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HEALTH

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B R E A T H E

YOU THINK YOU KNOW HOW TO DO IT. YOU'RE WRONG.

BY CAROL KRUCOFF

THE FACTS ABOUT EPHEDRA • REHABILITATION VIA VIRTUAL REALITY

NEW FEATURE TREATMENT OF CHOICE:

CONVENTIONAL AND ALTERNATIVE TREATMENTS FOR EAR INFECTIONS

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The technique is so powerful that physician James Gordon teaches it to nearly every patient he sees, from people with advanced cancer to those crippled by arthritis to school children struggling with attention deficit disorder. He's taught it to war refugees in Kosovo, to anxiety-plagued medical students at Georgetown University and to hundreds of health professionals who have attended his workshops on mind-body-spirit medicine.

"Slow, deep breathing is probably the single best anti-stress medicine we have," says Gordon, a clinical professor of psychiatry at the Georgetown University School of Medicine and director of the Center for Mind-Body Medicine in Washington. "When you bring air down into the lower portion of the lungs, where oxygen exchange is most efficient, everything changes. Heart rate slows, blood pressure decreases, muscles relax, anxiety eases and the mind calms. Breathing this way also gives people a sense of control over their body and their emotions that is extremely therapeutic."

Obviously, everyone alive knows how to breathe. But Gordon and other experts in the emerging field of mind-body medicine say few people in Western society know how to breathe correctly. Taught to suck in our guts and puff out our chests, we're bombarded with a constant barrage of stress, which causes muscles to tense and respiration rate to increase. As a result, we've become a nation of shallow "chest breathers," who primarily use the middle and upper portions of the lungs. Few people—other than musicians, singers and some athletes—are even aware that the abdomen should expand during inhalation to provide the optimum amount of oxygen needed to nourish all the cells in the body.

"Look around your office, and you'll see so little movement

THINK YOU KNOW HOW TO BREATHE? TRY THIS SIMPLE TEST: SIT OR STAND WHEREVER YOU ARE AND TAKE A DEEP BREATH. THEN LET IT OUT. WHAT EXPANDED MORE AS YOU INHALED, YOUR CHEST OR YOUR BELLY? IF THE ANSWER IS YOUR CHEST, YOU'RE A "CHEST BREATHER," AND LIKE MOST PEOPLE YOU'RE DOING IT ALL WRONG. YOU'RE ALSO PUTTING YOUR HEALTH IN JEOPARDY. FOR MORE INFORMATION, TAKE ANOTHER DEEP BREATH—AND KEEP READING.

BY CAROL KRUCOFF

T H E

in people's bellies that it's a wonder they're actually alive," Gordon says. "Then watch a baby breathe and you'll see the belly go up and down, deep and slow." With age, most people shift from this healthy abdominal breathing to shallow chest breathing, he says. This strains the lungs, which must move faster to ensure adequate oxygen flow, and taxes the heart, which is forced to speed up to provide enough blood for oxygen transport. The result is a vicious cycle, where stress prompts shallow breathing, which in turn creates more stress.

"The simplest and most powerful technique for protecting your health is breathing," asserts Andrew Weil, director of the Program in Integrative Medicine and clinical professor of internal medicine at the University of Arizona in Tucson. "I have seen breath control alone achieve remarkable results: lowering blood pressure, ending heart arrhythmias, improving long-standing patterns of poor digestion, increasing blood circulation throughout the body, decreasing anxiety and allowing people to get off addictive anti-anxiety drugs, and improving sleep and energy cycles."

Unlike any other bodily function, he notes, "breathing is the only one you can do either completely consciously or unconsciously. It's controlled by two different sets of nerves and muscles, voluntary and involuntary." Weil teaches "breathwork" to all his patients, although he notes that "Western medical education at the moment doesn't include information of this kind.

"In the four years I spent at Harvard Medical School and a year of internship in San Francisco, I learned nothing of the healing power of breath," Weil said. "I learned about the anatomy of the respiratory system, and I learned about diseases of the respiratory tract. But I learned nothing about breath as the connection between the conscious and unconscious mind, or as the doorway to control of the autonomic nervous system, or about using breathwork as a technique to control anxiety and regulate mental states, or the possibility that breath represents the movement of spirit in the body and that breathwork can be a primary means of raising spiritual awareness."

Eastern healing techniques often prescribe conscious breathing to help restore health to people who are overly stressed. "In Japan, a diagnosis of autonomic nervous system imbalance is common, but in the medicine of the West we don't have this diagnosis," Weil says. Under stress, the autonomic nervous system "revs up" the body to fight or flee. But since most people today do neither, the resulting buildup of stress-related chemical and physical changes contributes to a host of common ailments. Western medicine typically tries to deal with the problems by giving drugs to suppress or control the overactive nervous system, Weil says. In contrast, relaxation breathing works to slow down the heart rate, decrease blood pressure and bring the system into balance.

And unlike drugs, he says, "it's free of toxicity, it's free of cost and it's literally right under our nose."

Techniques that use focused breathing to affect the nervous system, change physiology and connect the body with the mind can be traced back to ancient India, notes Weil, who learned the breathing techniques he uses through the study of yoga and by working with osteopathic physicians.

"In many languages, the

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word for breath is the word for spirit," he notes, citing the Latin *spiritus*, Hebrew *ruach*, Greek *numa* and Indian *prana*. We lose this linguistic connection in English, he says, except with the words "respiration" and "conspire."

Many systems of meditation and numerous spiritual practices also center on conscious breathing. Weil notes in his recently released CD, "Breathing: The Master Key to Self Healing" (Sounds True, 1999). "By simply putting your attention on your breath without doing anything to change it," he says, "you move in the direction of relaxation."

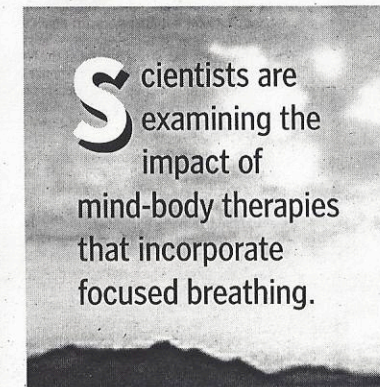
Or as yoga master B.K.S. Iyengar explains in his classic guide, "Light on Yoga" (Schocken Books, 1966): "Regulate the breathing, and thereby control the mind."

There is little scientific research documenting the healing power of breathing, in part because its practice is so new in Western medicine. And unlike drugs or devices, breathing has no manufacturer who must sponsor studies to support its use.

Increased interest in studying the effects of nontraditional healing therapies such as relaxation breathing led to the founding in 1991 of the Office of Alternative Medicine, now the National Center for Complementary and Alternative Medicine, at the National Institutes of Health. As a result, more medical scientists are beginning to examine the health impact of a variety of mind-body therapies such as meditation, guided imagery and Eastern exercises—yoga, tai chi and qi gong—which typically incorporate focused breathing.

One of the few studies to examine a clinical application of yoga "belly breathing" found that menopausal women who learned the technique were able to reduce the frequency of hot flashes by about 50 percent. "The average breathing rate is 15 to 16 cycles (inhaling and exhaling) per minute," notes Robert Freedman, a professor of psychiatry and behavioral neurosciences at Wayne State University School of Medicine in Detroit. "But with training, women can slow their breathing down to seven or eight cycles per minute, which can significantly reduce the frequency and intensity of hot flashes."

Mind-body approaches have been reported in scientific studies to be effective in the treatment of a variety of stress-related disorders, says Herbert Benson, an associate professor of medicine at Harvard Medical School and president of the Mind/Body Medical Institute in Boston. As an example, he points to research showing that chronic pain patients who learned mind-body self-care techniques in a 10-week outpatient program reduced clinic visits by 36 percent for



more than two years after the classes.

Slow, deep breathing is central to most mind-body techniques, says Benson, who estimates that "up to half of doctor office visits could be eliminated with greater use of mind-body approaches." Stress causes or exacerbates a host of medical conditions that lead to 60 to 90 percent of visits to physicians, he says, adding that training Americans to use self-care techniques could cut U.S. health care costs by billions of dollars.

Deep diaphragmatic breathing and other mind-body techniques can significantly reduce symptoms of severe PMS as well as anxiety, depression and other forms of emotional distress, according to research by Alice Domar, an assistant professor of medicine at Harvard Medical School and director of the Mind/Body Center for Women's Health.

In addition, her studies suggest that these practices can combat infertility. After completing a mind-body group program for women with infertility—where 284 participants learned a variety of self-nurturing techniques such as deep breathing—a surprising percentage of women, 44 percent, conceived within six months.

"These were women who had averaged 3½ years of unsuccessful efforts to get pregnant," writes Domar in her book "Self-Nurture" (Viking, 2000). "Though we're still trying to ferret out the biological mechanisms that explain this high percentage, I am convinced that nurturing mind and body has a powerful effect on hormones and other [physiological] parameters, and can stimulate healing in a range of medical conditions—including infertility."

Proper breathing is the first thing Domar teaches virtually all her patients. "I start with something I know will work," she says. "When they breathe diaphragmatically, they'll feel better within 15 seconds, so they're hooked."

To teach the technique, Domar has patients make a fist and squeeze it tight. "Then I ask them what happens to their breath, and they realize that they've stopped breathing," she says. "When we get anxious, we tend to hold our breath or breathe shallowly." Domar then shows patients how to breathe deeply into the abdomen, a process most women tell her runs counter to the "hold in your stomach" breathing they've done all their adult lives.

Domar's favorite stress-reduction technique is a short version of this breath-focus exercise, which she calls a "mini-relaxation," or "mini."

"You can do a mini when you're stuck in traffic, at a boring meeting, whenever you look at a clock or any time you pick up a phone," she says. "I have patients who do minis 100 times a day." Minis are also helpful for people with medical

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Breathing Lessons: Anyone Can Learn!

In our new book, "Healing Moves: How to Cure, Relieve and Prevent Common Ailments With Exercise" (Harmony Books, 2000), we present dozens of exercises designed to treat a wide variety of disorders, including arthritis, asthma, back pain, carpal tunnel syndrome, depression, diabetes, hypertension and osteoporosis. Possibly the single most important of these "healing moves" is this one—yoga "belly breathing"—which teaches people who have been shallow "chest breathers" how to become healthy "abdominal breathers." Deep abdominal breathing helps establish a state of physiological calm and can neutralize the negative effects of stress. Here's a step-by-step lesson in belly breathing, excerpted from "Healing Moves":

1. Lie on your back and place a book on your belly. Relax your stomach muscles and inhale deeply into your abdomen so that the book rises. When you exhale, the book should fall. You'll still be bringing air into your upper chest, but now you're also bringing air down into the lower portion of your lungs and expanding your entire chest cavity.

2. Sit up and place your right hand on your abdomen and your left hand on your chest. Breathe deeply so that your right "abdominal" hand rises and falls with your breath, while your left "chest" hand stays relatively still. Breathe in through your nose, and out through your nose or mouth and spend a few

minutes enjoying the sensation of abdominal breathing.

3. Place a timer or clock with a second hand in clear view. Breathe in slowly, filling your abdomen, as the timer counts off five seconds. Then breathe out slowly to the same count of five.

Perform relaxation breathing throughout the day, such as when you awaken and before you go to sleep, in any stressful situation or any time you hear a bell (phone, door or church) ring. To enhance your practice of relaxation breathing, try these variations:

■ **Color Breathing.** Sit or lie down in a comfortable position, and take a deep breath. Allow the ground or your chair to accept the weight of your body as your muscles relax and accept gravity's pull toward the earth. Visualize the earth beneath you as filled with an energizing shade of red. As you inhale slowly, visualize yourself drawing this energizing red into your body. Imagine it flowing up through your feet, legs, abdomen, torso, arms, neck and head. Then exhale the red slowly out of your lungs, imagining it filling the air around you so that your body and the space surrounding it form a glowing, energized red ball. Try this exercise with different colors, such as calming green, peaceful silver, tranquil blue, healthy gold, cool violet or warm orange.

■ **Mantra Breathing.** Pick a word or phrase that has

special meaning to you and mentally recite the phrase in synchrony with your breathing. For example, Zen master Thich Nhat Hahn suggests this phrase: "Breathing in I calm myself, breathing out I smile." or simply, "In calm, out smile." You might try a religious phrase that has meaning to you, such as "Hail Mary, full of grace" for Catholics, "The Lord is My Shepherd" for Protestants, "Shema Yisroel" for Jews, "Insha'Allah" for Muslims or "Om" for Hindus. Or you might make up a phrase to suit the situation, such as "in energy, out fatigue" or "in peace, out anger."

■ **Restorative Breathing.** Before you begin your breathing, set yourself up in this yoga posture that allows for total relaxation: Lie on your back on the floor with your arms comfortably out to your sides, palms up. Place a bolster, pillow or rolled blankets under your knees and a folded blanket under your head. Place an eye bag over your eyes if you have one, or wrap your forehead and eyes gently in an Ace bandage. Cover yourself with a light blanket, if desired. Relax your eyes and forehead, let your tongue drop from the roof of your mouth, and let the weight of your body melt into the floor. Focus on your deep abdominal breathing, keeping it slow and steady. If your mind wanders, gently lead it back to your breath without judgment. Continue this practice for 10 to 20 minutes.

—Carol Krucik and Mitchell Krucik

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conditions who can do deep breathing when they're having an IV started or undergoing chemotherapy.

Pamela Peeke, an assistant clinical professor of medicine at the University of Maryland, incorporates breathwork into her practice, in part by getting her patients to exercise. "It's very hard to walk and take little panicked breaths," says Peeke, who frequently takes patients out for a "walk and talk."

In our stressed-out world, the fight-or-flight response that kept our ancestors alive has turned into a "stew and chew," contends Peeke, who studied the connection between stress and fat at the National Institutes of Health. If no physical response occurs after stress revs the body up for battle, chronically elevated levels of stress hormones stimulate appetite and encourage fat cells deep inside the abdomen to store what she calls "toxic weight."

For this reason, Peeke says, "I'm an absolute crazy person about getting people to move." She encourages Eastern movements, such as yoga and tai chi, which rely on taking deep abdominal breaths. But she particularly urges patients to do aerobic activity to help neutralize the effects of stress. "When people learn to breathe properly, they can calm themselves," she says. "Then the stew doesn't have to turn into a chew."

In hospitals, breathing techniques once were taught only to women for use during childbirth. Today, some hospitals have begun teaching relaxation breathing to patients of all ages and both sexes being treated for a wide range of conditions. At the Washington Hospital Center, nurse Julie Oliver incorporates breathwork into support groups she leads, including one for people with congestive heart failure and another for parents of babies in the Neonatal Intensive Care Unit (NICU). "Using the breath to quiet the body can be very powerful," says Oliver, who is clinical manager of the hospital's guided imagery program.

"Babies, especially premature babies, can sense how the mother and father feel," Oliver notes. "If the parents go in full of muscle tension and start jiggling the baby, the baby gets too stimulated, and the staff may need to tell the parents to back away, which adds to everyone's stress."

Oliver had a chance to practice what she preaches last month, when her newborn stayed in the NICU for three days of observation. "I was so anxious to see Joseph, I found myself getting all wound up," she recalls. "My heart rate was up, my breathing was shallow and I was feeling unbelievable muscle tension." So Oliver took a minute to do several relaxation breaths, combined with a positive thought: "I love my baby; my baby is going to be fine." "I was able to go in and take Joseph in my arms in a much quieter state of mind," she says.

Conscious breathing also was a part of her delivery.

ery. "Focused breathing pulls your attention away from pain and what's going on in your body," says Oliver, who teaches the technique to heart patients about to undergo procedures in the cardiac catheterization lab. She's also begun teaching breathing to staff members. "It's an ideal form of stress reduction," she says, "because it doesn't take any time away from work and you can do it anywhere."

At Duke University Medical Center in Durham, N.C., nurse Jon Seskevich has taught "soft belly breathing" to most of the more than 15,000 patients he's worked with since he became a full-time stress and pain management educator for the hospital in 1990. About half the patients he sees have cancer, and the others have a wide variety of ailments including heart disease, cystic fibrosis and lung disorders.

One of his most dramatic cases involved a lung cancer patient. "I walked into the room to find this very large man literally fighting for breath," Seskevich recalls. "His pulse oxygen was 74, and you want it to be 90 or above. I sat down next to him and started talking in a calm voice. I asked him if it was okay if I touched his belly. He nodded, so I put my hand on his belly and told him to breathe into my hand, to let his belly be soft and to let his abdomen rise into my hand."

After about six minutes of this, the man's pulse oxygen was 94 and he was breathing comfortably. "I didn't tell him to relax," Seskevich notes. "All day people were telling him to relax, and it seemed to make his struggle worse. I just told him to breathe softly into his belly. We didn't cure his cancer, but we may have saved him a trip to the intensive care unit."

Patients are hungry for self-care information, says Seskevich. "People are very anxious to learn what they can do for themselves," he says. "They become empowered by these techniques and they do better."

Physicians and other health care professionals also are flocking to continuing education courses offered by mind-body medicine experts. "There are a lot of health professionals today who aren't satisfied with the tools they have, and to some extent feel lost," says Gordon of Washington's Center for Mind-Body Medicine. "They are looking for ways they feel they can help people again, that will put meaning back into their practice."

Gordon's center sponsors week-long training programs for physicians, nurses, social workers and other health professionals. Weil's Integrative Medicine program recently graduated its first class of physicians, is starting an Internet-based associate fellowship program, and is launching a continuing education program for psychiatrists, oncologists and cardiologists—all of which will include a unit on breathing and breathwork. Harvard's Mind/Body Medical Institute has 14 affiliate programs at hospitals around the country and is negotiating with at least one other.

As graduates of these and similar programs bring mind-body strategies to their practices, teaching breathwork and other forms of self-care will soon become a common part of American medical care, these experts predict. "There's no question it's driven by consumer demand, coupled with economic forces," says Weil. "Not only do these strategies work, something like breathing is a pretty cheap intervention."

"Sometimes I suggest my patients make signs to post in their office, at their computers, or in their bedrooms," Gordon writes in his "Manifesto for a New Medicine" (Addison-Wesley, 1996). "Signs that simply say, 'Breathe!'" ■

Carol Krucoff, the Health section's Bodyworks columnist, is co-author, with her husband, Mitchell Krucoff, MD, of "Healing Moves: How to Cure, Relieve, and Prevent Common Ailments... With Exercise" (Harmony Books, 2000).



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