



# CONTINUING EDUCATION

HOW IT WORKS: Kindergarten through Grade 12 teachers in the North American Division are eligible for credit toward denominational recertification for successful completion of a test on the content of this article. The test does not provide college credit or credit toward state or regional teacher certification.

## Light for Living Part I

### A Study of the Seventh-day Adventist Health Message

By Joyce W. Hopp

#### OBJECTIVES

When you have completed your study of this article, you should be able to:

1. Give two reasons why Seventh-day Adventists have a health message.
2. Quote a minimum of five Bible texts that form the basis for the church's message of health.
3. Describe two areas in which scientific sup-

port is available for Spirit of Prophecy counsel on health.

4. Cite and describe a minimum of two results that accrue from following the message of health.
5. List the eight "true remedies," showing how each may be both preventive and therapeutic in application.

#### Why a Health Message?

The Seventh-day Adventist health message has been an integral part of church beliefs and practice since the denomination's beginnings as an organized entity. It is significant that the first message on health given through the Lord's messenger, Ellen G. White, came the same year as the organization of the church, 1863.

While other denominations also teach certain aspects of healthful living, no other has the broad, all-encompassing emphasis that Seventh-day Adventists do. Not only is there an emphasis on health care, as illustrated by the world-wide chain of hospitals and clinics, but also on health promotion and disease prevention. Why?

Once, when I was describing my part in the writing of Seventh-day Adventist health/science textbooks to

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a public university health professor, he asked me, "What's so different about Adventist health and anyone else's health? Why do they need special health textbooks?" My answer to him, given quickly and without much thought, was, "For the same reason we write science books: We believe in God as Creator."

Afterward, in reflecting on his question, I realized that that *is* the pervasive reason: Our belief in God makes just as much difference in health as it does in science. If, for example, we are counseled to return as nearly as possible to God's original diet for man of fruits, grains, nuts, and vegetables,<sup>1</sup> what goal would this represent if one did not believe in a Creator-God who instituted a good nutritional program in the beginning? Lacking such a foundation, we would be left to drift with the whim of every nutritional fad.

We have a message of health and healing, too, illustrated by God's Son in His earthly ministry. Christ devoted more time to healing than to preaching.<sup>2</sup> We have a responsibility to share this message. "The world needs today what it needed nineteen hundred years ago—a revelation of Christ."<sup>3</sup>

Our health message also helps us prepare for the second coming of Christ. Mrs. White asserts that as we draw nearer to the close of time, we shall have to rise higher and still higher on the subject of health reform.<sup>4</sup> God gave special health instructions because of His love for us. Sometimes we are tempted to think of our health message as restrictive ("can't eat this," "can't drink that"), when in reality those very "restrictions" preserve our health and lengthen our lives.

If we follow God's health message, we will develop clearer minds to understand His truth for this time and stronger bodies to carry out His will. The quality of our health affects every dimension of our lives: mental, emotional, physical, and spiritual.

### **Benefits to Ancient Israel**

God promised the Israelites, after bringing them out of Egypt, "If you listen carefully to the voice of the Lord your God and do what is right in his eyes, if you pay attention to his commands and keep all his decrees, I will not bring on you any of the diseases I brought on the Egyptians, for I am the Lord who heals you" (Exodus 15:26, N.I.V.).<sup>5</sup> What were the diseases of Egypt from which God's health message was to save the Israelites?

The Bible records some of the health problems of those people: leprosy (this general term includes a number of skin disorders such as psoriasis and viti-

ligo, as well as true leprosy),<sup>6</sup> venereal diseases,<sup>7</sup> and gonorrhea.<sup>8</sup> Other diseases we have discovered through the science of paleopathology, the study of disease in ancient fossils. Paleopathologists have autopsied 36,000 mummies.<sup>9</sup> From these autopsies, and more recently, X-rays of mummies,<sup>10</sup> we know that ancient Egyptians suffered the same diseases as men and women today: heart disease and arteriosclerosis, cancer, polio, tuberculosis, cirrhosis of the liver, gallstones, kidney stones, smallpox, malaria, tetanus, gout, arthritis, osteoporosis, pneumonia, diabetes, dysentery, iron-deficiency anemia, dental decay, and goiter. Some of the ruling class were extremely obese, as the mummies of kings Thutmose II, Ramses III, and Amenhotep III show.

The counsel given through Moses to the children of Israel would have prevented many of these diseases. Although many people consider illness to be merely fate or back luck, David reminds us, "Some were sick through their sinful ways, and because of their iniquities suffered affliction" (Psalm 107:17, R.S.V.).

The benefit of God's health counsel was not to be limited to the Israelites. "That thy way may be known upon earth, thy saving health among all nations" (Psalm 67:2). All that was required was obedience. "My son, be attentive to my words; incline your ear to my sayings. Let them not escape from your sight; keep them within your heart. For they are life to him who finds them, and healing to all his flesh" (Proverbs 4:20-22, R.S.V.).

An important aspect of God's dietary plan for the Israelites was the prohibition against consuming fat and blood. "It shall be a perpetual statute throughout your generations, in all your dwelling places, that you eat neither fat nor blood" (Leviticus 3:17, R.S.V.). This prohibition, of course, had certain religious connotations; blood served to represent the life of God's own Son, offered as a sacrifice for the sins of the human race. But mere symbolism and ceremony alone do not explain this strong restriction against the use of blood for food.

Modern science has discovered that both human and animal blood are naturally contaminated by waste products. Normal blood contains urea, amino acids, creatine, creatinine, uric acid, carbohydrates, organic acids, citric acid, ketoglutaric acid, malic acid, succinic acid, acetoacetic acid, lactic acid, pyruvic acids, lipids, plus all the hormones secreted by the endocrine glands. Many of the substances found in blood are also found in urine. Blood constantly carries waste products destined for excretion from the body.

The law against eating animal fat makes good medical sense. Atherosclerosis, heart disease, and stroke were rampant around the “flesh pots” of Egypt, and God was trying to spare His people these maladies. “‘Say to the people of Israel, You shall eat no fat, of ox, or sheep, or goat. The fat of an animal that dies of itself, and the fat of one that is torn by beasts, may be put to any other use, but on no account shall you eat it’” (Leviticus 7:23, 24, R.S.V.). Only animal products contain cholesterol, and elevated serum cholesterol is one of the best predictors of heart disease in humans.<sup>11</sup> The saturated fat found in animals is a type closely associated with heart disease.

As a precaution against infection, tattooing was forbidden to the Hebrews. “You shall not make any cuttings in your flesh on account of the dead or tattoo any marks upon you; I am the Lord” (Leviticus 19:28, R.S.V.). The ancient Libyans and earliest Egyptians practiced tattooing,<sup>12</sup> which can result in hepatitis, tetanus, and other infectious diseases. Even though this counsel may have been given for religious reasons, health benefits accrued from it.

Environmental health measures involving the provision of safe water and waste disposal are among the first measures to be instituted in developing countries to reduce death and disease rates. The health message of the Israelites about the disposal of human waste, if followed today in all parts of the world, would immediately improve health conditions as much as it did at that time: “Designate a place outside the camp where you can go to relieve yourself. As part of your equipment have something to dig with, and when you relieve yourself, dig a hole and cover up your excrement” (Deuteronomy 23:12, N.I.V.).

When the Israelites followed the health messages given by the Creator, they indeed reaped better health and longer life.

### Benefits Today

What is the message of health today? What has it done for Seventh-day Adventists who have chosen to follow it?

“Pure air, sunlight, abstemiousness, rest, exercise, proper diet, the use of water, trust in divine power—these are the true remedies.”<sup>13</sup>

When Ellen White wrote these words, she was just reminding us of God’s original gifts and counsel found in the first book of the Bible:

- Fresh air. Genesis 2:7.
- Sunlight. Chap. 1:16.
- Pure water. Chap. 2:10.
- Exercise. Chap. 2:15.

- Proper diet. Chap. 1:29.
- Periodic rest. Chap. 1:5; 2:2.
- Abstemiousness. Chap. 2:16, 17.
- Trust in the Creator. Chap. 3:8.

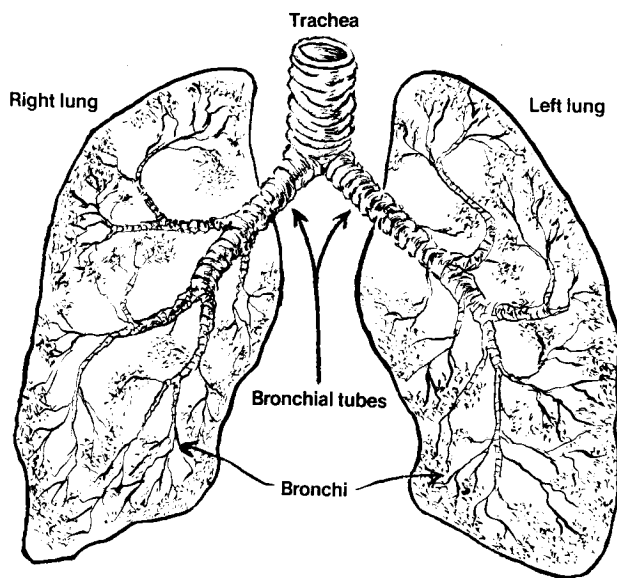
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### Fresh Air

On the second day of Creation, God formed the Earth’s atmosphere. Then on the sixth day He created Adam, breathing “life-giving breath into his nostrils and the man began to live” (Genesis 2:7, T.E.V.).

Air is vital to living creatures. Each human cell takes in oxygen, uses it to burn food for energy, and returns carbon dioxide as waste to be excreted. Without sufficient oxygen in the blood, muscles cannot contract, brain cells die, and the heart stops pumping. Respiration and the circulation of blood are the two vital activities of life. When these cease, life ends.

The lungs are the living bellows that aerate the blood. Air enters through the trachea, which divides into bronchi, one going to the right lung, the other to the left. Within the lungs, each bronchus progressively divides, like the roots of a tree, into smaller and smaller passages until they become a mass of small tubules scarcely visible to the naked eye. These fine divisions end in grapelike clusters of air sacs (alveoli) numbering about 300 million. By far the



**Fig. 1.**  
**Human Respiratory System**

greatest part of the lungs is made up of these tiny air chambers, which are so light they float on water. If all these air sacs were flattened out they would cover a small back yard.

Respiration consists of breathing air in and out. In quiet respiration an adult breathes some 16 times a minute, and takes in about a pint of air in each breath. This amounts to 8 quarts a minute or 480 quarts an hour. Humans breathe about 30 pounds of air every 24 hours.

The earth's atmosphere is a vast body of gases, vapors, and particles of suspended matter approximately 14 miles deep. About one-third of this is below 10,000 feet and 75 percent of it is below 29,000 feet.

Air consists of about 78 percent nitrogen, 21 percent oxygen, .93 percent argon, and traces of carbon dioxide, helium, argon, and other rare gases. Water, in the form of vapor, is present in amounts that differ depending on location, time, and season. Humans and animals breathe in oxygen and give off carbon dioxide.

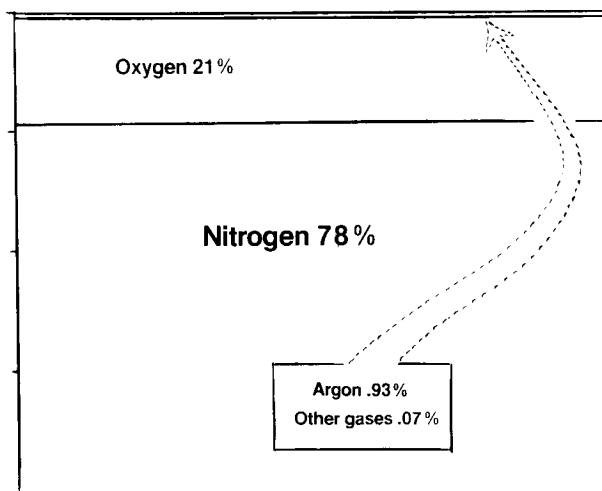
Tens of millions of fossil-fuel-powered vehicles, and thousands of power plants and industries emit uncounted billions of tons of pollutants into the air each year. This, along with pollution from other sources, is dispersed into the ocean of air surrounding our planet by a mixing process that results from

alterations in temperature, wind velocity, terrain, and humidity. An atmospheric mixture of these gases as they react with one another under the influence of heat, weather conditions, and ultraviolet radiation, produces smog. Research has shown that periods of intense concentrations of air pollution result in increased respiratory infections and deaths in the exposed population.<sup>14</sup>

Indoors, the most common pollutant of fresh air, cigarette smoke, can damage the lungs of nonsmokers as well as smokers. "Tobacco is a slow, insidious, but most malignant poison,"<sup>15</sup> Mrs. White wrote in 1905, long before the scientific evidence appeared concerning the relationship between cigarette smoking and lung cancer. Children reared in homes where one or both parents smoke have more respiratory infections.<sup>16</sup> Looking at the evidence, the American School Health Association in 1983 took the following action, reaffirming its stand of the past decade:

*Cigarette Smoking on School Property* WHEREAS, cigarette smoking is the greatest known cause of preventable illness and death in the United States today; and WHEREAS, second-hand smoke is known to have deleterious health effects on children; and WHEREAS, the Cardinal Principles of Education adopted in 1918 by the Commission on the Reorganization of Secondary Education specified health as the first of the seven cardinal objectives of education; and WHEREAS, the school has an ethical responsibility to provide a healthy environment for learning; and WHEREAS, school teachers have a responsibility as exemplars to promote proper health habits; therefore, BE IT RESOLVED by the American School Health Association, that all schools in the United States should disallow cigarette smoking on school property.<sup>17</sup>

Clean air, adequately circulated, is important in the classroom. Schoolrooms should have a means of purifying, filtering, and circulating the air. Air conditioning is not necessary in many areas, although



**Fig. 2.** Air

dehumidification may be. If classrooms do not have forced-air ventilation, then windows should be able to be opened both from the top and the bottom to provide for air movement. A baffle should be placed so that air does not blow directly on students.

Posture and exercise are also important to good breathing.

Among the first things to be aimed at should be a correct position, both in sitting and in standing. . . .

The one who sits and stands erect is more likely than others to breathe properly. . . . Show how the healthy action of the respiratory organs, assisting the circulation of the blood, invigorates the whole system, excites the appetite, promotes digestion, and induces sound, sweet sleep, thus not only refreshing the body, but soothing and tranquilizing the mind.<sup>18</sup>

When we remain sedentary, and in addition, sit, stand, and breathe incorrectly, the apexes or tips of the lungs do not get thoroughly aired.

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## Sunlight

We get our energy from plants, but that energy was first captured from the sun. Sunlight kills germs and produces Vitamin D on the skin. Sunlight is essential for good health and aids in recovery from disease. However, it can be overdone, especially in light-skinned people. Protection from excessive exposure to the sun's rays can prevent future problems with skin cancer.

## Pure Water

“A river from the land of Eden flowed through the garden to water it” (Genesis 2:10, T.L.B.).<sup>19</sup> Springs and rivers provide humans with fresh water to drink and also water for cleansing their bodies. Dr. Mervyn Hardinge, in his syllabus on *Philosophy of Health*,<sup>20</sup> provides the following information about water:

The body of an average-sized man contains some 40 liters (42.5 quarts) of water, nearly 60% of his body weight. Of this, 25 liters are present inside the cells while 15 liters fill the spaces between the cells. We think of bones as being dry, but even marrow-free bone is 20 to 25% water. More physiologically active cells and tissues contain more water. Thus while the body as a whole may be from 50% to 70% water depending on the amount of fat it contains, the gray matter of the brain is 85% water. . . .

Every function of life is carried out in a water medium. You could not even blink your eyeballs if your tear glands did not constantly moisten the front of your eyeballs. Without this film of water the surface of your eyes would become dry and inflamed and you could not open and shut them without great pain. . . .

The 70 square meter surface area of living lung tissue is always moist. Each year an adult human breaths in and out from two to five million liters (quarts) of air. The oxygen of this air is carried to the 300 million microscopic air sacs comprising the lungs. But it could not get through the membrane walls of the air sacs and into the blood if it were not first dissolved in a film of fluid that lessens surface tension. Without this moisture oxygen could not get into your blood and carbon dioxide could not get out; consequently, you would suffocate.

Your digestive system needs water to make its digestive juices.

The saliva that pours into your mouth every day measures a quart or more. This keeps your mouth and throat moist, wets the food you eat so you can swallow it, and aids in its digestion. Your stomach, intestines, liver, and pancreas secrete [sic] about two gallons of juices a day to further digest and assimilate your food.

Your skin, too, requires water and a lot of it. Its 2.5 million sweat glands moisten it continually with a fine perspiration of which you are not even aware. This keeps it from drying out and cracking. . . . It amounts to about a pint a day. Frequently, of course, you sweat much more profusely.

About half of the body water is found in the muscles which make up about one-third of the body mass. No wonder one feels fatigued when the muscles are short of water. Death occurs when about 20% of the body water has been lost.

Water is indispensable for cooling the body. Even at rest . . . a man's body produces about 80 calories of heat per hour. That is almost enough heat to bring a quart of ice water to boil. You need this heat to warm you in cool weather; but when the air is hot, you need water to cool you. During extreme heat or prolonged hard exercise, your skin may pour out several quarts of sweat per hour. . . . [Under normal conditions, your body uses about two-and-one-half quarts of water per day, but since many foods contain water, you need only about six to eight cups per day.]

Experience and experiments have shown that man cannot maintain himself in health and efficiency while reducing his water intake. In a 1942 expedition to the desert the endurance of men was tested.<sup>21</sup> Men working in the heat were found to be especially susceptible to exhaustion. But when they drank sufficient water it proved to be both an effective preventive and a cure. Two groups of infantry men (20 in each group) were taken on a march in the heat of the day. Trucks of water followed them. The men in one group were allowed all the water they wanted while the others received none. Seven of the 20 non-drinkers became exhausted and had to drop out, but only one of the water drinkers was unable to complete the march.

It is easy enough to see why a person needs plenty of water to drink in hot weather especially while he is exercising and perspiring freely. But that high altitude climbers, struggling through snow and over fields of ice also need an abundance of water was not recognized until it was demonstrated in the first successful assault of Mount Everest by Hillary in 1953.<sup>22</sup>

At high altitudes the amount of moisture in the atmosphere is low while the exhaled air is almost saturated with moisture. Thus the climber, or the resident of high mountains, loses large amounts of water through his breath whether he sweats or not. The recognition of this fact by the scientists of Hillarys [sic] expedition caused them to design special high-altitude stoves that would melt snow and ice so that each man had 5 to 7 pints of liquid a day. The Swiss party, who almost made the top the year before, had less than a pint of water per man per day for the last three days. It is thought that lack of sufficient water—dehydration—might have contributed greatly to the extreme fatigue and weakness that made it impossible for the men to continue even with the great urge to succeed when they were within a thousand feet altitude of their goal.

Such voluntary dehydration is not practiced by any other animal that has been studied.<sup>23</sup> When a dog or a donkey must go without water for a time it will, at the first opportunity, drink enough to restore its water balance in a few minutes by drinking as much as it lost. A man drinks only about two-thirds as much as he loses during an active period of exposure.<sup>24</sup> Unless this is replaced by forced drinking, the temperature of the body will gradually rise to 102° F. and one enters the zone of impending exhaustion. . . . You cannot depend on your sensations of thirst to get you to drink enough.<sup>24</sup>

The so-called “tired blood” one hears talked about in advertisements for various “remedies” is probably just dirty blood that can be washed by drinking more water. Most people are aware of the need for washing and bathing the outsides of their

bodies frequently, but many fail to pour enough water *inside* themselves to also keep clean there. It should be just as automatic as washing one's face in the morning to drink a glass or two of water to “wash your insides,” then follow with five or six more glasses during the day.

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## Exercise

The way most people avoid exercise, you'd think the human body was very frail. Just the opposite is true; it was designed for vigorous activity. “The Lord God took the man and put him in the garden of Eden to till it and keep it” (Genesis 2:15, R.S.V.). “Action is a law of our being. Every organ of the body has its appointed work, upon the performance of which its development and strength depend. . . . Inactivity is a fruitful cause of disease. Exercise quickens and equalizes the circulation of the blood.”<sup>26</sup>

At rest, the output of the heart is about 5 liters per minute in both the athletically trained and the untrained person. The average man's heart beats about 70 times per minute, pumping 71 milliliters (about a third of a cup) with each beat. If a highly trained person's heart beats 50 times per minute, he then moves 100 ml of blood with each beat. This is called the “stroke volume.” During exercise, the blood increases in proportion to the intensity of the activity. Sedentary males increase this volume from about 5 liters per minute at resting to 20-22 liters during strenuous exercise. World-class athletes can circulate 35-40 liters of blood per minute.

## Types of Exercises

“Walking is preferable to riding or driving for it brings more of the muscles into exercise.”<sup>27</sup> Aerobic fitness is the ability of the lungs, heart, and blood

vessels to take in oxygen, transport it to the muscle cells, process it in the cells, and carry off the waste products. Aerobic exercise uses the large muscle groups (the lower extremities contain the largest muscle groups in the body), is rhythmic, continuous (not the stop-and-go type), and intense enough to get the heart rate up to a target. Jogging, running, cycling, swimming, crosscountry skiing—and brisk walking—are aerobic activities. If exercise is to be effective in weight control, at least twenty minutes of strenuous activity is needed twice a day. (*Watching* children play during recess or physical education period is not vigorous activity for the teacher!)

“There is no drug in current or prospective use that holds as much promise for sustained health as a lifetime program of physical fitness.”<sup>28</sup>

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### Proper Diet

In a 20-year study reported in *Preventive Medicine*, Drs. Belloc and Breslow searched for a list of health habits that led to longer life. They came up with the following list:

1. No smoking
2. Moderate use or abstinence from alcohol
3. Regular physical exercise
4. Seven to eight hours' sleep per night
5. Maintenance of proper weight
6. Eating breakfast regularly
7. No eating between meals

Each of these factors individually affected length of life; when added together, their effect increased in direct proportion to the number of good health habits each individual had.<sup>29</sup> Note that three of the seven habits fall in the area of proper diet, although maintenance of proper weight includes physical activity as well. “The misuse of our physical powers shortens the period of time in which our lives can be used for the glory of God.”<sup>30</sup>

The principles that should guide us in diet and proper nutrition are outlined in *The Ministry of Healing*, in the chapter entitled, “Diet and Health.” Additional detailed information can be found in *Counsels on Diet and Foods*.

In order to know what are the best foods, we must study God's original plan for man's diet. . . . Grains, fruits, nuts and vegetables constitute the diet chosen for us by our Creator. These foods, prepared in as simple and natural a manner as possible, are the most healthful and nourishing.<sup>31</sup>

God has given us an ample variety of healthful foods, and each person should choose from it the things that experience and sound judgment prove to be best suited to his own necessities.<sup>32</sup>

If we plan wisely, that which is most conducive to health can be secured in almost every land. . . . rice, wheat, corn, and oats. . . . also beans, peas, and lentils. . . . native or imported fruits, and the variety of vegetables that grow in each locality.<sup>33</sup>

Far too much sugar is ordinarily used in foods.<sup>34</sup>

Grains and fruits prepared free from grease, and in as natural condition as possible, should be the food for the tables of all who claim to be preparing for translation to heaven.<sup>35</sup>

Do not eat largely of salt, avoid the use of pickles and spiced foods. . . . I use some salt, and always have, because from the light given me by God, this article, in the place of being deleterious, is actually essential for the blood. The whys and wherefores of this I do know not, but I give you the instruction as it is given me.<sup>36</sup>

It is interesting to compare these principles with those put out by the United States departments of Agriculture, and Health, Education, and Welfare in 1980:

- Eat a variety of foods.
- Maintain ideal weight.
- Avoid too much fat, saturated fat, and cholesterol.
- Eat foods with adequate starch and fiber.
- Avoid too much sugar.
- Avoid too much sodium.
- If you drink alcohol, do so in moderation.<sup>37</sup>

The government pamphlet goes on to point out that people need 40 different nutrients to stay healthy. No single food item supplies all the essential nutrients (not even milk, contrary to dairy council advertising!). Milk contains very little iron or Vitamin C. Human beings should, therefore, eat a *variety* of foods to ensure an adequate diet. To be sure of having a good diet, each day's meals should include fruits; vegetables; whole-grain and enriched breads, cereals, and grain products; dried peas, beans, or nuts.

Milk, milk products, and meat may be high in both fat and cholesterol. In the second section of this Continuing Education material, we will discuss, in greater detail, eating to reduce the risk factor for major diseases of the developed countries of the world today—heart disease, cancer, and diabetes.

In order to abide by the recommended guidelines set forth, first by the Canadian, then by the United States government, most people will need to:

- Increase their intake of fruits and vegetables by 10 percent
- Increase their intake of whole grains by 30 percent
- Decrease their intake of refined and processed sugars by 50 percent
- Decrease their consumption of fats and foods high in fat, especially animal fats, by 20 percent
- Use lowfat milk and other dairy products
- Decrease egg consumption by 25 percent
- Decrease use of butter and high-cholesterol foods
- Use less salt and fewer foods high in sodium

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### Proper Rest

Hard work, within reason, is good for the human body. However, the body can't be expected to run nonstop. "The sleep of a labouring man is sweet, whether he eat little or much" (Ecclesiastes 5:12). The diurnal cycle of sleep and wakefulness is one of the most mysterious and important of brain functions.<sup>38</sup> The cyclic period of about 24 hours is maintained whether the person remains in complete darkness or continuous light.

Sleep is a period of physiological unconsciousness from which a person, with proper stimuli, can be aroused. Kleitman and others have found that an average person who sleeps eight hours turns 40 times

during this period.<sup>39</sup> That's five times an hour, or once every twelve minutes! The first hour of sleep entails little movement, but as the night progresses the turning increases. During the last hour or two, the sleeper turns every two or three minutes. At this stage, sounds such as a train going by, a dog barking, or other noises can cause a sleeping person to turn. External noises can also trigger wakefulness.

One of the characteristics of a hypnotic or sleep-inducing chemical agent is that it reduces the number of turnings. Kleitman considered 40 turnings a night as average, 60 as disturbed sleep, and as few as 20 as drugged sleep. Body movement is very important physiologically, since skeletal muscles are pumps whose contractions force the venous blood back to the heart. Unless the sleeper turns, he or she will experience little muscle activity or stimulation of circulation. Sedation reduces movement and increases the danger of blood stagnation with resulting venous clotting.

Good sleep appears to be related to body temperature, noise, and light. Normally, animals sleep when their temperatures are lowest. Humans ordinarily sleep at night and are awake during the day. This is not just a habit or social custom. Our body temperatures are lowest between 2 and 3 a.m. and highest about 2 p.m. Humans were created to be awake when it is light and asleep when it is dark and quiet.

During sleep, as fatigue is relieved, body temperature drops gradually from evening to early morning, permitting sound sleep for a long period of time. Toward daylight, body temperature begins to rise as activity increases in the external environment. In modern society, the rumble of cars in the streets and other noises tend to shorten the night, affecting the quality of sleep even if the person is not immediately awakened. Thus the ideal plan would be to go to bed fairly early in the evening. If physical exercise has caused muscle fatigue, relaxation will readily produce deep sleep, which will rest the body as its temperature drops to lower levels. As morning dawns, increasing light and sound and a rising body temperature prepare the individual for another day.

How much sleep is enough? If a person relaxes completely in bed and closes his eyes, should he not get as much rest as when he is asleep? No; long periods of sleepless rest do not replace the subjective benefits of sleep. No one can stay awake indefinitely and still function normally. In 1964, Randy, a 17-year-old San Diego high school student, was the subject of an experiment. While under continuous close observation by investigators, he did not sleep more than a few seconds for 264 hours. He continued



to stay awake throughout the entire period without coffee or other stimulants. The experiment was terminated after 11 days because the young man was experiencing increasing neurological symptoms.<sup>40</sup>

Just how many hours of sleep each person needs daily to maintain top efficiency varies greatly.<sup>41</sup> However, anyone whose work is prolonged and tedious can expect his efficiency to be reduced by even one night, and certainly by two nights in which he gets a half-ration or less of sleep.

Late meals interfere with the quality of sleep, especially in children, causing restlessness. The average total movements of children during an eight-hour night were charted for three different types of suppers: hard to digest, regular, and a light meal of cereal and milk. After the heavy meal, the children moved 19 percent more than after the regular supper and 26 percent more than after the cereal and milk meal.<sup>42</sup>

“Many indulge in the pernicious habit of eating just before the sleeping hours. . . . The sleep of such is generally disturbed with unpleasant dreams, and in the morning they awake unrefreshed.”<sup>43</sup>

### **The Sabbath Rest**

God knew that man needed rest, and He provided for it on a weekly as well as daily basis. “By the seventh day God finished what he had been doing and stopped working. He blessed the seventh day and set it apart as a special day” (Genesis 2:2, 3, T.E.V.). The weekly renewal time of the Sabbath contributes to physical as well as spiritual well-being.

### **Abstemiousness**

Even though it's not the simplest of words, *abstemiousness* simply means eating and drinking in moderation. The fact that so many people, young and old, are overweight points up the need for moderation. Right from the beginning, man was expected to practice self-control in regard to his diet. God said, “You may eat of the fruit of any tree in the garden, except the tree that gives knowledge of what is good and what is bad. You must not eat the fruit of that tree” (Genesis 2:16, 17, T.E.V.). *Choice* was the key word here, and continues to be an important concept today in achieving a healthy diet and life-style.

Moderation is important with regard to use of sugar. Sweets, regardless of their origin, exercise a decaying effect upon the teeth. While some individuals have a higher natural resistance to dental decay than others, no one can indulge in a diet of refined carbohydrates without paying a price. Candies, carbonated beverages, chewing gum, cookies,

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cakes, ice cream, sherbet, and doughnuts affect the teeth in two ways: (1) they set up an environment in the mouth that encourages the growth of bacteria that decay the teeth; and (2) they act systemically, through the blood stream, to render the tooth more susceptible to decay.

Some feel that by substituting a natural sweet, they can eat as much as they like. However, any sweet can cause tooth decay, especially if it remains on the teeth. The advantage of “natural” sweets is their vitamin and mineral content, which means that they are not just “empty” calories. But their direct effect on the teeth is the same. However, the sweetening power of natural sugars (such as honey) is usually perceived as greater, so there may be a tendency to use less of them, thus lowering the total intake of sweets. Good advice is found in the writings of Solomon, “It is not good to eat much honey” (Proverbs 25:27; see also verse 16).

Many people feel that a meal is incomplete without some kind of sweet dessert at the end. This is probably a conditioned reaction—we have grown up expecting it. Children can be taught to end their meals with a piece of fruit, or a simple sweet made with as little sugar as possible—and then brush their teeth immediately.

Between-meal snacks, if used at all, should be limited to healthful foods, such as celery or carrot sticks, fruit wedges, or nuts. The current trend in nutrition is to accept the fact that since children will snack, we should help them pick healthful foods. Many parents, however, object to between-meal snacking based on the following counsel of the Lord's messenger: “Regularity in eating should be carefully

observed. Nothing should be eaten between meals, no confectionery, nuts, fruits, or food of any kind.”<sup>44</sup> Such parents should be supported in their convictions, and the school program should not encourage between-meal snacking.

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helps relieve the stress. And teaching is one of the most stressful professions! In the second section of this series, we will offer specific methods of stress management.

The knowledge that you are placed by God in the very work you are doing can help support you through difficulties that arise.

Many are dissatisfied with their life-work. It may be that their surroundings are uncongenial; their time is occupied with commonplace work, when they think themselves capable of higher responsibilities; often their efforts seem to them to be unappreciated or fruitless; their future is uncertain.

Let us remember that while the work we have to do may not be our choice, it is to be accepted as God’s choice for us. . . .

Our plans are not always God’s plans. He may see that it is best for us and for His cause to refuse our very best intentions, as He did in the case of David. But of one thing we may be assured, He will bless and use in the advancement of His cause those who sincerely devote themselves and all they have to His glory.<sup>46</sup>

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## Trust in God

God used to walk in the Garden of Eden in the cool of the evening when He came to visit with His friends Adam and Eve. Today we still need that companionship, that trust and confidence. Dr. Rosen, a Cleveland psychiatrist, points out that need:

Religion is inescapable, not optional. Those who have thrown out their religious heritage seem to have some religion coming in the back door. Communists end up worshipping the state; Freud ends of worshipping man and reason, which are frail reeds. Others worship pleasure, money, status, power. If Marx said that religion is the opiate of the people, we have lived to see opium become the religion of too many people.<sup>45</sup>

The relationship between the mind and the body is very close. Even our thoughts can affect the physical state of our bodies, as has been demonstrated by studies of biofeedback. By merely thinking about it, you can lower your blood pressure, slow your pulse rate, and increase the circulation of your fingertips. If that seems hard to believe, recall what happened to your appetite after you received upsetting news, or when you faced an especially difficult final examination. You really can “tie your stomach in knots!”

In just that way, the subjects on which your thoughts dwell can affect the state of your physical health. Trusting in God, whatever trials may come,

## Cleanliness Is Still Next to Godliness

No, there is no Bible text that says that. But cleanliness *is* important.

The necessity of personal cleanliness was taught in the most impressive manner. Before gathering at Mount Sinai to listen to the proclamation of the law by the voice of God, the people were required to wash both their persons and their clothing. This direction was enforced on pain of death. No impurity was to be tolerated in the presence of God.

During the sojourn in the wilderness, . . . [t]he strictest regard to cleanliness was required both within and without their tents. No refuse was allowed to remain without or about the encampment.<sup>47</sup>

This advice was not just for ancient Israelites. Today’s teachers are enjoined thus:

In the study of hygiene the earnest teacher will improve every opportunity to show the necessity of perfect cleanliness both in personal habits and in all one’s surroundings. The value of the daily bath in promoting health and in stimulating mental action, should be emphasized. . . . Teach the pupils that a healthful sleeping room, a thoroughly clean kitchen, and a tastefully arranged, wholesomely supplied table, will go further toward securing the happiness of the family and the regard of every sensible visitor than any amount of expensive furnishings in the drawing room.<sup>48</sup>

During the years I have visited and taught in Seventh-day Adventist classrooms—and indeed, in public

schools as well—the most frequently requested guest lecture has been on “hygiene.” When I ask teachers what they mean by that term, the answer usually comes down to one item: personal cleanliness.

Two components are necessary to accomplish good personal hygiene: (1) facilities for keeping one’s body and clothing clean; and (2) the willingness to do so. Often the desire is present, but the facilities are not, and we blame students for things that are beyond their control. Not every home has the facilities or the water supply for a daily bath, and in some areas it is impossible for children to wear freshly washed clothes every day.

In addition, school facilities often do not encourage cleanliness. Proper handwashing is a prime facet of cleanliness and prevention of the spread of disease. But many schools do not have good facilities, or at least maintain them in good condition and readily available, for student handwashing. Students are unlikely to show much enthusiasm about handwashing if soap and towels are not provided. Primary grade classrooms should have handwashing facilities in close proximity to the classroom, where teacher supervision can be maintained. Handwashing technique should be taught in those grades, with time allowed in the schedule for handwashing.

Cleanliness of clothes and body is also important, but teachers can only do so much about home conditions. However, they can explore what alternatives are available, and encourage children to bathe and wear clean clothes.

### **Preventing the Spread of Germs**

Another important area of cleanliness is covering the nose and mouth when sneezing. Droplets from a sneeze are expelled forcefully, spraying over an area of at least eight feet. In the average classroom, that can cover several students! But rare is the student who brings a handkerchief to class; it falls the teacher’s lot to provide tissues for runny noses. And teachers often have to show students how to use tissues, as well as how to dispose of them properly. In areas of the world where disposable paper tissues are not available, rags can be washed and reused.

Using one’s sleeves or hands is a good way of transferring germs! In this connection, teachers can bring up the following bit of information: Men’s suit coats have buttons on their sleeves because years ago these buttons were intended to keep soldiers from using the sleeves of their coats for handkerchiefs.

One other cleanliness-related problem teachers face increasingly is that of head lice. Ordinary washing of the hair will not get rid of them, and head lice

do not confine themselves to “dirty” people. Anyone can get head lice, including the teacher. Parents are often horrified when told that their child has head lice (the child may have come home from summer camp with them, from school or from staying overnight at a friend’s home).



**Fig. 3. Head louse (enlarged to show detail)  
Actual size: .13 in. long (0.3 cm)**

Teachers should do two things for such parents: soothe their upset feelings and teach proper treatment. This consists of using a very fine-toothed comb to remove all nits (eggs); using a medicated shampoo (available over-the-counter at pharmacies), and using a similar chemical to wash all bedding and clothing at home. Special sprays are now available for furniture, rugs, and unwashable bedding—and should be used on every area where lice can hide in the home. For persistent infestations, parents may have to obtain medicated prescription shampoos.

In the classroom, teachers should check students to see if some continue to harbor head lice. School and community health nurses can help teachers identify head lice, and institute control measures in the classroom, as well as provide information pamphlets for parents.

### **Blessings Today**

Seventh-day Adventists have been blessed with better health and longer life by following the health messages God, in His love, has given them. Even in the limited way we have followed that counsel (for example, more than 50 percent fail to follow the forthright counsel regarding the rewards of following a vegetarian diet), studies show that the Adventist life-style has lengthened the life spans of those who adhere to it by more years than have been achieved for the general population by all the advances of

public health in this century.

Consider the following studies:

- A study made among California Seventh-day Adventist church members during 1958-1965 showed that risk of death from many diseases was lower for this group than for persons of corresponding age and sex in the California population. Comparison between the death rates in Adventist and all California residents for selected causes of death are shown in Figure 4.<sup>49</sup>

- Another study revealed that among California Adventists death rates were 65-70 percent of expected for men, 75-80 percent of expected for women.<sup>50</sup>

- Australian Adventist vegetarians have significantly lower blood pressures than the nonvegetarian general population.<sup>51</sup>

- In a study of dental diseases in Seventh-day Adventist families during 1957-1959, SDA children of all ages had fewer dental cavities than normally would be expected. The children examined were at eight Adventist camps located in different parts of the United States. However, the findings did not show the usual geographic differences brought out in previous studies. The children's occurrence of decayed, missing, or filled (DMF) teeth was uniformly low.<sup>52</sup> Downs, Dunn, and Ritchie reported that Adventist children both in Grand Junction and Denver, Colorado, had fewer dental cavities than other children residing in these cities.<sup>53</sup>

- Adventists baptized into the church as children are at lower risk of death due to heart disease than Adventists baptized as adults. In one study the risk

of death was 71 percent of the risk of Adventists baptized as adults. The effect of age at baptism was similar in males and females and in subgroups who never smoked or formerly smoked cigarettes. Compared with vegetarians, nonvegetarian subjects were less likely to have made substantive changes in their life-styles at the time of baptism. Thus the weaker "protective" effect of early age at baptism among nonvegetarians is quite consistent with the hypothesis that a substantive change, early in life, toward the type of life-style advocated by Adventists provides some protection against subsequent ischemic heart disease.<sup>54</sup>

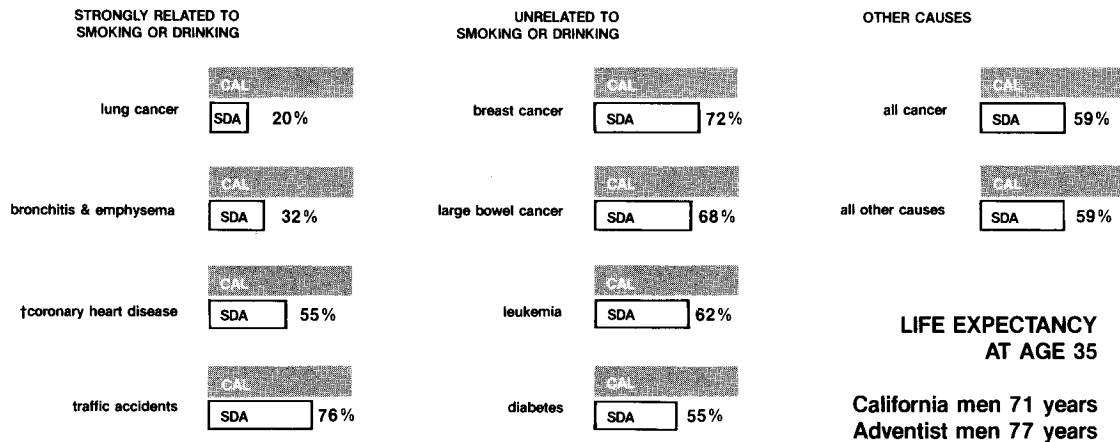
- A study of 3,159 children in Adventist schools and 4,681 youngsters from non-SDA schools in southern California failed to show significant difference in mean blood pressure levels between the two groups of children at all ages, despite marked differences in life-style between the two groups, and the fact that adults from the two population groups had marked differences in mortality from diseases associated with elevated blood pressure. A comparison between boys and girls showed significantly higher trends in mean systolic blood pressure for boys after age 12. Interethnic comparisons of blood pressure revealed that black children of both sexes had slightly higher mean blood pressure levels at all ages.<sup>55</sup>

- Blood pressure levels in children related to psychosocial factors suggest there are small but significant and important associations between blood pressure and an adolescent life-style that emphasizes control, ambitiousness, competitiveness, order and

### What is known ABOUT THE HEALTH OF ADVENTISTS?

A study made among California Seventh-day Adventist church members during 1958-1965 showed that risk of death from many diseases is lower for this group than for persons of corresponding age and sex in the California population. § Adventists are known

to abstain from smoking and from drinking alcoholic beverages. Comparison between the death rates in Adventists and all California residents for selected causes of death are as follows:\*



§California death rates are standardized to 100 percent. ... \*The figures for men and women age 35 and over during 1958-1965, except for traffic accidents (age 15 and over). ... [Low Adventist rates are not entirely explained by nonsmoking. CAL = California / SDA = Seventh-day Adventists

Fig. 4

California men 71 years  
Adventist men 77 years  
California women 77 years  
Adventist women 80 years

organization, religious orientation, and strong pressures to achieve. Seventh-day Adventist children, in contrast with public school children, perceive a stronger emphasis on religious orientation and family control.<sup>56</sup>

- Deaths from cancers of the large bowel, breast, and prostate were studied over a 21-year period among 21,195 white California Adventists. Compared to non-Adventists, the age-sex adjusted mortality for large bowel cancer was substantially reduced among Adventists, who also showed a minimum reduction in mortality for breast and prostate cancer. Fatal large-bowel cancer within the Adventist group was unrelated to meat use. However, coffee use showed a substantial positive association with fatal bowel cancer. Although this association may be indirect or spurious, it deserves further investigation. Weak nonsignificant associations were observed between cancers of the breast and prostate and meat use.<sup>57</sup>

The special messages on health given to Seventh-day Adventists are contained in the volumes by Ellen White, namely *Counsels on Health*, *Counsels on Diet and Foods*, *Ministry of Healing*, *Temperance*, and

*Medical Ministry*. Additional information is also given in *Education*, with specific instruction as to what health instruction should be given in schools. Many have questioned the scientific reliability of this counsel and have, in effect, said, "I'll wait until science corroborates it." Science has been doing exactly that for the past 100 years, and undoubtedly will continue to do so in the future. But if we wait for scientific evidence before we follow the instruction, we could be dead by then! The distinct advantages of the "Adventist life-style" can best be obtained by lifelong adherence, started in childhood. Are you sharing this message with your students? □

(Part II, dealing with risk reduction strategies, stress management techniques, and consumer health, will appear in the Summer, 1984, issue of the JOURNAL.)

#### FOOTNOTES

<sup>1</sup> Ellen G. White, *Counsels on Diet and Foods* (Washington, D.C.: Review and Herald Publishing Assn., 1938), p. 310. See also Genesis 1:29.

<sup>2</sup> \_\_\_\_\_, *Counsels on Health* (Mountain View, Calif.: Pacific Press Publishing Assn., 1951), p. 34.

<sup>3</sup> \_\_\_\_\_, *The Ministry of Healing* (Mountain View, Calif.: Pacific Press Publishing Assn., 1909), p. 143.

<sup>4</sup> *Counsels on Diet and Foods*, p. 451.

<sup>5</sup> Bible quotes in this article credited to N.I.V. are quoted from the *Holy Bible: New International Version*. Copyright © 1978 by the New York Inter-

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<sup>6</sup> *Seventh-day Adventist Bible Commentary* (Washington, D.C.: Review and Herald Publishing Assn., 1953), vol. 1, p. 763.

<sup>7</sup> 1 Corinthians 9:7, 8, T.E.V. All Bible texts credited to T.E.V. in this article are from the *Good News Bible—Old Testament*: Copyright © American Bible Society 1966; New Testament: Copyright © American Bible Society 1966, 1971, 1976. Reprinted by permission.

<sup>8</sup> Henry E. Sigerist, *A History of Medicine* (New York: Oxford University Press, 1951), vol. 1, p. 334.

<sup>9</sup> R. L. Moodie, *Paleopathology: An Introduction to the Study of Ancient Evidences of Disease* (Urbana, Illinois: University of Illinois Press, 1923), pp. 387-451. Jurgen Thorwald, *Science and Secrets of Early Medicine* (New York: Harcourt, Brace and World, 1962), pp. 29-46.

<sup>10</sup> James E. Harris and K. R. Weeks, *X-raying the Pharaohs* (New York: Charles Scribner's Sons, 1973), pp. 21-175.

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<sup>12</sup> Siegfried H. Horn, "Tattoo," *SDA Bible Commentary* (Washington, D.C.: Review and Herald Publishing Assn., 1960), p. 1067.

<sup>13</sup> *The Ministry of Healing*, p. 127.

<sup>14</sup> L. Greenberg, F. Field, C. L. Erhardt, M. Glasset, and J. L. Reed, "Air Pollution, Influenza, and Mortality in New York City," *Archives Environmental Health*, 15:430 (1967).

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<sup>16</sup> J. R. T. Colley, "Respiratory Symptoms in Children and Parental Smoking and Phlegm Production," *British Medical Journal*, 2:201-204 (April 17, 1974).

<sup>17</sup> 1982 ASHA Resolutions, *Journal of School Health* (March, 1983), p. 177.

<sup>18</sup> Ellen G. White, *Education* (Mountain View, Calif.: Pacific Press Publishing Assn., 1903), pp. 198, 199.

<sup>19</sup> The Bible verses in this article marked T.L.B. are taken from *The Living Bible, Paraphrased* (Wheaton, Tyndale House Publishers, 1971) and are used by permission.

<sup>20</sup> Mervyn G. Hardinge, *A Philosophy of Health*. Syllabus, Loma Linda University School of Health, 1978.

<sup>21</sup> A. H. Brown, "Dehydration Exhaustion," *Physiology of the Desert*. Edited by E. F. Adolph and Associates (New York: Interscience Publishers, 1947). Chapter 13.

<sup>22</sup> J. Hunt, *The Conquest of Everest* (New York: E. P. Dutton, 1954), pp. 255, 275.

<sup>23</sup> E. F. Adolph and D. B. Dill, "Observation of Water Metabolism in the Desert," *American Journal of Physiology* (1938), pp. 123, 369.

<sup>24</sup> G. C. Pitts, R. E. Johnson, and F. C. Consolazio, "Work in the Heat As Affected by Intake of Water, Salt, and Glucose," *American Journal of Physiology*, 142:253 (1944).

<sup>25</sup> Hardinge, *Philosophy of Health*.

<sup>26</sup> *The Ministry of Healing*, pp. 237, 238.

<sup>27</sup> *Ibid.*, p. 240.

<sup>28</sup> Walter M. Bortz, "Disuse and Aging," *Journal of the American Medical Association*, 248:10 (September 10, 1982), p. 1203.

<sup>29</sup> N. B. Belloc and L. Breslow, "Relationship of Physical Health Status and Health Practice," *Preventive Medicine*, 1: 409-421 (1972).

<sup>30</sup> *Counsels on Diet and Foods*, p. 49.

<sup>31</sup> *The Ministry of Healing*, pp. 295, 296.

<sup>32</sup> *Ibid.*, p. 297.

<sup>33</sup> *Ibid.*, p. 299.

<sup>34</sup> *Ibid.*, p. 302.

<sup>35</sup> *Counsels on Diet and Foods*, p. 355.

<sup>36</sup> *Ibid.*, p. 344.

<sup>37</sup> Home and Garden Bulletin No. 232 (Washington, D.C.: Government Printing Office).

<sup>38</sup> Arthur C. Guyton, *Function of the Human Body* (Philadelphia, Penn.: W. B. Saunders Company, 1974), pp. 345-349.

<sup>39</sup> Nathaniel Kleitman, *Sleep and Wakefulness* (Chicago: University of Chicago Press, 1963), p. 82.

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<sup>47</sup> *Ibid.*, p. 279.

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<sup>49</sup> Adventist Health Study.

<sup>50</sup> F. R. Lemon and R. T. Walden, "Death From Respiratory System Disease Among Seventh-day Adventists," *Journal of the American Medical Association*, 198:117-126 (1966).

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