

**What is Type 2 Diabetes ?**

**Glucose:** Main source of energy, or fuel. Comes from food & the body (like a glucose factory)

**Insulin:** Helps cells use glucose

**Type 2 Diabetes:** Insulin doesn't work as well (which is called insulin-resistance) AND the body makes less insulin. Glucose builds up in the blood, which is called HYPERglycemia. HYPERglycemia causes dehydration, tiredness, & damage to blood vessels in the heart, brain, kidneys, legs, eyes & nerves.

**HYPOglycemia:** Low Blood Sugar, 70 mdL or less

**Symptoms:** shaky, sweating, dizzy, hungry, headache, nervous, irritable, light-headed, heart racing, "feel bad"

For symptoms above, check blood glucose (BG)...

**Treatment:**

1. For BG 70 mg/dL or less, eat 15 grams (gm) rapid-acting carbohydrate (carb) RESCUE, ie 4 oz juice
2. Recheck BG 15 minutes
3. For BG 70 mg/dL or less, eat 15 gm rapid-acting carb RESCUE again. Recheck BG 15 minutes
4. Repeat treatment up to 3 times till BG over 70 mg/dL
5. For BG still 70 mg/dL or less after 3 treatments, CALL 911 and re-treat while waiting OR just keep treating w/ 15 gm carb RESCUE + BG recheck 15 min
6. Once BG over 70 mg/dL, eat meal OR 15 gm carb + protein snack, ie 8 oz milk OR ½ PB sandwich
7. Instruct support persons how to inject Glucagon for HYPOglycemia along with erratic behavior, seizure, or coma

**Prevent HYPOglycemia:**

- Don't skip meals. Take diabetes medicine, as prescribed
- Check BG, as instructed; more if exercising, or ill
- If bedtime BG less than 100 mg/dL, consider having a 15 gm carb + protein snack
- Consider decreasing insulin dose before exercise.
- Always carry a 15 gm carb RESCUE, 4 glucose tablets
- Teach support persons signs of low BG & how to help
- Talk to diabetes provider before consuming alcohol
- Contact diabetes provider for ...
  - Any unexplained BG 70 mg/dL or less
  - BG 70mg/dL or less, occurring 2 or more times/week
  - Any BG < 54 mg/dL

**HYPERglycemia:** High Blood Sugar, greater than 180 mg/dL

**Symptoms:** extreme tiredness/thirst, frequent urination, nausea, hunger, irritable, headache, stomach pain, blurry vision, confusion

For symptoms above, check blood glucose (BG)...

**Treatment: D- I- N- E- R**

1. For BG over 180 mg/dL ...
  - a) **Drink** 8-16 oz water OR caffeine + sugar-free beverage every hour until BG < 180 mg/dL (unless fluids limited)
  - b) **Insulin.** If prescribed, give a CORRECTION dose of rapid-acting insulin every 3 hours, until BG 180 mg/dL or less (MUST be 3 hours between doses)
  - c) **No** carbs till BG 180 mg/dL or less
  - d) **Exercise:** walk 10 - 30 minutes, unless seriously ill
  - e) **Recheck** BG every 3 hours, until BG 180 mg/dL or less
2. For BG over 180 after 6 hours of treatment above...
  - a) BG 181 - 400 mg/dL, contact diabetes provider
  - b) BG over 400 mg/dL, see diabetes provider NOW or go to the emergency room

**Prevent Hyperglycemia:**

- Check BG one - four times per day, as instructed
- Check BG more often when...
  - BG is over 180 mg/dL,
  - After eating extra carbs
  - Feeling ill
- Take diabetes medications, as prescribed
- Exercise regularly; take a brief walk after every meal
- See diabetes provider regularly, every 3 months
- Eat MORE whole grains, beans, veggies, and low carb fruits (cantaloupe, honeydew melon, kiwi, peaches and strawberries)
- Eat LESS simple carbohydrates (soda, sweets, white bread...)

**GENERAL BG Goals** (may vary by age and illness)

- Hemoglobin A1C ..... less than 7.0%
- BG fasting or pre - meal ... 100 to 140 mg/dL
- BG 2 hours after meal ..... 180 mg/dL or less

**BG Monitoring** (frequency may vary)

- Before meals
  - Before bed
  - With exercise
  - If feeling bad
- \* Record BGs in log for diabetes provider

♥♥ **Exercise**

- (walk / be active)
- 30 min/day, 5 days/week or
  - Walk 10 min after meals

**Guidelines for SICK DAYS, or feeling ill**

fever, headache, sore throat, sinus drainage, cough, stomach upset, urinary burning, excess fatigue, etc

- Before taking over-the-counter meds that may increase BG, discuss with diabetes provider
- Before illness occurs, ask diabetes provider if change in diabetes medications will be needed when ill.
- Drink 8-16 oz water or sugar/caffeine-free beverage (diet ginger ale or crystal light) every hour
- Check BG every 3 to 6 hours
- Use HYPOglycemia & HYPERglycemia treatment plan
- If prescribed, give insulin to "correct" HYPERglycemia

**Consider calling diabetes provider if:**

- prescribed steroids
- fasting for a medical test
- BG over 180mg/dL after 6-12 hours of HYPERglycemia
- unsure of dose or how to take diabetes medicine

**Consider seeking EMERGENCY care for...**

- Persistent vomiting or diarrhea greater than 6 hours
- New or severe symptom that may need immediate medical attention, such as chest pain, cough, shortness of breath, abdominal pain, urinary changes, severe headache, dizziness, weakness, numbness, fever, speech or vision changes, swelling or redness
- BG greater than 400 mg/dL

**Controlling Carbohydrate (Carb) Intake**

**Carbohydrates** ( food that turns into glucose )

- Found in milk products, beans, grains (cereal, pasta, bread), rice, starchy vegetables, fruit, soda, juice, syrup, sugar, sweets & prepared foods (pizza/fried chicken)
- Number of "grams of carbohydrates" or "carb servings"
- A "carb serving" is a portion of food with 15 gm of carbohydrates (½ cup potatoes, ⅓ cup cooked rice or pasta)

**Read food labels** (Free online: *My Fitness Pal, Calorie King*)

- Find the "Total Carbohydrate" grams per serving
- If it is around 15 gm, then that is 1 carb serving. If it is around 30 grams then it is 2 carb servings and so on
- Check the serving size at top of the label to see how many carb servings you will eat

**TIPS to HELP control carb intake, BG, & diabetes**

- Eat meals often to prevent HYPOglycemia from diabetes med
- Avoid juice, sweet tea & soda, unless treating HYPOglycemia
- Eat maximum of 4 carb servings per meal (2 - 4 carb servings per meal is sufficient for most adults to control weight & BG)
- Eat the same number of carb servings per meal
- Use the plate method (an alternative to carb counting)



½ plate non-starchy veggies: salad, spinach...

¼ plate carbohydrates: grains/starchy veggies

¼ plate protein: lean meat, chicken, fish, egg

**\* Insulin and other diabetes medications + precautions**

<b>BASAL:</b> controls blood glucose between meals. Moves glucose "made-by-the-body" into cells.	<b>Long-acting 24 hours:</b> Lantus U100®, Levemir U100®, Basaglar U100®, Tresiba U100®, Tresiba U200®, Toujeo U300® <b>Intermediate-acting 12 hours:</b> NPH Given once or twice per day. * Adjust dose based on fasting BG		<b>May cause:</b> weight gain or HYPOglycemia
<b>NUTRITIONAL:</b> gets glucose from food into cells <b>CORRECTION:</b> treats HYPERglycemia ; gets BG back into normal range	<b>Rapid-acting 3-4 hours:</b> Novolog U100®, Humalog U100®, Apidra U100®, Admelog U100® Humalog U200®, <b>Short-acting 5-6 hours:</b> U100 Regular Given before meals. * Adjust future dose, based on BG 3-4 hours after dose was given		<b>HYPOglycemia OR HYPERglycemia OR Illness ?</b> Call or see provider
<b>Humulin Regular U500</b> (5 times more concentrated) lasts 6 - 12 hours	Usually prescribed if taking over 200 units of insulin per day. Given twice or three times per day. Does the job of BASAL & NUTRITIONAL insulin. * Consider lowering dose, if NOT eating		
<b>▼ Sulfonylureas</b> Glyburide, Glipizide, Glimepiride	make more insulin	<b>May cause:</b> HYPOglycemia, weight gain	<b>Not eating or vomiting?</b> Call or see provider.
<b>Thiazolidinediones</b> Actos, Avandia	insulin works better	<b>May cause:</b> weight gain, osteoporosis, heart failure	<b>Swelling, short of breath, fracture?</b> Call or see provider.
<b>Biguanides</b> ♥♥ Metformin	insulin works better	<b>May cause:</b> bloating or diarrhea	<b>Diarrhea, illness or dehydration?</b> Call or see provider.
<b>DPP-4 inhibitors</b> Januvia, Onglyza, Trdjnta, Nesina	make more insulin, slow stomach emptying	<b>May cause:</b> flu-like symptoms, pancreatitis	<b>Abdominal pain, flu-like symptoms?</b> Call or see provider.
<b>GLP-1 Receptor agonists</b> Bydureon, Victoza, ♥ Trulicity ...	make more insulin at meals, slows stomach	<b>May cause:</b> nausea, weight loss, pancreatitis, injection site reaction	<b>Abdominal pain?</b> Call or see provider.
<b>SGLT-2 inhibitors</b> Invokana, Farxiga, ♥ Jardiance	glucose leaves the body in the urine	<b>May cause:</b> urine infection, low blood pressure, DKA	<b>Burning with urination, dizziness, abdominal pain?</b> Call or see provider

