise is the real challenge.

Exercise is important for people with RA because strong muscles, good joint range-of-motion, and flexibility are essential for maintaining a sense of independence and well-being. When you log onto the internet, check out "www.arthritis.org" and order some of their fine free booklets designed to help RA sufferers get a sense of the possibilities. "Diet and Your Arthritis" and "51 Ways to be Good to Your Joints" are two which could be very helpful to you.

Swimming is particularly good for people with RA because it is low-impact and soothing to the joints while providing gentle resistance to the muscles. Call the Arthritis Foundation Rocky Mountain Chapter (303/756/8622) for the location of one of the 15-20 warm-water pools in the Rocky Mountain area. It is likely that there are organized programs designed just for people with RA. If transportation is a concern, call RTD for assistance.

Home exercise can include strength exercises for the hands and arms using one-pound (or larger if you are able) weights. You can also use resistance bands for strengthening the chest and back muscles. Good companies for these types of products are: Ball Dynamics (1/800/752/2255; www.balldynamics.com), SPRI (1/800/222/7774; www.spriproducts.com), and OPTP (1/800/367/7393; www.optp.com).

Another great way to keep your muscles toned is to exercise isometrically. Isometric exercising is done without moving joints so you can still do something for yourself on days when your joints are swollen, warm, and painful. Tighten the muscles of the thigh, for example, and hold the tension for a count of five to ten seconds. Tightening and releasing the muscle is surprisingly effective. In fact, this is one of the methods which made Charles Atlas famous, not to mention strong!

Aerobic workouts can be accomplished even from a wheelchair. One of the toughest aerobic classes I ever took was from a woman who was wheelchair bound; she used her arms very effectively in order to increase heart rate. Take advantage of days when you are feeling little or no pain and rhythmically use your arms to get your heart rate going. Pretend to conduct music, for example, or do the arm movements to one of the many aerobic or boxing videos.

It is important to go slowly and to stop when you get fatigued. Rest is crucial for those with RA because overextending can exacerbate joint pain. Your primary care physician should be part of the decision you make regarding your exercise choices, so be sure to consult with her and/or your physical therapist.

LINDA BUCH - BODY LANGUAGEtm- August 10, 2003

Food and Flatulence

"Since I've been trying so hard to add fiber to my diet and have increased my dairy with nonfat yogurt and other non-or low-fat products, I've noticed an embarrassing increase in flatulence. I assume it's connected to the change in diet--and it's making me want to go back to my bad diet. At least I wasn't offensive." Texan in Aurora

In spite of your current discomfort, and perhaps the discomfort of those around you, there is a way to achieve a better diet without being a walking Whoopee cushion. It is always a good idea to trade up when it comes to your dietary choices but, in doing so, it may be advisable to change the manner by which you are changing.

Before we get into that, however, lets take a look at a little gastrointestinal biology to better understand what is going on. We all know that the stomach is like a food processor; it's job is to chop, slice, dice, grate, and peel the food we eat into fragments minute enough to pass into the small intestine. The small intestine moves the food along and, in the process, absorbs the calories, vitamins and minerals. The indigestible parts of the food (such as insoluble fiber) are moved along to the large intestine (AKA colon or bowel). The water is reabsorbed and what is left over is excreted as stool.

Living in our colons are zillions of peaceful, harmless bacteria which work hard to keep us healthy. These bacteria thrive on the indigestible food. But some generate gasses (methane, hydrogen, and carbon dioxide) because of certain carbohydrates (sugars/starches) we put into their environment due to what we eat.

There are several dietary culprits in the flatulence factory (and, therefore, *olfactory*). The top three are milk and milk products, beans and legumes, and foods containing insoluble fibers which are indigestible, such as in fruits and vegetables. Milk and milk products (yogurt, cheese, sour cream, ice cream) contain the sugar compound, *lactose*. The enzyme, *lactase*, is needed to break this sugar down. If you inherited low levels of lactase, you may need to switch to lactose-free products. Another suggestion is to always drink milk with food to slow the lactose down.

A product called Beano is good to have around. It contains an enzyme which helps to break down vegetables and is available in both pill and liquid form. Follow the directions, however, or it won't work and that can be disastrous if you are counting on it!

Other foods high on the list of gas-producers include cabbage, cauliflower, broccoli, brussel sprouts, onions, melons, dried fruit, apple juice, asparagus, eggplant, and cucumbers. It would be wise to eat these foods in small amounts at first because it may take your body a while to adjust to them. Another remedy is to add garlic and ginger to

your recipes as well as chlorophyll (found in green leafy vegetables such as spinach). These foods tend to naturally counteract the gas-producing effects of fruits and vegetables.

I would recommend, rather than blowing your diet, that you just add fiber to it more gradually. 20-25 grams per day is what is recommended but doing this all at once is not advisable. Instead, add about five grams per day per week for two weeks before adding another five grams. This will give your system a chance to adjust without sending your friends screaming for the exits.

MUSCLE SORENESS AND MUSCLE GROWTH

“If muscle soreness indicates muscle growth is occurring, do muscles grow without the ripping of the muscle fibers and the associated soreness? How productive are workouts after which no soreness is experienced? Dane, Denver

You know your are hooked on weight lifting when you complain that your muscles did not get sore after a workout! It isn't just weight lifting that can cause sore muscles, however. Soreness can occur if you are inadequately hydrated, if you are not getting proper nutrition, because of genetic conditions, the environment in which you are working out (such as extreme cold), or because of hormonal and glandular influences. The most common way to experience muscle soreness is through what is called the *eccentric* phase of a muscle at work.

To refresh your memory, there are three different types of muscle contractions. A *concentric* contraction occurs as you (for example) pull a weight toward you while performing a biceps curl. In this phase the muscle fibers shorten simultaneously. Since what comes up must go down, the flip side of the concentric contraction is the *eccentric contraction*. This occurs as you slowly lower the weight back to your starting point. The muscle fibers have to jump through lots of physical and chemical hoops during this phase because in order to lower the weight, the muscle fibers must lengthen. However, the fibers are also trying to support the weight in your hands which means they have to stay in the short phase as well. This simultaneous lengthening and shortening of the muscle tends to rip the muscle fibers, causing microscopic tears. Eccentric contractions also happen to your legs when you perform down hill exercises, such as skiing, hiking or running.

The third type of muscle contraction is called an *isometric contraction*, where force against the muscle is generated without either lengthening or shortening, like the tension created when you press the palms of your hands together. This “Dynamic Tension” method was made famous by Charles Atlas back in 1929 and was approved by the AMA in the 1950's. You can still get great muscle-training benefits without inducing muscle soreness by sticking with concentric and isometric styles of training. Many exercisers train for general strength and power rather than for sheer size by exercising only concentrically or isometrically.

According to author and strength conditioning specialist, Jose Antonio, Ph.D., of the University of Nebraska, muscle size occurs only when “performing eccentric contractions...which put your muscle under a great deal of tension causing microtears and severe delayed-onset muscle soreness. You need that damage to induce growth.” It is during the recovery phase of such a workout, where a farrago of chemical and

cellular activity takes place to rebuild and repair the damaged tissue, that hypertrophy (increase in cell *size*) and hyperplasia (increase in cell *numbers*) occur.

If you are not interested in increasing the overall size of your muscles, yet want to enjoy the other benefits of lifting weights, limit the heaviness of your weights to those you can lower slowly (eccentrically) without too much strain. Keep in mind that a variety of concentric, eccentric and isometric phases of exercise all benefit you, regardless of muscle soreness, so fear not the occasional inflamed fiber! Keep your workouts fun and interesting and you will achieve the benefits you seek.

LINDA BUCH - BODY LANGUAGE™- October 12, 2003

BREAST FAT AND MEN

"I am a 44 year-old male and I have a larger amount of breast fat than most other men and, from many angles, it looks like I have a set of breasts. I have worked out pretty regularly for the last few years and have developed great tone in my thighs, calves, shoulders, back, and arms. No matter what I do, I can't seem to make my chest more masculine. What kind of weight lifting or exercise can I do to help my pecs so they are firmer? Can I do this more often than other body parts to try and catch up? Sam G., Denver

The good news, Sam, is that you are hardly alone with this problem. The bad news is the cure, which will involve either a lot of hard work or possibly surgery to fix the problem. The term commonly used (and sometimes misused) to describe this condition is *gynecomastia*, which refers to the presence of excess breast tissue, causing breast enlargement in men. This is usually a transient condition, occurring during puberty and disappearing in a few months or years. It also can occur in old age, a scenario which inspired the Seinfeld episode where Kramer invents "The Bro," (a "bra" for men). According to "The Merck Manual of Medical Information," male breast enlargement can also occur as a result of drug therapies, use (or misuse) of anabolic steroids, because of liver disease, from marijuana use, and alcohol abuse.

The most common cause is from being over-fat in your body composition. The breast tissue is very sensitive to hormone imbalances between estrogen and testosterone. Since body fat produces estrogen, which then upsets the testosterone balance in men, a first step might be to have a body composition test performed either through your gym, a registered dietitian, fitness trainer, or chiropractor. If you are over 17% body fat, it may be time to reexamine your energy intake (calories ingested) in relation to your energy output (exercise). You did not mention what exercises you do for your cardiovascular health. So, if you haven't added that component to your routine in a while, it may be time to do so.

Diet is the next factor to examine. I strongly recommend that you eliminate as many processed foods as possible from your current fare MOST days of the week. It is hard to survive in America without occasionally eating French fries, potato chips, candy, baked goods, bread, and so forth. But, if you clean up your diet by consuming fruit, vegetables, lean meats, whole grains and good fats (olive oil, avocado, nuts) 80% of the time, you can still go out for pizza on the weekends without adding to the problem.

In the meantime, go for a medical checkup and have your doctor do a thorough exam to see if your glandular breast tissue is overdeveloped or if it is just fat. You may also want to get a blood test to check hormone levels. Even if you change your exercise routine to include more vigorous activity, and even if your diet is so clean it squeaks, you may still be stuck with the problem simply because your genetics refuse to budge. If this is the

case, surgery may be an option. Newer and safer techniques have made this procedure easier, cheaper, much less traumatic and with fewer scars.

Good luck, Sam! And I hope you will be sporting the rock-solid chest of your dreams real soon.

LINDA BUCH - BODY LANGUAGE (tm)- December 15, 2003

INCREASED MUSCLE SIZE

“When weight training with the goal of increasing muscle size, which workout is better? Three-days of weightlifting with two days of cardiovascular or one body part a day with cardio three days a week? Wes Gornall, Brighton, CO

The history of human survival is all about adaptation. In order to survive heat, cold, predators, famine and the like, humans had to be able to run, lift, push, pull, and physically withstand the environment du jour. As a consequence, we are all blessed with a variety of muscle fibers which can handle endurance, power, and strength. *Very* generally, the fibers are categorized as either Type I (or slow twitch) and Type II (or fast twitch). The slow twitch muscles are genetically designed to resist fatigue and are helpful during long term aerobic activity, such as distance running. Fast twitch muscles are designed for explosive, quick activities but fatigue quickly. These fibers are brought into play for sprinting, throwing, and bodybuilding.

Strength training involves heavy weights, few repetitions, and complete recovery between exercise sets. Endurance training calls for lighter weights, many repetitions, and short rest periods between sets. Muscle size (hypertrophy) requires moderate weights, medium to high repetitions and short to moderate rest periods between sets.

According to Brad Schoenfeld, CSCS (*NSCA Strength and Conditioning Journal*, December, 2000), “There is a prevailing misconception that in order to get big, one needs to train like a powerlifter, using extremely heavy weights and low repetitions (less than 5 per set). For a variety of reasons, a moderate-repetitions scheme (approximately 8 to 10 repetitions per set) is the decidedly better choice for achieving optimal gains in muscle mass.” Most bodybuilders perform 3 to 6 sets per exercise, *and* 3 or more exercises per body part with only 30 seconds to 1-1/2 minutes between sets. Muscle acquisition takes time and intensity. This is not a sport for those in a hurry.

Now the big question: How often do you need to do this each week in order for change to occur? There are probably as many training protocols as there are bodybuilders. However, I don't know of any bodybuilder who lifts fewer than 4 days per week (working the whole body twice a week) or who engages in moderate cardiovascular exercise fewer than 2-3 days per week. An example of this would be Monday (Chest/Back/Shoulders), Tuesday (Legs/Biceps/Triceps); cardiovascular only on Wednesday; repeat the body parts on Thursday and Friday (choosing some different exercises and routines for each body part); perform some cardiovascular work over the weekend.

Remember, muscle fibers cannot count so intensity is the key. Each set needs to go to the point of fatigue, not just to a certain number of repetitions. And, more is not necessarily better. Rest and recovery are vital for muscle growth; overtraining yields nothing but frustration. Be sure to vary your workouts by including lots of multi-joint exercises, such as squats, presses, dips, and lunges) along with the individual muscle exercises (biceps curls, lateral raises, etc.)

Muscle tissue adapts quickly to a routine so be sure to vary your workouts (increase the load, decrease the rest, compound the exercises, change the order, and so forth) to keep from getting stale. Bodybuilding requires focus, proper nutrition (ignore the supplement hoopla in the magazines), patience, and rest. Listen to your body, not your head or hype, and you will have a greater chance of achieving your goals.

LINDA BUCH - BODY LANGUAGE tm- December 1, 2003

Amino Acid and Creatine Supplements

"I am trying to build muscle mass and increase my strength. Is it OK if I take creatine and an amino acid supplement? If I do, what kind of results should I expect?" Alec Vaughn, Evergreen

Wouldn't it be great if we could all just pop a pile of pills to puff up those pecs? Many muscle magazines would have you believe that the competitors displayed on their pages got that way because of specific supplements in addition to their diet and exercise routines. It is tempting to buy into the hype because increased muscle size comes slowly and takes an enormous amount of dedication and effort. Some supplements have been found to be helpful, however. Of all the supplements on the market, creatine monohydrate seems to be the one that actually works and, more importantly, works safely.

Creatine phosphate is a naturally occurring substance in the body. It is found in red meat and fish but is largely depleted from these foods when cooked. Creatine phosphate is essential for the production of ATP (adenosine triphosphate), the fuel every muscle needs in order to contract. When a muscle contracts, the ATP is "burned" and loses one of its phosphate molecules, becoming ADP (adenosine diphosphate). Creatine phosphate donates its phosphate molecule back to the ADP (diphosphate), turning it back into ATP (triphosphate) so that the muscle can continue to work. By "loading" the body with extra creatine, we are filling our potential stores right to the brim. This allows the muscles to work harder, longer, and recover faster--a real benefit to anyone who is trying to increase muscle size and power.

"Creatine supplementation," according to exercise physiology experts William J. Kramer, PhD, and Jeff Volek, MS, RD, of Ball State University in Muncie, IN, "significantly enhances the ability to maintain muscular force and power output during...weight lifting. Improvements in bench press strength have been documented, as have significant increases in fat-free mass." When "loaded" into the muscles, and maintained properly on a daily basis, the creatine stores tend to remain high for as long as a month, which means you can cycle on and off safely and still hang on to the results of your hard work. Creatine has a saturation point which means the body can only hold so much. Anything over this amount is excreted in the urine.

Amino acid supplementation has both detractors and supporters. Amino acids are the building blocks of protein, a necessary nutrient for brain function, blood circulation, and tissue repair and construction. There are 21 amino acids in a complete protein. All of the proteins in the body are made up of some combination of amino acids. Eleven of those amino acids are called *nonessential* because your body manufactures them; the rest must come from the diet.

Athletes in intense resistance or endurance training (or who train at high altitudes) may need as much as 2.2 grams of protein per kg of body weight per day in order to maintain proper protein balance in the body. Dr. Richard Kreider at the Exercise & Sport Nutrition Laboratory at the University of Memphis in Tennessee, observed that eating protein with a carbohydrate before exercise can be beneficial for increased growth hormone and/or insulin levels; ingesting protein and carbohydrate after exercise can hasten recovery. Unless you are uncomfortable ingesting that much protein from real food sources (lean meat, fish, and dairy products), spending money on amino acid supplements is unnecessary.

Your best course, therefore, is to eat properly for your goals and eschew junk food.

LINDA BUCH - BODY LANGUAGE (tm)- December 22, 2003

Choosing a Trainer and a Dietitian

"I would like to help my fiance find a female trainer. She is focused on weight management along with general fitness. How do I go about finding a good one? Tom D., Colorado "How do I find a Registered Dietitian in my area?" (From several readers in Colorado)

Finding a personal fitness trainer has gotten a lot more complicated and involved than it used to be. In the "old days" trainers were (usually) the guys with the biggest muscles. Training usually involved a lot of weightlifting along with tons of crazy dietary advice on how to "get big." These days trainers are certified by organizations which require CPR, physiology, kinesiology, nutrition science, program design, and even separate skills for special populations (seniors, disabilities, degenerative diseases, and so forth). Some of the trainers in the gyms may still look like "Quadzilla" but, for the most part, are now more well-rounded and better educated in subjects other than just the acquisition of muscle mass.

Since the task at hand is to find someone whose personality and skills need to blend with another person, it might be better to give a generic gift certificate for three sessions with the trainer of her choice at the gym of her choosing. This way she can find the person with whom she is most comfortable. For those who may be new to the process, here are a few tips:

1. **Check credentials.** Most certifying agencies are known by a mishmash from the alphabet, like (but certainly not limited to) ACE, ACSM, NSCA, or NASM. A trainer with some legitimate higher education and certification from a nationally recognized and accredited organization is a safer choice than someone who attended "Wassamatta U" and is certified by Barbie and Ken's Personal Trainer Studio.
2. **Read up on the available trainers.** Most gyms have files on their trainers which include a complete biography of their education, experience, special skills, and philosophy. If you are a fifty year-old female who hasn't exercised since the last time you had "recess," it is unlikely that you will profit (at least initially) from time spent with a trainer who specializes in preparing athletes for extreme snowboarding competitions.
3. **Watch and learn.** If at all possible, observe the trainers as they work with their clients. You will be able to tell if their style and personality fits yours in very short order.
4. **Set up and interview.** Talk with the trainers you are considering and chat about your concerns and goals. This will also give you an opportunity to find out more about how they think and how well your personalities mesh.

If you are confused about how to change your eating habits or need a little boost to get back on track, I highly recommend working with a Registered Dietitian (RD). The best way to find one in your area is to call the American Dietetic Association referral line: 1/800/366/1655. An hour or two with a good RD is a far better investment of time and money than most books on the market.

Also, a “nutritionist” is not a Registered Dietitian. Anyone can call themselves a nutritionist regardless of training or background. RD’s are licensed professionals with scads of training, making them qualified to give diet advice designed specifically for *you*. I recommend interviewing several before investing because, like fitness trainers, this is a relationship which also involves the establishment of trust and rapport.

LINDA BUCH - BODY LANGUAGE (tm)- December 29, 2003

OSTEOPOROSIS Q & A

Thank you to Lucy McGinnis (Bella Vista, AR), Nicole Paulson, Nancy Brooks, and Nancy Kratochvil (Colorado) for their different questions on osteoporosis.

...AND CHILDREN. According to research done at the University of Southampton, osteoporosis can literally begin in the womb. Factors such as poor maternal nourishment, smoking, low body fat, and excessive exercise later in the pregnancy can lead to low bone mass in the newborn. This often translates into many more bone fractures when the child grows into adulthood.

A study done at Oregon State University in 1998 found a way to increase the bone mass in children as young as 7-8 years old. Researchers found if young children engaged in "impact loading" exercises, their bone mass was positively affected. All they did was jump off a two-foot box 100 times, three times a week. Seven months later, the bone mass in their hips had increased by 5%! "A 5% increase may not sound like a lot, but it translates into a 30% decrease in the risk of a hip fracture at adulthood," said Christine Snow, Director of the Bone Research Laboratory at Oregon State University.

Similar studies with equally encouraging results have been conducted in New Zealand where kids would take a "jump break" right in the classroom by jumping up and down a few minutes every day. So, dust off the jump ropes! Turn on the music! Get out the hopscotch chalk! Jumping and hopping is not only good for kids, but is also the cheapest exercise protocol on the planet.

...AND CELIAC DISEASE. Celiac disease is a hereditary disorder caused by a sensitivity to gluten, a protein found primarily in wheat and rye. The presence of gluten triggers an allergic reaction in the small intestine, causing poor absorption of nutrients. Since calcium and vitamin D are both absorbed in the upper small intestine, bone density is a significant concern. According to THE MERCK MANUAL OF MEDICAL INFORMATION, celiac disease affects 1 in 5,000 in North America (1 in 300 in southwestern Ireland). The first order of business is to immediately go on a gluten-free diet. Consult your physician or dietitian at once for a list of foods to avoid.

When children are diagnosed and go on a gluten-free diet, their chances of improved bone mass are positively affected. For adults who get this disease in later life, supplements and calcium-rich foods are very important. Your doctor may need to prescribe a special vitamin D supplement which is more easily absorbed. Menopausal women may also want to consider taking estrogen. Check with your physician to see if estrogen and/or any of the new drugs currently available for osteoporosis have been evaluated for those with celiac disease.

...AND WEIGHT-BEARING EXERCISE. In order for the bones to remain strong and healthy, they must be stressed. (Unfortunately, the type of stress I am referring to is weight-bearing exercise, not project deadlines and traffic jams.) Bones love walking, jogging, dancing, working out on weightlifting equipment and lifting free weights.

Most of these activities can be done in or from the home and do not involve the investment of much money. *Strong Women, Strong Bones* by Miriam Nelson, Ph.D. (Perigee) is an excellent resource for both diet and exercise advice. For walking, be sure to purchase good shoes. You may also want to increase the energy output of your walk by scattering small weights (like fishing sinkers) in your pockets.

When weightlifting, learn proper form and start with easy weights which allow you two sets of 12-15 repetitions before tiring. This will give your connective tissue (especially around your joints) a chance to adapt to your new activity. By using a scale of 1 to 5 (with "1" lifting a banana and "5" lifting a giant box of kitty litter), strive to get to level "4" where two sets of 8 repetitions is all you can do (and still maintain proper form.) If you already have osteoporosis, increase your weights slowly. Also, cans of soup and bags of beans are convenient but are not designed for the task. Dumbbells are inexpensive and are often available very cheaply at garage sales, flea markets, Target, and so forth.

NEW YORK TIMES columnist Jane Brody reported, "University of Wisconsin researchers showed that women in their 80's who worked out by holding onto the back of a chair and stomping their feet were able to increase bone mass in their hips and thighs." Another good thing to work on while standing behind the chair is BALANCE. Try standing on one foot then the other, each for a count of ten. Falls can be deadly. Improving balance can save your life.

...AND MEDICATION. Many wrote to me hoping to find a way to get off of prescribed drugs through exercise and diet. Unfortunately, this is rarely recommended. In fact, according to Susan Greenspan, MD, of the University of Pittsburgh School of Medicine, "A combination therapy of hormone replacement and alendronate [Fosamax] was well tolerated by elderly women with low bone mass. After three years, these women showed significantly greater increases in bone mass..."

If a particular medication disagrees with you, keep after your doctor to try some of the newer drugs on the market. Men being treated for prostate cancer are at particular risk of osteoporosis. Depending on the length and nature of your treatment, options are available to deal with this side-effect.

...AND DIET. High protein diets do not bode well for bones. Neither do diets high in "garbagohydrates" like processed foods (which are high in sugar, salt, hydrogenated fats, and white flour) but low in carbohydrates like fruits, vegetables, whole grains and

beans. In general, most people should go with foods high in vitamin C, dark green vegetables, low-fat dairy products, oily fish, and nuts.

If you drink alcohol, limit drinks to one a day for women, two for men. And, if you smoke, QUIT.

LINDA BUCH - BODY LANGUAGE™- December 8, 2003

Gender Differences and Metabolism

"Some time ago I read an article that said the metabolism of men continued at a high rate after exercise for some time. But with women, their metabolic push ended when the exercise period was over. Can you address this?" Ann Andersen, Aurora

The succinct definition of "metabolism," according to the *Encarta Dictionary*, is "Life-sustaining chemical activity." All day long the body is abuzz with organs functioning, blood flowing, oxygen exchanging, heart pumping, food digesting and, therefore, calories burning. In fact, 60-70% of our daily caloric expenditure is for basic body functions, or Resting Metabolic Rate (RMR). The only things that make one person's RMR different from another is age, gender, height, and body composition. Since we can do nothing much about the first three, "body composition" (the ratio of lean mass to fat) is the factor we can adjust.

A very rough way to calculate RMR is a half a calorie per pound of body weight per hour. A person weighing 150 pounds, therefore, could utilize about 1800 calories per day even if they never got out of bed. The only way to increase metabolic rate, therefore, is through physical activity. And, since muscle is about 50 times more metabolically active than fat, the more muscle you have, the hotter the body's furnace will burn. This is where males have the advantage over females: guys genetically have more lean mass than gals which gives them a metabolic advantage.

All of the studies I found on post-exercise metabolic activity had only men as subjects. In one test performed the University of Ohio (2002) involving seven men, researchers found that post-exercise benefits extended as far as 38 hours. Even though women have different hormones and body fat ratios, I cannot imagine that similar benefits would not be found for women.

A report published IDEA HEALTH AND FITNESS SOURCE (November-December 2002) by Len Kravitz, Ph.D., researcher at University of New Mexico at Albuquerque, found, "The majority of the research shows that, compared to men, women derive a greater proportion of their energy expenditure from fats during low-to-moderate intensity exercise."

Does this mean that women should stop sprinting and just stroll the mall? No. All this study suggests is that there are gender differences when it comes to fat metabolism.

Remember, low-to-moderate exercise burns fewer calories per hour. Since most of us do not have time to engage in the hours of exercise that would be required to make much of a difference at this lower level of output, it behooves us to mix it up between volume and intensity in order to cover all of our metabolic bases. In other words, keep changing your workout *intensity* between high and moderate heart rates for the cardiovascular

workouts; and heavier or lighter weights (with fewer or more repetitions respectively) for your resistance training. Vary the workout *volume* by changing duration and frequency of your exercise sessions.

The goal for everyone is to increase TOTAL caloric expenditure. Getting hung up on “metabolism,” or even the post-exercise afterburn, is an unnecessary diversion from this basic truth. “People fixate on the RMR and that’s crazy,” says Miriam Nelson, Ph.D., director of the Center for Physical Activity and Nutrition at Tufts University. “Boosting your RMR gives a subtle nudge to energy [calorie] consumption rates, but increasing physical activity is a sledgehammer.”

LINDA BUCH - BODY LANGUAGEtm- February 16, 2003

FIBROMYALGIA AND WEIGHT TRAINING

"I have Fibromyalgia which means muscle and joint pain. My question is--would I benefit from weight training if I do higher reps with lower weights?" Mesue Brouillette, Denver

People who suffer from Fibromyalgia Syndrome (FS) live with a classic "Catch-22." On the one hand, exercise is essential to relieve stress, keep muscles balanced, and to help achieve a deeper, more restful sleep. On the other hand, who feels like exercising when you're in pain, feeling fatigued, or suffering from muscle stiffness? Many people with FS have constant pain; others suffer intermittently. There is still no known cure for FS, probably because it was only in the last decade that FS was recognized as a "real" disorder. Up until 1990, the medical community shrugged off the complaints of the 10 million sufferers (90% of whom are women) as hypochondria or anxiety.

Fortunately the "There, there, little woman, it's all in your head" brand of medical support for this pathology has given way to research for viable management strategies. In fact, according to Sara Gagnon (certified Pilates instructor diagnosed with Fibromyalgia), "Research has discovered that sufferers of FS have low growth hormone secretion, low brain serotonin levels, dysfunctional immune systems, mineral and amino acid imbalances, and high alpha wave production during sleep instead of the deeper delta level."

Exercise is part of the management strategy to help break up the pain cycle of FS. By incorporating light-to-moderate activity into the day, a person with FS can remain physically functional and maintain some semblance of flexibility, strength and general cardiovascular fitness. Stretching for flexibility, strength training for muscle strength and function, and cardiovascular training to fight depression and weight gain are all key. Even though a person with FS is often on a daily roller-coaster when it comes to her symptoms, she can incorporate a little bit of activity into most days. According to M.J. Pelligrino, MD, (a specialist in Fibromyalgia and author of "The Fibromyalgia Survivor"), "Any exercise is better than no exercise and each individual has to find a proper balance of exercise that works best for her or him."

Since tight muscles are vulnerable to injuries like sprains and strains, stretching is the number one component in any program. Stretching can be done just about anywhere and, according to Dr. Pelligrino, "Should be done regularly and consistently." Proper stretching techniques can be learned from books (such as "Stretching" by Bob Anderson) or from the Arthritis Foundation (303/756-8622; 800/475-6447; www.arthritis.org). I also recommend Pilates and/or yoga (find a class for beginners). Both are terrific for gently improving flexibility and muscle conditioning. These

disciplines are also good for maintaining correct posture, which often deteriorates with FS sufferers due to chronic pain and the ensuing muscle imbalances.

Your instincts are correct regarding training with weights. Strength training should be done with light weights and a light-to-moderate intensity. You should keep your repetitions to about ten; however, be sure to use a weight that does NOT exhaust your muscles to the point of failure. Also, avoid engaging in lifting techniques that require eccentric or “negative” movements (where the muscle lengthens slowly while resisting the weight you are pushing or pulling). The “super slow” lifting styles which are becoming increasingly popular could exacerbate your symptoms. Be sure to give yourself two to three days’ rest between weight lifting sessions.

Cardiovascular programs in warm water are terrific for FS sufferers. The moist atmosphere in an aquatic medium provides both resistance and joint support. Again the Arthritis Foundation can be of great help to you in finding the right program. Other light cardiovascular conditioning exercises can include walking, cycling, dancing, and low-impact aerobics but none should be done to the point of exhaustion.

The bottom line is to proceed slowly and deliberately. You may have a flair-up after trying something new but that does not necessarily mean you should never try it again. Set your own pace and feel good in the knowledge that you have accomplished something wonderful for yourself by sticking with it.

LINDA BUCH - BODY LANGUAGE™- FEBRUARY 23, 2002

BE CAREFUL WITH DRASTIC CALORIE REDUCTION

"I recently joined a gym and signed up for personal training which also included nutritional counseling. The meal plan they generated for me took me from 2200 maintenance calories down to 1550 calories, a reduction of 30% with no accounting for the increase in my exercise schedule (I went from next to nothing to 3-5 cardio sessions a week plus muscle work). Even though the computer-generated eating plan calls for four days on and three off, those four days are terrible. I am hungry, have no energy, and my blood sugar is crashing all the time. Can you address the potential problems with a drastic calorie reduction when also adding exercise? Sheila Addison, Denver

We all know that if our bodies are ruthless accountants, never missing an edible sliver or slice. The thermodynamic facts are universal for humans: 3,500 calories = one pound of fat. It should be relatively simple to just drop a few pounds of flab, right? "Just cut out 500 calories a day and in one week you will lose one pound." Since many reputable diet experts recommend a drop in weight of no more than two pounds per week, and since cutting 1,000 calories per day is usually so extreme that people simply give up and dive for the donuts, a better plan is a balance which considers both diet and exercise. For example, a daily energy expenditure of 250 calories (some strength training and cardiovascular work) along with a reduction of 250 to 500 calories is a conceivable way to drop your weight by about a pound a week. Since exercise tends to build muscle, and since muscle requires more calories in order to stay viable, radical reductions in calories while also exercising strenuously can be unhealthy and too enervating over the long term.

But this is not the whole story. My concern with your situation is also in the quality of the calories selected. Yes, a calorie is a calorie, BUT how do your choices make you feel? If you are crashing and burning, it is time to examine your food choices. Too many computer-generated diet plans ignore the quality of those calories which lead to experiences just like yours. The closer your calorie intake gets to your absolute physical needs, the denser (nutritionally) those calories need to be in order to keep your energy levels up. For example, let's compare two breakfast cereals, "Honey Nut Chex" and "Kashi Go Lean." Both have a caloric value of 120 calories per 3/4 cup. "Honey Nut Chex" = 1 gram protein, 0 grams of fiber, 26 grams of total carbohydrates (primarily sugar, honey, barley malt, molasses, rice, corn meal, and almond pieces). "Kashi Go Lean" = 8 grams protein, 10 grams fiber, 28 grams of carbohydrates (primarily corn bran, corn, cane juice, honey, oats, brown rice, wheat, barley, buckwheat, oat bran, wheat bran, and sesame seeds).

The difference between these two has to do with the Glycemic Index (GI), which ranks carbohydrates by how quickly they are digested and how much they elevate blood

sugar. According to Robin Edelman, Nutrition Editor for EATING WELL Magazine, “The ideal carbohydrates for our bodies are those that are digested slowly” [providing a] “long, steady supply of energy.” Consequently, higher fiber foods (fruits, vegetables, grains, beans) have lower GI ratings than corn flakes, mashed potatoes, crackers, and white bread.

Another area to consider is dietary fat, which should comprise about 30% of your total daily calories. It is better nutritionally to DISPLACE saturated and trans fats in your diet (usually found in highly processed foods) with mono and polyunsaturated fats such as those found in avocado, flaxseed, nuts, fish and other lean meats (including grass-fed beef) high in Omega-3 fatty acids which are higher in nutritional value than saturated and trans fats.

By substituting healthy fats and more nutritionally dense food to your diet, and cutting back on those that are higher in sugar and processed flours, it is very probable you can keep your total energy intake below 2000 calories, drop the body fat, and still feel human.

LINDA BUCH - BODY LANGUAGEtm - January 26, 2003

CELLULITE

"Please tell me how to get rid of the cottage cheese legs I see whenever I look in the mirror. I hate how my legs look and am willing to try nearly anything to get rid of it. Men don't seem to suffer from this disfigurement. Ain't life cruel? Cynthia, Denver

Go "Googling" on the internet using the keyword, "cellulite," and what pops up but page after page of web sites full of specious products promising to rid your thighs of this substance. What is this orange-peel-looking, dimpley, bane of every woman's existence and how or can you get rid of it?

For decades, science professionals told us, "Cellulite is just a Madison Avenue word for fat. There is no such thing as cellulite." Oops. Wrong-o. In fact, the word, "cellulite," was used in French medical literature in the early 1800's to describe what was then thought of as a disease! In that regard, we have "come a long way baby," but we are just now coming to terms with what it is and how to minimize its existence.

First, a quick review of basic skin anatomy (Figure #1). The top, visible layer of skin is the epidermis. Directly below that is the dermis, where sweat glands, hair follicles, blood vessels, nerve receptors, and connective tissue are located. Directly below the dermis is where the first of *three* layers of subcutaneous ("beneath the skin") fat is located. Here is where life is not fair...

Look at Figure #2 and notice women have cylindrical, standing fat cell chambers, separated only by connective tissue. Notice also how in men, this comparatively thinner fat layer is assembled into smaller, multi-sided units with crisscrossing connective tissue. Pinch a group of standing cylinders at a woman's thigh and the skin's surface dimples; pinch a crisscrossing polygon on a man's thigh and nothing dimples. Here is the real bummer: this difference in fat cell structure happens *in the third trimester of fetus development!* With the exception of a minority of men with a genetic disposition toward fat storage in the thigh and buttocks areas, women are predisposed to have cellulite from birth.

Two types of cellulite have been identified to date. The first type is visible only when we "pinch an inch" at our thighs and buttocks. Virtually every post-pubescent woman on the planet, from Australia to Zaire, lean Olympic athlete or sedentary couch potato, will see this dimpling when the pinch test is performed. The second type, visible in natural stances such as standing or lying down, is more frequently seen in women who are over-fat, or have at one time been over-fat. This second type of cellulite is less visible in women who are leaner with more muscle.

Is all lost? Are we doomed to be dimpled? Does anything work to get rid of it? Liposuction does not work because it is not performed on this layer of the skin. In fact,

this procedure can make the skin look more dimpled. Massage can reduce the appearance, but only temporarily. Endermologie, a technique using a machine which alternately kneads and suctions the skin, may seem to work at first but the effects do not last. Creams containing caffeine, theophylline, aminophylline, various herbs and plant extracts can aid in increasing micro-circulation in the dermis area but are unable to remain concentrated enough to make it to the subcutaneous region where the cellulite resides. Plus, many of these creams can cause an allergic reaction, making it uncomfortable to continue.

Anecdotal evidence suggests that there are many things we can do to reduce the appearance of cellulite. If you quit smoking, reduce your intake of high-fat and highly processed foods, reduce alcohol intake, eat more fiber, fresh fruits and vegetables; and (you KNOW this next one is coming) exercise daily, you can definitely improve your odds.

Aerobic exercise (three to five times a week/ 20 to 60 minutes at a time) will help burn calories consumed and will help to create what is called a “caloric deficit” which can eventually help you become leaner. Strength training is also essential because the subcutaneous fat sits on top of muscle. If the muscle is soft and weak, the bumpy appearance of the cellulite will be more pronounced than if the muscle is more dense and strong. Leg and buttocks exercises such as squats, lunges, leg curls, and so forth, should be included in your regular exercise program.

We are women, hear us roar! But for the time being, we will just have to accept our genetic differences and the cellulite that comes with it. As the French say, “Vive la difference!”

(Linda Buch thanks Len Kravitz, Ph.D., Associate Professor Exercise Science University of New Mexico for his generous assistance with this article.)

LINDA BUCH - BODY LANGUAGE™- February 9, 2003

Gaining weight and Muscle

"Could you do an article on gaining weight and muscle? I am sure I am not the only one with this problem. I am 62 years of age and in good health." Dancing Cat, Colorado

I believe it was Betty Davis who stated, "Getting old is not for sissies." Physically, we humans are at our prime in our teens and 20's. Unless we remain physically active after age 20, we lose about a half pound of muscle per year. Once we hit 50, that number jumps to a full pound per year. This is not the kind of weight loss we want.

Since 50% of our lean tissue is muscle, and since muscle is the very heart of our metabolism (the rate at which we burn calories for fuel), the more muscle we have, the more calories we can burn. Conversely, if we continue lose muscle, we can gain body fat even if we have not increased our caloric intake over the years. In addition, since muscle is denser than fat, it is possible to gain body weight by adding muscle to your body yet lose inches. Go figure!

But here is where the "not for sissies" part comes into play. You gotta move it or you will lose it. You are never "too old" to do something about your fitness. As long as you are willing to toss the bathroom scale into the trash and start paying more attention to how you feel rather than how much you weigh, you can free yourself to become more physically agile, mentally facile, and even lighter in spirit.

No matter where you are on the fitness spectrum ("one" = just rolled off the couch and "ten" = runs with cheetahs and bench presses elephants), your body will respond to exercise. Those who are new to regular activity will feel and see changes within weeks of beginning. Regular activity improves breathing capacity, heart function, muscle strength and mental acuity. Other benefits over the long term are increased bone strength, decreased blood pressure, reduced feelings of depression and anxiety, improved sleep patterns, and improved glucose regulation.

We have all seen the stories of men and women well into their 70's and 80's who regularly compete in marathons. We are also aware of those who can barely lift a bag of groceries out of the car. Lifestyle choices play a large part in these acutely different scenarios. The good news is that it's never too late to get started and make positive changes in your ability to live an independent and healthier life. What to do?

First of all, the only way to keep muscle is to "contract your muscles against a heavy load," says William Evans Director of the Noll Physiological Research Center at Penn State. Their research found that even as little as 45 minutes twice a week made a difference in muscle strength for those who were new to lifting. Two of the best

exercises are completely free: pushups and walking. For those starting out, pushups against a wall are a great way to begin; walking (particularly if you can find a route that includes some gentle hills) will work your legs, heart, and even your bones.

Doing the same thing over and over can get boring so check out the rubber exercise bands with easy-grip handles available at most sporting good stores. It is not necessary to buy expensive pieces of equipment (which often turn into really expensive coat hangers) for you to get the job done. And, don't be afraid to ask for help! Many organizations have programs to help older adults get into a fitness program or find information to help themselves. Check with the YMCA, AARP, Administration on Aging (www.aoa.gov), Arthritis Association, and so forth.

Robert Butler, the first director of the National Institute on Aging said that if exercise were a drug, it would be the most prescribed pill in the world. And I doubt anyone has ever called him, or Betty Davis, a sissy...

LINDA BUCH - BODY LANGUAGEtm - JANUARY 26, 2003

"Can you explain recovery heart rate and how to properly measure it?"

Dennis Volz, Colorado

MEASURING AND EXPLAINING RECOVERY HEART RATE

The heart is a *muscle*. As with the rest of the muscles in the body, the heart muscle is stronger, healthier and more efficient when exercised regularly. Because the heart is the main pump for our circulatory system, strength, health and efficiency is worth the huffing and puffing. How do we know if all of our efforts on the treadmill, walking paths, and hiking trails is paying off? By paying attention to how quickly our heart recovers after exercise.

The first task is to figure out your resting heart rate (when you have been sitting quietly for at least 30 minutes or after sleeping). The easiest method is to *lightly* place your first two fingers on your neck just under the hinge of the jaw where you can feel the pulsing of the carotid artery. Using the second hand of a watch or clock, count the beats for six seconds. Add a zero to this number and you now have your heart's beats per minute. The best device for the long term, however, is a heart rate monitor which fits around the chest and is read with a special wrist watch. As you become more aerobically conditioned, this number will gradually become lower.

Next you will want to observe how quickly your heart responds to, and recovers from, exercise. If you have been, shall we say, "on vacation" from exercise for a while, it is important to monitor your heart rate so that you do not risk pushing yourself too hard too fast. Remember, your heart did not suddenly become out of shape in a day; it will take more than one or two huffs and puffs to get it reconditioned. Accelerate gradually, don't burn rubber! Exercise at a pace where you can say "Mary had a little lamb" without gasping for air but not so casually that you can recite the entire Gettysburg Address on one breath. Pushing too hard can be dangerous. Being too cautious will forestall results, thus leaving you frustrated or dispirited.

The fun part for the new exerciser is seeing tangible results from all of the effort. In my opinion, too much attention is paid to the bathroom scale at the expense of the more salient improvements happening with the heart muscle. The heart muscle improves with sustained exercise where at least 20-30 minutes of the workout is at a level that feels vigorous for you, usually at 60% to 80% of your heart's maximum. ("Maximum heart rate" is defined as the highest number of times your heart can beat in one minute. This number is determined by age and sex. How to determine this number is under debate. Most still use "220 minus your age" to find a ballpark figure.) At the end of your workout session, just before starting your cool-down, take your heart rate (unless you have a heart monitor, six seconds times 10 is the easiest for those of us who are math

impaired). Stop exercising for one minute and retake your heart rate. Drop the third zero and note how close you are to the number six. For example, if you exercise at a rate of 140 beats per minute and, at the end of one minutes' rest, your heart rate is 100, $140 - 100 = 40$. This number is especially gratifying if, when you started your program, you were a one or a two! The increased distance between peak output and one minute of rest is your "recovery heart rate."

Physicians and researchers have been paying more attention to "recovery heart rate" as a predictor for (gulp!) mortality. A study published in the New England Journal of Medicine in October, 1999 (and another study published in The Journal of the American Medical Association, September, 2000) found that an abnormal recovery heart rate, (defined as "failure of the heart rate to decrease by more than 12 beats per minute after the first minute after peak exercise") was an accurate predictor of death from a heart attack.

As Jacki Sorensen, the founder of the "Jazzercise" franchise, says, "You can't store physical fitness, so you've got to work physical activity into every week of your life."

LINDA BUCH - BODY LANGUAGE™- July 20, 2003

Effectiveness of Abdominal Machines

"I have a question about abdominal machines at fitness centers. I have heard that they are ineffective but if they are why do fitness centers continue to have them? Or, are they effective?"
Irene, Denver, CO

Fitness centers cannot ignore the popularity of abdominal exercise machines. They are quick and easy and most people like them because they can "feel" the movements on their torso. The machines aren't totally ineffective, there are just better and more efficient ways to target this important muscle group.

The problems with the machines are three fold. First, you have to be fitted into the machine properly. If it is a machine where you sit or lie down, hook your feet under one pad and grab onto a handle above your head (or lean into a pad) and then bring both the upper and lower body toward each other, you will get a safe workout only if the pivot points between your hip and the machine are aligned. Remember, the flexion is coming from the middle and lower spine (the thoracic and lumbar areas). If everything isn't adjusted properly for YOU, improper pressure can be put on the discs, particularly in the lower back. The torso twisting machines, which focus on the oblique muscles, are particularly dangerous to the spine because of all the pressure brought to bear on the ligaments as you twist one way with your upper body while remaining stationary with the lower body.

Second, most of these machines come with a huge weight stack. Many people still believe in spot reducing when it comes to their waists. They push, pull, and squat huge piles of weights in order to get bigger chests, backs, arms, shoulders, and legs, but for some reason think that these same huge weights will *reduce* the size of the waist. Huh? Muscle usually responds to heavy weights by becoming thicker, stronger, and LARGER. By developing the muscle underneath the fat the waist will undoubtedly increase, not decrease.

Third, none of these machines actually train you to be stronger in ways that will help you function safely as you go through your day. The abdominal muscle group is designed to work with the muscles of the back, butt, hips, and the shoulder blades as you twist, squat, reach, sit and stand. Abdominal exercises performed on a stability ball, while standing, and while lying prone will do more for your entire core than any machine. Besides, why be limited by a machine when you can get better results without one?

A study conducted by Peter Francis, Ph.D., and Jennifer Davis, M.A., at the San Diego State University Biomechanics Lab found several of the most popular crunches

performed without equipment were more effective than those performed on Ab Rollers, Torso Trackers, Ab Rockers, or any of the other gadgets or machines out there. I would highly recommend, therefore, that you take a class or schedule a session with one of the professionals at your gym to learn how to work your abdominal muscles without machines. You will get a better workout and your muscles will appreciate the variety.

LINDA BUCH - BODY LANGUAGE (TM) - July 6, 2003
Working out with a Pacemaker

"I am 36 years old and, after two years of chronic Supraventricular Tachycardia, a pacemaker was placed. I am back to my routine of walking two to three miles a day with minimum trouble. When I do the calculations for maximum heart rate, according to the usual charts, I should be at about 142 beats per minute. Does that change when a person has a pacer in place?" Kathy, Colorado

According to the Mt. Sinai School of Medicine, 4.3 million Americans have cardiac arrhythmias, so you are in good company. Before getting into the exercise question, let's look at the mechanics of your condition.

The heart contracts an average of 60-100 times per minute. Your average resting heart rate will depend on your gender (female hearts are slightly smaller than male hearts), emotional state (stress, anger, and anxiety increase the heart rate), and physical condition (a well conditioned heart is more efficient, beating slower but pumping more blood volume with each stroke).

The heart is essentially a pump with its own personal electrical system. The two upper chambers (right and left atrium) relax and contract together. The two lower chambers (the right and left ventricle) also contract and relax together. The heart's contraction is controlled by two clusters of cells which act as a natural pacemaker. The first cluster is located in the right atrium and is called the sinoatrial node, or SA node. The other cluster is located between the right and left atrium and is called the atrioventricular node, or AV node.

An electrical signal from the SA node makes the right and left atria contract and send blood to the ventricles. The electrical charge continues through the AV node which acts like a transformer, slowing the charge down and channeling it through various electrical avenues to the ventricles, again stimulating a contraction. This contraction sends blood to the lungs for oxygenation from the right ventricle, or into the body through the aorta from the left ventricle.

This is a lovely system when everything is sparking and pumping properly. But, when something goes awry, abnormal heart rhythms, called arrhythmias, can occur. The usual symptoms are palpitations, dizziness, shortness of breath, physical weakness, anxiety, and fatigue. Arrhythmias can range from mildly annoying to life-threatening so it is always wise to get any abnormality checked out by a physician. Some can be treated successfully with drugs, others may need radio frequency ablation (a shock to the abnormal pacemaking site inside the heart) or require the installation of a pacemaker.

Supraventricular Tachycardia (SVT) is the one which most frequently occurs in young people and is usually caused by an extra electrical pathway which develops between the heart chambers. A pacemaker is put in place to regulate the pacing of the heart. Since its function is to keep the nodes firing properly, you should not be limited in any of your desired physical activities and your preferred heart rate maximum should be no problem.

Now, to answer your question, the answer is "yes," the numbers do change for you. First of all, the guidelines for maximum heart rate are "generally loose and not very scientific," advises Denver cardiologist and exercise physiologist, Les Lockspeiser, M.D. The charts for maximum heart rates are arranged for normal hearts and, because of your SVT yours is not "normal." Your pacemaker is doing some of the work for you and will, therefore, keep your heart at predetermined rates between 60-150 BPM.

Another variable is medication. If you are on beta blockers, this will also slow the maximum heart rate. Dr. Lockspeiser recommends that you get a treadmill test under the guidance of your cardiologist to see how your heart behaves in the upper ranges. By employing this more scientific method, you will be able to get even more fit. The important thing is not just to remain active but also to become even more active.

(Many thanks to Les Lockspeiser, M.D. for his generous contribution to this article.)

LINDA BUCH - BODY LANGUAGEtm- June 15, 2003

CALORIE-COUNTING ACCURACY OF MACHINES

"How do gym equipment makers determine the number of calories you have burned? My heart rate monitor tells me I have burned only half of what the elliptical machine tells me." Laura McAfee, Albuquerque, NM

We all know that bathroom scales are pernicious liars. Unfortunately, so are the treadmills, bicycles, and stairsteppers many of us use so ardently as part of our fitness program. So, what are the calorie expenditure numbers all about and what must we do to *really* flambé those calories?

We like to get on the cardiovascular machines with calorie read-outs because they fulfill our visceral need to instantly "see" what we have accomplished. Push a few buttons and the "calories burned" number flashes on the digital screen confirming that our efforts were of some value after all. But, if you are one of those highly organized types who has their food intake and energy expenditures planned for the day, you may want to put in a little more time on your machine of choice, say the researchers at Appalachian State University.

Their study found that calorie counters on many machines display *gross* energy expenditure (the number of calories plus your metabolic rate) instead of the *net* calories (just the number of calories you burned during exercise). The difference between these two numbers can be as high as 36%! They suggest, therefore, that if you are working to burn a specific number of calories-say 300-you add about 30% and keep plugging away until you reach 390.

Why does this inaccuracy occur? Mainly because it is difficult, expensive and complex to build a machine for public use which can read your ratio of lean mass to body fat, oxygen output, heart rate, and so forth. For this sort of detail, you need to go to a lab. The manufacturers do the best they can to provide a piece of equipment which people can operate without a degree in quantum physics, but in doing so, they have to make a few guesses about the folks using the machine. For example, if the machine you are using has no means of entering your weight, the machine is usually set for a 150# man. But even if the machine goes into detail by asking for weight, sex and astrological sign, it will still be off because there is no input for body composition (lean mass versus body fat.)

What to do? Try these suggestions from FITNESS magazine (May, 1999):

1. Enter a lower weight. Subtract about 20% from your real weight because a heavier person burns more calories in the same time period as a lighter person. By entering a lower weight, you will stay on longer to reach your calorie goal.

2. Work out longer. Usually ten more minutes will suffice.
3. Exercise standing up. The machines that are considered weight-bearing (treadmills, stairclimbers, cross-trainers, ski machines) burn more calories because it takes more muscle to stand up straight than the cycles and rowers which are operated while sitting down (non-weight-bearing).

The best advice, however, is to pay attention to how you are feeling and learn to read your own body. Pay equal attention to how much energy (calories) you are consuming throughout the day, as well. Because while the man-made machines might lie, the human body is a ruthless accountant and never misses a calorie.

[CORRECTION to my column on June 1, 2003: The Recommended Daily Requirement for folic acid is 400 MICROGRAMS, not milligrams. I apologize for my oversight.]

LINDA BUCH - BODY LANGUAGE™- June 8, 2003

Metabolic Rate Testing Equipment

"In January my local gym offered to test my metabolic rate for free. You would lie on a table, breathe into a small apparatus for 10 minutes with your nose pinched shut and then a computer would tell you your rate. Mine was 960 which they said was way low. Five days a week I ride a recumbent bike for 35 minutes then do weights for another 20 minutes. So far I have lost 8 pounds. I am 5'1", 55 years old and weigh 168. I eat salads, lean meat, fruit, and grains like oatmeal. Why is my rate so slow? Irene Landers, Colorado

Many gyms and health facilities offer Resting Metabolism Rate readings for clients by using a piece of equipment called a BodyGem®, manufactured by Healthe Tech, Inc. of Golden, Colorado. I contacted Teresa Barnes, Director of Public Relations, regarding Irene's quandary. They came through for her in their usual splendid fashion by going to the gym and meeting with her personally for a reread.

As it turned out, there was an air leak caused by either the improper insertion of the mouthpiece into the device, or because the mouthpiece was not sealed properly by Irene's mouth. When the test was redone, her metabolic reading turned out to be 1236, a huge difference!

As you may recall from prior columns, the Resting Metabolic Rate is the number of calories burned by your body while at rest. Since exercise consumes calories, exercising (and building metabolically active muscle) allows you to eat more calories than if you just remain sedentary. The trick is figuring out how much you are actually burning when exercising and then balancing that number with the calories you are consuming. We all think we are burning up massive amounts of calories just because we are huffing, puffing and sweating but how much are we *really* expending?

Healthe Tech (www.healthetech.com) to the rescue again, this time with a computer program called BalanceLog®. This program allows you to set both weight loss and exercise goals. BalanceLog, which can be used on your computer or downloaded right onto a palm device, allows you to log in the exercises you are doing along with your food consumption. It not only tracks your input/output but also keeps tab on the nutritional values so you can be sure you are getting all the nutrients you need. As you eat, exercise, garden, and clean house, you will be able to tell if you are eating too much for the energy you are expending, and be reminded of the areas where you may be nutritionally deficient (So, eat the broccoli, already!).

I have gotten consistently good reports from readers on the efficiency and effectiveness of both the Healthe Tech, Inc. programs and their user support. The Healthe Tech database not only includes restaurant meals but also diet plans from the American

Heart Association, American Diabetes Association, and so forth. Health Tech also recently joined with the USDA by jointly providing a searchable version of the National Nutrient Database for Standard Reference which can be downloaded for free to your PC by going to: <http://www.nal.usda.gov/fnic/foodcomp>.

A follow up with Irene found that she dropped 9 pounds and 10 inches since starting her exercise program this past January. She accomplished this by exercising, eating properly and by insisting on better information. If you *know* you are eating properly and exercising enough but do not seem to be getting the results you feel you should contact a professional dietitian or exercise specialist and get the answers you deserve.

LINDA BUCH - BODY LANGUAGEtm- June 1, 2003

VITAMIN/MINERAL SUPPLEMENTS

"How do you choose a vitamin and mineral supplement?" (Terri N., Denver, CO) "I eat a lot of calcium-rich foods plus supplements and foods enriched with vitamin D. How do I make sure I am not getting a toxic dose of vitamin D while getting the calcium I need?" (Pat, Denver, CO)

Barely a decade ago many health professionals sneered at those of us who took daily vitamin and mineral supplements. "All you are doing is creating designer urine," they scoffed. By 1998, the experts realized that the much ballyhooed "balanced diet" might actually be teetering on the edge of inadequacy, especially when it came to nutrients like vitamins B and D, and minerals like calcium.

Since our produce is from a world market, all with varying degrees of nutrients in the soil and generally picked and shipped before it is ripe, we simply cannot be sure we are getting everything we need from the food we eat. The best way to shore up the possible shortfall is with a daily multivitamin. A good multivitamin will have 100% of recommended daily doses. There are many brands on the market ranging in price from dollars to pennies a day, depending on your own personal preferences. Be careful, however, of vitamins which have megadoses of over 200% of the recommended dose, particularly with regard to the fat-soluble vitamins A, E, D and K.

Even if you are taking a multivitamin to augment your diet, adults in special populations (such as seniors or pre- and post-menopausal women) may still need to pop a few extra pills just to be sure of getting enough of what they need. The B-vitamins--particularly B-6, B-12, and folic acid--have been found to be in serious shortfall in over 30% of the female population. In 1998, the minimum RDA for folic acid was raised from 200 to 400 micrograms because the larger amount prevented certain birth defects. In addition, it has been found that folic acid (along with vitamins B-6 and B-12) reduces the blood levels of an amino acid called homocysteine, high levels of which have been linked to heart attack and stroke.

Everyone between age 19-50 needs 1,000 mg of calcium daily; those over age 50 need 1,200 mg. Debates continue to rage over which calcium supplement is best: calcium carbonate (which is essentially chalk and found in calcium-based antacids), or calcium citrate. According to Howard Heller, Assistant Professor of Internal Medicine at the University of Texas Southwestern Medical Center at Dallas, the women who took calcium citrate absorbed an average of 94% more calcium. Robert Heaney, a professor at the Osteoporosis Research Center at Creighton University in Omaha, Nebraska, insists citrate's superiority is far from proven, that calcium carbonate "works beautifully," is cheaper, and is less bulky. Since the body can only absorb so much calcium at a time

(excreting the rest), it is recommended that, regardless of the one you choose, you take divided doses three times a day.

Machelle Seibel, a professor of gynecology and obstetrics at Boston University School of Medicine, warns us to avoid the so called “bone building” complexes such as calcium and magnesium. “Calcium and magnesium compete with each other for absorption, so these combination products make no sense.” He continues to add that Vitamin D is the only nutrient that should be added because it really is effective in helping calcium absorb. Also, don’t worry about overdosing on vitamin D under normal eating and supplementing circumstances. The upper level for vitamin D is 2000 IU which is hard to reach unless you are taking supplements improperly.

LINDA BUCH - BODY LANGUAGE™- March 23, 2003

Still the Same Size in Spite of Good Habits

" I am 5'8" and weigh 190 pounds. I eat no red meat, no fast food, little dairy, and always stay under 2000 calories a day. I workout about three times a week, usually by doing a two-to-three mile jog or a five mile walk, and I still sit at the same size. What are some things people who 1) already eat healthy, 2) already workout, 3) are considered overweight by popular measures, do to trim up? I think it is easy to get people in shape who have never worked out and eat atrociously, but what about the rest of us? Jill, Denver, CO

First, the good news. A clean diet low in saturated fats and processed foods is commendable. Staying under 2000 calories is recommended, as is consistent exercise. The bad news has to do with the thermodynamic nature of the human body. In the human body, there are no offshore accounts to either hide excess calories or invest excess physical expenditure. Every calorie consumed is ruthlessly measured against every calorie expended, period. If the columns balance, you stay in stasis; no weight gained or lost. It sounds to me like this is where you are at the moment.

Let's start with your food. Study after study showed that people ROUTINELY underestimate their daily caloric intake, often by as much as 500 calories per day. Unless you are assiduously measuring and weighing each morsel and know exactly how many calories are in each item (which is next to impossible without a laboratory device called a calorimeter), it is possible you are eating more than you really think you are eating. Since on the surface your diet sounds fine (assuming you are not consuming a lot of alcohol, and are eating vegetables, fruits, fish, lean meat, and whole grains as the balance of your calories), we need to examine the flip side: exercise.

If you are trying to make physical changes, and are going insane as to how to accomplish this, then you must accept the Definition of Insanity: "Doing the same thing over and over, expecting different results." I hate to say it but a three-day-a-week workout schedule is for maintenance, not change. Let's look at ways to make things different for you:

1. INCREASE YOUR INTENSITY. You may need to buy a heart rate monitor but it is worth it. Unless you are accumulating at least thirty minutes of cardiovascular exercise at 75% to 80% of your heart rate maximum, you may not be working out hard enough. The common way to find this number is to take 220 minus your age X 80%. Except for your warm-up and cool-down, fluctuate your output between 65% and 80% for the "huffy puffy" part of your exercise. A heart rate monitor will tell you how hard you are pushing yourself.

2. INCREASE YOUR FREQUENCY. Three days a week may seem like a lot but if you add another day or two of physical activity, you will boost your weekly caloric output. Also, adding some variety is good for the head and keeps exercise fun. Check out a kickboxing class, learn to rollerblade, go dancing, or try snowshoeing.

3. INCREASE YOUR MUSCLE MASS. You did not mention your age but the older we get, the more we need to hang on to and increase our lean muscle, not just for our bones, but also for our metabolism. The easiest way to accomplish this is by lifting weights. Adding two sessions a week of strength training can easily get you on your way to a higher metabolism, especially if it is a new activity for you.

As far as being “fit and fat,” Steven Blair, P. E. D., of the Cooper Institute for Aerobic Research says, “Healthy bodies come in all shapes. We need to stop hounding people about their weight and encourage them to eat a healthful diet and exercise.” Keep doing what you are doing—just do more of it and in six months, you will see the changes you are looking for.

Lipoprotein-a

"What can you tell me about lipoprotein-a? My 50 year-old sister just found out she has a high level/double normal level. The test was done after she had a heart scan and it showed some plaque--minor, but not normal for someone her age. She eats low fat, exercises, doesn't smoke, is of normal weight, cholesterol is 178 with normal LDL and HDL (She has been on cholesterol medication since her mid-40's). She went into early menopause since being treated for breast cancer at age 40. Her EKG and stress tests were good." Sue, Denver, CO

Anyone who has had a blood test knows that blood contains certain fats. The two major fats found in the blood are cholesterol and triglyceride. A triglyceride is a compound of three fatty acids bound by oxygen to glyceryl. Triglyceride's main job is to transport fat through the blood for the body to use as energy. On the other hand, cholesterol, composed of fat (lipid), which is of course not water soluble, has to hitch a ride with certain proteins in the bloodstream in order to be utilized by the body. Cholesterol, a waxy compound manufactured in the liver, is used to make essential substances such as the lining of our cell walls. Some cholesterol is very dense (called High-Density Lipoprotein, or HDL) and acts like little vascular scouring pads, taking the sludge in the bloodstream to the liver for removal. The gooier, stickier lipoproteins, Low-Density (LDL) and Very Low-Density (VLDL) lipoproteins, are the sludge.

Studies have found that people who exercise regularly and eat a diet low in saturated fats and high in fiber tend to have more of the HDL ("good") cholesterol and normal ranges of the LDL ("bad") cholesterol. But sometimes genetics whumps us upside the head and, in spite of a healthy lifestyle of exercise and a proper diet, we are diagnosed with coronary artery disease because of a substance found in the LDL called lipoprotein-a, also known as "Lp(a)."

Lp(a), tremendously sticky, is great for patching damaged cell walls. Unfortunately, Lp(a) is also extremely gregarious, attracting other Lp(a) particles to it and causing vascular blockages. Researchers have determined that the Lp(a) level in the blood should be less than 20 mg/dl.

Levels higher than this are causes for concern due to the increased risks of heart disease among those with high readings.

So far, research has not come up with any drugs which will lower Lp(a). However, Michael Lamm, M.D., (www.drlamm.com) and Joseph Mercola, D.O., (www.mercola.com) feel there are some natural ways to ameliorate your sister's situation. Both recommend large doses of vitamin C (1000 mg with each meal), and L-lysine, and L-proline (one gram each, two-three times a day), "the basic building blocks of collagen," according to Dr. Lamm. In addition, Dr. Mercola also recommends 1000

mg three times a day of niacin hexanicinate, a form of niacin which does not cause liver toxicity or the skin to flush. This study, printed in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, September 13, 2000, noted an increase in HDL levels among the niacin group. Another site (www.epic4health.com) recorded a small study in which coenzyme Q-10 (60 mg twice daily) was also successful.

Of course, taking large doses of anything could pose other risks, so proceed cautiously before rushing out and buying mass quantities of supplements. Food choices can also make a healthy difference in Lp(a) levels. According to Dr. Mercola, a diet high in TRANS fats, those fats found in processed foods and identified as “partially hydrogenated,” as well as a diet high in soy, created higher Lp(a) levels in the blood of genetically susceptible individuals. The foods recommended for lowering Lp(a) levels--fish, fruits, vegetables, and nuts (walnuts in particular)--are known to be generally safe choices and would seem to be the place to begin.

Even though scientific research appears to be on the ground floor at this point, I hope some of this information is helpful for your sister.

LINDA BUCH - BODY LANGUAGE™- March 30, 2003

Muscle Soreness

"I work out on a regular basis--nearly every day. Would you please tell me why I am stiff and sore after some of my workouts (particularly those with my trainer)?"

Queenie, Denver, CO

Ah, the harbingers of Spring! Even if the groundhog panics in Puxatawnee, PA, SPORTS ILLUSTRATED will publish its infamous "Swimsuit Edition," sending millions of women and men screaming to the gym. Unfortunately, many run screaming *from* the gym after a few weeks of hard "gotta-get-ready-for-summer" workouts which leave their muscles aching and sore. Since you work out consistently, it is unlikely you will suffer too much soreness as you continue with your regular workout program. However, when you deviate from the "norm," especially if you are pushed to higher levels of performance with your trainer, your muscles probably experience a deeper trauma from the different exercises, and delayed onset muscle soreness (DOMS) is the result.

Muscle soreness (the "good" soreness, as opposed to joint pain or "bad" soreness) happens when the muscles are worked *eccentrically*. No, this has nothing to do with odd behavior or weird gym attire. A normal muscle contraction is called a *concentric* contraction, where the proteins in the muscle fibers slide together and shorten as you (for example) pull a weight toward you while performing a biceps curl. When you slowly lower the weight (eccentric contraction), the muscle fibers are being lengthened while at the same time trying to stay short as they strain to both support the weights in your hands and oppose gravity. This simultaneous lengthening and shortening of the muscle tends to rip the muscle fibers, causing microscopic tears. Eccentric contractions don't just happen when weight lifting; the same thing happens to your legs when you, ski, hike or run down hill.

Since our bodies respond to damage with a barrage of healing chemicals from our immune system, we feel pain in the form of muscle soreness for about 48 hours after any workout which involves eccentric muscle contractions. The muscle stiffness is from the swelling in the muscle tissue from the repair process. The good news is that this is how bigger, stronger muscles are acquired. Every time muscle is repaired, another minute layer of muscle is built to strengthen it for the next attack from your trainer!

A common misconception is that this soreness is due to "lactic acid" buildup in the muscle. Lactic acid (whose proper name is *lactate*) is released into a muscle when it is pushed to the limit, but clears the muscle within approximately 40 minutes. What causes muscle fatigue is the presence of hydrogen ions (H⁺) which appear as a result of the chemical breakdown of glucose and myriad other chemical reactions which

transpire in order for your muscles to contract in the first place. When a muscle is worked intensely, the acid/alkaline levels (pH) change dramatically from a relatively neutral level of pH 7.4 down to a very acidic level of about pH 5.0. In other words, this is your muscle...this is your muscle on acid... Or as Jane Fonda used to say, "*Feel the burn.*"

According to Priscilla Clarkson, Professor of Exercise Science at the University of Massachusetts at Amherst, none of the popular pain relievers will palliate this sort of muscle discomfort. Ibuprofen can reduce joint pain but muscles are a whole different animal. One thing shown to make a difference is vitamin C--specifically, 600 milligrams before, during, and several days after, a bout of vigorous exercise. "When white blood cells attend to ripped muscle fibers, they release a lot of free radicals, which also do damage," explains Clarkson. "So it is theoretically possible that an antioxidant like vitamin C could moderate that damage." Other possible antidotes are antihistamines and vitamin E. Mild aerobic activity (15-20 minutes of bicycle riding) right after your lifting workout is also recommended.

The best advice is to start new activities slowly and prepare for upcoming athletic events in advance. There is no harm in giving yourself a push every week as long as you are not too debilitated to whine proudly to your friends!

LINDA BUCH - BODY LANGUAGE™- March 9, 2003

AFFORDABLE FITNESS

"I enjoyed the year-long program with Laura Watt. However, she had the enormous resources of the Post while most of us do not. How can a single mom like me do a healthy eating plan and exercise at home on a very limited budget?" Linda McC., Colorado Springs, CO

Gazillionaire, Oprah, has a chef, a trainer, and a gym in every home she owns; Laura had the Denver Post pay for Colorado Weigh, a DEXA scan, gym fees, and a trainer. These stories, while interesting, informative, and (we hope) inspiring often leave people wondering how to accomplish the same results without all of the financial bells and whistles. A highly publicized program through a large corporation or TV star, and their subsequent resources, often provides excuses for the rest of us. "If I had her money/ the Post paying I would be successful, too." Not so fast... If all it took was money, Oprah wouldn't be talking about how she came back from a weight-gain relapse, Neiman Marcus wouldn't sell anything over a size ten, and Tommy Hilfiger wouldn't design pants with more than a 28-inch waist.

It is possible to achieve and maintain a healthy body on a budget as long as you are willing to educate yourself with the facts of good nutrition and proper exercise, eschewing the quick-fix diet and exercise charlatans who get rich preying on the informational confusion of overweight and under-exercised Americans. Stick with qualified resources which are endorsed by quality organizations such as, but not limited to, the American Dietetic Association (ADA) or the American College of Sports Medicine (ACSM).

As for exercise, one of the very best is walking, where your largest expense is a good pair of shoes. As for strength training, stretching, push-ups and crunches can be done anytime and anywhere without expensive equipment. (My co-author and I wrote THE COMMERCIAL BREAK WORKOUT [Prima/Random House] for people who did not want to buy equipment or join gyms. Another good book is FITNESS FOR DUMMIES [IDS].)

The tough part of any budget is the food. Eating well is reputed to be more expensive than eating junk. But, at over \$177 BILLION in health care costs due to obesity, where is the value? Mass produced food is designed for financial profit, not nutritional purity. Because it is mass produced and kept "fresh" by using a variety of chemicals and refining processes, nutrition is usually sacrificed. Fresh fruit, vegetables, and fish simply cannot compete with the billions of dollars available to large corporations. Let's face it, the advertising budget for broccoli does not include Michael Jordan...

The trick and the challenge is to pack in as much nutritional value as possible on a tight budget. Barbara Rolls, Ph.D., of Penn State University, found that food with both a high water content and lots of fiber, such as fruits, vegetables, make people feel fuller faster. By adding more vegetables to a pasta sauce, for example, the sauce will not only be more nutritional but also fill you up quicker, and with fewer calories.

Fresh fruits and vegetables, unless they are on sale, can be expensive to buy weekly. But, the American Institute for Cancer Research (AICR) maintains that, "Canned and frozen fruits and vegetables can provide even more nutrients than their fresh counterparts." Melanie Polk, RD, AICR's director of Nutrition Education explains, "New technologies, such as flash-freezing, trap nutrients and phytochemicals right after harvest when fruits and vegetables are at their nutritional peak." This means you can stock your freezer and pantry with a plethora of healthy food at a reduced cost.

As for good sources of protein and fat, it is not necessary to eat salmon every day. The highly desirable Omega-3 fatty acids in salmon are also found in nuts, and other (cheaper) cold-water fish such as tuna, mackerel, cod and bluefish. You can also increase healthy fat in your diet simply by sprinkling flaxseed on a salad or by using flaxseed oil as part of the salad dressing. And don't forget beans! Lentils, kidney, pinto, and so forth can make great soups, stews, or burritos. Bags of dried beans are inexpensive and pack a nutritional wallop. And pizza, when prepared with lots of veggies and one handful of cheese instead of three, is a terrific meal.

It may take planning and a grocery list etched in stone to meet your goals, but good health is a lot cheaper than the alternative and worth the extra effort.

LINDA BUCH - BODY LANGUAGEtm- May 11, 2003

"I have been following Laura Watt in the Denver Post. Here is my dilemma: I am age 72, 5' 3", weight 128 #, and have a 33" waist. I am taking Actonel® for bones. My goal is to reshape my abdomen and waist measurement so it is less than 30"." Mrs. Lyle Nelson, Littleton

Reducing Abdominal Fat

Fat around the middle of the body is more than just a cosmetic distraction. It can also create serious health problems such as cardiovascular disease, hypertension, stroke, cancer, and diabetes. The most dangerous is the fat that makes us look like an apple (rather than a pear) because this intra-abdominal fat tends to collect around the organs.

According to a new study conducted by the Fred Hutchinson Cancer Research Center in Seattle (published in the *Journal of the American Medical Association*, January 14, 2003), exercise--even moderate exercise--is the key to reducing these unwanted and unhealthy fat deposits. In the study, half the women performed 30-45 minutes of aerobic activity (such as brisk walking) five days per week. No dietary changes were made. At the end of the 12-month study, the exercisers lost between three to seven percent of their intra-abdominal fat.

You did not mention an exercise program but since you were following Laura Watt's progress, I will assume you know the key role exercise played in her success. A walking program is probably the easiest and cheapest way to get you closer to your goal. Since you did mention Actonel® for bones, a resistance training program would also be beneficial in order to help you hang on to your bone density. A simple way to accomplish that would be with some inexpensive dumbbells. A book store in your area will have some easy to follow books and videos to guide and teach you proper form.

Some people like to carry small weights when walking or jogging. I do not recommend this because carrying extra weight in your hands or around the ankles can damage the elbow and knee joints. Instead, call a sporting goods store in your area and ask them about purchasing a *weighted vest*. A good vest will be made of a heavy cotton material with small pockets evenly distributed around the front and back where small weights can be inserted. By adding *evenly distributed* extra weight to your body while walking, you will work harder, burn more calories, and positively stress the bones.

Another great piece of inexpensive equipment is the personal trampoline. They are just large enough for low bouncing, light jogging, and twisting moves which are all great for your core muscles (abdominals, back and gluteus) as well as your bones. Be aware that the inexpensive models have legs that screw on. The vibration of jumping can loosen those legs, so either buy a special glue called ThreadLock® or check the legs every time you exercise to be sure they are on tight!

Diet is the next component. As we get older, we need fewer calories. This means that the calories we do eat need to pack a greater nutritional wallop. Be sure to consume mainly lean protein, fruits, vegetables, beans, whole grains and low fat dairy products. Watch out for processed snack foods and soda pop--they are nothing but empty calories.

Remember that there is no such thing as spot reducing. Crunches and other abdominal exercises are important and will firm and strengthen the muscles but will not slim the waist by themselves. Also, do not be enticed into buying machines that promise "a slimmer waist in ten days" or some other egregious claim. Most of these products shamelessly prey on the desperation of others. The only thing that gets slim is your wallet!

LINDA BUCH - BODY LANGUAGEtm- May 18, 2003

TRACKING WORKOUTS

"Do you know of any good software programs or websites where you can track your workouts? I need to track both aerobic and anaerobic progress. I used to use the Cooperfitness website but high demand on the site led to restrictions." Losing Track in Longmont

If you are training for something in particular, you should keep a log documenting problems as well as progress. Unless you write down your goals, along with a plan for achieving them, how do you know where you are going or how you will get there? Regardless of whether you are working to lose twenty pounds or lift twenty pounds, writing down a goal, along with the actions taken daily to achieve it, provides a compelling road map.

Another benefit to keeping a log is to track how you feel after your exercise session or during a change in diet. If, for example, on Tuesday you increase your walking distance and notice that on Wednesday you feel overtired or in some physical pain, you may have increased your distance too quickly. If you are logging your food intake and notice that every day at 2:00 you are so ravenously hungry that your pets are in danger, you may need to reevaluate your breakfast and lunch options.

Finding the right system for doing all of this is a very personal one. For those who like a more tactile approach, I recommend THE ULTIMATE WORKOUT LOG by Suzanne Schlosberg (Houghton Mifflin). This particular book was printed ten years ago, however, so it may be hard to find. Memory Minder Journals (call: 1/800/888/3392 or order from a book store) are also easy to use and are well organized for both exercise and diet. And the Tattered Cover Book Store has a great exercise section rife with other options for your consideration.

For those looking for software or websites, go to www.Google.com and type in "exercise tracking programs." I found four sites in particular which are worth checking into. Start with www.weightsnet.com. This site is literally A--Z with suggestions for you. My colleagues mentioned PROTRACK 2002 which can be found at: www.global-fitness.com. Two other sites are: www.MyWellness.com and www.OnlineFitnessLog.com. Be careful! Some of these sites have monthly fees attached.

I talked to quite a few people to get ideas on specific websites, programs and books but I am not sure if I have satisfied your question entirely. If any readers have some information to share, please let me know and I will be happy to do a follow-up column on the subject. In the meantime, keep on trackin'!

LINDA BUCH - BODY LANGUAGEtm- May 25, 2003

THE FORGOTTEN PELVIC FLOOR MUSCLES

"I am a physical therapist who specializes in women's health issues. The pelvic floor has been dubbed the "forgotten muscles." These muscles are critical for bladder health, core stabilization and sexuality. It would be great to see you do an article on pelvic floor fitness." Terri Nishimoto, PT, Denver, CO

Baby Boomers turning THE BIG 5-0 customarily get a box of Depends®--the adult diaper designed to protect adults of "a certain age" from the embarrassment of incontinence--as a gag gift. Everyone laughs heartily at the joke until, one day, incontinence strikes as we are laughing or sneezing and we suddenly realize the joke is on us. Welcome to the world of weak pelvic muscles!

The pelvic floor muscles are part of the core muscles, working with the deep muscles of the abdominals and lower back. They attach between the pubic bone in the front and the base of the spine in back and help hold the bladder, bowel, and (for women) womb in place. In addition, they also work with the muscles which allow the anus, urethra, and vagina to contract.

Causes of weakened pelvic floor muscles in both men and women are chronic constipation, a lifestyle of too much heavy lifting, chronic coughing (due to smoking, asthma or bronchitis), being overweight, and poor fitness levels. Men can develop weakness from prostate surgery; women from pregnancy, childbirth, and hormone changes due to menopause.

But we do not have to live a life of anxiety or fear over embarrassing excretions at inappropriate times. Most of us can exercise the problem away with a few simple maneuvers while we are sitting, standing or even while watching TV. I found the following instructions on both how to identify and exercise the pelvic floor muscles at the Australian Department of Health and Aging web site (www.health.gov.au) :

"To IDENTIFY the muscles that need to be exercised:

1. Sit or lie comfortably with muscles of your thighs, buttocks, and abdomen relaxed.
2. Tighten the muscles around the anus as if you are trying to control diarrhea (without squeezing the muscles of the buttocks). Relax then repeat. Practice this several times until you are sure you are exercising the correct muscle.
3. When urinating, try to stop the flow mid-stream and then restart it. Only do this to learn which muscles are the correct ones to use and then do it ONLY once a month to check your progress, as this may interfere with normal bladder emptying.

To EXERCISE the pelvic floor muscles (known as Kegel Exercises):

1. Strongly tighten and draw in the muscles of the urethra and anus all at once. Lift them UP inside. Try and hold this contraction strongly as you count to five then release and relax. THE CATCH: You have to do this without sucking in your abdominal muscles, squeezing your legs together, tightening your butt muscles, or holding your breath!
2. Repeat the 'squeeze and lift' every ten seconds for a maximum of eight-ten squeezes. (Again, draw UP AND IN, do not push down.)
3. Now do five to ten short, fast, yet strong contractions.
4. Repeat this routine four-five times a day."

Recommended reading includes: *Beyond Kegels: Fabulous Four Exercises and More to Prevent and Treat Incontinence*, by Janet Hulme, and *Staying Dry: A Practical Guide to Bladder Control*, by Kathy Burgio.

If you continue to have problems either performing the exercises properly, or with continued incontinence, make an appointment either with a nurse who works in gynecology or proctology or with a Physical Therapist who specializes in pelvic dysfunction. Either of these fine professionals would be able to teach you proper technique. After all, being able to depend on yourself is always better than having to depend on Depends®.

Running and Low Bone Density

"Someone from the Runner's World website message board sent me an article published in the British Journal of Sports Medicine where it was reported that long distance running lowered bone density in female athletes. It worries me because I have low bone density and some arthritis in my lower back and hip. I wonder if I should stop running. I switched to trails, but according to the article even the softer surfaces aren't OK."

Sue from Denver

The article you sent to me (published in the *British Journal of Sports Medicine*, January 2003) presents an interesting paradox. On the one hand, we are told that exercise is a healthy thing to do and that weight-bearing exercise (like running) builds our bones. When studies like this come out, it tends to frustrate and confuse everyone.

Men and women who participate in long distance running do seem to have less bone mineral density (BMD). Robert Klesges, a preventive medicine specialist at the University of Memphis, was studying stress fractures in male basketball players and found a correlation between sweat and bone thinning. He found a high calcium content in the sweat of the players after their workouts, which involved a lot of running. To counter this trend, and to hopefully reverse the trend, he had the athletes drink a calcium-rich sports drink and consume calcium supplements. Low and behold, he succeeded in helping the athletes gain an average of 2% BMD by following this regimen.

For women, things are a little trickier because many athletes begin their careers when they are entering puberty. Hormones, nutrition, and over-training make up what doctors now call the "female athlete triad." When female athletes (particularly runners, swimmers, gymnasts, and figure skaters) push themselves during training while also dramatically limiting what they eat, they can develop amenorrhea, which means their body fat gets so low they stop having their periods. The combination of under-eating, over-training stops the body from making the hormones necessary to build bones at a crucial time in life when bone-building is starting to peak, roughly between age 18-23. The result from all of this is brittle bones that are susceptible to fractures.

Many studies did find, however, that BMD actually increased or was maintained among runners who were also weightlifters. Because their lean body mass was maintained or increased through weight training, the bones were protected. In fact, the best combination found for keeping bones healthy is aerobic exercise plus body building.

Nutritionally, there may be some help for you as well. One study suggests that eating more protein along with increased calcium intake can possibly put a halt to osteoporosis. One of the risks of a high-protein diet is bone loss; but Bess Dawson-Hughes, MD, and chief of the Calcium and Bone Metabolism Laboratory at Tufts University, found that "A higher calcium intake is going to be protective against any adverse effects of protein on bone, and allow protein to have a positive effect." In the study, the participants ate 79 grams of protein a day (40-60 grams is considered the normal intake) along with a 500 mg calcium and 150 IU Vitamin D supplement. Since only 500 mg of calcium can be absorbed by the body at one time, this means taking the calcium/Vitamin D combination two to three times per day. The daily recommendation for Vitamin D (which is fat-soluble) is only 400 IU so read the labels of your vitamin supplements carefully so you don't overdo.

Sue Charette, MD, Assistant Clinical Professor in Geriatric Medicine at UCLA, recommends 1500 mg per day of calcium for women who are not on estrogen replacement and 1000 mg per day for women who are on estrogen replacement.

My recommendation for exercise, Sue, is to start a walking program using a weighted vest and to begin a weight lifting program. This may not give you that coveted "runner's high," but it could keep you from further bone and joint damage.

LINDA BUCH - BODY LANGUAGE™- November 10, 2003
OSTEOPOROSIS, (Part 2)

"I have had bone loss for many years, am post-menopausal, no longer on HRT, and am not overweight. My physician has me on Evista to build up bone mass but I am not comfortable taking medications. Would some weight training and Pilates and/or other exercise build up the bone mass so that I could stop taking meds? Linda Titus

It is great that you want to fight back, Linda! Many people believe that, once they are diagnosed with osteoporosis, they must swaddle themselves in bubble wrap and live in padded houses. Women must get past the antediluvian concept that weightlifting equals "Arnold." In fact, weightlifting is the fountain of youth which can save you from a life of debilitating dependency. This does not mean you will be able to, or should, circumvent bone-building medications through exercise and diet. Conversely, medications are not a "Get Out of Jail Free" card for proper nutrition and exercise.

Bone is living tissue with a hard outer surface and a spongy inner layer. Cells called osteoclasts remove old bone which signals the "remodeling team" of other cells, osteoblasts, to build new bone. If your body is out of balance because of stress, depression, hormone changes (such as menopause), poor nutrition, or lack of physical stimulation (you are bedridden from illness, live a sedentary lifestyle, or are an astronaut in space) your bones can literally dissolve because the bone-building osteoblasts will not be able to keep up the pace of repairs. When muscle pulls against bone, which occurs during activities like weightlifting, the bone-building process is stimulated.

Very generally, we have two types of muscle fibers: Type I, or slow twitch (for endurance), and Type II, or fast twitch (for quick, explosive moves.) As we age, we tend to lose the ability to access our Type II fibers, which means we have a more difficult time performing those quick, explosive moves.

Here is where strength training comes in to save the day. Leading tissue researcher, Kenneth McLeod, Chair of the Bioengineering Department at Binghamton University (NY) found that just taking calcium and doing some walking will not make new bone. "There has to be a signal to make bone, and it turns out that if you don't have adequate fluid flow across your bone, you're not going to have adequate cell metabolism to trigger cell formation," states McLeod. He has found that the key to triggering bone growth is to focus primarily on a specific type of Type II fiber called Type IIA. This fiber responds to both endurance and explosive movements which means a variety of weightlifting protocols may be the key to bone stimulation.

All new exercise programs should begin slowly. When weightlifting, learn proper form and start with easy weights where you are capable of 12-15 repetitions before tiring.

This will allow your connective tissue (especially around your joints) to adapt to your new activity. By using a scale of 1 to 5 (with "1" lifting a banana and "5" lifting a giant box of kitty litter) strive to get to level "4" where 8 repetitions is all you can do with proper form.

Aerobic activity (or classes) should include as much impact as you can safely handle such as brisk walking, vertical jumping (jumping rope, volleyball, basketball, tennis), boxing, martial arts, and so forth. As for Pilates, this is terrific exercise, especially for flexibility and core strength. Once your muscles adapt to the strengthening aspect, however, you will need to add weightlifting to your routine in order to keep stimulating new bone growth. Also, any moves involving forward flexion of the spine can be dangerous if you have osteoporosis so communicate your situation with the instructor.

Finally, I highly recommend Miriam Nelson's book, "Strong Women, Strong Bones" (Perigee) to learn more about diet and exercise. This book will further your understanding of osteoporosis and provide more ideas on how to continue to fight back.

LINDA BUCH - BODY LANGUAGE™- November 17, 2003

PREPARATION FOR SKIING

“Last year was the first year I began serious strength training at a gym. I noticed when I increased the weight on the leg machines, my legs got really tired on the bumps. What is a good regime for someone who skis regularly?” Joel Lachance, Highlands Ranch

“Announced by all the trumpets of the sky, Arrives the snow,” writes Ralph Waldo Emerson. Regardless of whether the snow arrives by trumpets or tin whistles, we all pray for fathoms of the fluffy stuff, and the sooner the better. For some reason many skiers assume ski training simply means lots weight training on the leg equipment. Oh, contraire.

In skiing, as in many sports, the whole body needs attention and not just in the arena of pure strength. A skier’s body moves as a unit. The arms reach, the trunk twists, the abdominal muscles crunch, the back flexes and the legs both push explosively and decelerate to absorb the bumps. Yes, the legs are used for power but it is important to work the core muscles as well. Or, as Chip Richards (trainer for the Australian Freestyle Ski Team) points out, “If a car is front wheel drive it doesn’t mean you can drive with the back tires deflated.”

The basic movement patterns for most activities, whether skiing or grocery shopping, are push, pull, squat, bend, lunge and twist. It is important, therefore, to train in all of those modes. Pilates is a great way to work the abdominal and back muscles together. Another idea is to use a Fitball® instead of a bench when performing your weight training exercises. By using the unstable ball, your core muscles learn to stabilize you as you work your other muscles. If you are unfamiliar with how to use a ball in this way be sure to ask one of the gym staff to teach you. Another way to improve your balance and core stability is to perform some of your exercises while standing on one leg or by standing on a wobble board.

Good conditioning is easier to achieve if you vary your workouts between those designed for power and those designed for endurance. Organize your time in the gym so that some days are for lifting as heavy as you can for 8-10 repetitions (power) and other days are lighter for 15-20 repetitions (endurance).

Another important area is the plyometric (explosive) phase which will more closely imitate the agility of your ski moves. Side-to-side hops and slide shuffles across the gym floor, jumping rope, explosive lunges, and other moves, which include both acceleration and deceleration, are of great benefit.

Your cardiovascular conditioning will probably need to increase in intensity so that you can keep from getting winded on the long runs. Be sure to vary the equipment used as

well as the speed and difficulty of the settings. For example, add plenty of uphill sprints on the treadmill and some long climbs on the bicycle, elliptical, and stair machines.

There are plenty of exercises you can do at home or in the office, too. Don't forget wall sitting, squat-thrusts, mountain climbers, or triceps dips? Also, if your office building has a stairwell, running the steps (up and down) is an amazing way to condition.

Finish all of this with some slow, relaxing stretches--especially for the quadriceps, hamstrings, gluteals and hips--and you will smoke those slopes.

LINDA BUCH - BODY LANGUAGEtm- November 24, 2003

Good Nutrition Crucial for Triathletes and Marathoners

"I am a female, age 36. Each year I run 2 marathons and do 1-2 triathlons. I lift heavy weights and do Pilates 2-3 x's a week. I was told by my acupuncturist that nutrients "weren't being absorbed" by my body. I was told to buy a lot of expensive vitamins to be taken in the morning and minerals for the evening. Also, my blood pressure is consistently low (90/50). This summer I experienced some blackout moments. I eat salt like crazy to try to raise it. Any suggestions?"
Joanne Winge

Two marathons and 1-2 triathlons a year? Holy workout, Batman! Before getting into the nutrient question, however, let's address your blood pressure and those pesky blackouts.

A blood pressure reading of 90/50 is not unusual for a person with your high level of physical activity. The danger for you is your consumption of mass quantities of salt. Salt in and of itself will not raise blood pressure in a healthy person. What salt will do, however, is raise the sodium concentration in the blood. When this happens, water is taken from the muscle tissue. This causes dehydration. Anyone who is running, swimming and biking year-round needs to insure proper hydration in order to maintain a decent performance level. You should be drinking about 80 ounces of water daily. (And no more added salt!)

If what I understand about triathlon/marathon training is still true, your training is done in three phases with each phase lasting anywhere from 4-12 weeks, depending on fitness and ability levels. Since you sound like an old hand at triathlons/marathons, let's assume you train for each phase for 4 weeks. By my calculations, you are training for triathlons for 6 months out of the year. Add a couple of marathons to the mix and you are now in training for 9-10 months. This only allows for 2 months of downtime (scattered throughout the year) to give your body the rest and repair time it desperately needs after all of that physical stress.

According to information I found at www.triathlonacademy.com, you could need anywhere from 2-4 weeks after an event to allow your body to rebuild damaged tissue, restore nutrients, repair general physical damage, and to replenish fluids. This is not to suggest total inactivity, just a period of low to moderate cross-training. Pilates is a great way to soothe your muscles and joints so definitely keep that up. Also, you may want to rethink lifting heavy weights when you are in the midst of a training phase. Build up to heavy lifting after your recovery from an event and periodize your lifting throughout your training phases rather than just lifting heavy all the time.

My primary concern is for your diet. According to triathlon coach, Al Lyman, CSCS, "Cutting edge nutrition is arguably 50% OR MORE of the battle. You may not be doing

all you can to maximize the *absorption* of the foods you are eating. Complete digestion and absorption is critically important if you are going to continually adapt from your training AND remain vibrant, productive and healthy while doing so." He warns against eating too late in the evening and overcooking your food, and, recommends you vary your protein sources. A steady diet of primarily chicken, tuna and cottage cheese can lead to nutritional deficiencies so be sure to add other protein sources such as turkey, seafood, lean beef, tofu, and beans. Also, remember to replenish yourself with quality carbohydrates within 30 minutes of a training session and then protein within 60-90 minutes.

I strongly recommend you work with a sports specialized Registered Dietitian as well as a triathlon coach. This will ensure you the proper support and information to keep you burning up those miles for many years to come.

Osteoporosis, Part One

Nothing engenders more mail for my column than the subject of osteoporosis. The column which ran on September 14, 2003, was no exception. For this reason, I am dedicating two columns to the subject with the hope of raising awareness and inspiring serious proactivity regarding this insidiously silent crippler.

According to Miriam E. Nelson, Ph.D., School of Nutrition Science and Policy at Tufts University and author of Strong Women, Strong Bones (Perigee), the odds of women in America getting osteoporosis are one-in-three. Since you cannot feel it happening, most people afflicted with the disease don't know they have it until they fall and fracture a bone. 69% of the fractures happen in the hip, causing the death of one-in-five within a year. Most fall victims also have to forsake their independence for nursing homes or other forms of assisted living.

This weeks column is directed to parents, relatives and guardians of adolescent and teen-aged girls and boys (yes, *boys*-two million men in our country have this disease as well). First, the girls. It is great if your female child is athletic because the beneficial habit of lifelong exercise often starts in youth. However, once she starts her menstrual cycles, it is important to be sure that they are both regular and normal. Too many young girls set themselves up for early bone loss by keeping their body fat at such low levels they either have infrequent periods or stop all together. Eating disorders (often coupled with excessive exercise) will also harm their bones.

Puberty is a time of accelerated bone mass accumulation. By age 18, we have about 90% of our total adult bone mass. If the children in your life are overweight, existing on a diet of sugar, fat, processed food, sodas, and other foods loaded with calories, but not much nutritional value, they are setting themselves up for many health problems, including osteoporosis. It is not too late to turn diets around! If you are in charge of the meals (as much as you *can* be in charge of meals when it comes to teenagers) make a concerted effort to at least get healthy breakfasts and dinners in front of them. Instant breakfast pastries, granola bars, and fried fast foods are not healthy ways to fuel bone-amassing young people.

From ages 9-18, we need about 1300 mg of calcium per day. Do your best to work in foods which are high in calcium such as milk, yogurt, hard cheeses (cheddar, Swiss), ricotta, beans (soy, kidney, navy, pinto, green), green leafy vegetables (spinach, broccoli, bok choi, collards), fruits (oranges, raisins) and nuts (almonds, hazelnuts), and fish (salmon and sardines in particular). Finally, watch for excessive soft drink consumption. These sugary, high-calorie drinks have zero nutritional value and often replace more nutritional beverages such as milk and (real) fruit juice.

Make a serious effort to get your kids away from the glowing screens of TV's and computers. Sedentary living is not healthy and will set your young person up for diabetes, heart disease, and bone loss. Not every kid needs to be a superstar athlete in order to be fit. YMCAs, Girls and Boys/Scouts Clubs have lots of physical activities which are fun without being brutally competitive. Hiking, snowshoeing, bicycling, intramural volleyball, basketball, hopscotch, jumping rope and so forth are all great activities. Tossing or kicking a ball in the park is equally valuable (and you might get some exercise benefit as well if you do some of the tossing and kicking with your kids).

Next week's column will focus on post-menopausal women (and men over 50) and what we can do as older adults to regain or keep our bones.

LINDA BUCH - BODY LANGUAGE™- October 19, 2003

How to Become a Certified Instructor

"What are the steps needed, time invested, and cost of becoming a certified group exercise instructor? I currently take a variety of group exercise classes including kickboxing, muscle conditioning, step, yoga, spinning, and circuit training. I enjoy these immensely and thought I would take the next step into making my fitness hobby a way to combine work and play, and help others reach their goals." Michelle, Highlands Ranch

Congratulations on choosing to take the leap from participant to leader. It sounds like this is a natural progression for you. In the old days, anyone who wanted to teach a class just put the word out and hoped for the best. Participants never knew if the instructor was an actual expert or just a self-proclaimed one. Today, thankfully, things are not quite that capricious. It is a big responsibility to lead a class of people who are trusting you to have their best interests at heart. You not only need to have on-the-spot creativity to keep the class moving correctly but also skills in CPR, the ability to safely engage and maintain the interest of a disparate group of people, and sensitive timing on when to step in and give assistance to someone who needs it (without making them feel singled out or humiliated in the process). This is no small order.

There are many fine organizations which provide training, continuing education, insurance, and so forth. The three I found which seem to fit your needs are ACE (American Council on Exercise, www.acefitness.org), NAFC (National Association for Fitness Certification, www.body-basics.com) and AFAA (Aerobics and Fitness Association of America, www.afa.com). Another great organization to join for access to professional materials and seminars is the International Dance Exercise Association (IDEA) located online at www.ideafit.com. The Cooper Institute in Dallas, Texas (www.cooperaerobics.com) is another great source for the latest information.

Good accredited organizations like the ones mentioned above (and there are many other fine organizations as well--I pulled three pages worth off of Google alone) provide study materials, videos, and access to both practical and continuing education. The initial costs vary but plan on spending about \$300-\$400 just to get yourself started. Most certifying organizations require a final exam, which is scheduled periodically in most major cities.

If you decide to become a strength and conditioning specialist or personal fitness trainer, both ACE and NSCA (National Strength and Conditioning Association, www.nasca-cc.org) are excellent. In fact these are the only two certification organizations in the fitness industry currently accredited by the NCCA (National Commission for Certifying Agencies, www.noca.org) because of their consistently high standards for testing and certifying their members.

Whichever way you choose to go, I hope you find your new career to be rewarding and satisfying. Remember what Ann Landers said, "Opportunities are usually disguised by hard work, so most people don't recognize them." It sounds like you have no fear of hard work so good luck with your new career.

LINDA BUCH - BODY LANGUAGEtm- October 5, 2003

Thyroid Conditions and Exercise

“Please address weight and women with hypothyroid condition. Twice I’ve gone on hypothyroid medicine and then gained weight. I’m 60, eat less than ever (both types and portions of food), work out with weights 2-3 times per week, walk irregularly on a treadmill, and take vitamins. The weight just creeps upward. Others must have the same frustrations.” Sallie Keeney

One-in-10 women over 40 have undiagnosed thyroid disorder and are 5 to 8 times more likely than men to have a thyroid problem. One out of 20 new mothers find that a malfunctioning thyroid is the cause of their postpartum depression. If you start feeling unusually exhausted, suddenly start gaining or losing weight, feel depressed, become mentally foggy, start losing hair, start having vision problems, have chronically cold hands and feet, experience an irregular heartbeat and changes in your menstrual cycle *do not assume it is menopause!*

Go to your physician and request two simple blood tests [thyroid-stimulating hormone (TSH) and free-T₄] to see if your thyroid is on the fritz. The only caveat with the TSH test is that “normal” range is anywhere from 0.4 to 4.4 milliunits per liter. It may be a good idea, therefore, to get a baseline test when you are in your late 20’s or early 30’s because even slight changes from what is normal for you can cause problems.

If the TSH levels are too high, this means the pituitary gland is working overtime to try to get your thyroid back to normal and you develop hypothyroidism, primarily characterized by weight-gain, mental fogginess, and sluggishness. 80% of the thyroid cases fall into this category. The opposite condition is hyperthyroidism (Graves Disease) where hormones are overproduced, making the thyroid operate on full throttle. This disorder is characterized primarily by bulging eyes, rapid heart rate, nervousness, and sudden weight loss.

The thyroid gland looks like a butterfly sitting on the front of the windpipe. It pumps out the hormones which affect cell growth, development and metabolism. This means that virtually every organ in the body can be affected if it is malfunctioning. “The thyroid is like a battery. It charges up all the other organs,” explains Barbara Glass, Executive Director of the Thyroid Society for Education and Research. “If it runs too low or too high, it throws off the entire body.” Left untreated, a wonky thyroid can cause high cholesterol, heart disease, osteoporosis, and infertility.

In order to get your life back to normal, you must first work with your doctor to find a thyroid medication that works for you, and then stay on it until your thyroid becomes balanced (called *euthyroid*). This may require blood work every 4 to 6 weeks; and, it may take as long as 6 to 8 months for your thyroid to achieve euthyroid. Your second task,

once you are balanced, is to exercise. Pushing yourself too hard *before you are balanced* could cause you harm so stick with light activity until then.

Contrary to popular assumptions, hypothyroidism does not make anyone fat. The fatigue and deep weariness that characterize this condition have much more to do with weight-gain than the malfunctioning thyroid. Thyroid patient advocate, Mary J. Shoman, has some terrific information on numerous websites including www.thyroid.about.com, www.ithyroid.com, and www.thyroid-info.com. She recommends a book by Larrian Gillespie, MD, called "The Menopause Diet" which suggests steering away from highly processed foods and consuming more lean protein/low glycemic foods. Shoman also suggests exercising by using a modified version of the interval training approach made popular by the "Body For Life" book. She advises working out for 40 minutes, 3 times a week, starting at an easy pace and "spending no more than 1 minute of a 20 minute work out at your maximum pace." The other 20 minutes are spent doing moderate muscle work such as push-ups, lunges, and the like.

Satirist Ambrose Bierce defined "patience" as, "A minor form of despair, disguised as a virtue." In order to get to the other side of this, you will need patience in spades. Good luck and don't give up!

LINDA BUCH - BODY LANGUAGE™- September 14, 2003

Exercise Options for Osteoporosis

"I am 5'6", weigh 155# and have osteoporosis. For exercise, I use an elliptical machine for 45 minutes 4-5 times a week, and I lift weights 2 days a week at 5#-7# for about 20 minutes. What else would you suggest I do to help improve my bones? How about jumping on a trampoline? A weighted vest or a good substitute? What about the Total Gym®? What is a good stretching program?" Lorna Low, Denver

The beneficial effects of exercise on bone density have been well documented. The hackneyed adage, "Use it or lose it" applies to bones as well as to muscle. But when it comes to osteoporosis, some exercises are definitely better than others. Here is a list of ideas for you:

1. According to the *Physical Activity and Fitness Research Digest* published by the President's Council on Physical Fitness and Sports, "High-load, low-repetition activities that increase muscle strength and power may be the most beneficial exercise for preserving healthy bone mass." For you this means you need to start increasing both the heaviness of the weights you are using and the frequency of your lifting. Once a week, use heavier weights where you are only able to perform 2-3 sets of 4-6 repetitions because in order to positively affect the bone mass, you need to overload your skeleton in a way that is different from your daily activities. 5# to 7# is barely a bag of groceries.
2. Jumping on a trampoline (and other high impact moves that involve jumping, hopping and throwing) is an excellent way to build bone mass. Researchers from the University of Cambridge in England (*British Medical Journal, 2001*) found that men and women who participated in high-impact exercise had greater bone density than those who did not. Great benefits also come from vertical jumping even without a trampoline. Start with 5-8 vertical jumps in between sets of weight lifting and work your way up to 50 total jumps per workout.
3. Wearing a weighted vest is a great way to positively stress the bones while doing your squats and lunges, daily walks, and other activities such as climbing stairs or getting into and out of a chair. A vest is a much safer option than joint-stressing ankle and hand weights. A study out of Oregon State University found that women who used a vest weighted with one to 10 additional pounds increased their bone mass, some by as much as 15%. Weighted vests are handy because the weight is evenly distributed around your torso, stressing the back and hip bones directly. You can find weighted vests locally at large sporting goods stores or online at web sites like www.titleboxing.com. You shouldn't have to spend more than \$30.00.

4. As for Total Gym®, this is a terrific piece of equipment, especially if you invest in the higher priced models which are more solid and have more options.

5. Stretching should be done for about 5-10 minutes at the end of a workout. The usual recommendation is to hold each stretch for 30 seconds. However, researchers at the Medical College of Ohio found that stretching a muscle six times for 10 seconds was just as effective as twice for 30 seconds. If short-duration stretches are more tolerable for you, try this method.

6. Don't forget your diet. It has been found that eating more protein can help your body absorb calcium. In fact, a Tufts University study showed that when you are getting adequate calcium, a high protein diet can repair bone loss. Bess Dawson-Hughes, MD, chief scientist of the Tufts University Calcium and Bone Metabolism Laboratory, says, "Our results suggest that a higher calcium intake is going to be protective against any adverse effects of protein on bone and allow protein to have a positive effect." Protein from vegetable or animal sources did not make a difference, but the amount did. The subjects in this study ate 79 grams of protein per day and took a 500 mg calcium/vitamin D supplement.

LINDA BUCH - BODY LANGUAGE™- September 21, 2003

Evaluating an Exercise Program

"Can you tell us what the DeepTone® program is about? The ads are impressive looking but an hour a week exercise program sounds too good to be true. Also, what kind of diet plan do they have you follow?" Kathy, Denver, CO

The DeepTone® program must be limited to the Denver metro area because my attempt to find information on the internet turned up nothing. Rather than make guesses about a program I have never experienced personally, let's look at ways to evaluate exercise and diet programs in general.

It is easy to fall for any diet or exercise program, which promises to magically transform your body into "Laura Croft, Tomb Raider." It is important to understand that physical and nutritional transformation takes focus, consistent effort, and an awareness of the need for personal psychological changes involving accountability and esteem building. A good nutritional program will involve a change in diet towards lean meat, fresh fruits and vegetables, and good fats, such as those found in avocados, nuts, and olive oil.

A good fitness program will include exercises that mimic those we do in Real Life, such as twisting, bending, and reaching along with the squatting, lunging and so forth. "Functional Training"-which integrates balance, posture, and core-muscle cross-utilization into the strength training-prepares us for moving so that we reduce the incidents of back and joint pain while performing daily activities. A good program connects the dots between essential muscle-strengthening and basic human function.

When evaluating ANY program, watch for these red flags:

1. Beware of any exercise or diet program promoter who refuses to tell you what you want to know until AFTER you pay your money. Exercise science continues to evolve and studies revealing better information are published everyday. There are no "secrets" and there is no "magic."
2. Beware of enigmatic presentations where the activity/diet promoted is "exclusive," (a euphemism for "profitable.")
3. Beware of any program which claims to be the only correct and effective program on the planet. Everyone is different and no one diet or exercise plan will work for everyone. "Boot Camp" to some is "Nirvana" for others. If the program is painful, repetitive and boring or, if you are told to eliminate entire food groups from your daily fare, will you make it a lifestyle? Unlikely.

4. Be aware of the qualifications and certifications of the people who are instructing or leading you. Are they certified or educated in exercise science and/or nutrition? There is no “Barbie/Ken School for Fit Babes and Dudes” so ask for proof of an exercise/nutrition degree [BA,BS,MS,RD] and/or trainer certification (including CPR) such as ACE, NSCA, ACSM. If they can’t provide these, keep shopping.

I personally believe that a variety of activities throughout the week is better in general for the human body and psyche. Mixing pilates, yoga, walking, swimming, biking, kickboxing, weightlifting, and so forth with good nutrition creates a solid foundation for overall good health.

LINDA BUCH - BODY LANGUAGEtm- September 28, 2003

POST-EXERCISE EATING

"When weight training with the goals of increasing both size and strength, when is the most important time to have required nutrients (like sufficient protein) in the blood stream? The first four hours after exercise? Over the course of the following two days? I work out twice a week (Mon. and Thurs.) for two hours each time." Robert, Arvada

Mark Twain once remarked, "Part of the secret of success in life is to eat what you like and let the food fight it out." Though he hoisted both pen and pint with great frequency, I doubt if he exercised much more than his arm. The first hour after a vigorous exercise session is often referred to as "The Golden Hour" because this is the crucial time to restore your body with nutrients. You didn't specify what sort of exercise you are doing during the two hour workout but, since you are trying to increase size and strength, I will assume you are lifting weights.

Weightlifting depletes the energy stores in the muscle and the liver (blood sugar called glycogen) and also tears down the muscle fibers. The objective after a workout, therefore, is to restore the body's sugars and fats, and to provide enough protein to repair tissue. A good mix of carbohydrate and protein is in order. An easy way to accomplish this is with a post-workout recovery drink which contains a carbohydrate-to-protein ratio of 4 grams of carbohydrate to 1 gram of protein. Orange juice, fructose sweetened yogurt, and a big scoop of high-quality powdered protein (from egg whites or whey).

Most people who want to build muscle assume they must eat massive amounts of protein. While someone who exercises vigorously needs more than someone who primarily exercises their thumb from a couch, there is no scientific evidence which reflects that if a little is good, a lot is better.

You did not say what you weighed, but, in general, if you consume 0.7-0.9 grams of protein per pound of body weight, your protein consumption should be in balance with your needs.

Here are some general rules on the timing of eating and exercising as recommended by the Mayo Clinic:

1. EAT A FULL BREAKFAST. Stephen DeBoer, registered dietitian at the Mayo Clinic, reminds us, "Most of the energy you got from dinner last night is used up by morning. Your blood sugar is low." If you are going to exercise within an hour after eating breakfast, have something light before and a protein/carb drink afterwards.

2. TIME YOUR MEALS. Large meals can be consumed 3 to 4 hours before exercising; small meals 1 to 2 hours before exercising. This is all relative to you and how YOU feel, however. Listen to your own body.

3. DON'T SKIP MEALS. Skipping meals can cause low blood sugar which induces lightheadedness. The longer your exercise session, the more important the meal before exercising. The meal before exercising should be composed of non-gas producing complex carbohydrates (Watch the beans!), lean proteins (4-6 ounces of turkey, chicken, fish, or tofu), and high quality fats (avocado, olive oil).

4. EAT AFTER YOUR WORKOUT. See paragraphs two and three above.

Finally, since you say your goal is to increase size and strength, you cannot rely on just food. Research shows that muscle growth (hypertrophy) is easier to achieve when you increase your exercise volume. In other words, use weight-loads where you can complete 6-12 repetitions, increasing the number of sets per exercise to 4 or 5 with a short or moderate rest period between sets. Increased strength comes from training with much heavier weights where you can perform only 4-6 repetitions. Rest periods are long enough for full recovery between sets.

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Massage and High Blood Pressure

“Every time I have a deep tissue and/or neuromuscular massage, my blood pressure goes up significantly. At first, there was a 72 hour lag, but now the blood pressure goes up within 24 hours. In addition, I get headaches which seem to occur before the blood pressure goes up. I have talked with both the certified massage therapist and my primary care physician and neither have any ideas or insights.” Gordon, Denver

This is an interesting scenario since studies indicate at least a temporary reduction in systolic blood pressure after a 30-minute massage. In fact in some cases, the drop was by as much as 20 points. Before digging into your dilemma, however, let's take a look at blood pressure in general.

Blood pressure is the measurement of force against the walls of the arteries as it speeds through the body. The most common way to determine blood pressure is with a medical device called a *sphygmomanometer*, also known as the blood pressure cuff. (Anyone who has been to the doctor for a checkup knows the joy of having your arm squeezed like a tube of toothpaste with the cap still on.) The higher number is called *systolic pressure* (easy to remember because the hissing “s” sound is like steam under pressure) which represents the force of the blood against the arteries when the heart beats. The lower number is the *diastolic pressure* (remember “d” for “down”), or the pressure measured when the heart rests between beats. Normal blood pressure is considered to be less than 120/80 mmHg (millimeters of mercury).

Anyone with numbers *consistently* (no fewer than three separate readings at least one week apart taken by a health care professional) above 120/80 is considered to have high blood pressure, or hypertension. The causes for this disease are usually related to either lifestyle and/or genetics. A diet high in fat, salt, and processed foods, often along with a sedentary or stressful lifestyle, can lead to hypertension. Undetected hypertension can lead to stroke, kidney disease, heart attack, and arteriosclerosis. Some people with severe hypertension complain of headaches, dizziness or blurred vision. Warning signs in general, however, are mostly indiscernible which is why hypertension is referred to as the “Silent Killer.”

The questions I would have to ask you have to do with your health concerns and how they relate to your blood pressure. Do you have a medical history of high blood pressure? Are you overweight? Are you sedentary? Do you generally consume foods which are high in salt or that are highly processed? Do you have diabetes? Have you been diagnosed with kidney or thyroid disease? Do you drink alcohol excessively? Do you have a genetic predisposition to hypertension?

I am wondering why you are checking your blood pressure 24 to 72 hours after a massage, and then assuming it is the massage? Any number of lifestyle and diet equations can figure into your higher pressure readings after 24-72 hours. If your blood pressure is seriously elevated immediately following or during a massage, you may have a compromised cardiovascular system which would make the prone position inappropriate for you. Another area to have checked by your physician would be the abdominal area to see if you have any adrenal tumors. Palpitation of this area with the presence of a tumor would raise your blood pressure significantly.

It is never wise to make assumptions about why or if your blood pressure is elevated. You should have this evaluated by your physician.

(Thanks to Helen Pashley, RN, MS, CNOR for her assistance with this article.)