Adventist Health Ministries
GENERAL CONFERENCE

Seventh-day Adventist Church

LET'S CELEBRATE
AIR

A is for air—the breath of life.

CELEBRATIONS
LIVING LIFE TO THE FULLEST

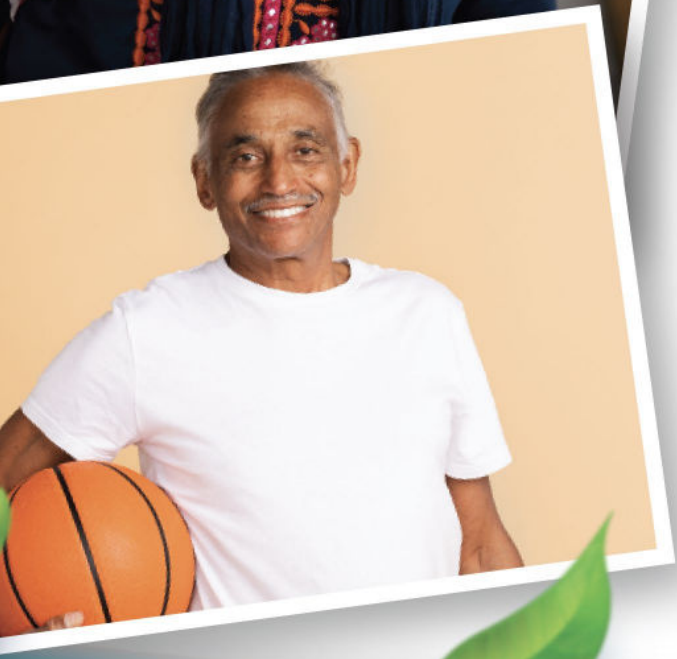
The rush of air past their faces was invigorating! It didn't matter that the temperature was near freezing. Orville was guiding the first controlled flight, and his brother, Wilbur, was running alongside the wing of the flying machine. It was December 17, 1903, when the Wright brothers made a total of four short but historic flights. Apart from the sheer dogged determination of the Wright brothers and the foundational experience of other aviation pioneers such as Otto Lilienthal, without air and its physical properties providing the "lift," flight would have never been possible! Lift is a complex physical phenomenon that enables birds and airplanes to fly. Other properties of air allow living creatures to breathe and exist.

Stories like this kindle feelings of excitement and exhilaration in us. In contrast, some other events elicit discouragement and despair. Shortly after midnight on December 3, 1984, in the city of Bhopal, India, for example, a poisonous gas cloud escaped from a pesticide factory. The toxic gas covered an area of 30 square miles, immediately killing thousands of people and bringing illness on many more. Experts believe that as time went on, many more people eventually perished as a result of this environmental disaster and the severe air pollution that ensued. Clean air is essential and literally constitutes the physical breath of life.

How Does It Work?

Oxygen is the vital component of air that sustains life. Breathing is the process that moves air in and out of the lungs, absorbing oxygen and releasing carbon dioxide. This process takes in and exchanges approximately 20,000 liters of air daily.

Once oxygen enters the lungs, it goes into the bloodstream, where the heart and circulatory system then pump the blood to every tissue of the body, delivering life-giving oxygen to the tissues and cells. The exchange of oxygen and carbon dioxide is accomplished within milliseconds, and it takes only about one minute for the newly acquired oxygen to circulate through the body! If one does not inhale fresh air, carbon dioxide builds up in the blood, resulting in a feeling of tremendous "air hunger," forcing one to breathe. This miraculous, irrepressible reflex is lifesaving; if breathing stops, the body's oxygen levels drop dangerously low within minutes, leading to permanent brain damage, followed by death. We need oxygen for life and pure fresh air for health.



HOW DOES EXERCISE CHANGE THINGS?

During exercise, the increased cellular activity of the muscles produces more carbon dioxide. The carbon dioxide acts on specialized receptors and the respiration center in the brain, causing a higher rate of respiration, which is also deeper. During rest, the breathing rate is lower because carbon dioxide production is lower. Control mechanisms, however, ensure adequate breathing to provide appropriate amounts of oxygen to all body cells. In addition to removing carbon dioxide from the body, breathing results in a loss of water from the body in the form of water vapor. This is one of the forms of "invisible" water loss. Sustained, rapid, deep breathing can aggravate dehydration; this may occur during prolonged exercise, heat exhaustion, or disease states.

PROTECTING OUR INTERESTS

The air also has many protective qualities. On a global level the air and its suspended water vapor protect the earth and its inhabitants from solar radiation and the cold vacuum of outer space. The air recycles water and many chemicals to moderate the climate. Within this atmospheric envelope, life is found over a very wide range of altitudes and temperatures. Some life--forms require large amounts of oxygen; others only a scant amount. For humans to have optimal health, fresh, clean air is essential.

DON'T SKIMP ON QUALITY

Good oxygenation lowers the body temperature and resting heart rate and decreases the chances for survival of certain bacteria and viruses found in the air.

Fresh air, when unpolluted, is invigorating. Good quality air can usually be found in abundance in natural outdoor environments, especially around trees (sometimes called the "lungs of the earth"), green plants, mountains and forests; near moving water such as lakes, oceans, rivers and waterfalls; and after rainfall.

the breathe of life!

AIR POLLUTION

Polluted air is found on freeways, at airports, and in closed, poorly ventilated areas. In cities, the air inside of buildings is often recirculated through air-conditioning systems. This compounds the pollution from city smog, tobacco smoke, and industrial and other pollutants.

Homes are another source of inadequate ventilation, especially where open cooking fires and stoves are used. Polluted, smoke-filled air can be associated with increased anxiety, migraine headaches, nausea, vomiting, eye problems, irritability and respiratory congestion.

The World Health Organization estimates that more than 2 million people die every year from breathing in tiny pollutant particles present in indoor and outdoor air pollution. These tiny particles, called PM-10 particles (10 micrometers or less), can penetrate the lungs and may enter the bloodstream, causing heart disease, lung cancer, asthma, and acute lower respiratory infections.1

Some 6 million people, mostly children, die each year from acute respiratory infections, complicated particularly by indoor pollution, often originating from unvented or poorly vented cooking facilities. In many cities, the PM-10 particle level is 15 times above the recommended safety guidelines.

The results of pollution described above are sometimes beyond the control of the individual. Children are frequently victims of secondhand smoke (SHS) in homes where parents and other family members smoke. The severity and number of asthma episodes in asthmatic children are increased by exposure to SHS.

There is also evidence linking tobacco smoke pollution to increased Sudden Infant Death Syndrome.2 Adults who live with a smoker have an increased risk of lung cancer.3 Smoke pollution in the workplace increases the risk of nonsmokers developing lung cancer by 16 to 19%.

WHAT TO DO?

What can we do to ensure that we get adequate amounts of clean air and vital oxygen? Avoid tobacco smoke, and, as much as possible, stay out of polluted environments. Avoid shallow breathing; take deep breaths and exercise regularly. This helps us take full advantage of our natural lung capacity and prevents the lower parts of the lung from being underventilated. Take intentional breaks during work time to breathe deeply — outdoors, if possible. Good posture and diaphragmatic breathing also are helpful in obtaining optimal respiration, ventilation and blood flow through the lungs.

Good posture: The late Mervyn Hardinge, dean emeritus of Loma Linda University School of Public Health, suggested these five steps to help individuals acquire good posture habits:

1. Flatten the plane of the pelvis by contracting the large gluteus muscles.

2. Stand tall, thus decreasing the forward and backward curves of the spine.

3. Keep the head back, chin horizontal, and eyes looking straight ahead.

4. The feet should be slightly apart and directed forward, the upper limbs hanging naturally by the side.

5. Exercise so as to stretch and strengthen your muscles.

Diaphragmatic breathing: People who are fit and exercise regularly also strengthen the muscles of respiration, of which the diaphragm is the most important. To practice diaphragmatic breathing do the following:

1. While standing, stretch your arms high above your head.
2. Breathe in slowly, mouth closed. Normally the lower ribs will expand.
3. Expand the chest as far as possible while breathing in. At the height of inspiration, take one more whiff of air.
4. With your mouth open, let all the air out while slowly bending over. Cough to get the last bit of air out.
5. Repeat five to ten times every morning.

Diaphragmatic breathing aerates the respiratory tract and reduces one's risk of infection.

IN THE BEGINNING

The atmosphere surrounding the earth provides our bodies with the literal breath of life. From the beginning, the Lord God our Creator made this provision to support life: "The Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living being" (Genesis 2:7, NKJV).

We have the privilege and responsibility to ensure that our body receives the purest, freshest air possible. We also need to care for the environment and do all we can, individually and collectively, to prevent and minimize air pollution. We cannot do this alone. We need the sustaining power and grace of the loving creator God.

"In the matchless gift of His Son, God has encircled the whole world with an atmosphere of grace as real as the air which circulates around the glove. All who choose to breathe this life-giving atmosphere will live and grow up to the stature of men and women in Christ Jesus."4

As we celebrate a vital and fulfilled life, we need to breathe deeply, exercise well, enjoy the beauty of the great outdoors, and never forget the indwelling presence of God, the Breath of Life.

1 "Tackling the Global Clean Air Challenge," World Health Organization, September 26, 2011, accessed April 4, 2012, http://bit.ly/p90Y2g. 2 D. P. Strachan and A. G. Cook, "Health Effects of Passive Smoking: Parental Smoking and Lower Respiratory Illness in Infancy and Early Childhood," Thorax 52, no. 10 (1997), 1081-94.3 A. K. Hackshaw, M. R. Law, and N. J. Wald, "The Accumulated Evidence on Lung Cancer and Environmental Tobacco Smoke," British Medical Journal 315, no. 7114 (1997), 980--88. 4 Ellen G. White, Steps to Christ (Hagerstown, MD: Review and Herald Publishing Association, 1956), 68.Photo by Oriol Casas on Unsplash