

## VITAMINS AND MINERALS

A new school year is starting. **Anna** and **Bill** go to an Open House at **Kay's** school. They meet **Kay's** teachers. They get a tour of the school. One of the places they visit is the school cafeteria. They meet **Mrs. Lee**. She is the cafeteria district supervisor. **Mrs. Lee** says that students can buy the school lunch. It provides a whole **meal** that includes all of the **food** groups. Or, students can bring brown bag lunches.

**Mrs. Lee** tells them that school lunches contain more **nutrients** than most brown bag lunches. School lunches must provide one-third of the recommended dietary allowances of **protein, Vitamin A, Vitamin C, calcium, and iron**. She says that when school **meals** are compared to brown bag lunches, school lunches have more **vitamins** and **minerals**. The lunches brought from home have more **fat, sugar** and **salt**. **Anna** and **Bill** know about **fats** and **sugars**. They ask **Mrs. Lee** to tell them more about the value of **vitamins** and **minerals** in **health**.

## VITAMINS

**Mrs. Lee** told the parents that **vitamins** are very important. They keep the body **healthy** and functioning properly. **Mrs. Lee** said that **vitamins** come from plants and animals. She said, "So you get **vitamins** when you eat **food**. The body needs **vitamins** for good **health**. **Vitamins** help bodies work properly. For instance, **vitamins** help you get energy from **food**. **Vitamins** grow and repair body tissues, skin, and bones. You have to get **vitamins** from food because

your bodies either can't make them from scratch or can't make enough of them. By eating a balanced **diet** from all the **foods** in **MyPyramid**, you usually can get all the **vitamins** you need. **Vitamins** are divided into two main types: **water-soluble** and **fat-soluble**." **Mrs. Lee** gave each parent the following information about each type of **vitamin**.

## **WATER-SOLUBLE VITAMINS**

**Water-soluble vitamins** are dissolved by water in body cells. **Vitamins** that are not used by the body are eliminated through urine or sweat. Thus, a supply of **water-soluble vitamins** is needed each day. **Vitamin C** and the **B-complex vitamins** are **water-soluble**.

### **VITAMIN C**

**Vitamin C** is sometimes called **ascorbic acid**. It helps form connective tissues. This tissue is what holds body cells together. **Vitamin C** promotes **healthy** gums and teeth. It helps the body absorb **iron** and **calcium**. It helps protect the body from infection. It helps heal cuts and broken bones.

Main sources of **Vitamin C** include **citrus fruits** such as **oranges**, **lemons**, and **grapefruits**. **Vitamin C** also is found in **kiwis**, **watermelons**, **strawberries**, **potatoes**, **sweet potatoes**, and **tomatoes**. Green **vegetables** such as **spinach**, **broccoli** and **bell peppers** also contain **Vitamin C**. Many breakfast **cereals** also are **fortified** with **Vitamin C**. **Fresh fruits** and **vegetables** are the very best

sources of **Vitamin C**. **Cooking** and **processing** these **foods** destroy the **vitamin**.

### **B-COMPLEX VITAMINS**

**B-complex vitamins** are a group of **vitamins**. They function together and separately to promote good **health**. For instance, together they help make red blood cells. These cells carry oxygen throughout the body.

**Vitamin B1** is called **thiamin**. It helps keep the nervous system, heart, and muscles **healthy**. It also plays a key role in helping the body release energy from **food**. This function promotes growth. **Vitamin B1** helps the body digest **carbohydrates** and stabilizes the appetite. This **vitamin** is found in **meat** (especially **pork**), **dairy foods**, **fortified** and other **grain products**, **oranges**, **raisins**, **green beans**, **peanut butter**, **dried beans**, **eggs**, **poultry** and **fish**.

**Vitamin B2** is also called **riboflavin**. The body needs this **vitamin** to use energy from **carbohydrates**, **fats**, and **proteins**. It is also needed for normal growth of cells and promotes general **health**. Sources of **riboflavin** include **dairy products**, **fortified cereals** and **grains**, **pork**, green **vegetables** such as **broccoli** or **spinach**, **mushrooms**, and **asparagus**.

**Niacin** is another name for **Vitamin B3**. It helps the body use other **nutrients**. It improves blood circulation, regulates blood cholesterol, and keeps skin **healthy**. **Niacin** increases energy and maintains the nervous system. It keeps the skin, tongue, and digestive system **healthy**. **Fortified cereals** and **bread products**,

**chicken, peanut butter, dried peas and beans, and tuna** are good sources of this **vitamin**.

**Vitamin B6** helps the body build new **proteins**. The body uses this **vitamin** to get energy from **fats** and **carbohydrates**. It also is needed for the brain and nervous system to function normally. **Vitamin B6** can be found in many **fruits** and **vegetables**, such as **broccoli, cantaloupe, bananas and spinach**. **Protein** sources (**meat, fish, poultry, nuts, beans, eggs**) are also good sources.

**Fortified cereals** and **grain products** provide **Vitamin B6**, too.

**B9, or folic acid**, is needed for a **healthy** heart and to provide the body with energy. It prevents some types of anemia. It is especially important for pregnant women and elderly persons to eat plenty of **foods** containing **folic acid**. Good sources of **folic acid** are green leafy **vegetables, citrus fruits, beans, peas, whole-grain cereals, and fortified cereals**.

The body uses **Vitamin B12** to make and regenerate red blood cells. Like **Vitamin B6**, it helps the body get energy from **fats** and **carbohydrates**. It also adds to the **health** of the nervous system. **Vitamin B12** promotes growth. It lets the body absorb **calcium**. The best sources of **Vitamin B12** are **meat products**. These sources include **meat, poultry, seafood, eggs, and milk products**. Some **cereals** are also **fortified** with **B12**.

## **FAT-SOLUBLE VITAMINS**

Unlike **water-soluble vitamins**, **fat-soluble vitamins** are stored in fat tissues and in the liver until the body needs them. **Vitamins A, D, E, and K** are **fat-soluble**.

### **VITAMIN A**

**Vitamin A** helps many body processes. It promotes cell growth and boosts the immune system. **Vitamin A** keeps skin clear and smooth. It also helps mucus membranes stay **healthy**. **Vitamin A** aids in bone and tooth formation. **Vitamin A** is also good for the eyes and contributes to good vision.

There are two main types of **Vitamin A**--**retinoids** and **beta-carotene**.

**Retinoids** come from animal sources such as **liver, fish, and eggs**. **Beta-carotene** comes from plant sources, particularly deep green, orange or yellow **vegetables** such as **spinach, broccoli, carrots, sweet potatoes** and **pumpkins**. **Beta-carotene** also comes from **fruits** such as **apricots** and **cantaloupe**. **Milk** and other products such as **cereal** and **juice** are often **fortified** with **Vitamin A**.

### **VITAMIN D**

**Vitamin D** helps build strong bones and teeth in children. It helps adults keep strong bones. The body uses **Vitamin D** to absorb some **minerals**, especially **calcium**. It contributes to the **health** of the nervous system and heart.

**Vitamin D** is unique. It can be made in the body. Bodies make it from sunlight. About 15 minutes of sun exposure per day is usually enough. Bodies also get **Vitamin D** from **foods**. **Fortified milk, margarine, oily fish** (such as **tuna** or **sardines**), **eggs**, and some **fortified cereals** are good sources of **Vitamin D**.

### **VITAMIN E**

**Vitamin E** protects the **health** of every cell. **Vitamin E** also supplies the blood with oxygen and helps prevent dangerous blood clots that can cause strokes.

**Vitamin E** comes from plant **oils** such as **corn, sunflower, safflower, soybean** and others. It also is found in **margarine, leafy green vegetables, whole grain cereals** and **bread products, eggs, liver, nuts,** and whole **milk**.

### **VITAMIN K**

**Vitamin K** contributes to the **health** of the body's blood. It helps make some of the **proteins** needed for clotting blood when you get a cut.

Green leafy **vegetables** such as **spinach** and **cabbage** are the best sources of **Vitamin K**. **Green beans, broccoli** and **peas** also provide **Vitamin K**.

## **MINERALS**

**Mrs. Lee** said that like **vitamins**, **minerals** are **nutrients** needed by your body. They keep the body functioning. The body uses **minerals** to regulate body processes and give the body structure. **Mrs. Lee** told the parents that there are many **minerals** that the body uses. She gave them the following information about **calcium**, **iron**, and **sodium**. Information about these three **minerals** must be included on **food labels**.

### **CALCIUM**

The body uses the **mineral calcium** in many ways. It builds bones and teeth. It helps blood clot and allows the heart to beat regularly. Muscles and nerves use **calcium**. It helps the body maintain healthy cell membranes. **Calcium** even regulates the use of other **minerals** in the body. **Calcium** is found in **milk** and **milk products**, **tofu**, green **vegetables** and a few **fish** and **shellfish**. Some **grain products** and **juices** are also **fortified** with **calcium**. Drinking too many **carbonated soft drinks** instead of **milk** can cause a **calcium** deficiency that can lead to osteoporosis. Osteoporosis means that the bones are not strong and can break easily. Children need extra **calcium** for growth.

### **IRON**

**Iron** helps red blood cells carry oxygen to different parts of the body. The body also uses **iron** to make new cells. **Iron** helps the body resist infection. People who don't eat enough **iron** can become anemic. **Foods** from the **meat & beans group** in **MyPyramid** are the best sources of **iron**. Other foods rich in **iron**

include leafy green **vegetables** like **spinach**, **dried fruits**, **whole-grain bread products**, **fortified cereals** and **enriched breads**.

## **SODIUM**

Sodium is a **mineral**. People tend to eat too much **sodium**. **Sodium** and **sodium chloride**, commonly known as **salt**, occur naturally in **foods**, usually in small amounts. Most of the extra **sodium** in our **diets** comes from **processed foods** rather than from **salt** that is added in **cooking** or at the **table**. Most **healthy** Americans should consume no more than 2,300 mg of **sodium** a day, which is about the amount in one **teaspoon** of **salt**. The average American consumes 4,000-6,000 mg a day.

## **MAKING THE CHOICE**

**Anna** and **Bill** read all the information carefully. They think about the choices they want to make about **food**. They are glad that **Kay** wants to eat lunch at school because it provides a variety of **foods** that help children eat enough **vitamins** and **minerals** each day. They already knew that eating **healthful foods** is important. Now they know why. **Foods** rich in **vitamins** and **minerals** are the right choice for them.