

Diabetes Basics

(Pre-Diabetes & Type 2 Diabetes)

1. It is very important to keep your blood glucose (sugar) at a healthy level. Uncontrolled Diabetes (high blood glucose) that persists over time, puts you at high risk for "Diabetes complications" which include:

*stroke *kidney disease (nephropathy) *heart attack *stomach upset (gastroparesis) *erectile dysfunction *neuropathy (nerve damage with pain/weakness)	*skin issues *eye issues *foot trouble *ketoacidosis *there are more diabetes.org/diabetes/complications
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2. The best way to know if you are at risk for these complications is to monitor blood sugar at home. To determine this risk, you need to establish a pattern of glucose results. Therefore, consistent testing is important. Test your glucose two hours after your largest meal to find out how certain foods, portion sizes, carb amounts, exercise, etc. affect your blood glucose. Keeping **fasting (before you eat anything in the morning) blood sugar 70-130** is the goal. This, along with **blood sugar of less than 180 two hours after you eat**, will help prevent DM complications. Consider getting your serum insulin level checked to further investigate your insulin resistance and disease risk. Keep records of your glucose levels and take them to appointments with all of your health care providers, or bring your meter with you. If high (above goal numbers) or low blood glucose (less than 70) occurs, try to identify why. Implement strategies to avoid this undesirable situation in the future.

3. Carbs raise glucose more than protein or fat. For better blood sugar levels, avoid eating large amounts of carb at one time. A general guideline is to limit Total Carbohydrates to 45-60 grams per meal (and ~15 grams for snacks, if hungry). Achieve better glucose control with smaller meals and snacks, instead of eating 2-3 times per day. Choose whole grain breads, cereals, pasta, and rice with a low "total carbohydrate" content, and at least 3 grams of fiber per serving. It's very important to choose foods in their **whole, natural, organic form** as much as possible, and avoid processed foods (ex. organic sweet

potato with the skin instead of sweet potato fries, or an organic banana instead of banana chips that have sugar added). All sweeteners have their pros and cons, and should be limited. Fiber helps prevent glucose from spiking too quickly. By cooking, cooling, then reheating rice/pasta/potatoes/oats, you create digestive resistant starch. This allows less carb to be absorbed and promotes gut health, which in turn promotes overall health. Carbs that are most detrimental to our health are "added sugars" (sweet carbs not naturally occurring in foods). Common sources include sugar-sweetened beverages, desserts, sweet snacks, additions to coffee and tea, candy, and sugar-sweetened cereals. Grams of added sugar are now a requirement on the food label and should be limited to less than 25 grams per day. www.fda.gov/food/food-labeling-nutrition/changes-nutrition-facts-label

Have protein and/or healthy fat each time you eat to help stabilize blood sugar. Best choices are in **bold**.

FOODS THAT INCREASE BLOOD GLUCOSE MOST (15 grams carb/ serving) "Carb count" for these foods		FOODS WITH LESS EFFECT ON BLOOD GLUCOSE	
CARB FOODS	FOODS CONTAINING $\frac{1}{2}$ CARB AND $\frac{1}{2}$ PROTEIN	FOODS CONTAINING $\frac{1}{2}$ PROTEIN AND $\frac{1}{2}$ FAT	FATTY FOODS
<u>Grains (high fiber)</u> 1 tortilla (low carb) 1 slice bread, 1/2 cup hot cereal, 3/4 cup cold cereal, 1/3 c pasta (bean or whole grain based) 1/3 cup rice 3 cups popcorn 5 crackers 1 cup oat milk	1 cup edamame 1 cup tempeh 1 ounce soy nuts 1 cup soy milk	<u>Meats</u> chicken, turkey, fish, tofu, beef, pork	Butter Fats growing out of the ground (avocado, olive oil, nuts, seeds, olives) are healthier than fatty meats & butter
<u>1/2 cup Starchy Veggies</u> corn, peas, potatoes, beans	6 oz yogurt (plain)	<u>Eggs</u> Cheese	Olive oil
<u>$\frac{1}{2}$-1 cup fruit or 1 piece most fruits</u> 1 c melon/berries	1 cup milk	Seeds	Avocado

(Avoid more than 1/2 cup juice at a time.) 1/2 lg banana			
Sweets		nuts & nut butters	

4. Alcohol can cause your glucose to drop too low or rise too high and can also sabotage weight management efforts. The Advisory Committee on USDA's Dietary Guidelines has recommended adults of both genders limit alcohol to one drink per day on days when alcohol is consumed. Exceeding this increases risk for high blood pressure, stroke, liver disease, digestive diseases, many cancers, anxiety, depression, etc. If you plan to drink, 4 oz of red wine or one light beer are better choices. Be sure to check with your doctor first. Alcohol commonly interferes with medications.

Sample meal plan: (1700 calories)

Brkfst:(350 cal/20 gm carb)

2 eggs w/ spinach, tomato, mushroom & 1T olive oil
1 small piece whole grain toast w/ 1 tsp almond butter
1 c coffee with 2 T flax milk

Lunch: (580 cal/35 gm carb)

Salad with lettuce mix, unlimited non-starchy veg (ex. carrot, cucumber, tomato, peppers, etc),
1/3 cup beans, 3 oz chicken, and vinegar & oil
7 whole grain/nut/seed crackers
1/3 c mixed nuts
Water with lemon

Snack: (70 cal/5 gm carb)

Carrots, cucumber, cauliflower, broccoli, celery
2 T hummus
Sparkling water w/ splash pomegranate juice

Dinner: (450 cal/45 gm carb)

4 oz honey-mustard salmon w/ sesame seeds
1/2 cup quinoa with 1 T goat cheese
green beans with lemon and garlic
decaf green tea

Dessert: (250 cal/40 gm carb)

1 c strawberries
6oz plain coconut yogurt w/ chia/flax/hemp seeds

5. **Maintain a healthy weight.** If you are able to manage your weight, your glucose will be much easier to control. *(Please download Barriers to Weight Management guide www.nutritiontransformation.com)*

6. **Exercise regularly.** *(Please download Exercise guide from www.nutritiontransformation.com)* Exercise brings your blood sugar down and improves the way your body uses insulin. Consistent exercise is a vital part of long-term weight management. The most important factor regarding exercise is that it becomes a consistent habit. This means that you must find something that works for you. A great time to exercise is right after you eat. Commit to once or twice a week until that is a habit, then build upon your success by adding frequency, duration, or another type of exercise.

7. **Consider supplementing.** Chromium at 100 mcg (micrograms) per day and magnesium glycinate at 400 mg (milligrams) per day have been shown in some studies to increase insulin sensitivity and bring glucose down. Consider 1,000-3,000 IU (international units) Vitamin D per day. A nice multivitamin choice is Pure Synergy Multivitamin. Omega-3 Health (by Body Health) is a great fish oil.

8. **Possible causes of high glucose(hyperglycemia):** food portions too big, too many processed or low fiber carbs, meals were too close together, medication change, inadequate activity, alcohol, sleep disturbances, stress, pain, or illness. **Some causes of low glucose(hypoglycemia):** skipping a meal, increase in Diabetic medications, and alcohol. Everyone is a little different. This is why blood sugar testing at home is so important. By monitoring your glucose and identifying patterns, you can determine what makes it rise and fall, to avoid Diabetic Complications listed on the first page.

9. If you do not currently have a meter that is less than 3 years old, request a prescription for the following from your provider:

"Glucose meter kit (please provide appropriate meter covered by insurance plan). Test strips and lancets to test twice a day."

References:

1. American Diabetes Assoc and Joslin Diabetes Center for glucose target ranges, 2022.
2. Recommended study curriculum for Board Certification in Obesity and Weight Mgmt exam, 2019.
3. 2020-2025 Dietary Guidelines Advisory Committee (www.dietaryguidelines.gov)
4. British Medical Journal 2015 meta-analysis of function of saturated and unsaturated fats.
5. Webinar, Today's Dietitian, News in Nutrition Therapy for Pre-Diabetes and Type II Diabetes, 2020.
6. Harvard Medical School; The Truth about Fats: The Good, the Bad, the In-Between; 2019.
7. Dr. Mariza Snyder
8. NIH Office for Dietary Supplements
9. The Institute for Functional Medicine, 2022