



## CONTINUING EDUCATION

# Light for Living

## Part I

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

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**HOW IT WORKS:** After you have studied the content presented here, send for the test, using the form on page 46. Upon successful completion of the test, you will receive a report on the Continuing Education Units you've earned, and the certification registrar of your union conference office of education will be notified. The credit can be applied toward denominational recertification (North American Division only).

## OBJECTIVES

When you have completed your study of this section, 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 health message.
3. Describe two areas in which scientific support 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," and show how each may be both preventive and therapeutic.

### 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 worldwide chain of hospitals and clinics, but also on health promotion and disease prevention. Why?

A public university professor once asked one of the au-

thors of this article, "What's so different about Adventist health from 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." While he disagreed with my belief, he readily saw that all current science or health textbooks were based on the theory of evolution. Although often subtle, this philosophy permeates these books, and is difficult to weed out when teaching from secular textbooks.

Belief in God as the Creator underlies all of our education about health. If, for example, we are counseled to return as nearly as possible to God's original diet for humankind of fruits, grains, nuts, and vegetables,<sup>1</sup> this would be meaningless if one did not believe in a Creator-God who instituted a good nutritional program in the Garden of Eden. Lacking

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such a foundation, we would be left to drift with the whim of every nutritional fad. Although Adam and Eve benefited from their access to the tree of life while they were in the Garden of Eden, a privilege we will not share until we reach heaven, we can still choose the most healthful foods from what is available to us now. A safe guide for health and diet can be found in both the Bible and the writings of Ellen White.



Our message of health and healing is also revealed and 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 and model this message: "The world needs today what it needed nineteen hundred years ago—a revelation of Christ."<sup>3</sup>

The Seventh-day Adventist health message also helps us prepare for the second coming of Christ. Ellen 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 may be 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, lengthen our lives, and enhance our ability to serve.

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

After bringing them out of Egypt, God promised the Israelites: "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, NIV).<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 generic term includes a number of skin disorders such as psoriasis and vitiligo, as well as true leprosy),<sup>6</sup> and sexually trans-



mitted diseases.<sup>7</sup> Evidence of many ancient diseases have been discovered through the science of paleopathology, the study of disease in ancient fossils. Paleopathologists have autopsied 36,000 mummies.<sup>8</sup> From these autopsies and

more recently, X-rays of mummies,<sup>9</sup> they have discovered that ancient Egyptians suffered the same diseases as people 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 revealed by the mummies of kings Thutmoses II, Ramses III, and Amenhotep III.

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 bad luck, David reminds us, "Some were sick through their sinful ways, and because of their iniquities endured affliction" (Psalm 107:17, NRSV).<sup>10</sup>

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, KJV). All that was required was obedience. "My child, be attentive to my words; incline your ear to my sayings. Do not let them escape from your sight; keep them within your heart. For they are life to those who find them, and healing to all their flesh" (Proverbs 4:20-22, NRSV).

### Prohibition Against Consuming Blood

An important aspect of God's dietary plan for the Israelites was the prohibition against consuming animal fat and blood. "It shall be a perpetual statute throughout your generations, in all your settlements, that you must not eat any fat or any blood" (Leviticus 3:17, NRSV). The prohibition, of course, had religious connotations; blood represented 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 indicates that both human and animal blood contain waste products: 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, since both carry 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. “Speak to the people of Israel saying, ‘You shall eat no fat of ox or sheep or goat. The fat of an animal that died or was torn by wild animals may be put to any use, but you must not eat it’” (Leviticus 7:23, 24, NRSV). Dr. Gary Fraser, an epidemiologist at Loma Linda University in California, points out that it is clear that the nutrients found in animal products do not produce protection against coronary heart disease as well as those found in fruits, nuts, and vegetables. Meats generally contain a much higher percentage of saturated fats and cholesterol, no dietary fiber, and relatively small quantities of antioxidant vitamins.<sup>11</sup>

### Tattooing and Sanitation

As a precaution against infection, tattooing was forbidden to the Hebrews. “‘You shall not make any gashes in your flesh for the dead or tattoo any marks upon you’” (Leviticus 19:28, NRSV). The ancient Librans and earliest Egyptians practiced tattooing,<sup>12</sup> which can transmit hepatitis, tetanus, AIDS, and other infectious diseases. Even though this counsel may have been given for religious reasons, it also had health benefits.

Environmental health measures, such as safe water and sanitary 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, 13, NIV).

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

### Benefits Today

What is God’s message of health for today? What has it done—and can it do—for Seventh-day Adventists who 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 reminding us of God’s original gifts and counsel found in the Bible:

1. Fresh air (Genesis 2:7);
2. Sunlight (1:16);
3. Pure water (2:10);
4. Exercise (2:15);
5. Proper diet (1:29);
6. Periodic rest (1:5; 2:2);
7. Abstemiousness (2:16, 17; 1 Corinthians 10:31); and
8. Trust in and thankfulness to our Creator (Genesis 3:8; Psalm 9:1, 2; Proverbs 3:5, 6).

### Fresh Air

On the second day of Creation, God formed the Earth’s atmosphere. Then, on the sixth day, He created Adam. God breathed “life-giving breath into his nostrils and the man began to live” (Genesis 2:7, TEV).<sup>14</sup>

Air is vital to living creatures. Each human cell takes in oxygen, uses it to burn food for energy, and excretes carbon dioxide as waste. Without sufficient oxygen in the blood, muscles cannot contract, brain cells die, and the heart stops pumping. Respiration and blood circulation are the two vital

activities of life. When these cease, life ends. Modern medicine has invented life-support machines that replicate the function of breathing, and keep the heart pumping for awhile, but they cannot *restore* life.

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 barely visible to the naked eye. These fine divisions end in grapelike clusters of air sacs (alveoli) numbering about 300 million. By far, the greatest part of the lungs is made up of these tiny air chambers, which are so light that they float on water. The alveoli, though only 250µm in diameter, cover a vast area, between 50 to 100 m<sup>2</sup> of surface area available for gas exchange by diffusion.<sup>15</sup>

Respiration consists of breathing air in and out. While at rest, an adult breathes some 16 times a minute (children 20 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 thick.



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, 0.93 percent argon, and traces of carbon dioxide, helium, and other rare gases. Water, in the form of vapor, is present in differing amounts, 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 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 created by alterations in temperature, wind velocity, terrain, and humidity. These gases react together under the influence of heat, weather conditions, and ultraviolet radiation to produce smog. Research shows that periods of severe pollution result in increased respiratory infections and deaths in the exposed population.<sup>16</sup>

Indoors, the most common pollutant is cigarette smoke, which damages the lungs of nonsmokers as well as smokers.



“Tobacco is a slow, insidious, but most malignant poison,”<sup>17</sup> Mrs. White wrote in 1905, long before the scientific evidence had accumulated regarding the relationship between cigarette smoking and diseases such as lung cancer, heart disease, and emphysema. Children reared in homes where one or both parents smoke have more

respiratory infections.<sup>18</sup> Sidestream smoke can be more dangerous to the health of non-smokers than the smoke inhaled by the smoker. Legislative action in different countries, as well as most states in the United States and provinces in Canada, has prohibited smoking in buildings open to the public. Enforcement of such legislation, however, remains a problem, but one that can be addressed through community advocacy.

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 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 circulation. A baffle should be installed to prevent the air from blowing 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>19</sup>

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

### Sunlight

People get their energy from plants, but that energy was first captured from the sun. Sunlight has many benefits. For example, solar water disinfection (SODIS) is a simple, low-cost technology designed to improve the microbiological quality of drinking water through solar radiation and thermal treatment.<sup>20</sup> Contaminated water is poured into transparent polyethylene terephthalate (PET) bottles and exposed to full sunlight for six hours (or for two consecutive days if the sky is more than 50 percent cloudy). Sunlight deactivates and destroys pathogenic micro-organisms that cause waterborne diseases. This occurs through two synergetic mechanisms, namely, radiation in the UV-A spectrum and increased water temperature.

Sunlight is essential for good health and aids in recovery from disease. The human body synthesizes Vitamin D, an essential nutrient, from exposure to sunlight. It can be overdone, however, especially in light-skinned people. Protection from excessive exposure to the sun’s rays can prevent future problems with skin cancer. In Australia, a country of sun-and-beach lovers, they have coined a slogan to remind citizens to protect against excess sun exposure: SLIP, SLAP, SLOP, or “Slip on a Shirt, Slap on a Hat, Slop on Sunscreen.”<sup>21</sup>

### Pure Water

“From Eden a river flowed out to water the garden” (Genesis 2:10, CEV). Springs, rivers, and lakes 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>22</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 depend-



## Special Health Section

ing on the amount of fat it contains, the gray matter of the brain is 85% water.

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“Every function of life is carried out in a water medium. You could not even blink your eyelids 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 breathes 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 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, livers, and pancreas secrete 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>23</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>24</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 Hillary’s 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>25</sup> When a dog or 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>26</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>27</sup>

A safe supply of water is essential to remaining healthy. Water-borne diseases, such as cholera and typhoid, are re-surg-ing in various countries. It takes continual effort by

public-health authorities to monitor and maintain safe water supplies. The Adventist Development and Relief Agency (ADRA) has been active in many parts of the world in providing wells and other safe supplies of water for villagers.

Most people are aware of the need for washing the outside of their bodies frequently, but many fail to pour enough water *inside* themselves to also cleanse their insides. It should be just as automatic as washing your 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.

Hand washing is one of the best means of preventing the spread of germs from one individual to another. Every classroom should have facilities for hand washing, and teachers should insist that children use them often during the day. Classrooms are perfect environments for spreading germs, and as most teachers know by experience, the teacher is a frequent victim. Hand washing is the first and most important preventive measure. Classroom surfaces (doorknobs, computer keyboards and mice, desks, etc.) should regularly be cleaned and sanitized with an antibacterial agent.

### Exercise

The way many people avoid exercise, you would 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, NRSV). “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 depends . . . Inactivity is a fruitful cause of disease. Exercise quickens and equalizes the circulation of the blood.”<sup>28</sup>

At rest, the heart circulates about five liters of blood per minute in both the athletically trained and the untrained person. The average human heart beats about 70 times per minute, pumping about two to three ounces with each beat.<sup>29</sup> However, when a highly trained person’s heart beats 50 times per minute, it 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 Exercise

“Walking is preferable to riding or driving for it brings more of the muscles into exercise.”<sup>30</sup> Aerobic fitness enhances the ability of the lungs,

heart, and blood vessels to take in oxygen, transport it to the muscle cells, process it, 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-start type), and intense enough to get the heart rate up to a target. Jogging, running, cycling, swimming, cross-country skiing, and brisk walking—all are aerobic activities. To be effective for weight control, at least 20 minutes of strenuous activity is needed twice a day. (*Watching* children play during recess or physical education period does not count as 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>31</sup> Physical education should be a regular part of each child’s school program from kindergarten through high school. Athletic programs do not suffice, since often the children who need activity the most are the ones who fail to participate in it. The statement “the good get better and the poor drop out” is too often true of athletic programs.

### Proper Diet

In a 20-year study reported in *Preventive Medicine*, Drs. Belloc and Breslow identified 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; and
7. No eating between meals.

Each of these factors individually affected length of life; when combined, their effect increased in direct proportion to the number of good health habits practiced by each individual.<sup>32</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. And it unfits us to accomplish the work God has given us to do."<sup>33</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>34</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>35</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>36</sup>

"Far too much sugar is ordinarily used in foods."<sup>37</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>38</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 not know, but I give you the instruction as it is given me."<sup>39</sup>

It is interesting to compare these principles with those pub-

lished by the United States departments of Agriculture, and Health and Human Services 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>40</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 advertising!). Milk contains very little iron or Vitamin C. Human beings therefore need to eat a *variety* of foods every day to ensure an adequate diet: fruits, vegeta-

bles; whole-grain and enriched breads, cereals, and grain products; dried peas, beans, or nuts.

In order to meet these guidelines, most people should:

- 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, es-

pecially animal fats, by 20 percent;

- Use low-fat milk and other low-fat 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, e.g. canned soups and chips;
- Take nutritional supplements like vitamins and calcium, as needed.

Part II of this series includes more information on the components of a healthful diet.

## Proper Rest

Hard work, within reason, is good for the human body. The body, however, can't be expected to run nonstop. "The sleep of a labouring man is sweet, whether he eat little or much" (Ecclesiastes 5:12, KJV). The diurnal cycle of sleep and wakefulness is one of the most mysterious and important of brain functions.<sup>41</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 human beings, with proper stimuli, can be aroused.



Kleitman and others have found that an average person who sleeps eight hours changes position 40 times during this period.<sup>42</sup> That's five times an hour, or once every 12 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 changes position 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 cause wakefulness.

Body movement during sleep is very important physiologically, since skeletal muscles are pumps whose contractions force the venous blood back to the heart. Unless the sleeper changes position, 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.

Deep, refreshing 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 2:00 and 3:00 a.m. and highest about 2:00 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, the 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 affect the quality of sleep even if the person does not immediately awaken. The ideal plan would be to retire 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.

Just how many hours of sleep each person needs daily to maintain top efficiency varies greatly, depending on age, health, and activity. People whose work, however, is prolonged and tedious can expect their efficiency to be reduced by even one night, and certainly by two nights, in which they get a half-ration or less of sleep. Many children get far less sleep than the 8¼ to 10 hours recommended (depending on age), which has serious implications for their school work and health.<sup>43</sup>

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>44</sup>

“Many indulge in the pernicious habit of eating just before sleeping hours. . . . The sleep of such is generally disturbed with unpleasant dreams, and in the morning they awake unrefreshed.”<sup>45</sup>

### The Sabbath Rest

God knew that human beings need 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, TEV). 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 to the need for moderation. Right from the beginning, humans were expected to practice self-control in regard to their 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, TEV). *Choice* was the key word here, and continues to be an important concept today in achieving a healthy diet and lifestyle.

Moderation is especially important with regard to the use of sugar. Sweets, regardless of their origin, cause tooth decay. While some individuals have a higher natural resistance to cavities than others (enhanced by the use of fluoridated water, toothpaste, or rinses), no one can indulge in a diet of refined carbohydrates without paying a price. Candies, carbonated beverages, chewing gum, cookies, cakes, ice cream, sherbet, and doughnuts affect the teeth in two ways: (1) they create an environment in the mouth that encourages the growth of tooth-decaying bacteria; 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 for refined sugar, they can eat as much as they like. Any kind of sugar, however, can cause tooth decay, especially if it remains on the teeth. The advantage of “natural” sweets is their vitamin and mineral content, preventing them from being “empty” calories. But their direct effect on the teeth and their contribution





to obesity and Type II diabetes are the same. The sweetening power of natural sugars such as honey, however, 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, KJV, see also verse 16).

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 children will snack, and adults should therefore 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>46</sup> Such parents should be supported in their convictions, and the school program should not encourage between-meal snacking.

There is one area in which moderation does not apply, however, and that is in the use of alcoholic beverages. There, the word *abstinence*, or not drinking it in any amount, applies. The experience of Daniel and his three friends in Babylon illustrates the avoidance of both the king’s wine and his flesh-meats.

“As Daniel and his fellows were brought to the test, they placed themselves fully on the side of righteousness and truth. They did not move capriciously, but intelligently. They decided that as flesh-meat had not composed their diet in the past, it should not come into their diet in the future, and as wine had been prohibited to all who should engage in the service of God, they determined that they would not partake of it.”<sup>47</sup>

Epidemiological studies indicate that the use of wine can lower the risk of heart attacks.<sup>48</sup> However, public health professionals, recognizing the many risks of consuming alcohol, such as damage to the liver, brain, and other organs; harm to unborn fetuses; impaired motor skills; and alcoholism, are hesitant to recommend it.

Apparently, the same benefits to the heart could be obtained by the use of unfermented grape juice, but such a recommendation may not appeal to those who drink wine! It would be better for both youth and their teachers to follow the example of Daniel and his friends and make the intelligent choice.

## Trust in God

God used to walk in the Garden of Eden in the cool of the evening to visit with His friends Adam and Eve. Today, we still need that companionship, that trust and confidence. Dr. Rosen, a Cleveland psychiatrist, says this about 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 up 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>49</sup>

The relationship between the mind and body is very close. Our thoughts can affect the physical state of our bodies, as has been demonstrated by studies in biofeedback. By merely

thinking about it, you can lower your blood pressure, slow your pulse rate, and increase the blood flow to 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. Trust-

ing in God, whatever trials may come, helps relieve the stress. And teaching is one of the most stressful professions! In Part II of this series, we suggest ways to deal with stress.

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>50</sup>



### Risk Reduction Programs

*Risk reduction* is the term used when experts analyze information from scientific studies, weigh the evidence, and select those which can be modified by reducing risk factors or modifying behavior. Educational programs concentrate on teaching people to change their diet, or behaviors such as stopping (or not starting) smoking or exercise more. Medical interventions concentrate on medications, such as those that lower cholesterol or treat depression.

Both epidemiological studies, which examine large groups of people, and laboratory studies, which study the effects of modified environments or drugs on animal subjects, yield information that may prove helpful in identifying the risks of developing specific diseases. For example, ways to prevent coronary heart disease include lowering cholesterol (through diet or medication), stopping smoking (through educational programs and/or prescribing medications), losing weight and maintaining proper weight (through regular exercise and eating fewer calories), and preventing or controlling diabetes. Reducing the risk of stroke includes lowering and maintaining a normal blood pressure (through diet and/or medication), drinking sufficient water daily, losing and maintaining a lower weight (through exercise and diet).

### Advantages of the Adventist Lifestyle

For the past 50 years, epidemiological studies have demonstrated the value of following the Adventist lifestyle, which is described in both the Bible and the Spirit of Prophecy. Studies in several countries (Australia, Norway, and the United States) by Adventist scientists have confirmed the benefits of following that counsel. Dr. Gary Fraser, an epidemiologist at Loma Linda University, compiled a wealth of these studies in his book, *Diet, Life Expectancy, and Chronic Disease: Studies of Seventh-day Adventists and Other Vegetarians*.<sup>51</sup> For example, studies reveal that California Adventists experience lower rates of coronary disease than other Californians; the effect is much stronger in younger persons and in vegetarians.<sup>52</sup> Fraser reports that “the Norwegian data suggest that for both sexes, a younger age when joining the Adventist church, or equivalently a longer exposure to the Adventist lifestyle, is more strongly associated with lower cardiovascular mortality.”<sup>53</sup>

Drinking water may prevent fatal heart attacks.<sup>54</sup> Chan’s research, included in the Adventist Health Study, showed that drinking five or more glasses of water daily had a protective effect, but drinking a greater amount of fluids other than water was associated with greater risk, at least in women.<sup>55</sup>

Cancer is basically a disorder of the control mechanisms for cell reproduction. Flaws in a cell’s DNA can allow it to multiply wildly. DNA can be damaged in varied ways: heredity plays a small part, while other causes of damage are ra-



diation, exposure to chemicals (as in tobacco smoke), and viruses.<sup>56</sup> In a comparison of cancer rates in specific body sites for the years 1976-1982 in California, Adventists had significantly lower rates of new cancers at many, but not all, sites. Their rate of invasive colon cancer was lower by 33 percent, stomach cancer by 59 percent, invasive bladder cancer by 61 percent, kidney cancer by 60 percent, lung cancer by 80 percent, and pancreatic cancer by 34 percent. For women, invasive breast cancer was lower by 23 percent, ovarian cancer by 30 percent, and cervical cancer by 54 percent. For all smoking-related cancers, there was a 69 percent rate reduction for Adventists.<sup>57</sup>

Several studies, including those done at Loma Linda University, demonstrate the protective effect of frequent nut consumption.<sup>58</sup> This was first shown by Dr. Fraser’s team in an analysis of the Adventist Health Study.<sup>59</sup> Dr. Joan Sabate’s studies at Loma Linda University found a risk of coronary heart disease was 37 percent lower for those consuming nuts more than four times per week, with an average reduction of 8.3 percent for each weekly serving of nuts.<sup>60</sup> His extensive studies on nuts led to the students calling him “the nutty professor!” Nuts and seeds make a substantial contribution to a plant-based diet; they are important sources of protein, B vitamins such as niacin, vitamin E, magnesium, and iron, as well as a source of unrefined healthy unsaturated fat.<sup>61</sup> The epidemiological studies indicated that the consumption of 1





# Special Health Section

to 1.5 ounces of nuts daily accounted for a 40 percent to 50 percent reduction in coronary heart disease risk.<sup>62</sup>

Thus, in many areas, we see that scientific studies confirm the light the Lord saw fit to give in the Bible and the Spirit of Prophecy. It was indeed “Light for Living.”

This article has been reviewed and approved by the Health Ministries Department of the General Conference of Seventh-day Adventists.

This revised article updates and replaces the one published in the April/May 1984 issue of *The Journal of Adventist Education*. After both parts are published, the “Light for Living” study material will be available online at <http://jae.adventist.org>.



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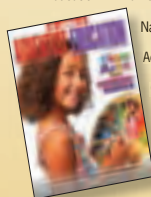


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