

HUMMING

Sustained, rhythmic exhaling while creating music with closed lips and no words may sound like a silly thing for scientists to study, but that is just what happened at Karolinska Hospital in Stockholm, Sweden. Jon Lundberg, MD, PhD, and colleagues of the Karolinska Institute discovered that oscillating airflow produced by humming enhances sinus ventilation and increases nasal nitric oxide levels, which has significant health implications.⁷

Blockages or limited airflow between the two sinus cavities is thought to be key in the development of *sinusitis*. Sinusitis is a common but painful condition that occurs when the mucus-lined cavities around the nose become inflamed. The symptoms include headaches, pain and nasal congestion.

Inflammation of the sinuses is usually triggered by an upper respiratory infection, but some people are much more likely than others to suffer from these infections. A poor exchange of gas, as well as poor circulation in the sinus cavities, creates an ideal environment for the growth of bacteria and viruses, which can easily lead to infection.

Researchers found that humming dramatically increased the exchange of gas in the nasal sinuses. Also the amount of nitric oxide in the exhaled air increased by fifteen times compared with amounts in quiet exhalation. Nitric oxide levels are significant because healthy sinuses require high concentrations. Nitric oxide helps to dilate the capillary beds and increase blood flow.

HOW TO

The key to slowing down our breathing is not in trying to slow it down, but rather by learning to breathe more deeply, using our diaphragm, belly, rib cage and lower back to regulate breathing rhythm. When the abdomen is constricted by tight clothing or poor posture, this action is impeded.

Additionally, breathing was designed to take place mainly through the nose. Air that we inhale through our nose is filtered through the hairs that line our nostrils. This filtering removes particles of dust and dirt that can injure the lungs. Breathing through the nose also warms and humidifies the air, and helps maintain the correct balance of oxygen and carbon dioxide in the blood.

Even facial expression influences breathing rate. It has been observed that locking the eyes onto an object for too long, such as a computer screen or television, causes the facial muscles to become tense. Along with this rise in tension, movement of the diaphragm decreases and shallow breathing takes over.

HARMONY

Good health embraces physical, mental, emotional and spiritual harmony. These are often found in the simple and free—the “little” things we tend to overlook that truly distinguish healthful living. With life’s many complications compounding our stress levels, it is time we learn how to relax, breathe more freely, and look for the positive.

Laughing, crying, sighing, humming—even hiccupping—are rhythms of breath, each reflecting an inner state. And this internal atmosphere impacts our general health. The nourishing elements of love, hope, enthusiasm, tranquility, joy, and even humor can strengthen the physical and fortify us mentally and emotionally through difficult times.

Consider the words of Allen Klein: “When I can find some humor in my discomforts . . . then I begin to see the larger picture. It expands my vision and helps me look forward instead of backward. Humor in the darkest of places is a sign of emergence from grief and depression. It is an indication that I am beginning to embrace life again and that healing is taking place.”⁸

How can we find humor in our discomforts and trials? Take, for example, Moses Mendelssohn, an 18th century philosopher. Walking down a street in Berlin, he accidentally collided with a stout Prussian officer. “Swine!” bellowed the officer. Knowing that returning the insult might incite physical abuse from the officer, he used a different tactic. He tipped his hat, gave the officer a low courteous bow, and politely supplying his contribution to the introduction, replied, “Mendelssohn.”⁹

While this incident is funny, not all humor or laughter is uplifting. “Even in laughter the heart is sorrowful; and the end of that mirth is heaviness.”¹⁰ Laughter can be empty and meaningless. But genuine joy brings healing. Its source is found in God. “In Your presence is fullness of joy.”¹¹ “Sorrow is turned into joy before him.”¹² “You have put off my sackcloth and clothed me with gladness.”¹³ God desires to restore harmony in our lives and He offers us this gift in Himself.

A wise man once said there is “a time to weep, and a time to laugh; a time to mourn, and a time to dance.”¹⁴ When the time has come for God’s kingdom to completely conquer, He has promised to turn our mourning into dancing. “When the Lord brought back the captivity of Zion . . . then our mouth was filled with laughter.”¹⁵ Then we will breathe deeply the air of heaven and dance to a rhythm we have probably never heard before.

¹ <http://home.hiwaay.net/~garson/laughter.htm>.

² http://www.authenticbreathing.com/breathing_tips.htm#peptides.

³ <http://bmj.bmjournals.com/cgi/content/full/323/7327/1446>.

⁴ *The Breathing Book*, Donna Farhi, Owl Books, p. 59. Quoted on http://www.authentic-breathing.com/breathing_tips.htm#heart.

⁵ Ibid.

⁶ *American Journal of Hypertension*, “Nonpharmacologic treatment of resistant hypertensives by device-guided slow-breathing exercises.” Viskoper R, Shapira I, Priluck R, et al. June 2003, 16(6):484-7. Quoted in *Townsend Letter for Doctors and Patients: Hypertension and Breathing*, Feb-March 2005, Robert A. Anderson, http://www.findarticles.com/p/articles/mi_m0ISW/is_259-260/ai_n12417473.

⁷ *American Journal of Respiratory and Critical Care Medicine*, July 2002, 166: 144-145). Quoted on <http://www.webmd.com/content/article/49/40000.htm>.

⁸ *The Healing Power of Humor*, Allen Klein, p. xxi.

⁹ Ibid., p. 4.

¹⁰ Proverbs 14:13.

¹¹ Psalm 16:11, NKJV.

¹² Job 41:22.

¹³ Psalm 30:11, NKJV.

¹⁴ Ecclesiastes 3:4.

¹⁵ Psalm 126:1-2, NKJV.



BREATH

The Rhythm of Life

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Always laugh when you can. It's cheap medicine.—Lord Byron

The simple act of breathing comes in a variety of rhythms. While we may not always be conscious of this automatic function, I believe taking a closer look at how we breathe will have a significant effect on our well-being.

HEALING HUMOR

Spontaneous exhaling in short bursts in response to amusement is what we call “laughing.” Maybe you’ve heard laughter referred to as “inner jogging.” Or that “he who laughs, lasts.” Mark Twain once said, “The human race has one really effective weapon, and that is laughter.”

It has long been known that laughter is both healthful and stress relieving, but now scientific research is confirming its cathartic power. Laughing 100 times is estimated to equal ten minutes on a rowing machine or fifteen minutes on an exercise bike. Laughing can lower blood pressure, boost the immune system, and increase vascular flow and oxygenation of the blood. It gives the diaphragm and the abdominal, intercostal, and respiratory accessory muscles a complete workout.

Laughter not only balances all the components of the immune system, but it also provides a safety valve that shuts off the flow of stress hormones when we go into “fight or flight” in response to stress, anger or hostility.

Stress can do some nasty things to us. For example, stress hormones suppress the immune system, promote artery obstruction and raise blood pressure. But when we laugh, natural killer cells that destroy tumors, viruses and disease-fighting proteins increase. In turn, Immunoglobulin A levels increase, which help protect us from flu and cold viruses. Laughter also releases *endorphins*—the body’s natural pain-killers and mood elevators—into the brain. Norman Cousins, the man in our modern age who promoted laughter as being therapeutic, found relief from intense pain after a hearty belly laugh. As a result, his sedimentation rate dropped significantly. (Sedimentation rate tests measure the extent of inflammation or infection in the body.)

Dr. Lee Berk and Dr. Stanley Tan of the Loma Linda University Medical Center demonstrated through experimentation that hormones that harm or deplete the immune system, such as the stress hormones *epinephrine* and *cortisol*, were lower in those participants who laughed than in those who did not.¹ Because laughter produces chemical changes that help to ease pain, relieve stress and strengthen the body, it is a powerful offensive tactic against society’s fast-becoming-number-one killer—stress.

Laughter is a fascinating phenomenon that works like medicine. It is an act

of breathing—better breathing. It releases tightness in the chest, allowing the lungs to expand, strengthening the respiratory muscles, and clearing the breathing passages. After a good chuckle, breathing continues at a slower, deeper rhythm.

HASSLED

Inhaling and exhaling a deep audible breath is another rhythm of respiration. We call it “sighing.” “Mommy what’s wrong?” is what I hear when I let out one of my characteristic responses to stress—a deep sigh. While it is reflexive and unnoticed by myself, my children are acutely tuned in. Sighing can signify the presence of stressors such as depression, grief, disappointment, tension, boredom or relief. So the next time you “heave a sigh,” notice which stressor you are defusing.

Typically we ignore the function of breathing as being of no major consequence. We just don’t notice it. We realize it is essential to life in that its blood-gas homeostasis function eliminates carbon dioxide (the “waste”) from our lungs and brings clean air back in. But have you ever thought of breathing as the most potent arsenal you possess against nervous tension?

We overlook our breathing because it is a function of the autonomic nervous system (ANS). The ANS functions below our awareness in an involuntary, reflexive manner. We don’t notice, for example, when blood vessels change size or when our heart beats faster. The ANS is most important in two situations: in emergencies in which stress urges us toward “fight” or “flight,” and in non-emergencies that allow us to “rest” and “digest.”

Breathing can be done completely consciously or completely unconsciously. It has been referred to as the gateway to the autonomic nervous system because of its powerful influence on the ANS. Consequently, neuroscientist Candace Pert states that focusing our attention on mindful breathing helps us “enter the mind-body conversation.”²

What is your breathing like when you are upset, angry or afraid? Is it irregular, shallow, rapid, or even noisy? When we are completely relaxed and calm, a deep, slow, quiet, more regular breathing indicates that the nervous system is operating smoothly. This even-breathing rhythm is also noticeable in the steady function of certain organs and muscles that regulate the intestines, stomach and the heart.

HEART PACE

Apparently the rhythmic function of the heart is responsive to the cadence of breath. In studies conducted in Italy and published in the May 2, 1998, issue of *The Lancet*, researchers observed that when cardiac patients prayed, their breathing patterns dramatically slowed and became rhythmic. This resulted in “striking, powerful, and synchronous increases in existing cardiovascular rhythms. Heart rate variability and baroreflex sensitivity” were enhanced. Both are important predictors for a poor prognosis of heart disease. The conclusion was powerful and practical: Learning to slow down breathing by using special deep-breathing exercises raised levels of blood oxygen

and enhanced performance on exercise tests.

Another interesting study noted that “Healthy animals and humans show rhythmic fluctuations in blood pressure and heart rate as a result of autonomic control systems that are influenced by respiration, arousal, and activity.”³

Similarly, other research cites a relationship between upper chest (shallow) breathing and poor heart health. Patients who had experienced a heart attack were taught to integrate diaphragmatic breathing into their daily lives. “In doing so they significantly reduced their chances of having a second heart attack.”⁴ Another study reported that all 153 patients of a coronary unit breathed predominantly in their chests.⁵

Hypertension responded to slow-breathing exercises without changing medication in seventeen resistant hypertensives. After device-guided slow breathing for fifteen minutes a day for eight weeks reduced their office blood pressures (12.9/6.9 mm Hg) and home pressures (6.4/2.6 mm Hg) without side effects, 82% responded and good compliance was observed. Controlled breathing is thought to relax the body, calm the emotions and quiet the mind via a reflex reduction in the output of *catecholamines*. (Reduced blood pressure is a uniform result of lowered catecholamine release).⁶

HYPERVENTILATION

An accelerated rhythm of over breathing is common in stressful situations. We “catch our breath” when startled or surprised. But a pattern of quick gasps exceeding the body’s need for air alters blood gas levels and is called “hyperventilation.”

Many of us unconsciously hyperventilate in our normal breathing, habitually taking quick, shallow breaths from the top of our chest. This causes a low level of carbon dioxide in our blood. The brain generally sets the breathing rate according to carbon dioxide, rather than oxygen, levels in the blood; so when carbon dioxide levels drop, a vicious cycle can set up.

When carbon dioxide is released too quickly, the vessels carrying blood to our cells constrict, and the oxygen delivered to the cells is insufficient. This includes the arteries carrying blood (and oxygen) to the brain. The brain responds by turning on the sympathetic nervous system—our “fight or flight” response—contributing to tension, anxiety, irritability and depression. Breaking that cycle by deliberately breathing slowly and deeply, as if we are relaxed, improves oxygenation of the blood, helps muscles loosen up and has a calming effect on the brain and nervous system.

While better breathing may initially seem insignificant, a nearly 30-year follow-up study by researchers at the University of Buffalo, New York, attests to its importance. The relationship between impaired pulmonary function and all causes of mortality shows that our level of lung function may well predict how long we live. This study, which appeared in the September 2000 issue of *Chest*, reported increased risk of death for those with moderate lung function, as well as for people with poor lung function. What’s the bottom line? The healthier your lungs and the better you breathe, the longer you will live.