

# **NUTRITION BASICS AND PATIENT FEEDING**

## Abstract:

The human body requires good nutrition and the proper intake of food and fluids, to grow, repair damage, and to fight off infections. Food and fluids provide the body with calories and nutrients. Guidelines for individual diets include important rules such as maintaining a balance between calories taken in and calories expended to maintain proper body weight. A CNA will be called upon to assist a patient who needs assistance with eating. There are many reasons why someone might not be able to self-feed, and there are some important rules and procedures a CNA will need to follow when feeding a patient. Patients who cannot feed themselves are at risk of aspirating food into the lungs, and the CNA who observes recommended safety measures to prevent patient aspiration may help to avoid a devastating outcome.

## Learning Objectives:

1. Describe the processes of good nutrition.
2. List and describe the role of common essential vitamins and minerals.
3. Identify methods of planning patient feedings and of prevention of meal aspiration.

## **Introduction**

Nutrition is the study of the foods and fluids people eat and how their bodies use them for energy and health. The study of nutrition also involves understanding how poor or inadequate nutrition affects a person's health. Understanding the basic concepts of nutrition is important. Many patients that a Certified Nursing Assistant (CNA) cares for will have illnesses that affect their nutritional status and needs, and may be unable to properly care for their nutritional needs. A CNA is responsible to make sure that patients are well-hydrated and well-nourished.

## **Nutrition: An Overview**

The human body is very active and it needs energy to survive. The body also must be able to grow, it needs to repair damage and must fight off infections. All of these processes require good nutrition and the proper intake of food and fluids, which provides the body with the two essentials of nutrition - calories and nutrients.

### **Calories**

A calorie is defined as a measurement of the energy that food provides to the body. Calories are the basic compounds that provide fuel and energy for metabolic and physiological processes that are needed for the body to function. Different foods have different calorie content. Fats have 9 calories per gram, and carbohydrates and proteins each have approximately 4 calories per gram.

The average male needs approximately 2100 calories a day, and the average female needs about 1900 calories a day. However, the calorie

needs listed above are only averages. Calorie needs are different for each person and they change depending on age, health status, and activity level. Many patients will have a specific amount of calories that their health clinician determines is best for them. This information can generally be found on the patient's medical record.

Regardless of how well-balanced a diet is and how well a diet supplies the body with the essential nutrients, a diet that is deficient in calories is unhealthy. The opposite is also true. A diet that provides an excess of calories, even in the form of foods that are considered to be nutritious, is not healthy either. If the difference between caloric intake and caloric expenditure (the calorie balance) is biased towards caloric intake then the excess calories will not be used for energy but stored as body fat. Weight gain and weight loss are influenced by many factors but caloric balance is one of the most important. Weight control is important because being overweight or obese is a direct cause of chronic health problems such as diabetes and heart disease.

The term *empty calories* is often used when discussing nutrition. Empty calories refers to foods that have a high calorie content of fats and sugars but very few nutrients. For example, a candy bar that weighs 43 grams may have 210 calories, 140 of those calories are fats, and the candy bar has essentially no other nutrients. Contrast that with a cup of yogurt that weighs 150 grams. A cup of yogurt has 130 calories, no fat, 12 grams of protein and a significant amount of calcium.

## **Nutrients**

The second essential that food and fluids provide is nutrients. A nutrient is a chemical substance found in food that is essential for life.

Just as the body needs adequate calories to survive, it also needs the right nutrients in the right amounts. A diet may be high in calories and provide a lot of energy but it can be lacking in nutrients. Nutrients can be divided into two basic categories of *fluids* and *solids*, and into two more specific categories of *macronutrients* and *micronutrients*. There are some macronutrients and micronutrients in fluids, however most of our daily intake of these is from solid foods.

#### Fluids:

Fluids are crucial for our health and survival. The body can survive for weeks without solid food but a person cannot survive for more than a few days if completely deprived of fluids. People can lose close to half of their body weight and survive but losing close to one-fifth of a person's body fluid can be fatal.

There are many sources of fluids but water is the most common and the most important. The daily water requirement varies greatly with age, activity, basic health status, the environment, and the presence of illness. The larger and more active an individual the more fluid will be needed. Fluid requirement is also increased when the ambient temperature is high. Water does not have calories but fluids such as juices and milk do.

Fluid intake comes not only from drinking liquids but it also comes from many of the foods consumed, such as fruits and vegetables. These foods have a substantial amount of water and they are equally as important as a source of fluids for the body.

Fluid output or loss occurs by sweating, urination, defecation, and by evaporation of water from the lungs when people breathe. Because maintaining the proper level of fluid balance is so important, the processes of intake and output are closely regulated and, for a majority of people, fluid intake and output are fairly well matched most of the time.

People who are sick, and especially those with a fever, need more water because the metabolic rate increases during illness or fever. The increased metabolic rate increases the need for fluid and a high fever increases body temperature, which in turn causes the body to literally burn off fluid because of the high temperature.

There is no simple answer to how much fluid a person needs each day. Everyone has heard the advice to drink eight glasses (8 oz. each) of water a day. There is little factual basis for this recommendation. It ignores the fact that we consume a lot of fluid in the foods we eat. It also does not address the fact that the amount of water that is needed to maintain a healthy balance of intake and output depends on too many factors to use a simple rule. This 8-glass recommendation also presupposes that everyone is starting at the same point of fluid balance, not taking into account that some people may have an excess of fluid and some people may have a deficit. Finally, this recommendation does not recognize that fluid intake should be categorized as either maintenance or replacement. If the fluid balance is healthy and normal only maintenance fluid intake is required but if there is a fluid deficit then replacement fluid is needed.

Solid Foods, Macronutrients, and Micronutrients:

Solids are the source of almost all of the calories we take in each day, and solid foods are the source of most of the nutrients we receive from food. Solid foods such as fruits and vegetables are also a significant source of the fluids we consume each day.

Nutrients can be easily and usefully divided into two categories - the macronutrients and the micronutrients. There are several reasons why nutrients are divided into these two categories, but one of the simplest is because of the required amounts of each that we need. The daily requirements for macronutrients are measured in grams. For example, the daily requirement for protein for an adult male of average body weight is approximately 40 grams a day. However, the recommended dietary allowance of vitamin B<sub>12</sub> for the same adult male would be 2.5 micrograms a day. By comparison, there are 40 million micrograms in 40 grams.

There are three macronutrients - carbohydrates, fats, and proteins. Each of the macronutrients can be used for calories, but each one also has a specific function aside from being an energy source. Many foods contain more than one type of macronutrient.

## **Carbohydrates**

Carbohydrates are found in grains, fruits, vegetables, and sugars. Some people refer to carbohydrates as starches but this is not accurate. A starch is simply a form of carbohydrate. There are two types of carbohydrates - *complex* and *simple*, and there are two important differences between them. First, although complex and

simple carbohydrates are both broken down and used for energy, this process is longer and more involved for the complex carbohydrates, which must often be converted into sugars while the simple carbohydrates often are sugars (such as table sugar) or fructose that is contained in fruits.

The second difference between the complex and simple carbohydrates is that the complex carbohydrates are often found in foods such as beans, grains, and vegetables that contain fiber and micronutrients while the simple carbohydrates are often found in foods that are not important sources of micronutrients. However, complex and simple carbohydrates are primary sources of energy used by the body and in some cases they are the only source of energy that can be easily used. The brain, for example, depends almost entirely on glucose (more commonly known as blood sugar) for energy. Fats and proteins can be used by the brain for energy but not very effectively or quickly. The heart typically uses a type of fat called free fatty acids as its primary energy source.

## **Fats**

Fats are found in butter, oils, meats, milk, nuts, and many snack foods. Fats are an important source of energy. Most of the time our bodies are burning fat for energy, not carbohydrates. Fats are not usually an important source of other nutrients, but fats are essential for health, especially for young children. There are many different types of fats, saturated, unsaturated, trans fats, *etc.*, and a full discussion of these is not practical here. Most authorities recommend limiting the total amount of fat that is consumed, especially saturated

fats, because a diet that is high in fats is associated with cardiovascular disease and stroke.

## **Proteins**

Proteins are found in meats, fish, cheese, and beans. Proteins are used by the body to build muscle and to repair damage to tissues. Proteins can also be used for energy, but this usually happen only when the body does not have sufficient sources of carbohydrates and fats.

## **Minerals and Vitamins**

The micronutrients are divided into two categories, minerals and vitamins. The body only needs very small amounts of micronutrients. A nutritious, well-balanced diet should provide all the required amounts of micronutrients and significant micronutrient deficiencies that cause illnesses are rare. However, two points should be mentioned. First, the need for micronutrients depends on age, some people need more than others, and many Americans do not eat a nutritious, well-balanced diet.

There are at least 20 minerals for which there are recommendations for daily intake. Some of these are needed only in small amounts and these are the so-called trace minerals or trace elements. The minerals are listed in Table 1.

**Table 1: Minerals**

<b>Boron</b>	<b>Calcium</b>	<b>Chromium</b>	<b>Copper</b>
<b>Chloride</b>	<b>Fluoride</b>	<b>Iodine</b>	<b>Iron</b>
<b>Magnesium</b>	<b>Manganese</b>	<b>Molybdenum</b>	<b>Nickel</b>
<b>Phosphorus</b>	<b>Potassium</b>	<b>Selenium</b>	<b>silicon</b>
<b>Sulfate</b>	<b>Sodium</b>	<b>Vanadium</b>	<b>Zinc</b>



Of all of these minerals, only some of them will be discussed here in terms of their nutritional value and recommended dietary allowances (RDA).

#### Calcium:

Calcium is essential for bone health, muscle contraction, and proper functioning of the heart and nervous system. Dairy products such as cheese, milk and yogurt, and vegetables such broccoli and kale are commonly eaten foods that are good sources of calcium. For most people, the RDA for calcium is 1000 mg a day, but children, adolescents, and adults over the age of 50 may need more.

It is important to remember vitamin D is needed in order for calcium to be absorbed. If the daily calcium intake is too low this can prevent the normal growth of bones during childhood and adolescence and increase the risk for developing brittle, weak bones (osteoporosis) later in life. However, calcium deficiency does not cause signs and symptoms unless the daily intake is very low. Calcium supplements should only be taken if they have been prescribed by a health clinician. If someone has kidney disease excess calcium cannot be excreted.

#### Iron:

Iron is an important mineral needed for the formation of hemoglobin. Hemoglobin is the protein in blood that combines with and carries oxygen to the organs and tissues. Iron is found in meats such as beef and chicken and in some plants and nuts, but the amount of iron in meats is higher and is more easily absorbed than that found in plants.

There are also many commercially produced foods that are fortified with iron. The RDA requirement of iron for men is 8 mg a day. Because women lose iron during the monthly menstrual period they require more than men, 15-18 mg a day. Infants, children, and pregnant women also need extra dietary iron. Iron deficiency can cause anemia (commonly referred to as a low blood count) and someone with iron-deficiency anemia will feel tired and weak.

**Fat-soluble and Water-soluble Vitamins:**

Vitamins are chemical compounds that cannot be synthesized by the body (except for vitamin D) and are essential for the proper functioning of many complex physiological processes. The vitamins are divided into two categories, the *fat-soluble* and the *water-soluble* vitamins. The primary differences between them is how they are absorbed and how they are stored.

The fat-soluble vitamins require fat to be absorbed and they can be stored in tissues. The water-soluble vitamins are dissolvable in water and they cannot be stored in tissues. The fat-soluble vitamins are A, D, E, and K. The water-soluble vitamins are the B vitamins B<sub>1</sub>, B<sub>2</sub>, B<sub>3</sub>, B<sub>5</sub>, B<sub>6</sub>, B<sub>7</sub>, B<sub>9</sub>, and B<sub>12</sub>, and vitamin C. The vitamins are listed in Table 2, along with some of the names by which they commonly called.

**Table 2: Fat-Soluble Vitamins and Water-Soluble Vitamins**

<b>FAT-SOLUBLE VITAMINS</b>	<b>WATER-SOLUBLE VITAMINS</b>
<p><b>A (Beta-carotene, retinol)</b>  <b>D (Cholecalciferol, ergocalciferol)</b>  <b>E (Tocopherol)</b>  <b>K (Phytonadione)</b></p>	<p><b>B<sub>1</sub> (Thiamine)</b>  <b>B<sub>2</sub> (Riboflavin)</b>  <b>B<sub>3</sub> (Niacin)</b>  <b>B<sub>5</sub> (Pantothenic acid)</b>  <b>B<sub>6</sub> (Pyridoxine)</b>  <b>B<sub>7</sub> (Biotin)</b>  <b>B<sub>9</sub> (Folic acid)</b>  <b>B<sub>12</sub> (Cyanocobalamin)</b></p>

Several of the vitamins will be covered here to provide examples of what they do.

#### Vitamin D:

Vitamin D is needed for the absorption of calcium and several other minerals. There are very few foods that contain vitamin D and most of those only have small amounts or they are not commonly part of the North American diet. The majority of vitamin D is synthesized in the skin by exposure to sunlight. Because many people do not receive enough sunlight and there is evidence that a mild level of vitamin D deficiency is common, it is recommended that children and adults take vitamin D supplementation.

The RDA of vitamin D for adults is 600 IU (International Units) a day. Adults over the age of 70 should take 800 IU a day and breast-fed infants should receive vitamin D supplementation as breast milk is low in vitamin D. Vitamin D deficiency has been definitely linked to abnormal bone growth and osteoporosis and tentatively linked to many other chronic diseases.

#### Vitamin K:

Vitamin K is essential for blood clotting. The process of blood clotting depends on having a sufficient amount of clotting factors, and the clotting factors cannot be produced without vitamin K. Vitamin K is found in leafy green vegetables such as broccoli, kale, and spinach. The RDA of vitamin K is age and gender dependent. Adult males should get 120 mcg a day, adult women 90 mcg, and children should

get an amount that is determined by age. Vitamin K deficiency is very rare in healthy people.

#### Vitamin A and Vitamin E:

The RDA of vitamin A is 2300 IU a day for women, and 3000 IU a day for men. The RDA for vitamin E is 30 IU a day for both women and men.

The fat-soluble vitamins are stored in tissues while the water-soluble vitamins are not. Because of this when water-soluble vitamins are ingested in amounts that are beyond what is needed the excess is eliminated in the urine. However, when a fat-soluble vitamin is ingested in excess amounts it is stored in the tissues and toxic amounts can accumulate, especially of vitamins A and D. Taking a vitamin in excess of the recommended daily allowance is not needed or helpful. More is not better and this is especially true of the fat-soluble vitamins.

#### B Vitamins:

The B vitamins, B<sub>1</sub> through B<sub>12</sub>, also known respectively as thiamine, riboflavin, niacin, pantothenic acid, pyridoxine, biotin, folic acid, and cyanocobalamin, all play important roles in cellular metabolism and energy production. The B vitamins are found in a wide variety of foods such as beans, meats, whole grains, and enriched flour. B vitamin deficiencies are unusual unless someone has very poor dietary habits by choice or because of economic deprivation, and B vitamin excesses that cause signs and symptoms are quite unusual. The RDAs of B

vitamins for adults are listed in Table 3. The RDAs for women, if these are different than for men, are listed first.

**Table 3: B Vitamins Recommended Dietary Allowances**

<b>B<sub>1</sub> - 1.1 and 1.2 mg</b>
<b>B<sub>2</sub> - 1.1 and 1.3 mg</b>
<b>B<sub>3</sub> - 14 and 16 mg</b>
<b>B<sub>5</sub> - 5 mg</b>
<b>B<sub>6</sub> - 1.3 mg</b>
<b>B<sub>7</sub> - 30 mcg</b>
<b>B<sub>9</sub> - 400 mcg</b>
<b>B<sub>12</sub> - 2.4 mcg</b>

#### Vitamin C:

Vitamin C, also known as ascorbic acid, is needed to maintain the strength of the skin, to prevent free radical damage, for the maintenance of the immune system, and for proper functioning of the nervous system. Vitamin C is found in citrus fruits and vegetables such as broccoli and cabbage.

Vitamin C deficiency causes a disease called scurvy, and scurvy is characterized by signs and symptoms like bleeding, bruising, impaired wound healing, and weakness. Scurvy occurs in people who have poor dietary habits by choice or circumstance, for example, someone who has an alcohol use disorder or who cannot afford nutritious foods; however, the intake of vitamin C has to be very low for a long period of time before scurvy will occur.

The RDA of vitamin C is 75 mg a day for adult women and 90 mg a day for adult men. Very large amounts of vitamin C can cause

abdominal discomfort and diarrhea, but serious illnesses caused by excess amounts of vitamin C are uncommon.

### **Health Prevention and Dietary Recommendations**

Nutrition needs vary from person to person and these needs will change depending on someone's age, gender, activity level, and health status. The "perfect" diet is not possible for all people all of the time.

Many people use the term diet to refer to a decreased food intake, commonly done in an effort to lose weight. However, the term diet is more correctly defined as simply the food people eat, and there are some basic rules of nutrition that should be followed.

Food and fluids are needed for survival and growth. The wrong foods, however, either in quantity or quality, can definitely be harmful. For example, a diet that is high in saturated fats and cholesterol can definitely contribute to the development of heart disease and increase the risk of suffering a stroke.

There are guidelines that can help people to eat a healthy diet. However, these are basic guidelines and they must be adjusted for each individual. The recommendations provided below are from the *Dietary Guidelines for Americans* for healthy eating that are from the US Department of Agriculture (USDA) and the US Department of Health and Human Services. A sample food pyramid that illustrates some of these points is also provided.

- Maintain a balance between calories taken in and calories expended to maintain a proper body weight.

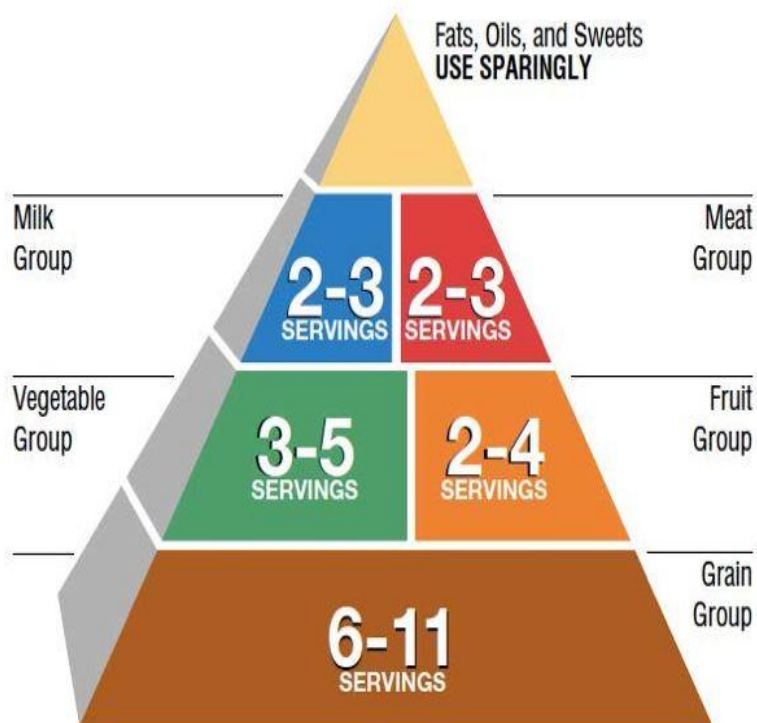
- Consume nutrient dense foods.
- Most people should consume less than 2300 mg of sodium (salt) a day, and people who are over age 51, African Americans, and people who have diabetes, hypertension, or kidney disease should only consume 1500 mg of sodium a day. A single teaspoon of salt contains 2300 mg of sodium.
- Limit cholesterol intake to 300 mg a day. A single egg has approximately 186 mg of cholesterol.
- Do not have more than one alcoholic drink a day. A drink is defined as 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of hard liquor.
- Most people need approximately 2 to 3 liters of fluid a day.
- Most people should eat 6 to 8 servings of fruits and vegetables a day.
- Proteins should be about 20% of the daily calorie intake.
- Carbohydrates should be about 50% of the daily calorie intake.
- Fats should be limited to less than 30% of the daily calorie intake.
- Trans fats should be limited to less than 1% of the total daily calorie intake. Trans fats are liquid vegetable oils that have been changed to make them more palatable and to give food a specific taste and texture, and they are commonly found in baked goods and snack foods. Trans fats have essentially no nutrient value and they increase serum cholesterol.

The caloric, macronutrient, and micronutrient requirements of infants and children depend on age, gender, and activity level. For example, children who are three years of age and younger should not have their fat intake restricted as fat is essential for development of the nervous system. Infants and children should drink whole milk, not 2% or skim milk. Breast-fed infants should receive supplemental vitamin D, but

aside from that if the infant/child is eating a well-balanced diet micronutrient supplementation is not needed. Children also eat more frequently than do adolescents or adults and frequent snacks are necessary for this age group.

The nutritional requirements of adolescents do not differ significantly from those of adults, with two exceptions. Adolescents need more calcium because the teen years are critical for bone growth, and adolescent females may be iron deficient.

Adults who are 65 years and older may suffer from poor nutrition caused by factors such as dental problems, lack of financial resources, dementia, and social isolation.





The daily recommended intakes and allowances for calories, macronutrients and micronutrients are age and gender specific and activity specific. The USDA website has a dietary reference intake calculator to determine these intakes and allowances, available at: <https://fnic.nal.usda.gov/dietary-guidance/dietary-reference-intakes>. Within the USDA website, the Dietary Reference Intake Calculator for Healthcare Professionals may be accessed and has a link to the Interactive DRI for Healthcare Professionals. An example of how the USDA calculator is used is shown here.

Adult Female:

An adult female who is 45-years-old, weighs 139 pounds, and is considered to have a low activity level would require: 1) 2300 calories a day, 2) 2.7 liters of fluid a day, 3) a total daily fat intake of no more than 30% of the total daily calorie intake, 4) 51 grams of protein a day, 5) 18 mg of iron and 1000 mg of calcium a day, and 6) 600 IU of vitamin D a day.

Two other sources that can be used for determining nutritional needs are the Dietary Reference Intakes and the Daily Values, both available at the National Institutes of Health websites:

- [https://ods.od.nih.gov/Health\\_Information/Dietary\\_Reference\\_Intakes.aspx/](https://ods.od.nih.gov/Health_Information/Dietary_Reference_Intakes.aspx/)
- <https://ods.od.nih.gov/HealthInformation/dailyvalues.aspx>.

## **Special Diets**

Some individuals will have no significant restrictions and can essentially eat whatever they like. Yet there are many people who will have special dietary needs and may also be restricted in the amount of fluids they can take in each day. For example, a patient may have congestive heart failure and diabetes, and will need to be on a sodium restricted diet, a carefully monitored fluid status, and foods eaten must be chosen carefully to avoid hypo- and hyperglycemia and diabetic complications. Some patients such as those who are going to surgery or just coming back from surgery may not be allowed to have any food or fluids at all.

The following are some of the specific diets that are commonly prescribed by health clinicians. These may have different names depending on the workplace.

- Regular diet: There are no restrictions (within reason) to what the patient eats.
- Soft diet: The patient cannot tolerate hard to chew foods; everything must have a smooth, soft texture.
- Low sodium: The amount of salt is carefully restricted.
- Clear liquids: The patient is only allowed to have liquids that are clear, coffee and tea without milk, clear juices, *etc.*
- NPO: NPO is an abbreviation for a Latin phrase, *nil per os*, which means *nothing by mouth*. A patient with a dietary restriction of NPO is not allowed any food or fluid without exception. Some patients have an NPO order written because they do not have a gag reflex, discussed below.

In certain situations, the patient will not be able to ingest food or fluids but will receive nutrition by the intravenous (IV) route, a process that

is called total parenteral nutrition (TPN). These patients can also be fed a liquid diet through a nasogastric (NG) tube that is inserted through the nose into the stomach or through a percutaneous endoscopic gastrostomy (PEG) tube, a short, plastic tube that is permanently placed into the stomach through the abdominal wall. Feedings through an NG tube or a PEG tube are called enteral feedings. The specific dietary needs and restrictions of food and fluids for each patient should be clearly written and easy to find. The CNA should always check the patient's medical chart before providing the patient with food or fluids. This is one of the most important rules of nutrition and feeding.

### **Assisting with Patient Feeding**

Many patients will at times need assistance with eating and some will always need assistance. These patients have a functioning gastrointestinal tract and they are allowed to have fluids and solid foods. However, the patient may have had a stroke and have limited or no arm movement. The patient may be visually impaired. There are many reasons why someone might not be able to self-feed.

Feeding a patient involves some important points that a CNA must follow.

### **Planning Feeding Time**

Someone who needs assistance eating will very often not be able to consume food very rapidly. Encourage the patient to eat but never rush the patient or force feed the patient. Doing so can cause the patient to aspirate the food. Aspiration will be discussed in later section.

The patient who cannot self-feed will typically eat at a slow pace. The CNA must plan accordingly by allotting enough time so that the patient is not hurried. The patient should be given enough time to eat all of the food. The patient should never be rushed through a meal, which increases the risk of aspiration.

### **Planning Food Portions and Meal Trays**

Small portions should be used. The patient who needs assistance with eating often cannot chew and swallow large pieces of food. Food portions that are too large may be aspirated.

The CNA should never leave the patient alone with the food tray. If the patient is disoriented or confused, there is a chance that aspiration might occur while eating food.

The patient should be fed by using utensils. Even if a healthcare worker is wearing gloves, food should not be placed in a patient's mouth with the use of fingers.

#### Protocol for Feeding:

The CNA should begin by hand-washing before feeding the patient. Next, the patient should be identified by checking the name band. Following patient identification, the food tray or meal should be checked. Information or a written menu placed on the food tray should specify the patient's name and the type of meal ordered for the patient. The patient's medical chart should be checked by the CNA for a diet order before helping the patient to eat. Giving a patient the wrong meal can be like giving the patient the wrong medication or the wrong

treatment, which can be a potentially serious problem, especially if a food allergy exists.

If the patient is in a chair, the CNA should make sure the patient's head is supported and that a towel or absorbing protecting pad is placed across the patient's chest and under the chin. If the patient must stay in bed, the head of the bed should be elevated as much as practical and comfortable. The exact angle is not important, but if the patient is at risk for aspiration there will often be a protocol for a minimal angle of elevation that should be used during feeding. The key is to keep the patient in an upright position. This allows food to travel down into the stomach and prevents food from being aspirated into the lungs.

When feeding a patient, consider using a spoon instead of a fork, if possible. This is not an absolute rule but a spoon is as effective as a fork and using a spoon eliminates the chance that the patient could be injured by the points of the fork. This may sound implausible, but a patient who is confused and disoriented and especially hungry may bite down hard on a fork, or grab the fork and place it forcefully in the mouth.

The CNA should ask the patient what part of their meal they would like to start eating. If the patient is unable to view the meal tray, describe the food. Feed the patient in small portions. Do not be afraid to underestimate what the patient can tolerate. It is better to use smaller rather than larger bites to avoid the risk of aspiration. If the patient cannot view the meal tray, inform the patient what is being given to

eat with every bite. Fluids should be made available during meal time, and occasionally a drink should be offered.

The patient should be encouraged to eat as much as possible. An adequate calorie intake and good nutrition is vital for people who are sick. The CNA should document on the patient's chart how much of the meal has been finished and how much fluid was consumed. If the patient is unable to finish a substantial portion of the meal, the CNA should ask why (if the patient can communicate) and make sure the supervising nurse or physician is informed.

### **Aspiration Risk**

Aspiration is a medical term for movement of a foreign body or foreign substance into the lungs. In people who are awake and alert and neurologically intact, aspiration is prevented by the gag reflex. The gag reflex is a protective reflex that is initiated when solid food or liquid comes in contact with a nerve that is located in the back of throat, near the point at which the beginnings of the trachea and the larynx are located. When this nerve is stimulated by the foreign body a powerful cough is produced and this expels the aspiration hazard. Almost everyone has experienced the gag reflex after eating or drinking something too quickly, and is commonly referred to as "something going down the wrong way".

Aspiration of food into the lungs can have serious medical consequences such as pneumonia. Many patients who cannot feed themselves are likely to have a weak or absent gag reflex. For example, a patient who has a depressed level of consciousness may have a weak gag reflex and a patient who had a stroke may not have

a gag reflex. In either case, aspiration can occur with minimal signs and symptoms or without signs and symptoms so caution is required when feeding these patients.

Because aspiration can be difficult to detect, a patient who requires assistance with feeding should be closely observed during meals. Each healthcare facility should have guidelines for aspiration precautions.

### **Summary**

The human body requires good nutrition and the proper intake of food and fluids, to grow, repair damage, and to fight off infections. Food and fluids provide the body with the two essentials of nutrition - calories and nutrients. Calories are the basic compounds that provide energy for metabolism and physiological processes needed in order to function. A nutrient is a chemical substance found in food that is essential for life. Guidelines for individual diets include important rules such as maintaining a balance between calories taken in and calories expended to maintain a proper body weight, and consuming nutrient dense foods.

A CNA will be called upon to assist a patient who needs assistance with eating. There are many reasons why someone might not be able to self-feed. Patients who cannot feed themselves are likely to have a weak or absent gag reflex, which may lead to aspiration of food into the lungs, potentially leading to serious medical consequences such as pneumonia. Feeding a patient requires planning, patience and time, and there are some important rules and procedures a CNA will be required to follow.