Chapter 12
Food Management and Diabetes

A food plan is important for people with either type 1 or type 2 diabetes. Every family must work out a plan with their dietitian that fits their family.

Type 1 diabetes cannot be treated with diet alone.

People with type 2 diabetes:
- can sometimes be treated with diet and exercise alone
- need to eat foods with fewer calories each day and lose weight
  - must reduce fat calories (fat has nine calories per gram; carbohydrate [carbs] and protein have four calories per gram)
  - should not eat more than once a week at fast food restaurants (burger, fries, pizza)

The two types of food plans that our clinic uses the most are:

Constant carbohydrate: A family often starts with this plan.
- This plan involves eating about the same amount of carbs for each meal and for each snack from day to day.

- Insulin doses are changed based on the blood sugar level ("sliding scale"), exercise, and other factors such as illness, stress, menses, etc. ("thinking scale").

Carbohydrate ("carb") counting:
Families often move to this plan at a later date.
- This plan involves counting the grams of carbohydrate (carbs) in food to be eaten. An amount of rapid-acting insulin is given that matches the number of grams (g) of carbohydrate (I/C ratio = insulin to carb ratio).
- The healthcare team and family choose an insulin-to-carb ratio (I/C ratio).
- The dietitian may want a three-day diet record to be done first.
- The ratio which is often used when starting this plan is one unit of insulin for each 15g of carbohydrate (I/C ratio of 1 to 15).
• Blood sugars are then done 2 hours after meals to see if the I/C ratio is correct.

If the blood sugar level is high (e.g., over 180 mg/dl or 10.0 mmol/L), the ratio could be changed to one unit of insulin for 10g of carbs (I/C ratio of 1 to 10).

If the blood sugar level is low (e.g., less than 60 mg/dl or 3.3 mmol/L), the ratio could be changed to one unit of insulin for 20g of carbs (I/C ratio of 1 to 20).

• Gradually the correct ratios for each meal are found. The I/C ratio may vary between meals.

• A blood sugar is done and an insulin dose “correction factor” (see Chapter 21) is usually added to the I/C ratio dose. This will be the total dose of insulin to be given before the meal or snack.

• If blood sugars are above the desired upper level one or two hours after meals (and the pre-meal blood sugar is above 90 mg/dl [5.0 mmol/L], it may be helpful to give the pre-meal rapid-acting insulin 15 to 30 minutes before meals. This is because blood sugar levels peak in 60 minutes after a meal, whereas Humalog/NovoLog/Apidra insulins do not peak until 100 minutes.

Several tables of the carb contents of foods and more details about carb counting are found in Chapter 12 of “Understanding Diabetes.”

Some beginning rules of good food management, some of which relate more to a constant carb food plan, are:

• eat a well-balanced diet
• keep the diet similar from day to day
• eat meals and snacks at the same time each day
• use snacks to prevent insulin reactions (see suggested snacks in Chapter 12 of “Understanding Diabetes”)
• carefully watch how much carbohydrate is eaten
• avoid over-treating low blood sugars
• eat foods with less cholesterol and saturated fats; reduce total fat intake
• keep appropriate growth
• watch weight for height; avoid becoming overweight
• increase the amount of fiber eaten
• eat fewer foods that are high in salt (sodium)
• avoid eating too much protein
A study known as the DCCT* found six dietary factors that made sugar control better:

1. following some sort of a meal plan
2. not eating extra snacks
3. not over-treating low blood sugars (hypoglycemia)
4. prompt treatment of high blood sugars when found
5. adjusting insulin levels for meals
6. consistency of bedtime snacks

As shown in the diagram in Chapter 14, food is one of the four major influences on blood sugar control.

*DCCT: Diabetes Control and Complications Trial (see Chapter 14).

Make sure you eat a bedtime snack that has solid protein, fat and carbohydrate

(especially if a heavy exercise day, if the blood sugar is below 130 mg/dl [7.3 mmol/L] or if a peak [NPH, Lente] insulin is taken at night).
Getting plenty of exercise is important for everyone.