

# yoga

JOURNAL

## Bone Up

Whether you're 17 or 70, now is the time to protect yourself from osteoporosis. Weight-bearing yoga poses can help tone your bones.

By Linda Sparrowe



We do not have control over some of the risk factors for osteoporosis. If you are a thin, small-boned woman of Caucasian ancestry and both your grandmother and your mother have suffered stress fractures of the vertebrae in their later years, there's nothing you can do about those facts. What you can do, however, is create a lifestyle that promotes preventive care for your bones. These lifestyle choices, of course, should happen long before a woman enters perimenopause—preferably in her 20s and 30s—but it's never too late to start.

### Exercise

Even the most conservative, HRT-prescribing doctor believes exercise increases bone mass in postmenopausal women. The key, according to Kendra Kaye Zuckerman, M.D., director of the osteoporosis program at Allegheny University Hospitals in Philadelphia, is that you must exercise consistently—at least 30 minutes a day, five days a week. Exercise works, according to Krisna Raman, M.D., author of *A Matter of Health*, because it stimulates bone remodeling and "improves the absorption of calcium from the intestine and promotes its deposition on the bones."

In particular, weight-bearing exercises (walking, running, and other movements that exert pressure on the bones) are what stimulate the bones to retain calcium and produce more bone mass. By contrast, swimming, which can help joint pain and limited mobility, does nothing to increase bone density in the spine.

If a woman has already begun to lose bone mass—or is otherwise susceptible to vertebral stress fractures—running can put too much stress on the knees, ankles, and lumbar spine. The other problem with confining weight-bearing exercise to walking or running is that these activities only benefit the lower limbs and do nothing to strengthen the wrists, shoulders, upper back, or elbows/

One additional caveat about aerobic exercise: Be careful not to overdo it. Excessive exercise, and a corresponding drop in body fat, can actually increase your chances of osteoporosis, according to the National Osteoporosis Foundation. Young women whose

weight has plummeted low enough to cause them to stop ovulating put themselves at risk for the disease.

## Yoga

Yoga serves the body in several ways. Many health practitioners recommend yoga as a means of combating stress—which, they point out, can compromise the neuroendocrine and immune systems. Stress by itself does not cause problems. In fact, the human body has a very efficient, built-in mechanism for dealing with stress.

What scientists call "fight or flight" response is triggered when we become frightened, anxious, agitated, or threatened. If you've ever stepped off the curb and just barely missed being hit by a bus, for example, you know what this syndrome feels like: As your adrenaline soars, your blood pressure increases, your heart pounds wildly, you sweat like crazy, your mind becomes hyperalert, blood rushes to your large muscle groups (in the arms and legs), and your breathing becomes shallow and rapid. To bring as much power as possible to your sympathetic nervous system (which controls this response) so the body can react quickly and efficiently, the body diverts energy from your digestive, reproductive, and immune systems, slowing them down to a bare maintenance level.

Once you realize that you're out of danger, you begin to calm down and your system returns to normal. Unfortunately, those who constantly feel the threat of external stressors don't give their systems a chance to return to normal. Their adrenal glands become exhausted from constantly pumping adrenaline into the system; the digestive and immune systems remain sluggish. A consistent yoga practice goes a long way toward mitigating the effects of the fight-or-flight response by giving your body the opportunity to rest completely.

But yoga does even more than that. According to physician and yoga expert Mary Schatz, M.D., yoga can stimulate the bones to retain calcium, provided the body gets enough calcium in the first place. It does this through weight-bearing poses (like arm balances, inversions, and standing poses) that affect the whole spine, arms, shoulders, elbows, legs, knees, ankles, and feet, while encouraging full range of motion. B.K.S. Iyengar, master of yoga's therapeutic applications, explains the benefits of yoga by means of what he calls its "squeezing and soaking" actions. He contends that through the process of squeezing out the old, stale blood or lymphatic fluids and soaking the area with fresh, oxygenated blood or fluids, yoga helps the body to utilize the nutrients it needs.

Inversions offer a perfect example of this phenomenon, particularly Sarvangasana (Shoulderstand) and Halasana (Plow Pose). These poses, according to Iyengar, regulate the thyroid and parathyroid glands (critical for metabolism) located in the neck, by creating a "chin lock" that squeezes stale blood from the area. As we come out of the pose and release the lock, the neck region is bathed in fresh, oxygenated blood.

Iyengar also teaches that forward bends quiet the adrenals, and backbends energize them. Twists like Parivrtta Trikonasana (Revolved Triangle Pose), he says, are equally effective for regulating the adrenal glands, which we rely on to provide adequate amounts of estrogen and androgen for healthy bones.

A consistent yoga practice can give us confidence and stability as we move through the world. Many older people experience falls because they lose confidence in their ability to move properly; others suffer from poor eyesight, weakened muscles (often from lack of use), poor posture, or arthritis. Yoga can improve posture and coordination, strengthen muscles, increase flexibility, and create balance.

## Good Posture

Good posture is critical to keeping your spine healthy, strong, and flexible. Yoga, particularly standing and seated poses, can help. Schatz points out that when a woman suffers from osteoporosis, her vertebrae weaken and become vulnerable to collapse. If she has poor posture on top of a weakened spine, the likelihood of vertebral fracture increases. If the head sits forward on the shoulders, the weight is not evenly distributed along the spine. Instead, the fronts of the thoracic vertebrae receive the majority of the weight and are prone to stress fractures.

Practice standing, sitting, and walking with the same attention to alignment of the spine that you bring to Tadasana (Mountain Pose) to help strengthen the back muscles and improve your posture. Including forward and backward bends in your daily yoga practice can strengthen the front and the back part of the vertebral column and increase overall flexibility. Modified backbends over a bolster or chair can passively lengthen the thoracic spine as well as help prevent stress fractures.

## Diet

The food we eat is extremely important for maintaining bone mass, and even if we've been less than diligent in the past, it's never too late to start. These are some guidelines to follow:

**Eat less animal-derived protein.** A study conducted in southwestern Michigan reported that women who were vegetarians for 20 years had only 18 percent bone mass loss while their carnivorous counterparts suffered 35 percent loss. One reason for that, according to Dean Ornish, M.D., director of Preventive Medicine Research Institute in Sausalito, California, is that a diet high in animal protein can cause the body to excrete too much calcium into the urine. That means the body actually gets rid of the calcium before it can benefit. Vegetarians, on the other hand, excrete far less calcium and therefore profit from its bone-strengthening capabilities.

**Calcium.** Adequate amounts of calcium—1000 mgs daily, 1500 mgs daily after menopause—are critical to healthy bones and a healthy heart. Remember, however,

that no amount of calcium supplementation will do you any good if your diet prevents your body from absorbing the calcium optimally. Whether you ingest too little calcium or whether your body excretes too much through the urine, your bones will suffer. That's because your body will grab the calcium it needs from the bone, which affects the bone's microarchitecture and causes you to lose critical bone mass.

According to the November 1998 issue of *Internal Medicine News*, taking calcium (1200-1500 mg/day) and vitamin D (700-800 IU daily) supplements reduces fractures in postmenopausal women by 50 percent. If you don't drink much milk or if you suffer from lactose intolerance, don't despair. You can get adequate calcium from a variety of sources: dark green leafy vegetables, almonds, tofu, soy products, miso, seaweed, and salmon. One glass of calcium-enriched orange juice delivers as much calcium as a glass of milk. Good calcium-rich herbs include nettles, horsetail, sage, oatstraw, borage, raspberry leaf, and alfalfa.

**Sunbathe.** Everyone knows the dangers of getting too much sun. However, 25 to 30 minutes three or four times a week provides all the vitamin D your body needs in order to be able to absorb and utilize calcium properly. If you can't be in the sun, make sure your supplements contain enough vitamin D (400 IU daily).

**Absorb calcium more effectively.** If you use calcium supplements, take them according to directions on the label for maximum absorption. (Note: Don't get your calcium from antacids that contain aluminum, which causes the calcium to be excreted.) Some forms of calcium, like calcium carbonate, get absorbed better with food; others, like calcium citrate, work better on an empty stomach. In order to utilize the calcium you do take in, your body needs not only adequate amounts of vitamin D, but also magnesium, trace minerals, and hydrochloric acid (HCl) or stomach acid, which postmenopausal women often lack.

You can purchase betaine HCl at your local health food store if you need it. Trace minerals enhance calcium's ability to increase bone density as well. Women need approximately 2 mgs of copper, 3 mgs of manganese, and 12 mgs of zinc every day. Nuts, berries, tofu, and tomatoes give you enough manganese and copper; seafood and peas are good sources of zinc.

**Beware other calcium robbers.** Too much salt can leach calcium from the bones, just like animal protein can. Watch out for hidden salt in processed foods, soft drinks, and canned goods. Phosphates in carbonated soft drinks can also steal from your body's calcium supply; so can caffeine, alcohol, and nicotine. Some researchers warn that consuming more than three or four cups of caffeinated coffee a day can increase your risk factor by 80 percent. Even moderate alcohol consumption and cigarette smoking can double your risk.

### **Additional Supplementation**

Besides taking enough calcium, magnesium, and trace minerals, increasing your

vitamin K intake may help bones to be less breakable, according to researchers at Tufts University. If you're not on blood thinning medication, you may want to ask your doctor whether increasing your daily intake of vitamin K makes sense. It's actually pretty easy to get all the vitamin K you need from the food you eat. Just eating one-half cup of collard greens, for example, can give you over 400 mcgs of vitamin K; spinach yields 360 mcgs, and broccoli packs 113 mcgs into a half cup. Essential fatty acids, vitamins B6 and C, and folic acid also contribute to good, healthy and strong bone structure.

## **Adequate Estrogen**

The body must have an adequate supply of estrogen in order to keep your bones strong and healthy and to minimize bone mass loss. Once you have gone through menopause, your ovaries no longer make the amount of estrogen your body has been used to, so it must look for another supplier. It will turn to the adrenals primarily to get its hormones; body fat and muscles also manufacture (and, to a lesser extent, the ovaries continue to provide) some estrogen. If your adrenals are depleted through stress, poor diet, or illness, they can't do their job. If you have dieted excessively and don't have much body fat, the body won't find the estrogen there, either.

## **Hormone Replacement Therapy**

In a lecture she gave at the Kripalu Center for Yoga & Health, in Lenox, Massachusetts, in May of 1999, Love posed two interesting questions: If, as studies show, a woman will lose significant bone mass twice in her life—during the five to 10 years after menopause and then again in her 70s—but bone fractures, especially in the hips, generally don't occur until a woman is in her 70s and 80s, should she begin taking HRT from perimenopause on, to prevent fractures that most probably will occur (if at all) when she's quite old? Is it possible to wait until a woman reaches 70 or 75 and then give her the smallest amount of estrogen to prevent such breakage?

The most dangerous side effects of hormone therapy—increased risk for breast and endometrium cancer—appear to be the result of long-term usage (more than five years). If we have to go on hormones at 45 or 50 years old to prevent a potential hip fracture 30 years from now, Love warns, we may be setting ourselves up to die of breast cancer or uterine cancer long before we're old enough to break a bone. Unfortunately, there are no clear-cut answers to these questions yet.

Even if you do decide to take hormones or another treatment (either now or when you get older), remember that pharmaceutical therapy alone (or herbal, for that matter) will not help you prevent osteoporosis. You still need to pay attention to your diet, you still need daily exercise (preferably a well-rounded yoga practice with weight-bearing poses), and you still need to honor your body's signals to rest and rebalance. While it's true that osteoporosis is a crippling, painful disease, with proper attention to all aspects of your health, it needn't be an inevitable consequence of aging.

**Former Managing Editor Linda Sparrowe is the coauthor (with Patricia Walden) of *A Woman's Book of Yoga and Health*, from which this article has been adapted.**

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