

MAYO CLINIC WOMEN'S HEALTHSOURCE

July 2009 Volume 13, Number 7

TOOLS FOR HEALTHIER LIVES

STRESS TESTING What a Workout Can Reveal About Your Heart

Walking on a treadmill is a great way to get some exercise. In some cases, it can also help diagnose coronary artery disease (CAD) or see how serious the dis-

ease is in those who already have it. Indeed, a treadmill is commonly used in stress testing, a type of exam that allows doctors to look for signs that the heart isn't getting enough blood flow during physical exertion.

Stress testing can be of particular benefit if you've started to have chest pain (angina) when you exercise or often feel short of breath — symptoms that could indicate that you have narrowing or blockages in your coronary arteries. It can also be helpful if you have other concerns that increase your risk of CAD.

Still, standard stress testing does have some limitations. As a result, other stress tests — which make use of special imaging technology — may sometimes be used to get a better picture of your arteries and different parts of your heart.

The heart at work

CAD occurs when fatty material, called plaques, builds up in the arteries that supply blood to your heart muscles. These deposits of plaques can slowly narrow the coronary arteries, causing your heart to receive less blood and putting you at greater risk of blockages that can cause a heart attack.

You may not have any signs or symptoms of CAD when your heart is at rest. But when your heart has to work harder during exercise, it needs more blood and oxygen. If arteries are too narrow to do this job, shortness of breath or chest pain may occur. Stress testing can help bring about the signs and symptoms of CAD that may occur when your heart is under stress. If you've already been diagnosed with CAD or had a heart attack, stress testing can help determine if you can tolerate an exercise program. The testing can also show whether treatments designed to improve blood flow in the coronary arteries have been helpful in relieving signs and symptoms of CAD.

Stress testing isn't routinely done to screen for CAD, unless you have symptoms of the disease. But it could be recommended if you're considered at high risk because of other conditions, such as high cholesterol, high blood pressure or diabetes.

Standard procedures

The most common type of stress test is called an exercise stress test. This test makes use of an electrocardiogram (ECG) machine to record your heart's activity when it's resting and when it's getting a workout on a treadmill. Before the test, small, sticky patches called electrodes are attached to various spots on your body and a blood pressure cuff is placed on your arm. This allows your heart rate, heart rhythm and blood pressure to be monitored and the electrical activity of your heart to be recorded.

During the test, the incline and speed of the treadmill will gradually be increased. You'll typically stay on the treadmill until you become too fatigued to continue. However, the test can be stopped before this point if you develop significant chest pain or shortness of breath. The test may also be halted if you develop abnormally high or low



Area of _____ impaired blood flow

For an imaging stress test called a nuclear heart scan, trace amounts of a radioactive dye are injected into your bloodstream. Special cameras are then used to show how much of this dye has reached various parts of your heart and pinpoint areas that appear to be receiving less blood flow.

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Mayo Clinic Women's HealthSource (ISSN 1091-0220) is published monthly by Mayo Foundation for Medical Education and Research, a subsidiary of Mayo Foundation, 200 First St. SW, Rochester, MN 55905. Subscription price is \$29.55 a year and includes a cumulative index published in December. Periodicals postage paid at Rochester, Minn., and at additional mailing offices. POSTMASTER: Send address changes to Mayo Clinic Women's HealthSource, Subscription Services P.O. Box 9302, Big Sandy, TX 75755-9302

blood pressure or an abnormal heartbeat (arrhythmia).

Imaging tests

When a standard exercise stress test produces normal results, no further testing may be needed. However, if a standard exercise test or resting ECG reveals abnormalities, you're on certain heart medications, or you've had bypass surgery or a stent to treat blocked arteries, your doctor may want you to have a stress test that uses special imaging technology.

Imaging tests are also performed when an exercise stress test isn't an option. If you're unable to exercise on a treadmill for a long enough period because of certain health conditions, medication may be used to increase the flow of blood through your coronary arteries and make your heart beat faster, mimicking the effects of exercise. This test is commonly known as a pharmacological stress test.

One imaging test is known as stress echocardiography, or stress echo. Echocardiography uses sound waves (ultrasound) to create moving pictures of your heart. These images can show how well your heart's chambers and valves are working when your heart is put under stress — either with exercise or with medication. If certain parts of the heart don't contract appropriately, this can indicate that the artery supplying blood to the heart muscle may be narrow or that it was damaged from a previous heart attack.

Another type of imaging stress test is called a nuclear heart scan. In addition to an ECG, trace amounts of a radioactive dye — such as thallium or technetium — are injected into your bloodstream. Special cameras are then used to show how much of this dye has reached various parts of your heart when it's under stress and when it's at rest, and to pinpoint areas that appear to be receiving less blood flow.

Less commonly, magnetic resonance imaging (MRI) is used in stress testing to capture images of the heart at work. MRI employs radio waves and magnetic fields to show how much blood flows to the heart muscle and how strongly the walls of the heart contract when pumping.

Interpreting results

So how reliable are stress tests? Normal results from an exercise stress test are usually associated with a very low risk of future cardiac death. However, stress testing can occasionally miss a significant blockage in a major coronary artery. Stress testing can also miss damage to the smallest coronary arteries, a problem that typically affects women more than it does men. It can even show abnormal results when CAD isn't present, a problem known as false-positives. This can be particularly worrisome for women, who typically have more false-positive results than do men.

It's still recommended that many women with symptoms of CAD start with standard stress testing, especially if they're physically able to exercise. That's because the length of time you can stay on a treadmill is considered key in determining how well your coronary arteries are functioning. However, if abnormal results occur or symptoms of CAD persist after normal results are found, doctors often order an imaging stress test or other testing. The good news is that imaging stress tests are usually more accurate — in both women and men.

Safety Questions

Purposely putting stress on your heart may seem like risky business, particularly if you're at high risk of heart disease. However, there's little risk of being harmed from any type of stress testing. The chance of a stress test causing a heart attack or death, for example, is slim (only about 1 in 5,000). It's possible to feel dizzy or faint or even have your heart beat irregularly during a treadmill test, but these problems will typically go away once you're at rest. Jitteriness or discomfort also can occur if you're given medication to make your heart work harder during testing. But these side effects are usually short-lived.

Study participants with a mid- to highlevel adherence to a **Mediterranean**style diet were significantly less likely to develop cognitive decline when compared with those with a low adherence to this way of eating.



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NEWS YOU CAN USE

Following a Mediterranean Diet Could Stave Off Memory Loss

A study in the February 2009 issue of the *Archives of Neurology* indicates that if you want to keep your brain sharp, you may want to eat a Mediterranean-style diet — which emphasizes fruits, vegetables, fish, whole grains and unsaturated fats, such as olive oil.

In the study, researchers questioned 1,875 older adults about their eating habits. Within this group, 1,393 had no memory problems and 482 had mild cognitive impairment (MCI), a transitional stage between the cognitive decline of normal aging and the more-serious memory problems caused by dementia or Alzheimer's disease.

After an average follow-up of more than four years, 275 of the participants with normal cognition had developed MCI, while 106 of those with MCI had progressed to Alzheimer's disease. Yet, participants with a mid- to high-level adherence to a Mediterranean-style diet were significantly less likely to develop cognitive decline when compared with those with a low adherence to this way of eating.

It remains unclear why following a Mediterranean diet may protect brain function. But researchers speculate that making healthy food choices may improve cholesterol and blood sugar levels and overall blood vessel health — all factors that may reduce the risk of MCI or Alzheimer's disease.

Weight Loss Can Lessen Episodes of Urinary Incontinence

Numerous therapies exist to help relieve symptoms of urinary incontinence, a problem that affects millions of American women. Now, a study in the *New England Journal of Medicine* suggests that losing excess weight — which helps reduce pressure on the bladder — should be considered as a first line therapy.

The study, published on Jan. 29, 2009, involved 338 overweight or obese women who were age 30 or older and experienced at least 10 episodes of incontinence a week. All were randomly assigned to either an intensive weight-loss program — combining diet, exercise and behavior modification — or an education program, offering information on healthy eating and physical activity.

After six months, women in the weightloss program had lost more weight (about 17 pounds each) than did those in the education program (about 3 pounds each). They also reported a greater reduction in weekly incontinence episodes than did those in the other group (a 47 percent vs. 28 percent decrease).

Nevertheless, experts say women with urinary incontinence should discuss all potential treatment options with their doctors. Although weight loss can offer many health benefits, it can be challenging and may not address all causes of urine leakage.

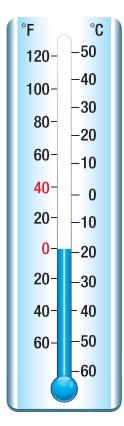
High Resting Heart Rate Could Predict Heart Attack in Women

It's normal for your heart to beat faster when you exercise. But when you're at rest, a higher heart rate could be a sign of pending trouble, according to a study released in the Feb. 4, 2009, online edition of the *BMJ*.

The study included more than 129,000 postmenopausal women with no history of heart problems. After almost eight years, only a small number of women experienced heart attacks. However, those with the highest resting heart rate (76 beats a minute or more) had a greater heart attack risk than did women with the lowest resting heart rate (62 beats a minute or less). In addition, the association appeared to be independent of physical activity levels — which can influence heart rate.

The researchers acknowledge that an elevated resting heart rate is not nearly as strong a predictor of heart attack as are diabetes, cigarette smoking, high cholesterol levels, hypertension and being sedentary. However, they note that a resting heart rate should be considered when assessing a woman's overall heart health.

Centerpiece



Keep your refrigerator temperature at or below 40 F. Keep your freezer at 0 F. Check both periodically with an appliance thermometer.

FOOD STORAGE SAFETY Tips for Keeping Bacteria at Bay

Most people know the basics of food safety, like not to leave the tuna salad sitting out all day at the family picnic. In your home, food safety depends not only on proper handling and cooking but also on safe storage.

If not stored properly, your lovely salad greens, leftover stew or deli luncheon meat may provide a welcoming environment for some most unwelcome guests — bacteria such as *E. coli* and salmonella. These microbes can cause food poisoning, also known as food-borne illness. The signs and symptoms — severe diarrhea and vomiting — usually resolve without treatment. But every year, food poisoning causes 325,000 hospitalizations and 5,000 deaths in the United States.

Don't put out the welcome mat for those bad bugs. By following foodstorage safety guidelines, you'll ensure that your meals are memorable only for your good cooking and not for the nasty bout of food poisoning they triggered.

The 2-hour rule and more

Bacteria and other microorganisms exist everywhere in nature, including in the foods we eat. When given nutrients, moisture and the right temperature, they grow rapidly, sometimes to the point where they can cause illness. *E. coli*, salmonella and many other organisms can contaminate a variety of foods, from meat, fish and eggs to fresh produce, such as spinach and lettuce.

Unfortunately, you usually can't tell if a food is dangerous to eat, since it may look, smell and taste fine. To keep your edibles out of the danger zone, follow these guidelines.

Refrigerate or freeze perishables promptly

• Observe the "two-hour rule" for foods that require refrigeration — including poultry, meat, eggs, cooked seafood, produce, leftovers and takeout food. Don't leave these items out at room temperature for more than two hours, or one hour if the air temperature is above 90 F.

- Buy perishable foods last when shopping. In warm weather, take a cooler along for transporting.
- Put fresh seafood on ice, in the refrigerator or in the freezer immediately after purchase.
- Keep your refrigerator temperature at or below 40 F. Keep your freezer at 0 F. Check both periodically with an appliance thermometer.
- Don't crowd your refrigerator or freezer too tightly allow room for air to circulate around food.
- Store meat or poultry in the coldest part of your refrigerator, generally a special "meat keeper" or close to the freezer section, if you plan to use it within two days. You can safely refreeze food that's been thawed in the refrigerator, though the quality might suffer.
- Store refrigerated foods in covered containers or sealed storage bags. Keep eggs in their carton rather than in an egg compartment in the door, where the temperature is warmer.
- Read labels to find out if foods should be refrigerated after opening.

Avoid cross-contamination

• Always keep raw meat, poultry and fish away from other foods. If you're using only part of a package of poultry or meat, wrap the rest tightly so that juices can't leak out.

Store nonrefrigerated foods safely

- Avoid storing foods such as potatoes and onions under the sink. Pipes can leak and spoil or damage the food. Store both foods in a cool, dry place.
- Check the package labels to find out how shelf-stable (nonperishable) foods should be stored.
- Store canned goods and other shelfstable foods in a cool, clean, dry place. Don't put these items above the stove, in a damp basement or garage, or anyplace exposed to temperature extremes.

How Long Will It Keep?

While the recommended storage times for refrigeration will keep foods from spoiling or becoming dangerous, the freezer guidelines are for quality rather than safety. Freezing keeps food safe indefinitely, though the quality may decline.

| Food product | Refrigerator (40 F) | Freezer (0 F) |
|--------------------------------------------------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------|
| Eggs Fresh in shell Hard-boiled Liquid pasteurized eggs or egg substitutes Opened | 3 to 5 weeks 1 week 3 days | Don't freeze |
| Unopened | 10 days | |
| Cheese | 3 to 4 weeks | 1 month |
| Butter | 1 to 3 months | 6 to 9 months |
| Milk | 5 days | 1 month |
| Ice cream | — | 2 to 4 months |
| Mayonnaise | 2 months | Don't freeze |
| Deli or homemade egg, chicken, ham, tuna or pasta salads | 3 to 5 days | Don't freeze |
| Hot dogs Opened package Unopened package | 1 week 2 weeks | 1 to 2 months |
| Luncheon meats Opened package Unopened package | 3 to 5 days 2 weeks | 1 to 2 months |
| Bacon | 1 week | 1 month |
| Sausage, fresh | 1 to 2 days | 1 to 2 months |
| Ground beef, uncooked | 1 to 2 days | 3 to 4 months |
| Beef steaks and roasts, uncooked | 3 to 5 days | 6 to 12 months |
| Pork chops and roasts, uncooked | 3 to 5 days | 4 to 6 months |
| Fish, cooked or uncooked | 1 to 2 days | 2 to 3 months |
| Poultry, uncooked | 1 to 2 days | 9 to 12 months |
| Soups and stews | 3 to 4 days | 2 to 3 months |
| Meat casseroles, other meat leftovers | 3 to 4 days | 2 to 3 months |
| Poultry leftovers Pieces (no gravy) Pieces (with gravy) Casseroles Nuggets | 3 to 4 days 1 to 2 days 3 to 4 days 1 to 2 days | 4 months 6 months 4 to 6 months 1 to 3 months |
| Pizza, cooked or uncooked | 3 to 4 days | 1 to 2 months |

Know when to throw things out

- Use ready-to-eat foods such as luncheon meats as soon as possible. The longer they're stored in the refrigerator, the more chance bacteria have to grow.
- Check for and get rid of spoiled food regularly. Get rid of anything that looks or smells suspicious. Remember: If in doubt, throw it out. This can also apply to freezer burn, although this is a quality — not a safety — issue.
- Check expiration dates on packages. Although shelf-stable foods can be safe to eat after the "best if used by" date, they may decline in taste, texture and nutritional value.

Store leftovers safely

- Divide the leftovers from a large pot of soup or pan of lasagna into small portions and put them in shallow containers for faster cooling in the refrigerator. You can place hot food directly in the fridge or rapidly chill it in an ice or cold-water bath before refrigerating. Don't let hot food sit out until it cools.
- Slice a large cut of cooked meat or whole poultry into smaller pieces and wrap them separately or store them in separate containers.
- Date your leftovers and use or freeze them within three to five days. Inspect leftover food in covered dishes and storage bags for spoilage.

Safely pack for transporting

- Fill an insulated cooler with enough ice or freezer packs to keep the food at 40 F if you're packing food for a picnic or other outing. Pack food right from the refrigerator or freezer into the cooler.
- Store bag lunches in the refrigerator the night before school or work.
- Pack a small frozen gel pack or frozen juice box if you're taking perishable food to the office for lunch and don't have a refrigerator at work. Remember that your perishables are no longer safe when your ice or gel packs melt.

By following these and other food safety guidelines, you can prevent most cases of food-borne illness.



Kirk Rodysill, M.D., specializes in general internal medicine at Mayo Clinic in Rochester, Minn. He is also an active gardener, who can regularly be found planting or tending to a variety of flowers, fruits, vegetables and herbs.

Safety Precautions

Although gardening has plenty of benefits, it also carries a few risks — such as sunburn. heat exhaustion, bug bites and other injuries. For sun protection, wear long sleeves, a wide-brimmed hat, and sunscreen with an SPF of 15 or higher. Also, don't forget to drink plenty of water and take rest breaks to avoid dehydration or overexhaustion. **Insect repellent containing DEET** can help keep bugs away, and simple gear, such as gardening gloves, can protect against cuts and scrapes.

Mayo Clinic Office Visit GARDENING'S HEALTH BENEFITS

An Interview With Kirk Rodysill, M.D.

When Michelle Obama broke ground on a White House vegetable garden this past spring, much of the news focused on the health benefits of eating fresh, locally grown produce. In fact, research shows that the nutrients found in fresh fruits and vegetables can help prevent many serious medical conditions — including cancer, heart disease and type 2 diabetes. Yet better nutrition is just one of the ways gardening can improve your health. Gardening also offers physical and psychological benefits. For some, gardening can even help provide economic relief by lowering grocery bills. Here, Kirk Rodysill, M.D., who practices general internal medicine at Mayo Clinic and has been an avid gardener for more than 30 years, discusses why he enjoys tending his own garden and what others can gain from this activity.

WHS: What kind of physical benefits can gardening provide?

Dr. Rodysill: First off, you're burning calories. And you don't have to exhaust yourself to do it. In my main garden, I grow vegetables and herbs as well as some fruits and flowers. I'm out there maybe an hour in the evenings, three days a week, during the growing season. On the weekends, I can spend three hours in the garden on Saturday morning. But you can be out there for shorter periods and get plenty of physical benefits, even if you're just pulling weeds. You can strengthen the muscles in your legs, back, shoulders and arms. You also get in a lot of stretching, which can improve flexibility.

If you have back, knee or hip problems, you can still garden. I use kneepads when I do a lot of kneeling. If I'm doing a lot of lifting or twisting, I wear a back brace. I know people who sit on small benches with wheels that allow them to work without being on their hands and knees or bending over too far. Long-handled garden tools may be helpful if you have back problems, as they keep you from bending and twisting too much. Big-handled tools also are available, if you have conditions that make gripping difficult.

WHS: How much of a difference can homegrown produce make in terms of nutrition?

Dr. Rodysill: I suspect that very fresh fruits and vegetables maintain their vitamin content better than do products that are shipped from long distances or artificially ripened. Almost surely, fresh fruits and vegetables are better for you, nutritionally, than most canned ones. I also think that having fruits and vegetables right outside makes you more likely to eat them regularly. During the growing season, I'll go out and pick a salad almost every evening. The fact that many things don't cost much to plant and grow is another benefit. There's also less of a concern about food-borne illnesses, such as salmonella, with food you grow on your own.

WHS: What about the psychological benefits?

Dr. Rodysill: I find gardening very calming and relaxing, especially during the early morning when all you hear are the birds singing. After work, it clears my mind. You can also take satisfaction in seeing things get accomplished and be reminded that there is a natural cycle to life.

WHS: What's the best way to get started?

Dr. Rodysill: Start small, take it easy and plant simple things that you would like to eat. Beans, peas, lettuce and even tomatoes are easy to grow and don't cost a fortune. They also don't require too much space, if you want to use containers or create a raised garden instead of digging up a patch of soil.

Energy therapies aim to create a free flow of energy by clearing, balancing and stimulating the human energy system. **Proponents** believe that a balanced energy system encourages wholeness emotional, physical, mental and spiritual well-being.

ENERGY THERAPIES Tapping the Life Force to Promote Well-Being

Since ancient times, people have invoked the power of an innate life force to restore balance and health. Practices such as healing touch and qi gong are rooted in the idea that a subtle "life energy" flows through and surrounds our bodies. Unlike energy fields such as sound waves — which can be detected and measured — life energy isn't a measurable force. Indeed, the term *energy* is often used somewhat vaguely, as in "I feel low in energy" or "I like the energy in this room."

Energy therapies are complementary and alternative health practices based on ideas about natural energy fields. Practitioners believe that when an energy pathway becomes blocked or disturbed, illness results. Energy therapies aim to create a free flow of energy by clearing, balancing and stimulating the human energy system. Proponents believe that a balanced energy system encourages wholeness — emotional, physical, mental and spiritual well-being.

Energy therapies encompass a variety of practices across cultures. The vital life energy goes by different names, from the "qi" (chee) of traditional Chinese medicine to "prana" in ayurvedic medicine to "ki" in the Japanese kampo system. Acupuncture is the best known energy therapy, but others are gradually being integrated into health care practice in the United States. These include healing touch, qi gong and reiki.

Healing touch

Also known as therapeutic touch, healing touch is meant to stimulate the body's self-healing processes. The gentle touching moves energy from the practitioner to the recipient, strengthening and reorienting the person's energy flow within and around the body.

Some people find healing touch relaxing, which is good for health. Beyond that, there's little scientific evidence to demonstrate health benefits. Still, it's a low-risk therapy that you might want to try if it fits with your personal beliefs.

Qi gong

The Chinese word *qi gong* combines the term *qi* (chee), which means life force or vital energy, and *gong* (kung), meaning accomplishment or skill. Qi gong, "cultivating energy," is a common health practice throughout China. Among more than 3,000 forms of qi gong, two of the best known are tai chi and kung fu.

In general, qi gong combines rhythmic movements, breathing techniques and focused intentions. Some styles are intended to increase your energy, while others are used to cleanse and heal the body. Although studies in China have found health benefits from qi gong, its effectiveness from a Western-medicine standpoint remains unclear.

Reiki

In a reiki session, the practitioner places his or her hands either on or a few inches above the recipient's body. The goal is to raise the amount of ki, or life force energy, in and around the person. The other part of the word, *rei*, means universal spirit in Japanese. The reiki practitioner uses between 12 and 15 different hand positions, holding each for several minutes until the flow of energy slows or stops.

Like healing touch, reiki can promote relaxation. One study suggested that the practice may positively affect blood pressure and heart and respiration rates. But overall, the therapy hasn't been well researched.

A low-cost approach

Energy therapies, though not well understood or always embraced by traditional medical providers, may help improve health or well-being for some individuals. Because of the lack of research, it's hard to say for certain that energy therapies are completely safe or why they work or don't work. Still, these methods are generally considered low risk and relatively inexpensive, so they may be worth a try if you're drawn to them.

Plantar warts may go away without treatment, but many people prefer to treat them. One reason it's hard to get rid of plantar warts is that they shed the virus into the skin of your foot, prompting new warts to grow as fast as the old ones disappear.

Eliminating Troublesome Warts

Why is it so hard to get rid of plantar warts?

Plantar warts usually aren't a serious health concern, but they can be persistent. The warts are noncancerous growths on the soles of your feet. They're caused by the human papillomavirus (HPV), which enters your body through tiny cuts and breaks in your skin. There are many types of HPV. The virus that causes plantar warts isn't highly contagious, but it's widespread, thriving in warm, moist environments, such as shower floors, locker rooms and public swimming areas. But not everyone who comes in contact with HPV develops warts. Some people are more susceptible to the wart-causing virus.

Plantar warts may go away without treatment, but many people prefer to treat them. One reason it's hard to get rid of plantar warts is that they shed the virus into the skin of your foot, prompting new warts to grow as fast as the old ones disappear.

You can treat warts with over-thecounter remedies or consult your doctor for help. If you have diabetes, a circulatory disorder, an impaired immune system or are pregnant, see your doctor for advice on treating plantar warts. Also consult a doctor if your warts are painful, change in appearance or color, persist or recur despite home treatment, or interfere with your activities.

Over-the-counter and in-office treatments can be equally effective. The key is persistence, either with ongoing treatment or repeated treatments.

Detox Diets

Q I've heard celebrities and others talk about detox diets. What are they, and do they have any health benefits?

A Detoxification, or detox, diets are touted as a way to remove harmful substances from the body by avoiding foods that are thought to contain "toxins." Such foods include meat, sugar, certain grains, dairy products and caffeine. Detox diets, which typically last from seven to 10 days, start with fasting followed by a diet of raw vegetables, fruit and fruit juices, and water. Some detox diets also advocate using herbal laxatives, antioxidants and colon cleansing (enemas) to help "clean out" the intestine and liver.

These diets are based on the belief that toxins accumulate in our bodies and cause fatigue, headaches, nausea and even disease. But there's no published scientific evidence that this is true — or that detox diets offer any health or medical benefits. Your kidneys and liver effectively remove ingested toxins and excrete them in urine and stool.

Some people report feeling lighter and more focused and energetic during and after detox diets. However, prolonged fasting or severe calorie restriction can result in anemia, low blood sugar, irregular heartbeat and loss of muscle mass.

Before trying a fast or detox diet, talk to your doctor. The best diet relies on fruits and vegetables, whole grains, lean sources of protein, and unsaturated fats. Add regular exercise and stressreduction techniques, and you have a solid foundation for good health.

Next Issue

Smell and Taste Disorders

Stretching Your Health Care Dollar

Carpal Tunnel Syndrome

Emotional Eating

To provide reliable, timely and easyto-understand medical and lifestyle information women can use to lead healthier lives.

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P.O. Box 9302 Big Sandy, TX 75755-9302

\$29.55 (United States) \$45.00 (Canada) \$55.00 (International)

Subscription Prices

Printed in the USA

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We regret that we can't publish an answer to each question submitted to "One on One" or respond to inquiries regarding diagnosis and treatment of personal health conditions.

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