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Director

4-H HEALTH PROJECT I

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COOPERATIVE EXTENSION SERVICE IN AGRICULTURE AND HOME
ECONOMICS OF THE STATE OF IDAHO UNIVERSITY OF IDAHO
EXTENSION DIVISION AND UNITED STATES DEPARTMENT
OF AGRICULTURE COOPERATING

BOYS' AND GIRLS' CLUBS



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Lesson I

Part I—How Cleanliness Helps Us to Make Our Best Better

Do You Know:

Why water alone will not cleanse the skin?

That your skin must breathe too?

That taking a bath does more for you than just making you look clean?

How to wash your hair?

Why we brush our hair?

That dirty hands and fingernails tell tales on you?

What perspiration is?

That clean under clothes help your skin to breathe?

How important sleep and play are to a healthy skin?

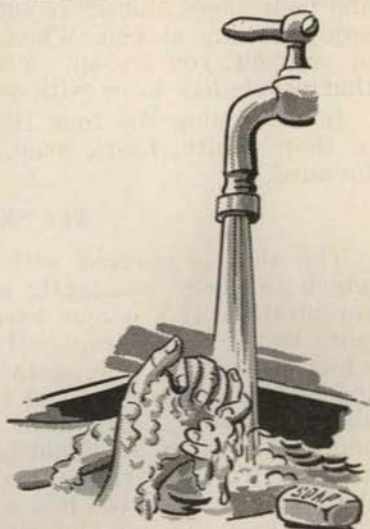


Figure 1.—How does cleanliness help?



Figure 2.—Why do we perspire.

That many people are unsuccessful in business because they are not neat and clean?

That cleanliness affects fun and fitness?

Health "H"

4-H Club members have pledged their health to better living; the health "H" is part of every club project. As a member you will always be trying to live up to your pledge of "making your best better." This is a way of saying that a person is meeting the world with the best of himself instead of the half best or the worst.

A Package With A Wrapper

What package do you open first at your birthday party—the plain ones or the ones of unusual shape, wrapped with interesting paper? If you had your choice which would you choose; a big red, shiny apple or the small yellow one which is dull and not polished? Did you ever think of yourself as a package all wrapped up? Everything that shows on the outside is your wrapper. If you have a

healthy body, you can keep it strong and straight. You can have a nice clean skin with good color, shiny, clean, well-brushed hair and clean fingernails. You will want your clothes clean and tidy and your shoes shined. If your wrapper looks like this, people will enjoy looking at you. When you have good health and feel sure of yourself, you are apt to be cheerful, eager, happy and kind so that people like to be with you.

In developing the four H's, members strive to make the most of their health, heart, head, and hands and put their "Best foot forward."

The Skin You Live In

The skin is covered with tiny openings called pores through which the body constantly gives off salty water called sweat or perspiration. If a person exercises hard or becomes very hot this salty water forms drops, otherwise we do not usually notice that which collects on the surface of the skin. Through these pores the body also furnishes oil to lubricate the skin and hair and to keep them soft. Perspiration dries on the skin and the oil catches and holds dirt. If we do not keep our bodies clean our skins can not give off wastes normally and we have unhealthy, unsightly skin. Water and oil will not mix so that it takes warm water and soap suds to keep the skin and pores clean and free to function properly. Perspiration is usually very unpleasant to smell and since we wish to be pleasing to others as well as to be proud of our appearance a bath at least twice a week will be a pleasure.

The underwear which is worn next to the body soaks up perspiration and oil from the body so that it helps the pores in their work. Clean underclothing is necessary so that we can be fresh and clean. Most people enjoy the feeling of a freshly scrubbed skin and clean clothes.

Bathing does more for the skin than just cleanse it. It acts as a tonic in bringing blood to the skin and improves the blood circulation. A bath or a swim should wait until at least 2 hours after eating. The stomach needs extra blood to digest food and that blood carried to the skin and muscles in swimming would be taking some of the blood needed by the stomach to do its work properly.

Sleep and Play

Outdoor exercise, fresh air, and sunshine help to keep the skin rosy and healthy. Pink cheeks and sun tan help to give one an "alive look."

Fifth and sixth grade boys and girls need 11 hours of sound sleep in a dark, well-ventilated room in order to have healthy, rested looking skin and be wide awake and alert in mind.

The Hair and Fingernails

Have you ever sat and watched people walking down the street? Some walk with a spring in their step, some plod along, some wobble; some appear clean and neatly dressed, others do not; some

look cheerful, others glum. If the sun is shining, notice people's hair. Attractive hair adds to one's appearance but uncared for hair detracts from an otherwise attractive person.

A good hard brushing each day will do a great deal toward having nice looking hair. Brushing brings the blood to the scalp. This stimulation helps to make the scalp and hair healthy. Brushing also removes dust collected during the day and distributes the oil from the pores evenly all through the hair, giving it a gloss and a shine.

Boys and girls of your age are old enough to shampoo your own hair. Why don't you have a demonstration in class on shampooing hair? The first step to a good shampoo is rubbing the scalp briskly with the fingertips. Next, brush the hair thoroughly. Plenty of warm water, mild soap, and a big towel are needed. Liquid soap is best for the hair. Work up a good lather and scrub, rinse in warm water and repeat. After the second warm water rinse, dash cool water on the head. Rub the scalp and hair briskly with the towel. The best way to make your weekly shampoo a habit is to plan to shampoo your hair on the same day each week. Each time you wash your hair also wash your own comb and brush and put them in the sun to dry.

There are certain scalp diseases which can be avoided by always using your own clean comb and brush and in wearing your own hat only.

It always makes a person feel better to know that his hands and fingernails are clean and beyond criticism. Such cleanliness is also important to the maintenance of health. A nailbrush, a file

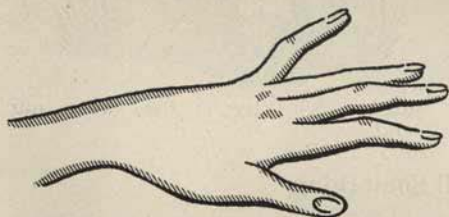


Figure 3. — You can manicure your nails.

and an orangewood stick, or toothpick wrapped with cotton, are the only tools needed to keep the fingernails in good shape. Habitual care, such as brushing the hands and nails with the nailbrush, cleaning the nails, and pushing back the cuticle keep the nails nice. File the nails weekly and push the cuticle back with the orange stick. Hand cream or oil help to keep the cuticle soft and pliable. Never bite or pick at a hangnail. Ask a grown-up to take care of it for you.

When a habit has been formed, we do things without much apparent effort or thought. The cleanliness habit is a good one to begin life with and to begin the day with.

Part II—Do My Clothes and Shoes Give Me Health, Comfort, and Good Looks?



Figure 4.—Do your shoes protect your feet?

Why cotton is a favorite material for underwear?

Why wool makes warm clothing?

That clothes tell something about the person who wears them?

That clothes affect fun and fitness?

Do You Know:

What things to think about when choosing clothes and shoes?

How shoes protect the feet?

Why coats and overshoes should be taken off when indoors?

Why a sparrow puffs out its feathers in very cold weather?



Figure 5.—Why is the sheep our friend

Clothes Tell Something

Clothes tell something about the people who wear them. They tell whether the person knows how to choose the sort of clothes to wear for health, and comfort and good looks. They tell whether a person is tidy in his habits.

Styles change in clothes. In the early days people wore clothes to keep themselves warm or to keep the hot sun from their skin. **Comfort** was probably the only consideration. Later history tells of a period in which people considered **style** so important that the clothes they wore were detrimental to good health. These clothes were worn so tightly that breathing and blood circulation were hindered. Women ate very little so that they could wear these stylish clothes. Neither the men nor the women were as strong and healthy as the people of today. Today most of our clothes are designed so that they will **protect the body**, will allow **freedom of movement**,

will be comfortable to wear and can be becoming and attractive to the person who wears them. We choose clothes to fit the body and don't make our bodies fit into clothes. Our work, play and party clothes give the muscles of the body plenty of room to move. Clothes tell something else too. Boys and girls in many countries wear different costumes. Our big factories are selling and shipping clothes to different countries so that boys and girls everywhere are beginning to dress in the same sort of clothes. We are able to tell a soldier from a sailor or a marine by the clothes he wears. Also one of our soldiers located in the south Pacific wears a different type of uniform than the same soldier would wear in Alas-

ka. Can you describe some of the uniforms worn by our armed forces overseas?



Figure 7.—Do you keep your clothes neat and attractive?



Figure 6. — Do your clothes give you comfort, style, freedom?

Keeping Cool or Warm

Have the sheets ever felt cold to you when you first got in bed on a cold winter night? It is not long though until you feel cozy and warm under your blankets. The heat of your body quickly warms the sheets and the clothes you wear. The blankets and your clothing simply hold in the heat. In your studies of the people of other countries, you have read that Eskimos wear furs. This is the warmest clothing there is. Animal hair, bird feathers and sheep's wool are all warm materials. They catch and hold air. Air holds heat and moisture. It is only because air warmed and moistened by the body is always being pushed away by cooler air flowing in to take its place that the body is able to keep at the same temperature. If you hold a piece of cloth up to the light you will see that it is porous or full of tiny holes. You may think that holes will cause the heat to be lost from the body. They catch and hold air. Material that holds air allows heat to escape a little at a

time instead of rapidly. You have seen birds puff out their feathers in cold weather? When they do this their feathers can catch and hold more air.

Cotton and linen do not hold much air. Moving air slips in and out easily. For this reason clothes made of these materials are cool in summer. They also absorb moisture from the body readily and dry quickly. In summer we want protection from the hot sun. White and light colors reflect light and dark colors absorb light and heat. This is why we see people wearing lighter colored clothes in spring and summer, because they are cooler. A navy officer usually wears a navy blue wool suit in winter and a white cotton or linen suit in summer if he is stationed in Idaho.



Figure 8.—It's smart to be thrifty.

she thought the very prettiest first. As she stood admiring herself in the mirror she took a deep breath. She frowned. "Don't you like it, dear?" asked her mother. "Yes, it's very nice, but it pinches when I breathe real deep, mother. Perhaps one of the other dresses will be just as pretty and yet be more comfortable." Wasn't she wise in her thinking? Edith called to John in the next dressing room and told him of her experience. John said he had been seeing if he could play ball without his sleeves pulling, and stooping over to be sure his clothes were large enough to be comfortable. Boys and girls today are sensible about the clothes they help to choose. They know that tight belts, collars, garters and sleeves are not healthful.

Clothes that give the most comfort and freedom for activity and fun, lend themselves also to helping maintain physical fitness.

When a person's clothes feel right and look right, then he can forget them and enjoy his work and play. This feeling of satisfaction and self-confidence helps to maintain good mental health.

Down through the years, thrifty homemakers have always patched, darned and made over. Today with manpower and machinery shortages reducing the supply of clothing available, these

New Clothes

John and Edith were told by their mother and father that they might each have a new spring outfit to wear. At the store they chose articles of clothing which looked attractive to them and each went into a little dressing room to try them on. Edith tried the dress



Figure 9.—It's fun to be neat.

practices are considered a real service to the war effort. Being thrifty in the care and use of our clothes is good citizenship. It is not patriotic to waste good materials that could be made into wearable clothing. Wise and thrifty mothers often make-over clothing into useful garments for smaller children. Many of these garments are made of better material than can be secured today.

Careful planning in choices of becoming colors for trimmings can make these garments most attractive. Any boy or girl who can make use of such clothes is contributing to his home and family income as well as rendering a service to his country.

Shoes and Stockings

Shoes that hurt the feet make a person feel miserable all over. Such shoes usually cause blisters, corns, or calluses on the feet. Corns or calluses are formed when a tight shoe rubs or presses against the skin or toe or some part of the foot. High-heeled shoes which crowd the toes against the tip of the shoe also may cause corns or calluses. Shoes that are too short cause bunions or large swellings on the joint of the big toe. These are painful. Shoes with run-over heels are not good for growing bones.

When you buy a new pair of shoes, try on both shoes as no two feet are usually alike. Be sure to stand up in the shoes because the feet always spread from the weight of the body. A shoe should be $\frac{1}{2}$ inch longer and $\frac{1}{4}$ inch wider than the foot when you stand up, and the shape of **your** foot to fit correctly. A shoe should have a shank that bends easily. The shank should also fit snugly under the arch of the foot to give it support. A broad heel supports the ankle.

Stockings as well as shoes should fit the feet. Short stockings crowd growing bones and cause calluses. In-growing toenails are often caused by stockings which are too short. Never cut toenails in at the corners. Trim them straight across and even with the ends of the toes. File the nails smooth after cutting.

Taking Care of Your Clothes and Shoes

Two boys went to a store to ask for a job delivering packages after school and on Saturdays. Both boys were poor. Their parents could not afford to buy them new suits when worn places appeared in their pants and coats. The boys had many brothers and sisters, and their mothers could not always find time to sew on buttons or put on patches. One of the boys had learned to mend his own clothes. The other boy thought it was too much trouble to do this. He was a bright boy, quick at his lessons, and eager to earn money for his family. But he did not think that looks were important.

The first boy got ready to ask for the job by brushing his hair until it shone, by washing his hands, face, neck, ears, and by cleaning his fingernails. He sewed a button on his coat and mended a rip in the sleeve. He polished his shoes. The other boy brushed his hair and washed his face and hands, but he forgot to clean his ears and fingernails. He never even thought of sewing on missing buttons or mending a torn place in his pants. The storekeeper did not know the two boys. The only thing he had to go by in choosing between them was their looks. Which one got the job?

You have learned that the clothes worn next to your skin soak up perspiration. Your underclothing and stockings should be washed often in order to keep them clean and sweet-smelling. Many boys and girls of your age have learned to wash out their own underwear and stockings. Underclothing and stockings should first be washed in warm soapsuds and then rinsed in clear water until all the soap has been removed. If possible, hang them outdoors to dry.

Outside clothing catches dust and dirt. You do not feel that you are looking your best if your clothing is dirty or wrinkled or torn. Clothes that are made simple, of materials that will wash, are the best to wear for school. If you have suits or dresses that cannot be washed, they should be aired and brushed often.

After you have undressed for bed and put on your night clothes, hang up all your day clothes where they will get a good airing. Place your shoes where they will air and dry out thoroughly during the night. You can keep your coats and your suits or dresses from getting wrinkled by hanging them on coat hangers as soon as you have taken them off.

Before starting for school, look yourself over to make sure that your clothing is neat and clean. Remember to take a clean handkerchief with you. Brush your coat and hat, if they look dusty. See that your shoes are shined. Shoe polish is cheap, and it helps to keep the shoes from wearing out quickly. Many boys and girls brighten up their shoes with shoe polish every morning before they start for school.

In most schools each pupil has his own place to hang up his hat and coat. Do you have a special hook in a cloakroom or wardrobe or locker where you hang your coat or sweater and hat only on your own special hook?



Figure 11.—Clean and bright.

A clean healthy body with a good posture, suitably dressed in comfortable, neat and clean clothing and a healthy mental attitude help the 4-H Club member to make his "best better" in everything he does.



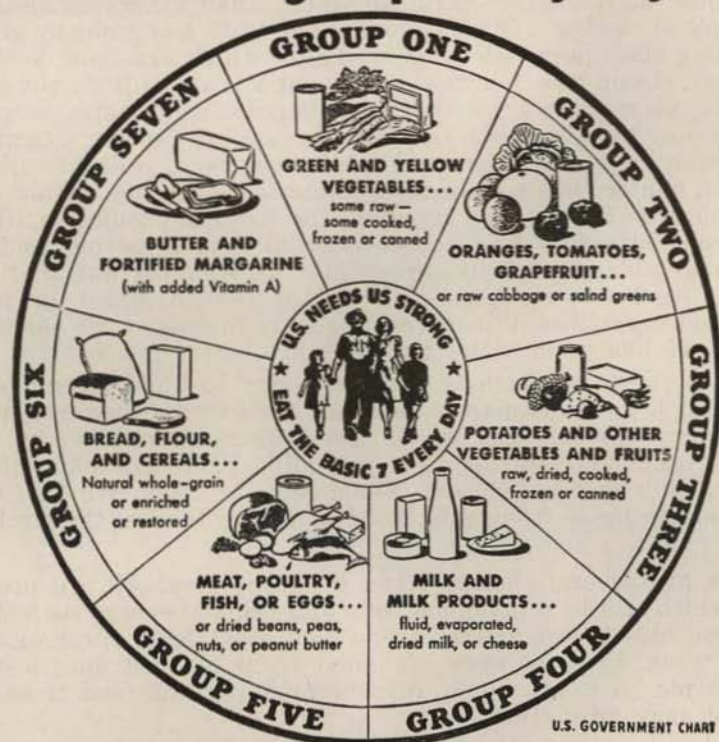
Figure 10.—You can make small repairs.

Lesson II

Better Health Through Proper Food Selection

Every boy and girl wants to be strong, to be a leader, to be well-liked and respected by his or her friends. In order to accomplish what you want to do, you must feel your best and look in the best

*For Health...eat some food
from each group...every day!*



**IN ADDITION TO THE BASIC 7...
EAT ANY OTHER FOODS YOU WANT**

Figure 12.—Basic seven food chart.

of health. One of the main factors leading to good health is proper, well-balanced food. Eating for health might be regarded a game in which definite rules have to be followed. The most important rule of all is to eat certain essential foods each day.

Let's study this "circle of health" which is called the Basic Seven Food Chart because it puts all essential foods in seven separate groups.

Eating plenty of vegetables is one of the rules which must be followed in this game of "Eating for Health." **Group one** in the chart includes leafy green vegetables such as chard, leaf lettuce, outer leaves of cabbage or spinach, and yellow vegetables such as carrots, squash or corn. These colorful vegetables were given a special place of honor because they supply vitamin A and the mineral iron.

Vegetables are sometimes called miners because they send their roots below the ground and bring up many minerals which they save for the use of the boys and girls who eat them.

One serving of vegetables or fruits should be eaten raw each day. Some make better "scrub brushes" than others in cleaning the inside of the body. Others exercise the teeth and gums by giving something crisp on which to chew. Think which ones can do these jobs best. **Group two.** Because oranges and grapefruit do not grow in Idaho, we need to know that strawberries, cantaloupe, or green peppers may be eaten when they are in season to furnish vitamin C. This group helps our bodies to make better use of milk in building teeth. In winter time we are most likely to be lacking in this vitamin, unless we have a good supply of the foods in group two. **Group three** calls attention to potatoes especially, and to the need for other vegetables and fruits every day. It is important that you have at least two servings each day of canned, dried, or fresh fruits and vegetables. When fresh ones are in season, we eat those because we like them better and they are better for us.

Milk is one food which is very necessary to build strong bones and teeth. It contains more substances for growth than any other food. Every boy and girl should use 1 quart of milk every day. It is not necessary to drink all of this milk. There are many dishes made of milk that we can eat. Name some of them. We find milk and products made from milk listed as **Group four** in the circle of health.

There are several choices given in **Group five.** All are protein foods which will help build the body and provide energy as well. It is a good idea to eat an egg every day, or at least three or four eggs a week. Liver or some glandular meat at least once a week will provide an extra supply of several important food treasures that you may miss otherwise.

Bread and cereals make up **Group six.** Whole-grained or enriched bread should be eaten with every meal. It is best to eat a hot, cooked cereal for breakfast, but prepared cereals such as cornflakes may be eaten occasionally for variety. These are called "go foods." Whole grains and enriched products also supply added vitamins (B-complex) and a mineral (iron) that are necessary for life and proteins for building muscles, tissues, and blood.

Butter is in the last group, **Group seven,** of foods which must be included in our circle for health. Butter supplies vitamins A and D as well as necessary fat. In the winter season when there is not so much sunshine and it is necessary to stay indoors more, doctors sometimes advise that you should have more of the sun-

shine vitamin (D). Therefore, it is well to take cod liver oil or some other vitamin D supplement in the wintertime.

The foods which you have been told about contain proteins, minerals, vitamins, starches, sugars, and fats.

The proteins, which are in milk, eggs, meat, cereals and such vegetables as peas and beans, help build cells of muscles, skin, hair, nails, and blood. They also help rebuild worn out cells.

Minerals are found in milk, cheese, whole cereals, and leafy vegetables such as lettuce and spinach. These minerals help build good bones, sound teeth and red blood.

Our chief sources of iodine are water, iodized salt, sea food, and vegetables. Iodine is needed by the thyroid gland, to perform an important duty in controlling the growth of the body.

Starches, sugars, and fats are "going" foods. If you don't eat enough of these foods, you won't have enough pep and will be more apt to be tired and may lose weight. Starches are found in bread, crackers, tapioca, macaroni, potatoes, and rice. Foods containing sugars are cake, cookies, jellies, honey, syrup, and sugar. Fats are found in peanut butter, salad oils and salt pork.

You may wonder why vitamins are so important. Vitamins are special kinds of food products which are necessary for your body to grow and be kept in good condition and free from disease.

The seven basic foods provide most of the vitamins required for normal needs.

The **vitamin A** is provided by green and yellow vegetables, yellow fruits, butter, egg yolks, and in fish liver oils;

The **vitamin B** group is provided by whole cereal grains, green vegetables, meat, especially pork and glandular tissue;

The **vitamin C** is provided by citrus fruits, tomatoes, cabbage, and other green vegetables;

Vitamin D is provided by sunshine and fish liver oils;

Vitamin E and K are also provided by green vegetables.

A lack of these vitamins in the diet may cause certain ailments, and cause a person to have poor health. Where only partly enough vitamins are eaten, a person may not become noticeably ill, but he may never feel quite up to par in his daily work.

If you follow a good daily diet, containing milk, vegetables, fruit, cereals, meat, eggs and fats, you will get all of the necessary foods. These foods contain essential vitamins and food qualities that will give you a high score in the game of eating for health. Be a winner.

Things To Do At Home

1. Practice good posture.

Hold up your head

Hold up your chest

That is the way

To Look Your Best.

2. Make an outline of a milk bottle. Divide it into 28 squares, each representing a cup of milk. Fill in a square with colored crayon each time you drink a cup of milk. If the squares are all colored

at the end of 1 week, you have averaged the 4 cups of milk per day that you should have.

3. Learn to like one green or one yellow vegetable.
4. Prepare for the table or for your lunch box vegetables that are to be eaten raw.
5. Help plant a garden. Raise a number of vegetables that will help you to grow strong and healthy when you eat them.
6. Eat a cooked cereal every morning for breakfast.
7. Eat liver, heart, or some glandular meat once during the week.

Things To Do At Club

1. List ways we can take milk such as in creamed soups, custards, etc.
2. List green and yellow vegetables that will grow in our gardens.
3. Make a poster on one of the food groups. Suggested titles are:
"Vegetables as Miners."
"To Have Color You Must Eat Color."
4. Soak a chicken bone in vinegar. This shows what our bones would be like if they contained no calcium.
5. Take an excursion to a nearby dairy or creamery.
6. Bring cereal boxes, bread wrappers, and flour sacks to club. Examine them for information regarding what portions of the grain are used and how much enrichment there is, if any.
7. Find out what fruits Admiral Byrd took on his expedition to aid in keeping his men well.
8. Make an exhibit or bulletin board display of "Go Foods" using picture models.

Lesson III

What Happens to the Food We Eat

You have just completed a lesson on proper food selection, learning to choose the proper kinds of food for each day. Have you wondered why these rules of good eating have been made? Did you know that digestion begins in the mouth when we chew our food and mix it with saliva? The saliva is produced by glands in the mouth. The teeth break the food into small particles and mix the saliva with it. Here the saliva acts on the starchy foods and starts the change from starch to sugar. Starch must be changed to sugar before it can be absorbed by the blood stream. If you have ever chewed wheat kernels you know that they will form into a rubbery gum that is fun to chew. This gum is mostly gluten or the protein portion of the wheat. The mixing of the wheat with saliva has dissolved the wheat starch and leaves the protein. The saliva also makes the food more easily swallowed. The food passes from the mouth down the esophagus into the stomach. You can see that it is better to swallow the food with saliva rather than to wash it down with water.

The Digestive System

What happens in the stomach? The stomach is an elastic bag, which is large or small depending upon the amount of food it contains. When the food enters, the stomach starts a wave-like motion and digestive juice, called "gastric juice," comes out of the walls

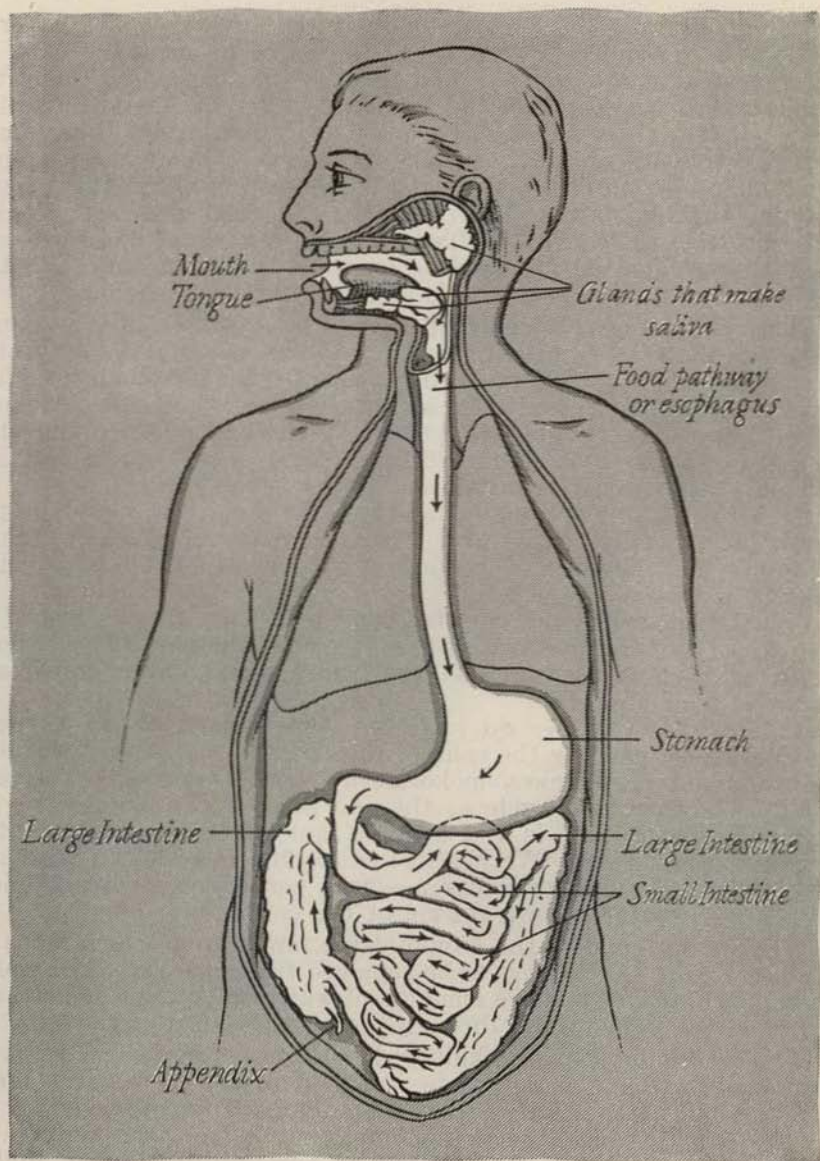


Figure 13.—The digestive system.

of the stomach and mixes with the food. This juice starts to digest the protein foods such as meat, eggs, milk, and cheese. As the food digests it moves on toward the lower end of the stomach, through a valve, into the small intestine.

The length of time required for digestion in the stomach depends on the amount and kind of food and how well it has been chewed.

Fried foods take the longest to digest because they are covered with fat. It requires 2 to 5 hours for all of an ordinary meal to be digested in the stomach and to pass into the small intestine. Digestion is completed in the small intestine. The small intestine is about four times as long as a man is tall. It contains three kinds of digestive juices which complete the digestion of the starches and sugars begun in the stomach. The digestion of fat takes place in the small intestines. The intestines are lined with soft finger-like projections which are filled with a network of blood vessels. Completely digested food passes from the intestines through the thin walls into the blood vessels and into the blood stream.

The portions of the food that can not be digested, such as tough fibrous material from fruit and vegetables, parts of whole grains and other undigested portions are pushed from the small intestine and passed from the body. These materials are often called "roughage." They are very useful to the body in eliminating the undigested portions of the food and therefore coarse leafy vegetables and whole grain cereals are included in the seven basic foods to be eaten. It is also important that there be plenty of liquid in the intestines so that the waste products may move along easily through the intestines. Therefore, a good health habit is to drink plenty of water.

What happens to the digested food picked up by the blood? It is carried by the blood vessels to all parts of the body. The various kinds of food are used for fuel, growth, repair and other important work in the body.

All of the work we do produces some waste. What happens to the waste made by the cells of the body? A carpenter produces sawdust and a fire makes smoke. Both are waste products. The cells of the body produce waste as they do their work. The lungs give off a waste product in the form of gas after they remove the oxygen from the air. We must have oxygen in order to burn the fuel foods. Burning produces a waste gas called carbon-dioxide. When we breathe out we get rid of the carbon-dioxide.

The waste liquid in the kidney drips into a tube which leads to and carried to the kidneys to be removed from the body. The waste products dissolved in large amounts of water leave the blood stream through the kidneys and through the sweat glands of the skin.

The waste liquid in the kidney drips into a tube which leads to the bladder. This liquid waste is called urine. It requires large amounts of water to carry the liquid wastes from the body.

The bulletins listed below may be secured from the University of Idaho, Extension Service, College of Agriculture, Moscow, Idaho.

1. *Milk and the Family*, U.S.D.A. Farmers Bulletin 1705.
2. *4-H Health Score Card*, Extension Service.
3. *Vitamin Chart*, Extension Service.
4. *Food For Children*, U.S.D.A. Farmers Bulletin 1674.
5. *Good Habits For Children*, U.S.D.A. Leaflet 42.
6. Andress, J. Mace, Ph.D., Goldberger, I. H., M.D., Hallock, Grace T., *Doing Your Best For Health*, Ginn and Company, San Francisco, California.
7. Andress, J. Mace, Ph.D., Goldberg, I. H., M.D., Hallock, Grace T., *Building For Health*, Ginn and Company, San Francisco, California.

Lesson IV and V

Taking Care of Ourselves

Everyone who has good health and a fine body or expects to have should learn the rules for taking care of himself. The husky fellows you see on the football team and the rosy cheeked girls you see usually take care of themselves so that their bodies work in tip-top shape day in and day out. They may not realize it, but they practice the rules of good care as a matter of habit, just from doing them day after day, about the same time and about the same way. This applies to our habits of eating, sleeping, playing and working. Some will eat a good breakfast of fruit, cereal, eggs, and milk and toast every morning, and others will leave out the fruit, or the eggs and some will eat very little breakfast at all. One habit seems to be as easy to form as the other. Of course, the ones who form the habits of eating simple well balanced meals are the best fitted to go throughout the day.

The body is like a factory developing power. It must have raw materials for heat, energy, and repair. The food we eat is the raw material. The work we do uses up the energy and tears down muscles which require repair. All of the food cannot be made into energy because the body cannot digest it all. This undigested portion is left over as waste in the intestines. If the unused supply of raw materials is not hauled away from the factory, it soon clogs up the system and slows down production. The same is true with our own bodies which operate like a very delicate factory. If the body wastes are not removed from the body at regular times each day, they clog up the system so that the body cannot turn out its regular products of heat, work, and growth. It will soon appear shabby and poorly kept. It is for these reasons that our health authorities recommend that we develop regular habits of going to the toilet each day. The body will train itself to send the waste material out of the body at the same time each day. If you put off these normal functions, your body will absorb the waste materials from the large intestines and it will make you feel dull and sluggish throughout the day. If you develop regular habits, they will stay with you throughout life.

The waste materials from the cells are dissolved in large amounts of water, are picked up by the blood stream and carried to the kidneys. About half of the water that we drink is used to carry liquid waste from the body. Large quantities of water are needed during times of illness, especially with tonsillitis, diphtheria and scarlet fever. Poisons are liberated into the blood stream to be thrown off by the body.

There are certain foods that help our bodies remove the waste products. They are the coarse bulky foods including celery, lettuce, snap-beans, onions, cabbage, and other green vegetables. Fruits with the skins on and fruits with small seeds and bulky whole grain cereals help the body to eliminate waste.

The boy or girl who helps the body eliminate the waste materials by developing helpful habits is giving his body much better care

than the one who uses laxatives such as castor oil and Epsom salts. The use of these laxative medicines irritates the inner lining of the bowel. If they are used often, larger and larger amounts are required each time to give results. If bowel depends upon the drugs to do its work it becomes slow and lazy.

Sometimes serious injury is done by taking laxatives when a case of appendicitis is mistaken for a "stomach ache." The pain from appendicitis does not always appear on the right side, but sometimes in the lower abdomen as a severe cramp.

When you get hot and sweaty, your body is trying to cool off and is getting rid of other waste products in the blood through the skin. These waste products include salt, urea, and ammonia compounds. They evaporate and remain on the skin as a salty product. Some of these have an offensive odor. This makes it necessary for us to bathe often, change our underwear frequently, and pay special attention to our shoes and stockings. A mild deodorant may be used, but scented perfumes, soaps and powders will not take the place of bathing.

Big, strong muscles are built by vigorous exercise. You were given muscles with which to do your work. If you do not use them, they will not be able to work for you. Exercise makes muscles. Vigorous work and play stimulates the blood circulation, develops the heart and the lungs as well as the muscles and the digestive organs. The strengthening of the heart and the lungs makes us better able to throw off disease and waste products of our bodies.

Work on the farm develops one kind of muscles, active sports develop other muscles. Taking part in a variety of work and sports is good to develop a good strong active body. The more you use your body, the stronger your muscles will become. You know this from your experience in running, swimming and jumping. When you do not use your muscles, they become soft and flabby. They lose their tone like a worn out rubber band loses its stretch. Your muscles tire easily when they are not used.

Exercise is also valuable in helping you throw off excess energy. Have you noticed how much better you feel during Christmas vacation if you get some exercise? You probably have been eating more food than your body could use unless you did some work. Exercise is also good to develop an appetite. If you have been lying around the house doing very little, you probably have noticed that you felt better when you got outside and played. This exercise burned up some of your excess energy.

Active games are good to develop habits of moving quickly and for learning to make quick decisions. They are also fine for developing a spirit of competition and a spirit of fair play. Active muscles give off their waste products quickly so that they can be carried away by the blood. During sleep, waste products are gathered up, muscles are repaired and growth takes place. When you are 10 to 12 years old, you need 11 hours sleep each night to give your body enough rest. Unless the body is in good repair, it cannot do its work well. Younger people require more sleep than older people. You will sleep best if the room is dark, quiet, well

ventilated and if the bed is comfortable. It has been found that people in England did not produce as much by working extremely long hours as they did when they worked shorter hours and got more rest. Armies have found that they could march greater distances if they took short rest periods every hour rather than marching steadily all day long. The same applies to boys and girls of club age.

Lesson VI

Protecting Your Health By Care of Your Teeth

If you have clean, white, regularly formed teeth that are free of cavities, you probably have had the right things to eat since you were a little baby. To have good quality teeth, the body must find the proper minerals such as calcium, phosphorous and iron in the food eaten. It must also find those strange food elements necessary for growth called vitamins in order to absorb and use the minerals contained in the foods. Teeth are made mostly from minerals called calcium and phosphorous. Milk is rich in calcium and phosphorous.

The vitamin needed in building good teeth and bones is vitamin D produced by sunshine and found in fish liver oils. Some is found in butter and egg yolks. Milk and vegetables are high in minerals. If you use a good variety of foods, you should be getting the proper food elements for good, strong, durable teeth that should last a long time. There should be foods also which are hard enough to provide a vigorous chewing exercise and thus stimulate the circulation in the gums. These foods are: hard breads, raw vegetables, and fruits. These foods also cleanse the teeth.

While proper nutrition and exercise are the most important phases of mouth care, brushing is important in keeping the mouth and teeth clean. The brushing of the teeth should begin at an early age. Little brother and sister should be encouraged to brush their teeth as soon as they are able to use a brush. The brush should not be too large to pass between the teeth and the cheeks. The bristles should not be so stiff that they cut the soft tissues, nor so soft that it will not remove foreign material from the teeth.

Dentists commonly recommend that teeth be brushed by placing the brush on the gum and brushing the teeth away from the gum in a rolling or sweeping motion.

Food collects on the teeth and makes excellent places for bacteria to grow and multiply. The teeth should be brushed frequently enough to prevent this. Once after each meal and the last thing before going to bed has been recommended, but this is not always possible. However, the brushing should never be neglected before going to bed at night because it is during sleep that the bacteria can grow undisturbed. Giving the teeth 3 to 5 minutes cleaning once a day may be better than careless cleansing 4 times a day.

The toothbrush should be cleaned after use and hung in a place protected from dust—in sunshine if possible—to dry. Dental floss helps remove any particles between the teeth after brushing, but

care must be taken that the gums are not injured by it. A toothpick may be used to remove food but this should also be used with care in order not to injure the gums. Splinters from chewing toothpicks may injure the gums. This is not considered good social practice, anyway, so it should be avoided as much as possible. Tooth pastes and powders may help in cleansing the teeth, but they are not a necessity. They should not be coarse enough to injure the gums. Ordinary table salt and baking soda are excellent for cleansing the teeth. Take three parts baking soda, one part table salt and a few drops of Wintergreen and you will have a very satisfactory tooth powder. Slightly acid fruit is an aid in removing sticky particles of food from the teeth. It stimulates the flow of saliva, which helps to keep the mouth clean. If you visit the dentist before starting to school and once each year afterwards you will avoid much trouble. Decay starts with small pits and cracks which cannot be detected except by the dentist. If repaired while small, there is more chance of saving a tooth without much repair. It is necessary that the "baby teeth" be saved so that space will be available in the jaw when the permanent teeth develop. Cavities in the teeth provide a place for the food to deposit and for bacteria to grow. These bacteria go to the stomach and may cause digestive trouble. Decayed teeth also make it difficult to chew the food properly, and this may cause digestive trouble, too.

If the food is not properly prepared for digestion, the food is poorly digested, the body is poorly nourished and it becomes an easy prey of disease. Every illness interferes with the development of the teeth. When you were about 6 years old, the first permanent tooth appeared. It is called the 6-year molar. It is the sixth tooth back from the center tooth. It should be watched very carefully and not allowed to decay. If decay starts, it should be filled by the dentist. It is very important to save the space in the jaw for the other permanent teeth that will come later.

We all should develop a habit of visiting the dentist every six months. He will examine the teeth for cavities and clean them thoroughly so that all tartar is removed. Tartar is a lime-like deposit which collects at the necks of the teeth, irritates the gums, makes them bleed easily, and may lead to infection and loss of teeth later.

The dentist may use an X-ray to locate small cavities that cannot be seen with the naked eye.

References:

1. *Good Teeth At All Ages* from the Metropolitan Life Insurance Company, Eastman Building, Boise, Idaho.

Lesson VII

Protection and Care of Our Eyesight

If you should lose your favorite pet or toy or best suit of clothes, you could buy a new one, but all the money in the world would not buy you a new pair of eyes. Therefore, we say that they are priceless, and perhaps nothing would change your life more than to lose your power to see the things about you.

As a 4-H club members and a good citizen, you can do a great service to yourself and to your friends if you will master the rules for protecting your eyes from harm. You can also become a better citizen by helping others to understand how they can take care of their eyes.

Good health is necessary to have the best eyesight and proper food habits help keep the eye healthy. Certain diseases of the eye, such as night blindness, are caused by the lack of vitamin A, which we get from butter, whole milk and certain fruits, green and yellow vegetables and eggs.

Wearing of glasses. People have been wearing glasses for a long time, even before Columbus discovered America. They were called spectacles in those days. They were not so common then because there were not so many books to read and electric lights were not available to make long reading hours possible. The men who made glasses were called opticians; they told the people the kind of glasses they needed and made them for them. Since those early days, many men have made studies of the eyes and the need for glasses. They have found that 23 percent of the school children under 15 years of age need glasses.

If you cannot read easily when holding a book within 14 inches of your eyes, you should have your eyes tested. An examination will tell whether glasses are needed or not. If we do need them, these especially trained people can tell us the proper kind of glasses to wear. The optician makes the glasses that are recommended by the optometrist, oculist, or ophthalmologist.

If you need glasses, you should get them and wear them. Your eyes deserve the best treatment that you can give them. You should have your eyes tested each year and have the bows adjusted every few months.

Rest for the eyes. If you are tired your eye muscles are likely to be tired too. So it is best to rest your eye muscles when you rest your large muscles. Looking out the window at distant views will rest your eyes. When your eyes have had a rest you can return to your close work.

Reading in bed is likely to tire your eyes. It is difficult to hold your book in proper reading position when you are lying in bed. Often your book is too close or at an improper angle to your eyes; or the light may be poor or glaring. These conditions cause eye strain. You are also likely to read too long and fail to get the proper amount of sleep that you need if you form a habit of reading in bed.

Protect your eyes from germs. When you wash your face use your own clean towel. Using a towel that someone else had used may be dangerous. Some kinds of germs may be picked up that will cause injury to the eye or even blindness. A common kind of germ causes pinkeye. It can be spread from person to person by towels, handkerchiefs, and other objects.

Sties are caused by germs and are spread in the same ways. A sty may be spread from eye to eye by rubbing the eyes with the fingers. Sties are more likely to occur where the eyes are strained or tired.

When you have measles. If you have had the measles your mother or the doctor probably told you "not to let the sunlight in your eyes until you become strong again." They probably kept the shades pulled down to protect your eyes. After you have been ill your leg muscles are weak and wobbly and your eye muscles are weak too. They need a good rest before being put back to work.

Objects in the eye. If you should get some object in your eye, it is important not to rub it or put anything in the eye that might injure it. Rubbing is quite apt to scratch the eye ball and cause permanent injury. The use of handkerchiefs and other objects which are quite likely to be infected may put germs into the eye. If left alone, the tears will wash many foreign bodies off the eye-ball. Many objects can be removed by pulling one eyelid over the other. Above all, do not put ointments or solutions into the eye that have not been recommended by a doctor.

Most accidents to the eyes are caused by running with sharp objects in the hands and falling, throwing sand, snowballs, gravel, and other objects in person's faces, explosion of firecrackers, dynamite caps and other objects near the face. B.B. guns are not safe playthings.

If we know what these dangers are, we, as club members, can develop habits to avoid them and can encourage others to be careful, too.

The eye is one of the most delicate and complex organs of the body and is most necessary since, it is said, about 83 percent of our impressions come through the eye.

Direct sunlight reflected from a printed page is injurious. Light should be from a direction so no shadow will fall upon the page or work being done. For a right-handed person, it should come from the left and a left-handed person, from the right—unless, of course, it comes from above and throws no shadow on the work. Your school room should be well lighted. You might borrow a light meter and test the lighting in your room. If the lighting is poor, report it to your teacher or school board. Someone in your room might see that the shades are adjusted properly each day.

It would be interesting for your club to select eye testing for a project. Each member in the club should have his eyes tested and those who need them should get glasses. See if those who get glasses do better work in school.

The eye and how it works. In order to take the best care of the eye, it is best to know its parts and how it works. Looking into a mirror at your own eyes, you will see a small dark hole in the center. This is called the pupil. All of the light enters the eye through the pupil. The amount of light that enters the pupil is

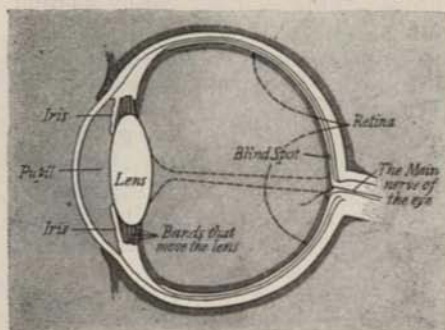


Figure 14.—Diagram of eye viewed from side.

controlled by the iris, the brown or blue curtain that surrounds the pupil. The iris opens to let in more light and closes to allow less light to enter. When you enter a dark room the pupil gets larger and when you go into bright light the pupil gets smaller. Try this on yourself. Sometimes we need to wear colored glasses when we are along the beach or in bright sunlight, because the iris can not close enough to keep out the strong light. Just behind the pupil is the lens. The light passes through the lens to enter the eye. The lens is made thinner or thicker by the muscles attached to it. The lens gathers the light and causes it to focus on the retina or lining on the inside of the back of the eye. It is much like a lens in a camera; the retina is like the film of a camera. Nerves in the retina carry the pictures that we see to the brain over the optic nerve or main nerve of the eye. Sometimes the lens is not the proper shape and then the pictures do not focus properly on the retina. Then we need glasses to correct the difficulty. If you were taking pictures with a camera of many moving objects, you would need to move the camera often to get the various pictures. The eyes must move often to get the clearest pictures. Six muscles move the eye ball. Some muscles turn it up and down and others cause it to roll. The more work these muscles have to do, the more tired they become. Therefore, if we make them work when the objects are too close or too bright or the light is too dim, they soon become tired. They hurt to let us know that they are being abused. This should be our warning to take care of them.

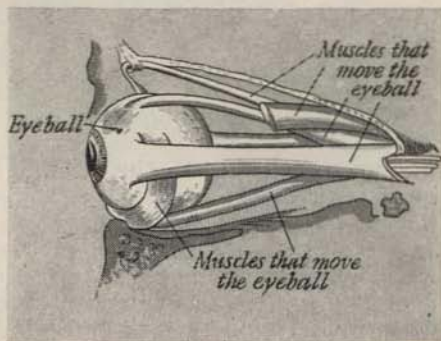


Figure 15.—Diagram of the eye showing the eye muscle.

Lesson VIII

Protecting Our Hearing

How well do you hear? Do you hear all that goes on in your school room? Do you ask the teacher to repeat what she has just said? Do your friends seem to mumble their words? Many people are unable to hear well and do not know it. It might be a good club project to test every club member's hearing each year. Some schools have an audimeter for testing the hearing. This machine has ear phones for the member to wear while he listens to a phonograph record. The record plays loudly at first and then gradually grows more faint. The person being tested writes down the numbers heard on the record. Those who have difficulty hearing should see their doctor. He may be able to correct the difficulty before it becomes serious. Those who have minor difficulty hearing should be allowed to sit in the front of the room at school.

The ear is made up of three small rooms or chambers. The outer ear contains a curved hallway that goes through an opening into the bony skull. The hallway is closed by a tight fitting membrane known as the ear drum. Sound waves strike this ear drum and cause it to vibrate. The vibrating ear drum sets the bones of the middle ear in motion. The bones carry the vibrations to the nerve of hearing in the inner ear to the brain. Each sound has a different vibration, and, therefore, the brain can tell the different sound messages.

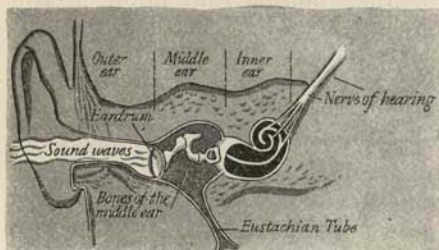


Figure 16.—Diagram of the ear.

The middle chamber of the ear has no opening to the outside except through an opening into the throat known as the eustachian tube. The inner chamber of the ear and the eustachian tubes are lined with the same membrane so that any infection in the throat may travel up into the ear. The eustachian tubes often become swollen with infection from cold germs. The infection may cause the membranes to swell so that air cannot get to the middle ear. Then the ear drum will not vibrate normally and we will not be able to hear well. It is important to avoid colds. Eating vitamin rich foods, staying away from people with colds, and getting plenty of rest are the best ways to do this.

Blowing the nose vigorously may force germs up into the eustachian tube, and spread infection to the inner ear and ear drum. When the ear drum is infected, it becomes thick so that it does not vibrate readily. This makes hearing difficult and in severe cases causes deafness.

If you have had scarlet fever or measles your doctor probably looked into your ears with an instrument with a bright light. This was to see if the scarlet fever had done your ears any harm. For

if you have an infection in your nose and throat, the infection may travel up the eustachian tubes and into the middle ear. The infection may cause the ear drum to be swollen and covered with pus and in this case the doctor may find it necessary to make an opening in it to let out the pus. This opening made with a clean knife will heal quickly and properly. Many times it is not necessary to open the ear if a person with an ear ache goes to a doctor promptly.

If a large amount of wax is allowed to gather in the ear canal, it may prevent sound waves from reaching the ear drum. Impacted wax should never be removed by anyone but the physician because the delicate ear drum may be punctured or a painful boil in the canal may result. The old adage that one should never put anything in the ear smaller than the elbow is a good one.

People who swim should be especially careful; water usually drains out of the ear quickly, but if the ear drum has been damaged, infection can enter the middle ear and result in serious injury. Serious damage can be caused to the ear drum by loud reports of guns and firecrackers exploding near the ears. No one wants to hurt anyone, so we should be especially careful about handling these dangerous things.

Tonsils and Adenoids

Some of you may have had your tonsils or adenoids removed because they were causing you to have an ear ache or generally poor health. The tonsils are glands located at the sides and back of the throat. It is their duty to catch and destroy germs. Sometimes they become overworked because the person has one cold after another and the tonsils become very large and diseased. When they become too large they may block the passage of air to the ear tubes and cause loss of hearing. The poisons in the diseased tonsils may also cause general ill health. For these reasons the doctors may remove the tonsils. It is best to have this done during the summer time so that you will not need to miss any school and because the warm summer months are the best to build up resistance to disease.

Things to do in Club Meetings

1. Have your hearing tested with an audimeter.
2. Find out how an audimeter works and something about its history.
3. Have each member of the club listen to a watch ticking at various distances in the room.
4. Make a list of the occupations where hearing loss would be a great handicap.
5. Make a list of occupations that would be suitable for persons who had lost their hearing.

Lesson IX

Growing Straight and Tall

Have you ever noticed that the well-trained soldier and the outstanding athlete usually stand straight and tall with ease and grace. Their knees are relaxed, hips tucked under, their abdomens flat, their shoulders back and arms swinging freely, and the head well balanced on top of the spine. Many of these handsome men are well built because their parents are well built, but much of their fine carriage is due to proper food and habits of sitting, standing, and walking.

If a boy or girl will decide that he or she will develop an attractive form. they will find that it can be done by developing habits of good posture and by developing the habits in the use of proper food, exercise, work and rest. Of course, some boys and girls will be short and others will be tall. There will be wide variations, but all can be healthy. Everyone admires a person with a straight, well balanced carriage. One does not need to ever feel too short or too tall if his posture is good. The real reason for striving for good posture is that when the body is in natural balance, the bones fit properly together and it requires less work for the muscles to keep the body in balance. When the body is in proper balance, the movement of the body and limbs are made more easily and quickly than if they are out of balance.

It is necessary to know what is considered as good posture in order for us to have a pattern to develop by. It is not necessary that you stand at attention like a soldier at all times. You may stand, sit and walk in an easy graceful manner. Practice standing in the following position until it becomes a habit. Soon you will take this position without thinking.

Stand tall without standing on tiptoes. Lean forward until your weight rests partly on the front and outer part of your feet. Point your toes straight ahead. Do not stiffen your knees. Lift your chest out and upward. Hold your head high and keep your chin in.

Practice sitting in the following position until it feels natural, and comfortable. Rest the feet flat on the floor. Place the lower part of the back against the back of the chair. Keep your chest up and out, your head high and your chin in. When you lean forward bend at the hips so that your back stays straight. In walking the toes should point straight forward. The weight should rest on the heel and the outer edge of the feet. The inside edge is not built strong enough to carry your weight. If the toes point outward you may be inclined to have flat feet. Walking correctly may strengthen the feet and make walking easier.

Posture Standards. The accompanying drawings illustrate "good" posture, "fair" posture, "bad" posture, and "very bad" posture. Good posture means the best balance of the weight of the body.

Figure "A" shows a straight line running through the main segments of the body. At a point immediately in front of the heel is situated the keystone of the boney arch of the foot. and upon this point the weight of the body should rest. The line runs from

this point through the fore part of the knee, through the middle of the hip, the middle of the shoulder, and through the ear. In this position the weight of the body is balanced best.

Figure "B" shows a slight sagging of the stomach, the weight being thrown forward in that section of the body. To counter-balance this the shoulders must go backward; in an effort to overcome the weight thus thrown back, the head falls forward.

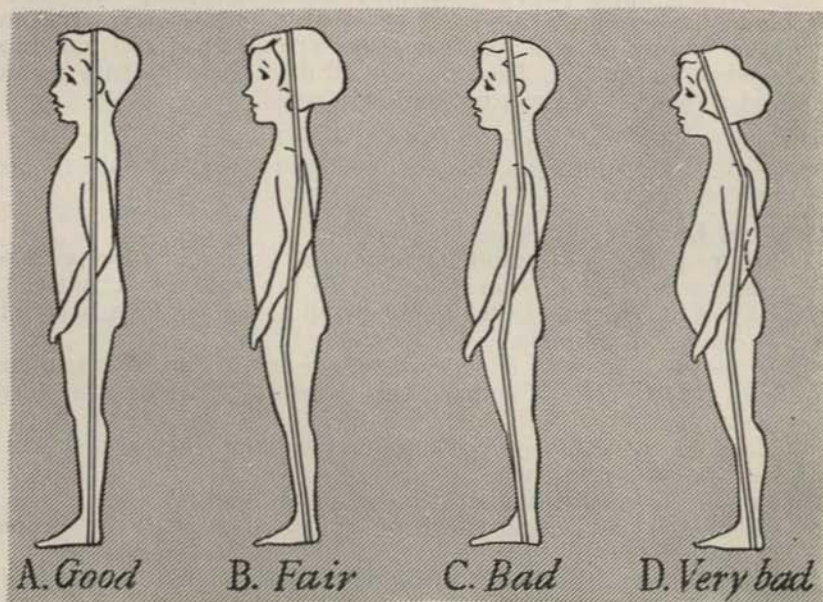


Figure 17.—Posture standards.

In figures "C" and "D" these zigzag lines are increased. Examples of such postures may be found in any group.

Postures may be classified A, B, C, or D, by comparison with these figures. Until you are accustomed to judging, you will find it helpful to suspend a plumb line from an object 7 or 8 feet high. Any twine with a weight attached will do. The twine should barely clear the floor.

The best way to secure good posture in others is to try to have them "get the feel of it." Tell them to bring their feet close together, close their eyes, raise their arms sideways to shoulder height, and stand on tiptoe. Do this until they are able to hold the position without wavering. Then have them notice the stretched feeling in their abdominal muscles, the place where, as our figures show, the first sagging begins. Lower the arms to the side, slowly lower the heels and have them try to get the "feel" of the body in this position so that they can assume it at will. These are points to be considered:

1. Do not stand stiffly — good posture is a relaxed position, though there should be a stretched feeling.

2. Do not place all your weight on the heels. Notice that when you lower the heels, the weight is divided between the heels and the balls of the feet. "Get the feeling" for that.

3. Do not throw the knees back, keep them in the easy position they have when you are on your toes.

4. Keep the stretched feeling just above the hips.

5. Bring the back of your neck against your collar.

6. Move the upper part of your arms back. This keeps the shoulder blades flat. Repeat this exercise at least once a day. Continue until the feeling of good posture is so strong that you can take it whenever you please. Then keep it all day. Good posture means to stand as tall as you can without stiffness.

Reference:

Metropolitan Life Insurance Company, *Posture From The Ground Up*, San Francisco, California.

Things to Do:

1. Secure pictures of individuals showing good and poor posture.

2. Discuss how good form helps one in his work or activities.

3. Have a livestock 4-H Club member tell how good posture counts in champion animals.

4. Draw the silhouette or shadow on the blackboard of the members of the class. Compare this posture with those of ideal posture.

5. Make a tag game of posture by checking each other when seen in poor posture.

6. Prepare a team demonstration on good posture.

7. Check the height and width of school room seats for proper height.

The habits that develop good posture are selection of a good daily diet; real practice in standing, sitting, walking; sleeping correctly; plenty of rest and sleep with fresh air; exercise, but not so strenuous as to cause fatigue; selection of clothing that fits the person and, especially, well fitting shoes.

If one has faulty eyesight or has difficulty in hearing, one is likely to develop poor posture by changing ones position to overcome the poor eyesight or poor hearing. These conditins should be corrected as soon as possible.

Boys' and girls' shoes should be flexible with broad toes and firm flat heels. They should be made so that the weight falls equally on the balls and heels of the feet. When shoes are out-grown, they should be discarded because shoes that are too narrow or too short to allow the foot to spread when walking may result in permanent injury. The foot should be measured each time before buying a new pair of shoes because the old pair may have been improper in size or the feet may have grown.

References:

1. Metropolitan Life Insurance Company, *Posture From The Ground Up*, San Francisco, California.
2. Andress, J. Mace, Ph.D., Goldberger, I. H., M.D., Hallock, Grace T., *Doing Your Best For Health*, Ginn and Company, San Francisco, California, Pages 178-180.

Lesson X**Helping the Body Defend Itself Against Diseases**

Some boys and girls hardly ever miss a day of school, and others seem to catch every disease that comes along! Some have two or three colds a year, and others hardly ever have a cold. Do you know the answer to this problem? Yes, you will know a lot of reasons why. You will say that many of these boys and girls do not eat enough of the protective foods such as milk, butter, eggs, green vegetables, fruits, whole grain cereals, and cod liver oil. These foods would help the body fight disease germs. Some stay out in bad weather and get their feet wet. They do not dry them and put on dry shoes and stockings. Others will not get enough sleep and rest so their bodies have a chance to build up worn out muscles. Then the cold germs attack them, and they have a cold. Still others will have colds because they have been working or playing with someone who has a cold and is doing a lot of sneezing—perhaps sneezing into their faces—or on their food or on their hands; and then maybe eating their meals without washing their hands.

No doubt you have learned in school how diseases are caused by bacteria or germs—plants too small to see unless you have a microscope. The smallest plant that you have seen is bread mold. It grows on bread when it is moist and warm. Bacteria are similar to mold but so small they cannot be seen without a microscope. They cause milk to sour and fruit to spoil.

One of the best ways to destroy bacteria is to boil the food. You know that when milk is scalded and placed in the ice box, it will keep a long time. Fruit, when boiled and sealed in air-tight jars, will keep for years. This is because the boiling heat kills the bacteria, and the scalding and sealing of the jars prevents more bacteria from getting into the fruit. Boiling to kill bacteria is one kind of sterilization. We scald dishes and dairy utensils to make them safe to use. You may think of other articles that are sterilized by boiling. However, we cannot boil all infected material to kill the germs. For example, on our bodies, we use chemicals such as alcohol, iodine, mercurochrome. We treat cuts and punctures in our skin with iodine or alcohol to kill the bacteria that might be present. The discovery of these antiseptics has saved thousands of lives.

Some of you may have had diseases such as typhoid fever or smallpox, and others may have been vaccinated so that you would not get the disease. If you were vaccinated, you know that the doctor gave you a small amount of vaccine. Vaccine causes our bodies to produce resistant substances called antibodies. These antibodies attack the poisons or disease germs and kill them or make them harmless. Serums contain antibodies that have been prepared outside of the body. They attack the disease germs just the same as those we produce ourselves. A noted scientist—Louis Pasteur—discovered a method of treating disease germs so that they would not cause the disease when given to a person, but would cause the blood stream to build up antibodies that would destroy any

of these germs if they ever attacked the body again. We seldom have the same kind of measles more than once or have smallpox more than once, because our bodies have built up resistance to the diseases after the first attack. We might think of these antibodies as being like fighter planes that go out to meet the enemy whenever he appears. After once being attacked, the body keeps a fighting force on hand. The body builds a special antibody for each kind of attacking disease; and after we have been attacked once, we seldom will get this disease again. Then, we say we are immune. This is not true of the common cold, however, for our immunity to colds seems to last only a short while.

The body cannot build up a permanent immunity for certain diseases. Such cases are influenza and pneumonia. In preventing these diseases, antibodies are developed in the blood stream of animals. The antibodies developed in this way are collected from the blood serum and are put in small bottles for the doctor's use. This serum containing germ killing antibodies gives the person a temporary immunity. Babies can be protected from diphtheria and whooping cough. Doctors can protect us from scarlet fever, typhoid fever, spotted fever and many other diseases simply by vaccination.

Before the discovery of vaccination, there were large numbers of deaths every year from diseases, especially from typhoid fever. Even now, the death rate is very high in China and India where the rules of sanitation are almost unknown. In these countries, human sewage is dumped into rivers without being treated. This causes the spread of the disease very rapidly through drinking water and irrigation water.

We have too many cases of typhoid fever in Idaho. Some years we have more cases of typhoid fever in Idaho than they do in New York City. How can this be? Doctors tell us that it is true because many people have not been vaccinated against the disease, our water supply often comes from open streams and shallow wells, and because we generally use raw milk. Most of our farms are not equipped to pasteurize their milk. This process requires heating the milk to 143° F. for 30 minutes and then cooling it to 50° as soon as possible. This heating process kills the harmful disease germs that might possibly be in the milk. You might demonstrate this method by heating a small pan of milk, cooling it when heating is completed and placing it in the refrigerator. See how long it will remain sweet.

Of course, there are a number of diseases for which serums and vaccines have not been prepared. The best thing that we can do to prevent catching these is to stay away from the persons who are ill. Also avoid the use of dishes and clothing that such persons have used until they are thoroughly sterilized. We will not exchange bites of food with others. We will not sit down to the table without first washing our hands with soap and warm water even if they appear to be clean.

One cannot be too careful with the common cold because it may be a serious disease itself, and many of the common children's diseases begin with a cold. If not cared for properly, serious trouble

—pneumonia, for example,—may develop. Although there are many remedies for the cold, none have been developed that are very effective. The best treatment seems to be to eat foods high in vitamins; drink lots of liquids; get plenty of rest, sunshine and fresh air; avoid infection from tonsils and teeth; avoid constipation; avoid sitting in drafts; avoid people that have colds, and wash the hands carefully before meals. When you have a cold, go to bed and rest so that your body will have a better chance to throw off the disease. If you have a fever, it is best to call a doctor.

After hearing so much about germs and the diseases they cause, you may wonder why some boys and girls do not have more diseases since they are so careless in their habits. The answer is that they possibly have lots of resistance to disease. The skin, itself, unless it is broken, is a good barrier to disease germs. However, if germs do enter the body through the broken skin or through the membranes of the nose and throat, they are attacked by the white corpuscles (white cells) of the blood and destroyed. As long as the body has strong fighting power, it can resist the disease. Our greatest resistance is built up by eating proper protective foods such as milk, green vegetables, fruits, whole grain cereals, meat and by getting plenty of rest, sunshine and fresh air.

References:

1. American Red Cross, *Home Hygiene and Care of the Sick*, San Francisco, California.
2. Metropolitan Life Insurance Company, *Smallpox, Diphtheria, Colds*, San Francisco, California.
3. Metropolitan Life Insurance Company, *The Conquest of Typhoid Fever*, San Francisco, California.
4. Andress, J. Mace, Ph.D., Goldberger, I. H., M.D., Hallock, Grace T., *Doing Your Best For Health*, Ginn and Company, San Francisco, California, Pages 145-147.

Lesson XI

Protecting Our Food Supply

Did you ever stop to think how much the city boys and girls depend upon the farmer for their food supply? They not only depend upon the farmer and the boys and girls on the farm for butter, milk, eggs, fruits and vegetables, but they depend upon them for clean wholesome food that will be safe to eat, such as fresh fruits and vegetables that will be safe to eat raw. In the Orient it is not safe to eat raw fruit and vegetables because the human sewage has been dumped into the rivers and this water is used for irrigation. The rivers are filthy with organisms such as typhoid and dysentery, and many other filth-borne diseases. The people of India do not kill flies, and so their country is literally alive with flies. In these countries the death rate is very high, especially among babies and small children. Our country is far ahead of them in these conditions, but there is still room to make our conditions better.

It might be interesting for you to look about your home, school and community to see what methods are being used to prevent the spread of disease by flies and carriers of disease.

Water Supply: Perhaps you will find wells in the community that are deep down in the ground, others that are shallow. Some people do not have wells at all, but have a concrete cistern that they fill with irrigation water. Some people get their drinking water from a spring or creeks. Which of these water systems is the safest to use?

After you stop to consider it, you will know that shallow wells, creeks and springs may easily become contaminated by wastes from the human body and therefore be unsafe to use. If the farm toilet is not located at least 100 feet away from the well, the well may become contaminated. The well should have a cement cap over it, so that waste water cannot run back into the well carrying filth with it. When cisterns are used, it will be necessary to add a disinfectant to the water, to purify it and make it safe. Many of our city water supplies are treated with chlorine disinfectant. You may have smelled the disinfectant odor. You can see that it is necessary for the farmer to use pure water to wash his vegetables and fruits, and even for the dairy utensils, or else he may spread disease with his farm produce. It might be well for your club to inspect the water supply around your school and church, as well as your own home, to see if the supply is safe from contamination. If the water has a disagreeable odor or is colored, you might send a sample to the State Chemist, Boise, Idaho, for examination. If there is any reason to suspect contamination with disease organisms, it might be well to get a clean sample bottle from the County Physician and send a sample of the water packed in ice to the State Bacteriologist. This might be a club project.

After water has been drawn from the well, it should be kept in clean, covered containers. Individual drinking cups should be used, especially away from home, in order to prevent the spread of disease.

One of the greatest sources of contamination is through house flies. The fly is known to carry several kinds of human diseases and parasites. Flies live in barnyard manure and on body waste of all kinds. The eggs are laid in manure piles and hatch within a week. After another week in the pupa stage, the fly emerges as a fullgrown adult fly. A single fly will lay as many as 2800 eggs during her 3 weeks of life. There are several generations each year. The best method of control is to destroy the breeding places by keeping the manure hauled onto the field or packed in solid stacks. Garbage should be kept in covered cans and disposed of often. Fly traps are quite valuable in catching flies, and may be home-made at little cost.

An effective poison may be made by mixing 1 tablespoon of 40 percent Formalin, $\frac{1}{4}$ pint of sweet milk or buttermilk, and $\frac{1}{4}$ pint of water. Expose this mixture on a shallow dish to the flies. Trapped flies may be destroyed with boiling water. Screens are very valuable in protecting the house, barn and especially the milk room from

flies. Some dairymen sprinkle Treble Superphosphate fertilizer on the moist spots on the floor so that these spots are unattractive to flies.

The dairy farmer has an important responsibility to his city friend to protect him from the diseases carried by animals. The dairy cattle in Idaho are considered practically free from tuberculosis. Many counties are carrying on a testing and vaccination program to rid their cattle of Bang's disease, the disease which may cause undulant fever. However, there are some other sources of danger. Typhoid fever, scarlet fever, septic sore throat, and diphtheria may easily be spread by "carriers" who handle milk. Carriers are people who may have disease organisms in their throats or in their digestive tracts, and give off these germs without ever getting the diseases themselves. Such people should not handle food products. These carriers can be discovered by doctors' examinations. This fact brings out the importance of pasteurization to safeguard our food supply. Another safeguard for clean milk is clean utensils. If boiling water is not available, certain chemicals, such as chlorine, can be used. After the utensils have been washed, they should be placed in a clean place to dry. Many bacteria die quickly when dried out, and especially if placed in the sunshine.

References:

1. 1941, Shull, W. E., and Manis, H. C., *House Fly Control*, Idaho Experiment Station, Mimeographed leaflet No. 53.
2. Theophilus, D. R., *Essentials of Producing Good Milk and Cream*, Idaho Extension Circular.
3. *Flytraps and Their Operation*, No. 66, U.S.D.A., F.B. 734F, Extension Service.

Lesson XII

Getting Ready for Your Vacation

4-H Club members often plan a vacation trip to the mountains or nearby recreation areas sometime during the summer. In order to make sure that sickness or accidents do not spoil the trip for someone, it is best to do some careful planning. One of the first things to do is to visit your dentist and your doctor to make sure that it is safe for you to go. The dentist may find a tooth that needs filling. The doctor may advise you to be vaccinated for spotted fever, if you are going where there are infected ticks. He might advise you to be vaccinated for typhoid fever, too, since you might drink some polluted water on your trip.

First Aid Kit: You should also check your first aid kit. It should contain gauze bandages, cotton, adhesive plaster, a pair of blunt scissors, and a small bottle of 2 percent iodine, an application for burns—tanic acid jelly,—and olive oil for sunburn. Leave the cotton and bandages in their covers until you need them so that they will stay clean. A first aid kit should be carried in the car at all times. Does your car have one?

Cuts: If you should cut or scratch yourself, wash the wound with soap and water to remove the dirt. When it is dry, paint the cut

bandage after the iodine has dried. The gauze may be held in place with iodine. If the cut is deep, it should be covered with a gauze with adhesive tape. Never put adhesive tape over a wound without gauze under it. Do not put a second application of iodine over a wound. If you cut yourself badly, you should call a doctor. If it is deep and badly torn, you should wrap it up but leave it untreated until the doctor comes.

Sunburn: It is a good idea to prepare for sunburn, too. The best way is to get a coat of tan before the trip if you have not already done this. Sunburn can be severe enough to blister the skin so that the whole vacation could be spoiled. A good tan can be developed by exposing the skin to the sun until the skin is pink for a short time each day until the skin develops a safe coat of tan. Olive oil or other oils will protect the skin if it begins to blister.

Foreign substances in the eye: Someone in the party is likely to get some object in the eye. If so, it may be removed by having that person keep the eyelid closed tightly; tears may accumulate and wash the object out, or you may wash your hands and pull the upper lid over the lower lid two or three times. This may brush the object off or into the corner of the eye where it can be removed. Or, if this fails, the eyelid may be pulled out so that the object can be seen, touch it with a clean handkerchief, and it may cling to the cloth.

Blisters: Someone may develop a blister on his hands or feet. Blisters should not be broken unless they are large and likely to break. Infection is less likely to get into a small opening than into a large break. Open a blister as follows:

1. Wash the hands with soap and water.
2. Wash the blister with soap and water and paint with 2 percent iodine.
3. Sterilize a needle by sticking the point in a flame of a match. Do not let the needle point touch anything.
4. Puncture the blister at its edge and gently press out the fluid.
5. Apply a sterile dressing as for an open wound.

Poisonous plants: Everyone should learn what poison ivy and poison oak are. Remember "Leaflets three, let them be." This old saying describes the poison ivy, a plant with three broad green leaflets with greenish white berries. Touching the plant may cause swollen red areas on the skin and develop blisters that itch. Scratching will only spread the infection. The dry plants are even dangerous in the winter after the leaves have fallen. Even the smoke from the burning wood may cause severe swelling of the face and body. The best thing to do is to wash the hands and arms with yellow or brown laundry soap and hot water. Rinse the skin with alcohol and wash again. The clothing should also be washed with warm water and soap. Those that cannot be washed should be aired well.

Snake bites: One may encounter a rattle snake in the Idaho mountains. They will try to escape if given a chance. One is most likely to be bitten on the hands or feet. The snake must be on the ground to strike, and therefore, seldom strikes higher than the knee. Knee

boots are fine protection. If you should get bitten, the first thing to do is lie still and send for a doctor if you have help near. Apply a tight bandage about 2 inches above the wound between the wound and the heart. Use a clean, sharp knife to open each fang wound with an X-shaped cut. See that it bleeds freely. Exercise causes the poison to spread through the body. It is your duty to lie quietly until the doctor or a person to give first aid arrives. The doctor should have anti-venom serum which should cure the snake bite if given in time.

Purifying water: Care must be taken to drink only pure water. If the water comes from a clear mountain spring, it is usually pure; but if it comes from a road-side spring or mountain stream which runs through camp sites, it may be unsafe to drink. This water should be boiled to be safe. Another way to make the water safe is to add three drops of iodine to a quart of water and allow it to stand for one hour.

Insect bites: One may be bitten by a bee or a yellow jacket. If so, the following should be done: 1. Remove the stinger with tweezers. 2. Apply a paste of baking soda and water. 3. If the whole body is stung, soak the body in a strong solution of soda and water.

Boils: One might be kept from a camping trip because he had a boil which would keep him from going. It is a good thing to know the cause of boils. The germs that cause boils are found on the outside of the body. They enter through scratches or irritated places on the skin, especially if made by dirty hands and soiled clothing. Never squeeze a boil; you will spread the infection. Hot compresses may be applied to draw the infection to the surface and give relief. It should be opened by a doctor when it is ready. Serious infections can be caused by boils.

Foreign bodies in the ear: If someone should get a foreign body, such as an insect, in the ear, it can probably be floated out by the following method: 1. Have the patient lie on the unaffected ear. 2. Drop warm sweet oil into the affected ear. When the insect floats, have the patient turn on the affected side so that the oil and insect will drain out. If this does not remove the insect, take the patient to a doctor. Do not try to remove grain or beans from the ear. Call a doctor.

Nose bleed: Nose bleeds can easily happen on a camping trip. It will usually stop with the following methods: 1. Sit up erect with the head thrown back and apply cold compress or ice bag to the nose. 2. The nostrils may be pressed firmly together and held for 4 or 5 minutes. 3. Also put a roll of clean paper between the upper lip and gum. If necessary, insert cotton or gauze plugs into the nostrils. 4. Do not blow the nose for a few hours. If bleeding does not stop in 15 minutes, a doctor should be called.

Wounds: Wounds made by splinters are dangerous because they often make deep wounds that close up tightly before they heal. This leaves an excellent place for dangerous germs such as tetanus, or lock jaw, to develop. If the wound is shallow, it should be treated with 2 percent iodine. If it is deep, it should be treated by a doctor.

All boys and girls love to climb high mountains and run back down the hill again. This is great fun, but running down hill is dangerous. It is very easy to step on a loose rock or stick, slip and fall, and break an arm or a leg. In this way, you can spoil the vacation for yourself and all the campers in your party. One must be very careful not to get hurt when away from home and far from a doctor.

It is easy to over-do a vacation trip by trying to do too many things that tire you. Right after lunch, it is best to take a good lazy rest in the shade. Pick out a quiet shady spot and remain quiet. You will often be able to see a number of interesting bits of wild life around you. You may see interesting dragon flies, bumble bees, chipmonks or squirrels around your camp. They will add to the pleasures of your trip and you will go home more refreshed than if you tried to ramble around too much.

This meeting suggests a number of demonstrations than can be given in club meetings such as 1. The Essentials of First Aid Kit. 2. First Aid for Snake Bites. 3. Purifying drinking water. 4. Treating insect bites, and 5. Stopping a nose bleed. You will probably think of others to give.

References:

1. American Red Cross, *First Aid Textbook*, San Francisco, California.
2. Andress, J. Mace, Ph.D., Goldberger, I. H., M.D., Hallock, Grace T., *Helping The Body In Its Work*, Ginn and Company, San Francisco, California.