

# VIRGINIA COOPERATIVE EXTENSION SERVICE

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## Lesson 3 Diet, Exercise, and Behavior Modification (Weight Control by Mail)

Dear Weight Control Member:

Congratulations to those who lost 1 or 2 pounds last week! If you did not lose, what can you do change your eating habits? Remember to work with the following:

### Diet + Exercise + Change in Food Patterns

- what you eat
- how much you eat
- when
- where you eat
- how you feel when you eat

To reduce caloric intake without short-changing the body of essential nutrients, follow the pattern of choices suggested by the Daily Food Guide in your diet plan. You need the same types of food for health as everyone else. Cut down on food, but don't cut out any important kinds of foods. Snacks are counted as a part of the day's total food. Sensible snacking can help meet nutritional needs, but indiscriminate eating between meals leads to more calories than are needed and too few nutrients.

Food is made up of different nutrients needed for growth and health.

- All nutrients needed by the body are available in food.
- Many kinds and combinations of foods can lead to a well-balanced diet.
- No food, by itself, has all of the nutrients needed for full growth and health.

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- Nutrients do their best work when teamed with other nutrients.
- Each nutrient has a specific use in the body.
- All persons throughout life have need for the same nutrients, but in varying amounts.

The enclosed lesson on nutrients is a summary of the important nutrients found in food. The lesson explains how these nutrients function in the body and lists foods that supply appreciable amounts of each of them. These facts may help you understand why everyone needs a well-chosen variety of foods to be adequately nourished and healthy. Choose and eat a variety of low-calorie foods each day.

Sincerely,

Extension Agent

P.S. There are a few of you who requested additional time for Medical Approval-- please send these forms to me immediately. REMEMBER to return all activity forms from Lessons 1 and 2.

Before you begin this lesson, take a few moments to complete the nutrition knowledge quiz below. The answers will be given in the lesson. See how well you can do. Check your answers as you study the lesson.

### Nutrition Knowledge Quiz

True or False?

- \_\_\_\_\_ 1. Protein is less fattening than carbohydrates.
- \_\_\_\_\_ 2. Adults do not need calcium because their bones are fully grown.
- \_\_\_\_\_ 3. Since meat and other similar foods are high in protein, they do not cause weight gain.
- \_\_\_\_\_ 4. To reduce even faster, fats should not be included in the diet.
- \_\_\_\_\_ 5. When a balanced diet is consumed, vitamin and mineral supplements are usually not necessary.
- \_\_\_\_\_ 6. If you do not meet the Recommended Dietary Allowances for your age group, you will be undernourished.
- \_\_\_\_\_ 7. Margarine has fewer calories than butter.

Fill-in:

Of the U.S. diet, approximately what percentage of calories comes from:

\_\_\_\_\_ % Protein?

\_\_\_\_\_ % Carbohydrate?

\_\_\_\_\_ % Fat?

## 1. Four Food Groups

The diet plans for DEB are based on the Six Food Groups system which groups foods with similar amounts of carbohydrate, protein, and fat. Foods within a group, thus, have similar calorie content but may differ substantially in vitamin and mineral content.

The Four Food Groups Guide groups foods with similar nutrient content. Calorie content of foods within a group may vary substantially.

Foods in the Milk and Milk Products Group contribute calcium, phosphorus, and riboflavin. Foods in this group also contribute good quality protein.

Foods in the Meat and Meat Alternates Group supply the largest portion of protein. Red meats, poultry, and seafood which contain little, if any, carbohydrate are in this group, as are nuts and mature beans and peas. Because of their high fat content, nuts appear in the Fat Group in the Six Food Groups classification, while mature beans and peas are in the Bread Group because of their carbohydrate content.

The Fruit and Vegetable Group supplies vitamins A and C. In fact, fruits and vegetables are the only dietary sources of vitamin C. Foods in this group also supply small, but significant, amounts of several other vitamins and minerals. Fruit and vegetable sources of vitamins A and C are identified in the description of the Six Food Groups used in the diet plan (348-207, Lesson 2).

The Bread and Cereal Group supplies small, but important, amounts of iron and of several B vitamins.

The Four Food Groups Guide is a general one which can be used in planning meals for all family members.

Recommendations for the number of servings needed from each group are based on needs for nutrients supplied by that group.

All family members do need the same nutrients, but the quantity of a specific nutrient needed varies based on age, sex, body size, physiologic size, and genetic makeup.

## 2. Food Nutrients

There are 6 groups of nutrients--protein, fat, carbohydrate, vitamins, minerals, and water.

Three of the groups of nutrients--protein, fat, and carbohydrate--supply energy. Fat is the most concentrated source of energy supplying 9 calories per gram. Protein and carbohydrate each supply 4 calories per gram.

### PROTEIN

Protein is needed to build, repair, and maintain cells of the body. Protein can also serve as an energy source, both for immediate use and for reserve use in the form of fat stores. Protein is used for energy when more protein is in the diet than is needed for building and maintaining body cells, or when too little fat and carbohydrate are consumed to meet energy needs.

Which food groups contribute important amounts of protein to your diet? All four groups contribute some protein to your diet. However, the MEAT AND MEAT ALTERNATES GROUP and the MILK AND MILK PRODUCTS GROUP contribute high quality protein. Proteins differ in quality because they differ in the kinds and amounts of amino acids (the building blocks of protein) that they contain. Proteins from animal sources such as muscle, milk, and eggs are rated highest because they supply amino acids in about the same proportions as needed by the body. Fruits, vegetables, grains, and nuts supply important amounts of protein but do not provide adequate amounts of some amino acids in proportion to others. Combining a cereal or vegetable protein with a small amount of animal protein (such as eating bread with cheese or cereal with milk) helps to improve protein quality.

### FATS

Fats are CONCENTRATED sources of energy (or calories). For example, one gram of fat has approximately nine calories, while one gram of carbohydrate or one gram of protein has approximately four calories. Fat provides calories to help "spare" protein for body building and repair. However, it also serves other functions such as (1) providing ESSENTIAL FATTY ACIDS which cannot be made by the body and (2) being a carrier of FAT-SOLUBLE VITAMINS A, D, E, AND K.

### CARBOHYDRATES

Carbohydrates supply energy (or calories) for the body. They, like fats, will "spare" protein for body building and repair. Enriched or whole-grain products from the BREADS AND CEREALS GROUP provide carbohydrates and small but important amounts of IRON and B-VITAMINS. Foods from the FRUITS AND VEGETABLES GROUP also supply carbohydrate to our diets. It is suggested that at least 50 to 100 grams of carbohydrate be eaten each day to avoid excessive breakdown of body protein and other undesirable effects of a diet free of carbohydrate. This is much less than the average carbohydrate intake of most Americans of about 250 grams (about 1,000 calories or 50 percent of the total number of calories consumed).

### VITAMINS

There are two kinds of vitamins--fat-soluble and water-soluble. FAT-SOLUBLE vitamins A, D, E, and K are stored in the body. WATER-SOLUBLE vitamins are vitamin C (ascorbic acid) and the various B vitamins--thiamin (vitamin B-1), riboflavin (vitamin B-2), niacin, vitamin B-6, folacin, and vitamin B-12.

Vitamin A is a fat-soluble vitamin which functions as follows:

- helps keep skin healthy
- helps eyes adjust to light changes
- helps keep lining of mouth, nose, throat, and digestive tract healthy

Food sources of vitamin A are:

- liver
- butter or margarine
- dark green and deep yellow fruits and vegetables such as:
  - carrots
  - collards, kale, leafy greens
  - sweet potato
  - cantaloupe
  - tomato
  - apricots

Vitamin C or ascorbic acid is a water-soluble vitamin which functions as follows;

- helps heal wounds
- helps hold body cells together and strengthen walls of blood vessels
- prevents scurvy

Food sources of vitamin C are:

- | Excellent sources | Good sources                      |
|-------------------|-----------------------------------|
| -citrus fruits    | -leafy greens    -brussel sprouts |
|                   | -tomato            -cabbage       |
|                   | -potato            -cantaloupe    |
|                   | -broccoli         -green pepper   |

It is important to remember that vitamin C is not stored in the body. Therefore, a good source should be eaten every day. However, massive amounts in the form of vitamin tablets should not be taken.

B-vitamins are also water-soluble and have many important functions. Some of them are as follows:

- helps body cells obtain energy
- helps keep the nervous system healthy
- helps keep skin, mouth, tongue, and digestive tract healthy

Food sources of the B-vitamins are:

- |                       |  |
|-----------------------|--|
| -eggs                 | -whole-grain and enriched breads and cereals |
| -meat                 | -mature beans and peas                       |
| -milk                 | -nuts and peanut butter                      |
| -liver, kidney, heart |  |

## MINERALS

Iron is a mineral which functions as follows:

- combines with protein to form hemoglobin molecules in red blood cells. Hemoglobin carries oxygen to the cells. If you don't have enough iron for adequate hemoglobin production, then an inadequate amount of oxygen is received by the cells.
- is a constituent of a number of enzymes.

Food sources of iron are:

- |               |   |
|---------------|---|
| -liver        | -chicken                                    |
| -leafy greens | -mature beans and peas                      |
| -beef         | -enriched or whole-grain breads and cereals |
| -pork         |   |

It is a good idea to eat liver once a week. Liver not only is an excellent source of iron, but also of protein, B-vitamins, and vitamin A.

Calcium functions in both hard and soft tissues as follows:

- helps build and repair bones and teeth
- helps blood clot
- helps nerves, muscles, and heart function properly

Foods within the MILK AND MILK PRODUCTS GROUP are excellent sources of calcium. During the entire life cycle, bone is being torn down and built up, so adults need calcium as do children. Nearly three-fourths of the daily calcium requirement can be provided by 2 glasses of milk or its equivalent in calcium from the MILK AND MILK PRODUCTS GROUP. Use of skim milk (fresh or reconstituted powdered milk) or butter-milk made from skim milk will provide needed calcium with a minimum number of calories.

Look at the Basic Four Worksheet (348-338) accompanying this lesson. Determine the number of servings from each of the Basic Four Food Groups you normally eat on your diet plan.

A suggested activity during Lesson 2 was to fill out the necessary forms to run the RECALL computer program which totals nutrient intake and makes comparisons with the RDA. As soon as I receive your RECALL worksheet, I will analyze it and return it to you so that you can see which nutrients are plentiful or lacking in your diet.

3. Answers to Quiz

1-F; 2-F; 3-F; 4-F; 5-T; 6-F; 7-F; 8-11%; 9-50%; 10-39%

4. Summary

a. Objectives Checklist

You should now be able to:

- \_\_\_\_\_ 1. Explain functions of major nutrients and identify their food sources.
- \_\_\_\_\_ 2. Classify foods into the Basic Four Food Groups.

b. Activities Checklist

- \_\_\_\_\_ 1. Basic 4 Exercise                    KEEP
- \_\_\_\_\_ 2. Continue Weight Graph            KEEP
- \_\_\_\_\_ 3. Continue Diet Plan                KEEP
- \_\_\_\_\_ 4. Nutrition Knowledge Quiz        KEEP