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MANAGING TYPE 2 DIABETES

The following information can help you learn to manage your diabetes more effectively. There are many lifestyle and medication choices that can normalize blood glucose levels and put you in control. So take time to understand your options. You are the most important person caring for your health and a valued care team member helping to decide what diabetes medications, diet, and exercise plans work best for you.

Define Diabetes

Normal Pancreas

The pancreas normally produces a hormone called insulin that helps glucose ("blood sugar") pass from your blood into the body's cells where it can be used for energy. Unfortunately the pancreas' production of insulin can become abnormal, resulting in diabetes. There are two types of diabetes: type 1 and type 2.

In type 1 diabetes the cells that produce insulin are damaged or destroyed so the pancreas is no longer able to make any insulin. Persons with type 1 diabetes need to take injected insulin and learn to balance their insulin with their food choices.

Type 1 Diabetes

Type 2 Diabetes

You have type 2 diabetes. In type 2 diabetes your body is either unable to make enough insulin or your insulin no longer works right. The glucose in your blood cannot get from the blood into the cells and becomes elevated. Persons with type 2 diabetes learn the best way to manage their blood glucose levels with food, exercise, and medications.

Blood Glucose Monitoring

The best way to know how your diabetes is doing is to check your blood glucose with a simple device called a glucometer. Sometimes check before a meal and sometimes 2 hours after a meal to identify times when it tends to run high. An occasional high blood glucose is not unusual and nothing to worry about. If blood glucose runs high frequently however, damage can occur to blood vessels leading to blindness, kidney disease, heart disease, and foot problems. To prevent these problems keep your blood glucose levels as close to normal as possible. Use the chart below as a guide.

Target Blood Glucose Levels

	Your Goal	Normal ★★★★★	★★★★	★★★	★★	★
Before meals or bedtime		70-110	70-120	120-130	130-160	Over 160
2 hours after any meal		90-140	90-160	160-180	180-220	Over 220
Average Blood Glucose		Under 135	135-150	150-170	170-205	Over 205
A1c Test*		Under 6.0%	6.0-6.5%	6.5-7.0%	7.0-8.0%	Over 8.0%
Risk of damage to heart, nerves, eyes, and kidneys		**No Risk**	**Very Low** 1.25x Risk	**Low** 1.25-1.5x Risk	**Moderate** 1.5-2x Risk	**High** Over 2x Risk

** A1c test is a 3 month blood glucose average. Ask your doctor for your results.*

Nutrition and Meal Planning

Understanding the effect of carbohydrates on blood glucose is important in diabetes management. Carbohydrates contain important nutrients. But, because they all convert to glucose they directly affect blood glucose levels. Managing carbohydrate intake is a great tool for managing your diabetes. If your blood glucose is high 2 hours after meals, you might try less carbohydrate or a different type of carbohydrate. Or, you may need more diabetes medication or a different type of medication. Because heart disease and high blood pressure are common in persons with diabetes, it is good to follow nutrition suggestions such as low salt and low fat to help prevent these concerns.

About Carbohydrates

- All carbohydrates break down into glucose and will raise blood glucose.
- Carbohydrates are found in breads, cereals, crackers, pasta, rice, potatoes, corn, peas, fruits, juices, milk, yogurt, sweets, desserts, and more.
- It's the total carbohydrate in a meal or snack, not the sugar content, that raises your blood glucose. Learn to read food labels for total carbohydrate.
- Some types of carbohydrate digest more slowly and have less of an effect on glucose ("low glycemic").
- Other types of carbohydrate are digested faster and will raise blood glucose more quickly ("high glycemic")

Meal Suggestions

- ✓ Limit total carbohydrate intake to:
  - 30-45 grams per meal for women
  - 45-60 grams per meal for men
  - 15-30 grams for snacks
- ✓ Choose carbohydrates that digest more slowly (low glycemic index).

- ✓ Choose lean (low fat) protein sources (chicken, seafood, etc.)
- ✓ Limit intake of animal fats, hydrogenated fats, and trans-fatty acids.
- ✓ Include wholesome heart-healthy foods: whole grains, fruits, vegetables, and cooked dry beans.

Physical Activity

Any physical activity you do - housework, gardening, lawn mowing, chopping wood, shopping – will lower your blood glucose level. This can be an integral part of your diabetes management. Check your blood glucose level if you are active and have any concern about it dropping too low.

Exercise

Physical activity is important for everyone and is especially important for people with diabetes. Exercise lowers blood glucose; it helps keep your pancreas making insulin longer and lowers your risk of other health problems. Regular strength training using gym equipment or small weights seems to be particularly helpful in improving blood glucose.

Exercise Tips

- ✓ Exercises that use large muscles (such as the legs) and more muscles are most effective.
- ✓ Walking, biking, swimming, and fitness classes are excellent activity options.
- ✓ If you are taking insulin or other diabetes medication, have 15-30 grams of carbohydrate available to treat a low blood glucose if needed.
- ✓ If you have any concerns about the safety of an exercise program, check with your physician first.

Hypoglycemia

Common symptoms of low blood glucose (hypoglycemia) are feeling shaky, sweaty or weak. Some persons may feel dizzy, have a headache, or be irritable and confused when blood glucose is low. If you feel symptoms of low blood glucose, stop and check your blood glucose.

Lifestyle factors increase and decrease your blood glucose levels:

- Stress
- Illness
- Too much Carbohydrate

- Diabetes Medications*
- Physical Activity
- Too Little Carbohydrate

** Common medications that might drop blood glucose too low are: insulin, glucotrol, glipizide, glyburide, and amaryl.*

If your blood glucose is less than 70

- ✓ Do not over treat a low blood glucose with too much carbohydrate – you will end up with a high blood glucose.
- ✓ Eat **15 grams** of quick digesting carbohydrate: 3 glucose tablets, ½ cup juice, 4 hard candies, 6 crackers, or 1 cup skim milk. (If your blood glucose is below 50, eat 30 grams carbohydrate).
- ✓ Wait 15 minutes.
- ✓ Recheck your blood glucose.
- ✓ If your blood glucose is still less than 70 intake another 15 grams of carbohydrate and recheck every 15 minutes until your blood glucose rises.
- ✓ If it's between meals, you may need a snack that contains carbohydrate within the next hour.

When You're Sick…

- Be aware that your blood glucose may increase while you are sick. Check your blood glucose every 4 hours to make proper adjustments.
- Keep taking your diabetes medication as usual.
- If your blood glucose is over 300 mg/dl check your urine for ketones.
- To avoid dehydration, drink plenty of liquids—calorie free, or water. If you are unable to eat solid foods, include some liquids with carbohydrate.
- Call your doctor if you are unable to keep food or liquid down, you have a high fever, or you have ketones in your urine. Dehydration from vomiting or infection can lead to diabetic ketoacidosis. Ketones in the urine is an early indicator that this may be a concern.

Community Healthcare Resources

Primary Care Doctor (Family Doctor /Internist) – monitors your overall health and coordinates your care, connecting you to other resources.

Certified Diabetes Educator – works with you on lifestyle and medication changes that help you achieve your diabetes management goals.

Registered Dietician – helps you understand how foods affect your blood glucose levels.

Endocrinologist – doctors specializing in the care of people with diabetes.

Podiatrist – doctors specializing on foot care and identifying and treating problem feet.

Physical Therapist – experts on foot care and incorporating activity into your life.

Other Patients – group visits, classes, and support groups provide an opportunity to interact.

Resource List – Refer to sources listing local and national resources for people with diabetes.

Internet – *www.PatientPowered.org* links you to some of the best on-line health information as well as local educational materials and resources.