

In-service: Important Facts About Diabetes Mellitus & Feeding, Diet and Care for Diabetics

Friday, October 14, 2011

DIABETES MELLITUS:

- In simple or layman's terms, diabetes mellitus is a disorder in which there is an abnormal increase in the level of glucose or sugar in the blood.
- Diabetes Mellitus (DM) is a condition in which the body does not produce enough insulin or the insulin that is produced is ineffective.
- The cause has not been identified.

Predisposing Factors: DM can affect anybody, but certain groups of people have been found to be more likely affected than others.

- Familial / genetic tendency – relative of someone already diagnosed with diabetes
- Obese / overweight people
- Some ethnic groups have been shown to be more affected e.g. Hispanic, African-American, etc.
- It is more common in people older than 45 years
- Women especially those who have had gestational diabetes or who have had very big babies at birth (>4kg, >9 pounds)
- People who live sedentary lifestyles

Types of Diabetes Mellitus:

- **Type 1 Diabetes** – It was formerly called Insulin Dependent Diabetes Mellitus (IDDM). The major defect in this type of DM is that there is a lack of insulin in the body. In other words, the pancreas fails to produce insulin.
- **Type 2 Diabetes** – This is more common than type 1 and usually affects adults and older people and those who are overweight or obese. It was formerly known as Non-Insulin Dependent Diabetes Mellitus. In this type, the body still produces Insulin, but the gates of the cells are resistant/dysfunctional.
- **Gestational Diabetes** – Occurs when a pregnant woman develops diabetes for the first time while she is pregnant and it resolves after the pregnancy.

Other types of DM include those caused by diseases like pancreatitis, hemochromatosis, etc.

Signs and Symptoms of Diabetes Mellitus:

- Frequent voiding or passing of urine which is called **polyuria**.
- Excessive thirst or drinking which is called **polydipsia**.
- Excessive hunger also known as **polyphagia**.
- Other symptoms include fatigue, frequent infections, and delay in wound healing. You should also note that it is possible to have diabetes and not know because the symptoms are not always present. In such cases, the disease develops for a while before it is detected. Sometimes, it is detected too late when other complications have already developed.

CARING FOR THE DIABETIC

Diabetic Conditions / Emergencies and How to Respond:

- **Hypoglycemia** – Decreased blood glucose/sugar (<80 mg/dl). Signs include profuse sweating or diaphoresis, tachycardia or increased heart/pulse rate, nervousness, chills or tremors, anger, disorientation or decreased level of concentration and restlessness. These signs can proceed rapidly to seizures, coma or even death. The person should drink a sweet drink such as sweetened coffee or tea, orange juice, or soda. Alternately, the diabetic could eat sugar, corn syrup, candy, or take glucose tablets.
- **Hyperglycemia** – Increased blood glucose/sugar (>120mg/dl). Signs include polyuria, polydipsia, polyphagia, dehydration, electrolyte imbalance, vision changes, fatigue, drowsiness, nausea, fruity-smelling breath, very deep gasping breathing, rapid weight loss and unconsciousness. Fruity-smelling breath, deep gasping breathing and unconsciousness are emergency symptoms that can lead quickly to death. Call 911 or access emergency medical care at once.

Most diabetics need their blood sugar level tested at least once a day (usually in the morning before breakfast). Depending on the type of diabetes, the age of the person, and other factors, the individual may need his or her blood glucose tested as much as five times a day. Sometimes insulin dosages are adjusted depending on the blood sugar level. A doctor must set the acceptable ranges for each person and they might differ from the normal ranges given in the chart. When a blood glucose level falls outside the range set by the doctor, the doctor must be notified as soon as possible. If you are assisting a diabetic with monitoring his or her blood sugar, be sure you know the correct range for him or her.

Management / Treatment of Diabetes Mellitus:

- **Exercise** – Regular exercise improves blood circulation and lowers blood glucose levels. Exercise also strengthens the heart and helps maintain an ideal body weight. The frequency, type and duration of exercise depends on the individual's age, treatment goals and physical ability. It is important that a diabetic not develop low blood sugar while exercising. Since the body burns sugar during exercise, the diabetic should "fuel up" with a piece of fruit or half a sandwich within an hour before starting any exercise. It is also a good idea for the diabetic to check his or her blood sugar level before he or she starts exercising. If the blood sugar reading is less than 70, he or she should eat something and wait for the blood sugar level to come up over 70 before exercising. If a diabetic feels faint, sweaty, dizzy or confused while doing any activity, he or she should stop and immediately drink fruit juice or a sweet (not diet) soft drink. He or she must respond quickly to this feeling, because it means his or her blood sugar level is too low.
- **Diet** – This is very important in the management of diabetes. Some adult onset diabetes (Type 2 or Non-insulin Dependent DM) can be controlled with exercise and diet alone. The right diet can help control blood glucose levels, maintain an ideal body weight, and prevent complications of diabetes. Like exercise, diet is tailored for each patient depending on background, lifestyle, and financial situation. Diabetics are often advised to use the alternative ("artificial") sweeteners. These sweeteners are either nutritive or non-nutritive. Nutritive sweeteners provide calories, but may not raise blood glucose as much as regular sugar. Non-nutritive sweeteners do not contain calories. There is no diabetic diet designed for every diabetic person, but there are guidelines to help diabetics with food choices. These guidelines are very similar to the kind of eating that is healthy for anyone. These are the main rules that should be followed:

1. Eat few sugary/starchy foods.
2. Eat less fat, especially saturated fat and cholesterol (butter, margarine, oils).
3. Eat a variety of fresh fruits, vegetables, lean meats, and fish.
4. Eat just enough calories to stay a healthy weight

BASIC NUTRITION: GUIDELINES FOR BALANCED MEALS AND SPECIAL DIETS

| | |
|---|--|
| <p>BASIC ELEMENTS OF GOOD NUTRITION Everybody needs these in the right amounts.</p> | <p>THE BALANCED DIET</p> |
| <p>NUTRIENTS Elements of food used by the body for energy, maintenance, healing, and growth</p> <ol style="list-style-type: none"> 1. Proteins: for growth of muscle and body tissue Sources: meat, fish, eggs, milk, peas, beans, nuts 2. Carbohydrates: for energy Sources: bread, grains, cereals, potatoes, peas, beans 3. Fats: for warmth, vitamin storage, and energy Sources: meat, dairy products, vegetable oils, egg yolks 4. Vitamins: for healthy functioning of body systems Sources: fruit, vegetables, meat, dairy products 5. Minerals: for growth, strength, and healthy blood, bones, and body system functions Sources: fruit, vegetables, meat, fish, dairy products, grains | <p>We all need balanced intake from five groups:</p> <ol style="list-style-type: none"> 1. Breads, cereals, rice, pasta (6–11 servings) 2. Vegetables (3–5 servings) 3. Fruits (2–4 servings) 4. Meat, poultry, fish, beans, eggs, nuts (2–3 servings) 5. Milk, yogurt, cheese (2–3 servings) <p style="text-align: center;">AND</p> <ol style="list-style-type: none"> 6. <u>Limited</u> intake of fats, oils, and sweets <p>Using a variety of different foods within these groups ensures balance and good nutrition.</p> <p style="text-align: center;">What’s a Serving?</p> <p>1 serving of breads, cereals, rice, pasta =</p> <p style="padding-left: 40px;">1 slice bread or 1 tortilla</p> <p style="padding-left: 40px;">½ cup cooked rice or pasta</p> |

FIBER

Important for digestion and waste elimination.

Sources: cereals, grains, fruits, and vegetables

FLUIDS

Body weight = 2/3 water

Daily need = 80 oz. fluid intake (8–10 glasses)

Fluid intake should equal fluid output

Too much water loss = Dehydration

Not enough water loss = Edema

Urine = 40% of fluid output

Evaporation = 60% of fluid output

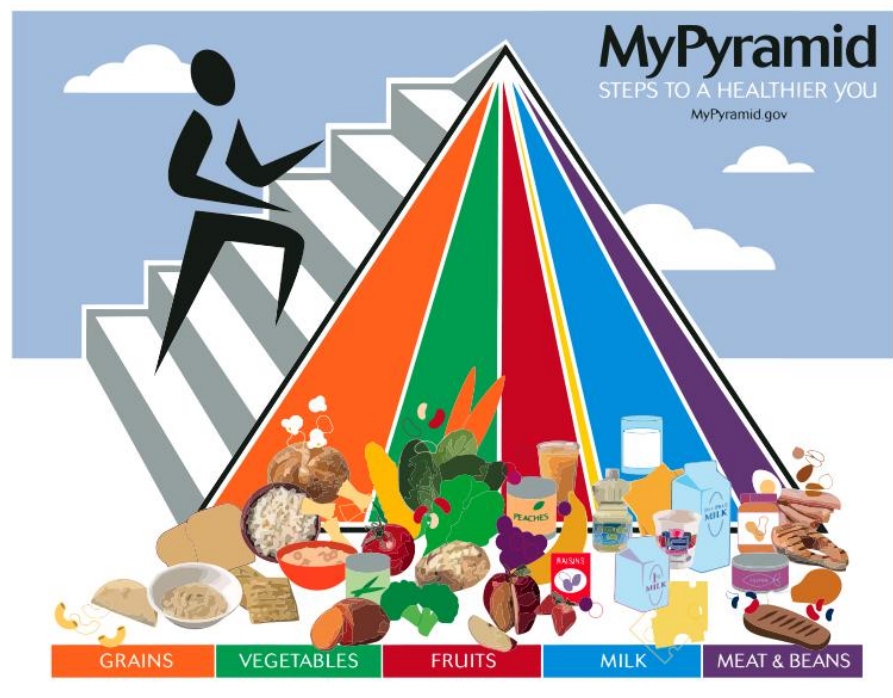
Food Fact: Calories are the amount of energy in food. Calorie need varies by size, weight, age, and activity.

Body metabolism slows as we age, so the elderly require fewer calories. However, **the need for water, fiber, and all nutrients remains the same in older people**—so eating healthy food is more important!

The USDA food pyramid was created in 1992 and divided into six horizontal sections containing depictions of foods from each section's food group.

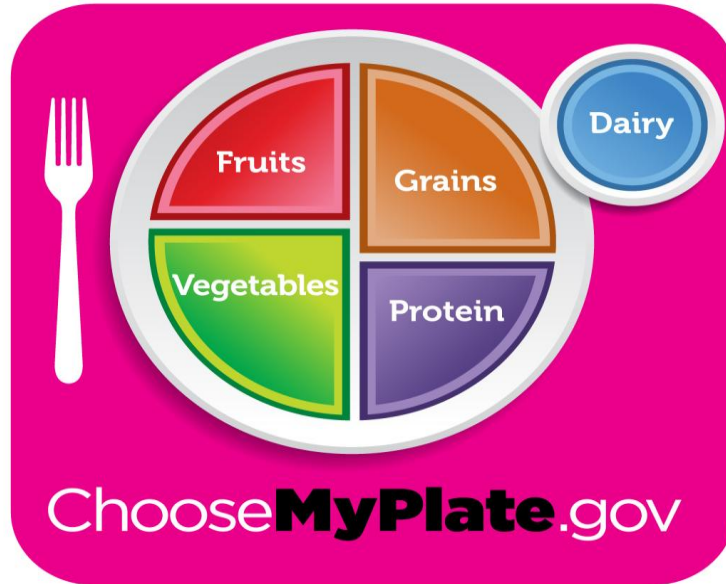


It was updated in 2005 with colorful vertical wedges replacing the horizontal sections and renamed MyPyramid. MyPyramid was often displayed with the food images absent, creating a more abstract design.



In an effort to restructure food nutrition guidelines, the USDA rolled out its new MyPlate program in June 2011. My Plate is divided into four slightly different sized quadrants, with fruits and vegetables taking up half the space, and grains and protein making up the other half. The vegetables and grains portions are the largest of the four.

“My Plate” replaces the USDA Food Pyramid:



| | | |
|---|---|--|
| <p style="text-align: center;">Special diets</p> <p>Many people have special dietary needs because of illness, surgery or ongoing conditions. Be sure that you know the type of diet every resident in your facility is supposed to have. Mistakes on special diets can have serious results and cause many problems for the resident.</p> | <p style="text-align: center;">Diabetic—follow the plan!</p> <p>It is important for people with diabetes to eat the right foods, whether they are taking insulin or other medicine to control their diabetes or not. A diabetic resident should have a diet plan designed especially for him or her by a doctor or nutritionist. It will specify certain amounts of carbohydrates, proteins, and fats.</p> | <p style="text-align: center;">Food safety</p> <p>To avoid food poisoning:</p> <ul style="list-style-type: none"> • Never undercook meat—cook until meat temperature is 165 degrees to kill the bacteria. • Refrigerated foods must be kept below 45 degrees. • Thaw frozen foods quickly and cook them <u>before</u> they reach room temp. • Foods that will spoil at room temperature should be prepared last. • Keep fresh foods separate from each other and use different surfaces and utensils when preparing each one. • Cover unserved portions to prevent contamination. • Cool leftovers quickly, refrigerate in small containers. |
| <p style="text-align: center;">Low salt</p> <p>This is also called restricted sodium or low NA (the chemical abbreviation for salt or sodium). Many people with heart or kidney disease or high blood pressure must eat this way.</p> <p><u>Guidelines:</u></p> <ol style="list-style-type: none"> 1. Little or no salt is used in preparing food. 2. No salt should be added by the resident. 3. Salty snacks are not allowed (e.g., potato chips, pretzels). 4. Condiments that contain salt may be prohibited (catsup, mustard, margarine). <p style="text-align: center;">Low fat (also low cholesterol)</p> <p>This is often recommended for people with heart disease or obesity.</p> <p><u>Guidelines:</u></p> <ol style="list-style-type: none"> 1. Eat low fat foods like chicken, vegetables, fruits, pasta and cereal. 2. Do not eat fatty foods like ice cream, egg yolks, bacon and sausage (or eat rarely in very small amounts). | <p style="text-align: center;">High protein</p> <p>A resident who has just had surgery or who has a wound often needs high protein to speed healing.</p> <ul style="list-style-type: none"> • To get protein, eat lots of meat, fish, eggs, beans, peas and dairy products. | |
| | <p style="text-align: center;">Liquid diets</p> <ol style="list-style-type: none"> 1. <u>Full liquid</u> includes all liquids, such as strained soups, milk and ice cream. 2. <u>Clear liquid</u> includes only liquids you can see through, such as water, tea, apple juice, clear broth and black coffee (no cream or milk). | |
| <p style="text-align: center;">Soft</p> <p>This diet helps people who have difficulty chewing or suffer from certain kinds of stomach trouble.</p> <p><u>Guideline:</u> Eat cooked vegetables, ground meat, fish, and pureed foods.</p> | <p>Taste tip: Elderly people have a decreased sense of taste, and often their stomachs cannot handle spicy foods. Fresh, tasty foods with creative seasoning will help them get the nutrients they need.</p> | |
| <p style="text-align: center;">Serving tips</p> <ul style="list-style-type: none"> • If a resident has impaired vision, identify the foods on his plate by using the clock face: “Your pork chop is at 3 o’clock, your mashed potatoes are at 6 o’clock and your pudding is in a separate dish above the plate at 12 o’clock.” • When feeding a resident, identify the foods and ask the resident what food he wants next. Offer seasonings if allowed. Offer liquids often, using a different straw for each liquid. Allow hot liquids to cool. Offer one bite at a time, using a spoon two-thirds full. • Serve hot foods hot and cold foods cold! | | |

- **Drug Therapy** – This requires medications available only by prescription. Insulin may be given by injection beneath the skin. Oral medications are available to increase the release of insulin from the pancreas and/or increase the responsiveness of the body’s cells to the insulin that already is produced by the body. Only a doctor can decide what medication and how much of it a diabetic should receive. It can be VERY dangerous to change a diabetic’s medication in any way unless it is ordered by a doctor. Diabetics must receive the exact amount of medicine their doctor has ordered at the times the doctor has ordered. Timing of medicine and meals is important to prevent low blood sugar.
- **Monitoring** – Close monitoring of a diabetic’s blood sugar level is one of the best ways for him or her to prevent long-term complications from the disease. Diabetics check their blood sugar by pricking a finger with a needle and testing a drop of blood with a special blood glucose meter. The meter, also called a monitor, gives a number that tells the level of glucose in the blood. These monitors must be kept clean and should be checked for accuracy periodically. Another important part of monitoring is watching the feet and skin of a diabetic. Diabetes can turn a small sore or wound into a very large problem. Sores, blisters and wounds on a patient’s feet and skin must always be reported to your supervisor or a nurse.

Why is it important to control diabetes?

The goal of treatment for diabetes is to keep the individual’s blood sugar as close to normal as possible. Doing this will lower the person’s chances of experiencing the following complications:

- Stroke
- Heart disease
- Kidney failure
- Stomach disease
- High blood pressure
- Eye disease, loss of vision, or blindness
- Nerve damage, with pain or loss of feeling in hands, feet, legs, or other parts of the body

A high level of sugar in the blood over a long period of time can cause these problems.

Feeding

I. Understanding Feeding Techniques.

There are several levels of assistance that can be offered. These levels build upon each other; therefore the interventions in the first level would also apply to the second and third levels.

1. The **first level** includes clients who can feed themselves, but may need minimal assistance at the beginning of the meal to wash hands, put on the clothing protector, get into proper position and make sure glasses and dentures are in place. Once the tray is served, ask if assistance can be given, e.g., drinks unwrapped, food uncovered, margarine spread, meat cut, condiments opened. Check on the client throughout the meal to see what else might be needed. When the meal is finished, assist in washing hands and face and remove clothing protector.

2. The **second level** includes clients who can feed themselves, but need additional help in the form of verbal prompts to eat. Physical prompts may also be necessary to start the eating process.
3. Building on the second level, the **third level** provides actual feeding assistance. Place a small amount of food on the fork or spoon and slowly put it into the client's mouth. This should continue at a slow unhurried pace. We should be seated at the same height as the client.

II. Swallowing Problems/Understanding Dysphagia.

Dysphagia: Medical term for any difficulty or discomfort when swallowing which may occur anywhere as food moves from the mouth to the stomach.

Aspiration: Occurs when food or liquids go into the lungs instead of the stomach.

Swallow Process: A normal swallow takes place in four stages:

1. **Oral Preparatory or Anticipatory Phase** – Foods and liquids are placed in the mouth, lips are sealed and saliva is produced in response to the sight, smell, and taste of food.
2. **Oral Phase** – Tongue moves the food around the mouth for chewing, mixing with saliva to form bolus and moves it to the back of the mouth.
3. **Pharyngeal Phase** – Bolus moves from the back of the mouth to the pharynx, the larynx (voice box) closes to prevent food from going into the lungs and the soft palate (roof of mouth) closes the nasopharynx to prevent food and liquids from entering the nasal passages.
4. **Esophageal Phase** – Food liquid moves through the esophagus to the stomach.

NATIONAL DYSPHAGIA DIET

Level 1 – Dysphagia Pureed – Smooth, pureed, homogenous, very cohesive, pudding-like foods which require very little chewing ability.

Level 2 – Dysphagia Mechanically Altered – Cohesive, moist, semi-solid foods which require some chewing ability. Included at this level are fork mashable fruits and vegetables. Excluded are most bread products, crackers and other dry foods.

Level 3 – Dysphagia Advanced – Soft-solid foods which require more chewing ability. Included are easy to cut whole meats, fruits, and vegetables. Excluded are hard, crunchy fruits and vegetables, sticky foods and very dry foods.

Level 4 – Regular – Any solid food texture.

Distinguishing Liquids

- **Thin Liquids** – Liquids with low viscosity. Included are clear liquids, milk, tea, supplements or milkshakes, soda, broth, juice, and frozen yogurt. Clients tolerating thin liquids will also be able to tolerate foods containing thin liquids such as watermelon and citrus fruits. Foods like ice cream and plain gelatin turn to liquid in the mouth and are considered thin liquids.
- **Nectar-like Liquids** – Medium thickness liquids include nectars, vegetable juices and milkshakes with thickeners. Thin liquids can be thickened with commercial thickeners or purchased pre-thickened to nectar-like thickness.
- **Honey-like Liquids** – Liquids that are thicker than nectar-like and resemble the consistency of honey at room temperature. All liquids can be thickened to this consistency using commercial thickeners or the facility may purchase special pre-thickened products at this consistency.
- **Spoon-thick Liquids** – This includes liquids that are too thick for a straw. As with other consistencies, commercial thickeners can be used to make appropriate thickness.

Feeding the Resident with Dysphagia

Although feeding a client with dysphagia can be difficult, there are techniques that can be used to ease the swallow and decrease the chance of aspiration. If the speech therapist has evaluated the client, there will be specific instructions on how to feed the resident, always check the client's care plan. All staff members including the caregiver must be familiar with these as they may vary from resident to resident.

Speech Therapist or Client's Care Plan May Recommend One of the Following Techniques to Facilitate Safe Swallowing

1. Chin Tuck Swallow – Take a sip of liquid / food into mouth, tuck chin to chest and swallow everything while keeping the chin tucked in.
2. Jaw Controlled – Place thumb on client's chin and index finger under the chin to help close client's mouth.
3. Double Swallow – Double swallow each bite or sip. The first swallow is to clear the mouth. The second "dry" swallow is to clear the throat.

General Guidelines in Feeding the Client

1. Help the client sit up straight, with feet flat on the floor or on wheelchair foot rests. Try to achieve a 90 degree angle at the hips. Use pillows so client is leaning slightly forward with chin down.
2. If the client can sit on a chair, use a straight-backed chair.
3. If the client is in bed, raise the head of the bed or use pillows to raise and support body in a sitting position.
4. Keep the client sitting for at least 30 minutes after eating.

Precautions to Remember While Feeding Client

1. Serve food according to the diet texture as prescribed by the doctor (DO NOT FEED FOOD THAT IS THE WRONG TEXTURE).
2. Feed slowly—do not rush.
3. Switch back and forth between liquids and solids.
4. Switch back and forth between warm and cold foods.
5. Tell the client to chew and swallow.
6. Tell the client to swallow twice after each bite or sip.
7. Tell the client to use tongue to clear any foods left in the mouth. If the client is not successful, check with the nurse in charge for further instruction. (Document and report immediately if in home setting).
8. Make sure the mouth is empty before the next bite or sip.
9. Avoid the use of a straw as it moves the liquid to the back of the mouth quickly. Try using cut-out cups so that the head does not need to be tilted back.