

STEPP-UP Instructors Manual

SESSION 4: SICK DAY RULES AND PHYSICAL ACTIVITY DOSE ADJUSTMENTS

Objectives

Goals of Class:

The purpose of this class is to provide information to patients with type 1 diabetes that will help them to learn appropriate sick day rules and physical activity dose adjustments. Specifically, the class will address why it is important to know what to do on sick day and what to have on hand. It will also address what patients should know about physical activity and what to do before, during and after an exercise session. Patients' understanding of the knowledge will translate into specific skills. Patients will be frequently assessed to determine their comprehension of knowledge and acquisition of skills.

After this session, participants will be able to:

- Explain what to do when they are sick
- Explain what they should keep on hand in case they get sick
- Explain the difference between low, moderate and high intensity level of physical activity
- Explain what to do before, during and after exercising
- Explain how physical activity can impact blood glucose
- Identify what is needed for an everyday kit
- Identify what is needed for an emergency kit
- Identify what is needed for an exercise kit

Materials Needed

- Sign-in sheet
- Pens, pencils, markers
- Name tags
- Flip chart - to keep track of “parking lot items” or questions, participant responses
- Glucometer, ketone strips, carbohydrates
- Sample kits for every day use, emergencies, and exercise
- Copy of guide: How Can I Manage My Type 1 Diabetes Better pages 34-38.
- Handouts in English and Spanish:
 1. *Diabetes and Physical Activity*

Before the Session

- Give all participants a reminder call the day prior to class.
 - Ask them to bring water, a snack in case of low blood sugar, and bring a pen or something to write with. Instruct them on class logistics (parking, location, floor, etc.).
- Set up the classroom with enough tables and chairs. Try to arrange it in a formation that facilitates group participation (such as a circle or U shape).
 - Prior to class, set up the kits for every day use, emergencies, and exercise, sample carbs, ketone strips, and a glucometer.

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Agenda	Estimated Time
I. Welcome	3 minutes
II. Introduction a. Icebreaker	10 minutes
III. Sick Day and Physical Activity a. What should I do when I am sick? b. Are there a few things I should keep on hand in case I get sick? c. Preparing for emergencies d. What to put in your everyday carry kit e. What to put in your emergency kit f. Diabetes and physical activity g. Why is physical activity important? h. What to do when starting to exercise i. How can physical activity impact my glucose? j. What should I do to prepare for exercise? k. Can my blood glucose go high after exercise? l. What should I do after exercise? m. General Points to Consider for Physical Activity n. What should I put in my exercise carry kit?	45 minutes
IV. Closing	2 minutes

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I. WELCOME (3 MINUTES)

- A. Greet participants as they arrive, give them a nametag to fill out.
- B. Give each participant a participant notebook with handouts

II. INTRODUCTION (10 MINUTES)

[If the space allows, set up tables and chairs in a U shape so everyone can see each other. Make the nutrition session as interactive as possible; ask questions frequently and get everyone involved.]

- A. *Welcome everyone to the program. Begin* by introducing the staff and any volunteers. We are here to learn about what to do when you are sick and how physical activity affects you and how to adjust dose of insulin.
- B. By the end of this class, our goal is that you will be able to:
 - Know what to do if you are sick and the effects of carbohydrates on blood sugar levels.
 - Identify foods that are carbohydrates
 - Identify items to have on hand when you are sick.
 - Identify what to have in a carry kit
 - Identify what to have in an emergency kit
 - Know why physical activity is important
 - Identify your intensity level
 - Know how physical activity impacts your BG
 - Identify how to prepare for exercise
 - Identify the items you need in your exercise kit
 - Identify basic guideline to follow when your BG is high after exercise
 - Know what to do after you exercise
 - Identify general points on adjustments based on BG levels before exercise

Are there any questions?

- C. *Set some initial ground “rules.” [Have these already written out on the flipchart, with space to add additional rules. These can be referred to throughout the program if necessary. If there are no new people, just remind everyone about the rules.]*
 1. Everyone is to respect each other.
 2. One person talks at a time.
 3. Please refrain from using your cell phone and texting. If you need to make or receive a call, please step out of the room.
 4. Confidentiality—everyone should respect each other’s privacy by not talking about one another outside of the program.
 5. Note that some people prefer to say blood glucose and others blood sugar. Have your audience decide which terminology they prefer.

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Ask the group if there are any other rules they would like to suggest.

Finally, we encourage all questions. NO question is a stupid question. Sometimes you might ask a question that we do not know the answer to right away. When this happens, we will write it down on this flip chart to remind us to find out the answer.

-Ask if there are any other rules they would like to add.

-Ask if everyone in the group can agree to all of the rules.

D. **Icebreaker:** *Form a circle and have each person introduce him or herself and tell the group a physical activity or hobby he/she likes to do. You can use a ball to facilitate the process. For example: Oscar has the ball and states: "My name is Oscar, and I enjoy bicycling." Oscar would then toss the ball to someone else, and it is then that person's turn. Repeat until everyone has had a chance to introduce him or herself and state an activity they enjoy.*

III. SICK DAY AND PHYSICAL ACTIVITY SESSION (45 MINUTES)

A. What should I do when I am sick?

(Fast paced, keep this to 3 minutes or less)

[Show glucose meter, ketone strips and examples of simple carbohydrates as you discuss the items]

- Call your diabetes care team. They can let you know if you need to make changes to your insulin doses. They can also give you tips to feel better.
- Check your blood sugar every 4 hours, except when you are sleeping.
- Check your urine for ketones each time you pee. Let your diabetes team know if they become positive. Checking your blood sugar and ketones is so important because of the higher risk of getting DKA. **If you don't know how to check ketones, it is explained on page 31 of your "How Do I Manage My Type 1 Diabetes Better?" manual.**
- Be sure to eat and drink enough carbs so you can give insulin without going to low.
- Drink enough water so you do not get dehydrated.
- **Do not stop your insulin. You cannot stop your insulin when you have Type 1 Diabetes!** Ask your diabetes team how to change your doses if you are too high or too low.
- You need to eat or drink carbs and water and give yourself insulin to keep your body in balance and healthy.
- **You need to go to the ER if you cannot eat or drink fluids that have sugar.**

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1. **Are there a few things I should keep on hand in case I get sick?**

[Show sample of items to have.]

Yes. Keep a few supplies on hand in case you get sick:

- Have on hand liquids that are sugar-free and liquids that have sugar.
- Some examples are diet and regular drinks, sports drinks, clear juices (like apple juice), bouillon, and chicken broth.
- You can use these to replace fluids your body has lost to prevent getting dehydrated.
- Have liquids with sugar to replace needed calories if you are not able to eat. Popsicles with sugar are also good.
- Have sugar-free cough medicine, decongestants, and cough drops.

B. Preparing for Emergencies

(Fast paced, keep this to 3 minutes or less)

Being prepared is important. You never know when something you do not expect can happen. This is true for everyday unexpected things as well as being prepared for a major disaster such as an earthquake, fire, or something that keeps you away from your regular supplies you use to manage your diabetes.

1. **What to put in your every day carry kit**

Having an everyday carry kit and an emergency kit can help. An everyday kit needs to have a way to keep your insulin cool. Who has an everyday kit? What do you keep in it?

Allow participants to respond and write their answers on board/paper. Key concepts to add to participant response if not given. Show sample everyday kit.

Put these in your carry kit even if you use a vial and syringe, pen or pump to manage your diabetes.

- Your glucose meter
- Test Strips
- Lancing device and lancets
- Needles and syringe
- Vial of insulin
- Alcohol swabs
- Glucose tablets in the small containers (You can buy the big ones just to refill the smaller one.)
- A breakfast bar, candy bar or easy little snack just in case

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- Hand sanitizer in case you bleed
- Carry juice boxes when:
 - _ You are in a hurry to leave and know you are going to go low.
 - _ You are not going to be home for most of a day, and are not sure when or what you will be eating for dinner.
 - _ You are going out to do some exercise.

Put these in your carry kit, too, if you use an insulin pump. This is in case you have an issue with your pump and are not carrying another one to change it.

2. **What to put in your emergency kit** *(Fast paced, keep this to 5 minutes or less)*

Who has an emergency kit? What do you keep in it?

Allow participants to respond and write their answers on board/paper. Key concepts to add to participant response if not given. Show sample emergency kit.

This kit is different from your everyday carry kit. But it does have some of the same things in it and more. An emergency kit should have everything you need to manage your diabetes for several days. Talk with your diabetes team about what should go in this kit that will work best for you in an emergency. It will need to go in your fridge because of the insulin.

Update your kit on a regular basis since supplies can expire. Replace any items you use as soon as you can.

Here is a sample emergency kit list:

- Blood sugar testing supplies:
- Meter that uses batteries and not electricity
- Batteries that you keep out of the meter so they do not go bad
- Strips
- Control solution
- Lancing device/lancets
- Fast-acting carb to treat low blood sugar like glucose tablets or hard candy
- Extra snack like food bars
- Glucagon emergency kit
- A vial of short and a vial of long acting insulin and syringes
- Diabetes identification card or jewelry
- Emergency contact phone numbers

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C. Diabetes and Physical Activity

1. Why is physical activity important?

(Fast paced, keep this to 3 minutes or less)

Allow participants to respond and write their answers on board/paper.

Key concepts to add to participant response if not given. Refer to the Diabetes and Physical Activity handout.

Physical activity along with healthy eating habits is important for everyone. Regular exercise is a good way to reduce stress, keep your weight stable, and helps insulin work well. Physical activity does not have to happen only at the gym. Consider other fun, creative, and inexpensive ways to get active. What are some ways you are active?

- | | | |
|-------------------|-------------|-----------------|
| ✓ Dancing | ✓ Walking | ✓ Basketball |
| ✓ Weight training | ✓ Hiking | ✓ Running |
| ✓ Bike riding | ✓ Tennis | ✓ Rollerblading |
| ✓ Swimming | ✓ Housework | ✓ Gardening |

2. What to do when starting to exercise

(Fast paced, keep this to 3 minutes or less)

When starting to exercise, you will need to keep in mind several factors to make sure your blood sugar level does not go too low. You will need to know the type, intensity, and duration of your activity.

Know your intensity level:

Low: You can talk and sing. You don't sweat, and you have no trouble breathing. (Yoga, leisurely walking and biking)

Moderate: Your breathing is harder, and you can no longer sing, although you can talk. (Vigorous walking, swimming and tennis)

High: No singing or talking. You begin to sweat very soon after starting the activity. (Running, spinning and aerobics)

You will also need to know

- Your starting glucose level
- Your starting basal rate
- When you took your last bolus (to know how much active insulin is present)
- The last time you had food
- Your hydration level
- The time of day
- Where your infusion set is placed on your body if you have a pump
- Where your sensor site is if you use a CGM

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3. How can physical activity impact my glucose?

(Fast paced, keep this to 3 minutes or less)

Because exercising regularly helps insulin work well, it may even help lower the amount of insulin that you need. When you exercise, less insulin is needed to move glucose into muscle cells.

In most cases (but not all), intense exercise increases the risk for “hypoglycemia” or “crashing”. This can happen during or right after exercise and then 12 -24 hours later, such as overnight.

Intense exercise can RAISE glucose levels right after, but they will fall 1 – 2 hours later and low blood glucose levels can happen afterwards, again sometimes as long as 12 – 24 hours later.

It is important for someone with diabetes to know whether a certain activity is likely to raise or lower one's glucose. Your glucose may respond in different ways to different types of exercise. For example, you may respond differently to playing baseball than soccer because in soccer you are running all the time. Lifting weights will have a different effect than riding a bicycle.

4. What should I do to prepare for exercise?

(5 minutes)

Before you begin, discuss your plans for exercise with your doctor. They can give you individual recommendations and make sure you are doing the right exercise for your health. In certain cases, such as, diabetic eye damage, you may be advised against doing heavy or aerobic exercise. Sometimes your doctor might recommend reducing the insulin dose before you exercise to avoid lows. They may also have specific instructions if your glucose is not in your target range. When you are ready to exercise you will need to:

- Check your glucose **before** and **after** exercising.
- **Before exercising, make sure your glucose levels are in a safe range, usually between 150 mg/dl and 250 mg/dl.**

What if I am lower than 150 mg/dl?

- If you are lower than 150 mg/dl then eat 15 grams of simple carbohydrate before you exercise (1/2 cup of Gatorade for or 1/2 cup of regular soda). Do not take insulin for these carbohydrates.

What if I am higher than 250 mg/dl?

- The important point here is to determine why your glucose is high (above 250mg/dl).

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- If you are high because you are sick and have ketones, then you shouldn't exercise because your glucose level will only increase.
 - ✓ If your blood glucose is higher than 300 mg/dl, test urine for ketones before exercising.
 - ✓ If ketones are more than trace positive, do not exercise because it could make you very sick.

- If you exercise when your blood glucose is above 250 mg/dl be sure to drink water before, during and after exercise.
 - ✓ Test your blood glucose level 30 minutes into exercise and stop if it is going up.
 - ✓ If you feel sick (weak, nauseated, dizzy, etc.) while exercising then stop, test your blood glucose, and give insulin based on your diabetes plan.
 - ✓ Don't exercise again until your blood glucose level is below 250 and you are feeling better.

- If you are high because you just ate something or you are often high, then exercise should bring down your blood glucose level.

- **Decrease the insulin dose for the meal before you exercise.** This means your blood glucose level will be a bit higher before starting to exercise with less insulin in your body. This is a commonly used strategy to prevent being low before and during exercise.

- **Test blood glucose during exercise** if exercise lasts longer than 1 hour. Often people need 15 to 30 grams of free carbs for every 30 minutes of aerobic exercise. If you are lifting weights, you may NOT go low and will probably NOT need extra carbs.

5. *Can my glucose go high after exercise?* (Fast paced, keep this to 2 minutes or less)

Yes, very intensive exercise can make your blood glucose levels go up after exercise. Your blood glucose will usually come back down within an hour of exercise. Discuss how to treat this with your doctor. Often you will need to give some insulin and drink/eat some carbs after exercise but exactly what to do will depend on your situation. For very intense exercise, such as preparing for and participating in a race or other sports event, talk with your doctor about what to do while training as well as how to stay healthy on the day of your race/event.

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6. *What should I do after I exercise?*

(Fast paced, keep this to 3 minutes or less)

- ✓ Check your blood glucose 5-15 minutes after you stop your exercise.
- ✓ Eat/drink carbs and give some insulin (based on what your doctor tells you) within 30 – 60 minutes after exercise.
- ✓ Be prepared to treat a low blood glucose level that can happen after exercise.

Exercise is likely to make your blood glucose level fall in the first hour or two after exercise and then again 12 – 24 hours later. This delayed risk for having a low blood glucose reaction is because the exercise has helped your body become more sensitive to insulin. This is a good thing but needs to be anticipated.

The first way to help your blood glucose stay in the normal range is to eat enough carbs after exercise. Remember, glucose is good energy for your muscles. But you may also need to lower your basal rate of insulin the night after you exercise. That means either lowering your longer acting insulin, such as NPH, Levemir or Lantus or to lower your basal rate on your pump. This is something you should talk about with your doctor but be sure to prepare for it!

7. *General Points to Consider for Physical Activity:*

(5 minutes)

[Refer to the Handout] Cover each point and ask if there are any questions.

- ✓ Exercise can continue to lower your blood glucose hours after the exercise has stopped. You may need to reduce your insulin intake at night to prevent a 'hypo' during the night.
- ✓ Be sure you have fast acting glucose and your meter near your bed in case you go low.
- ✓ Talk to your doctor about how to adjust your insulin overnight after exercise. In many cases, you will need to cut back (but not stop!) your overnight insulin.
- ✓ When in doubt about the effect a given type of exercise may have on your blood glucose, do extra blood glucose monitoring.

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Look at the chart for a quick and easy guide to use for days you exercise.

Adjustments Based on Blood Glucose Levels Before Exercise

Exercise Duration & Intensity	<100 mg/dL	100-180 mg/dL	180-250 mg/dL
< 30 min. at low intensity	Eat 15 g carbohydrate	N/A	N/A
30-60 min. at moderate intensity	Eat 15 g carbohydrate	100-120: Eat 15 g carbohydrate. 121-180: N/A	N/A
30-60 min. at high intensity	Eat 30 g carbohydrate	Eat 15 g carbohydrate	N/A
> 60 minutes at moderate intensity	Eat 15 g carbohydrate per hour of activity	Eat 15 g of carbohydrate per hour of activity	After 1 hour of activity, eat 15 grams' carbohydrate

*Retest your blood glucose after each hour of activity and follow recommendations based on your reading. Contact your physician if you experience symptoms of hypoglycemia during or after exercise for 2 or more consecutive days.

D. What should I put in my exercise day carry kit?

(5 minutes or less)

[Show an example of an exercise kit.]

Your exercise kit should have everything your everyday kit does plus extra items just in case your blood sugar drops. You should have this no matter how you give yourself insulin: vial/syringe, pen or pump.

<p>Put these in your carry kit:</p> <ul style="list-style-type: none"> • Your glucose meter • Test Strips • Lancets and Lancet device • Needles and syringe • Vial of insulin • Alcohol swabs • Hand sanitizer in case you bleed • Glucose tablets • Snacks 	<p style="text-align: center;">EXTRA ITEMS FOR EXERCISE</p> <ul style="list-style-type: none"> ✓ 1 serving of a sugary snack or beverage ✓ 3-4 glucose tablets ✓ 1 serving of glucose gel ✓ 1 Tbsp. honey or sugar ✓ 4 fl oz. fruit juice or regular soda ✓ 5-6 pieces of hard candy ✓ Glucagon (if participant do not know what this is, have them refer to page 26 of the “How Do I Treat My diabetes Better?” manual.)
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IV. Closing (2 MINUTES)

If patient is on injection and vial only this is the last class. If they are considering the Pump or Pen there are more classes.

Remind everyone when and where the meeting will take place. Topics for next week include: Is The Insulin Pen Right For Me or Is the Insulin Pump Right For Me. The final classes will be: “How Do I Use An Insulin Pen” or “How Do I Use an Insulin Pump”.

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Agenda	Estimated Time
I. Welcome	3 minutes
II. Introduction	10 minutes
a. Icebreaker	
III. Sick Day and Physical Activity	45 minutes
a. What should I do when I am sick?	
b. Are there a few things I should keep on hand in case I get sick?	
c. Preparing for emergencies	
d. What to put in your everyday carry kit	
e. What to put in your emergency kit	
f. Diabetes and physical activity	
g. Why is physical activity important?	
h. What to do when starting to exercise	
i. How can physical activity impact my glucose?	
j. What should I do to prepare for exercise?	
k. Can my blood glucose go high after exercise?	
l. What should I do after exercise?	
m. General Points to Consider for Physical Activity	
n. What should I put in my exercise carry kit?	
IV. Closing	2 minutes

STEPP-UP Handouts

Diabetes and Physical Activity

Why is physical activity important?

Regular exercise is a good way to reduce stress, keep your weight stable, and helps insulin work well. Physical activity does not have to happen only at the gym. Consider other fun, creative, and inexpensive ways to get active:

- ✓ Dancing
- ✓ Weight training
- ✓ Bike riding
- ✓ Swimming
- ✓ Walking
- ✓ Hiking
- ✓ Tennis
- ✓ Housework
- ✓ Basketball
- ✓ Running
- ✓ Rollerblading
- ✓ Gardening



Physical activity along with healthy eating habits is important for everyone.

STEPP-UP Handouts

When Starting to Exercise, Always Think About...

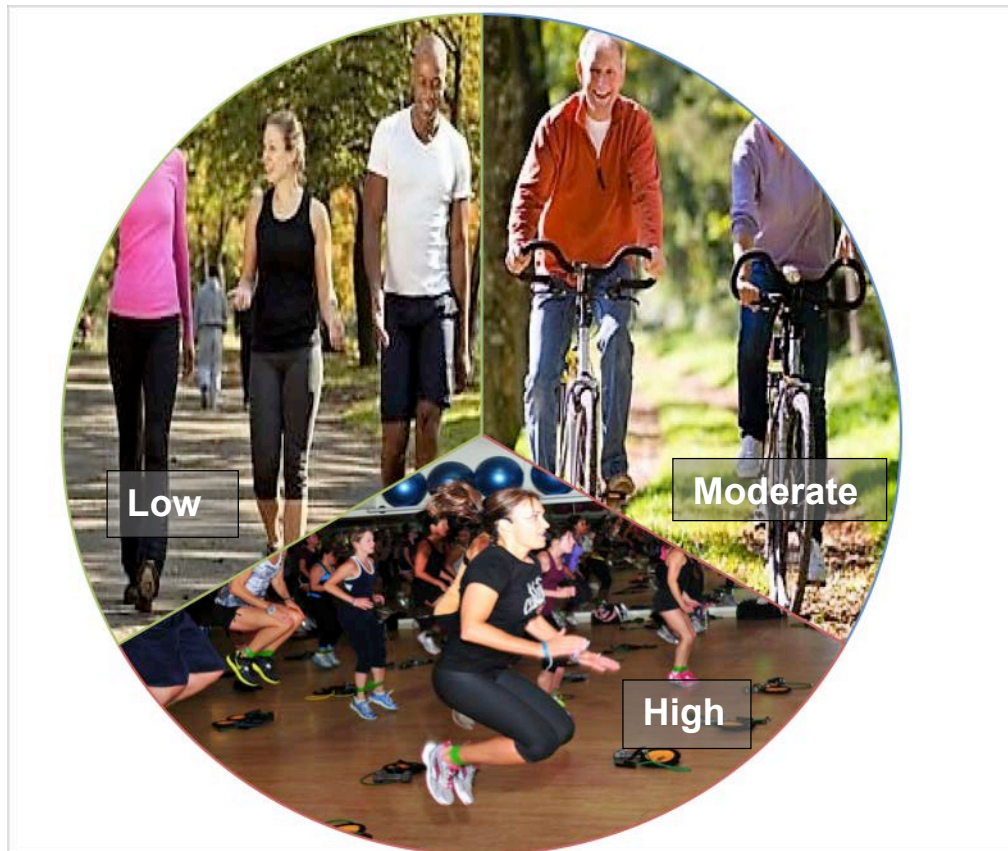
- The type, intensity, and duration of your activity
- Your starting glucose level
- Your basal rate
- When you took your last bolus (to know how much active insulin is present)
- The last time you had food
- The time of day
- Where your infusion set is placed on your body
- Your hydration level

Know your intensity level

Low: You can talk and sing. You don't sweat, and you have no trouble breathing.

Moderate: Your breathing is harder, and you can no longer sing, although you can talk.

High- No singing or talking. You begin to sweat very soon after starting the activity.



Low-intensity

- Yoga
- Leisurely walking
- Biking

Moderate-intensity

- Vigorous walking
- Swimming
- Tennis

High-intensity

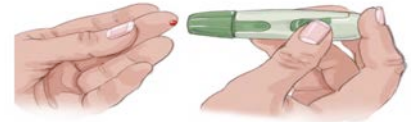
- Running
- Spinning
- Aerobics
- Kickboxing

STEPP-UP Handouts

Suggestions for Exercising

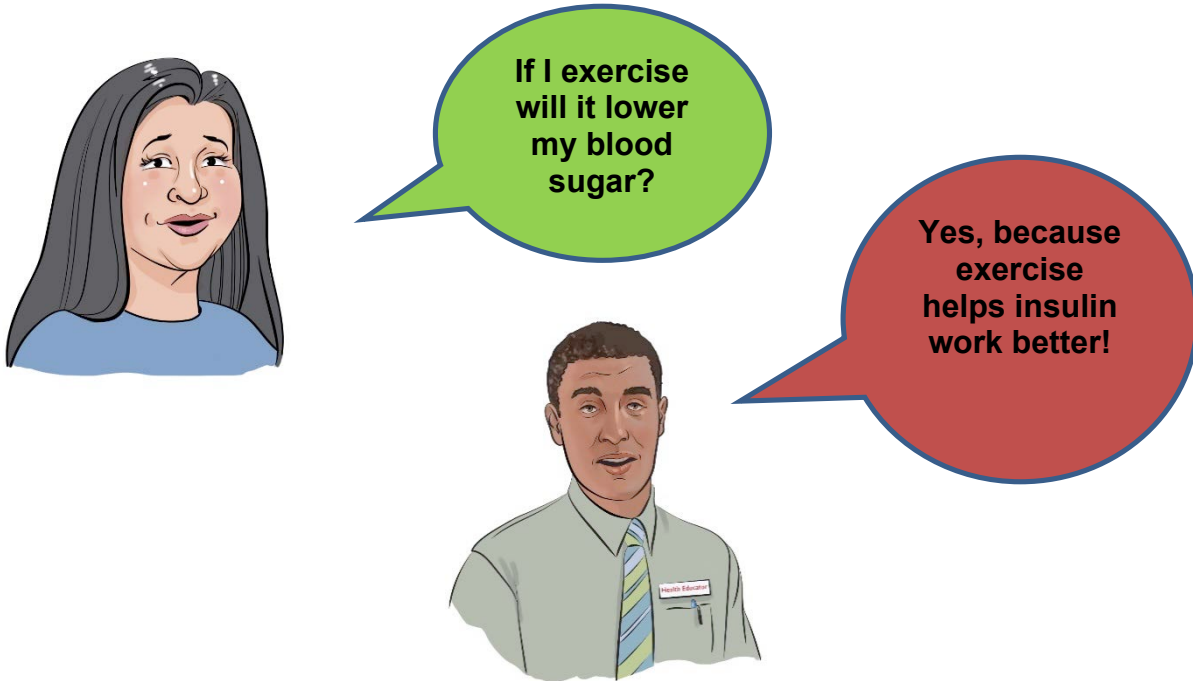
Before starting to exercise, make sure your blood glucose (BG) levels are in the range your doctor suggests.

- If you are too low, you may need to take extra carbohydrates before exercising.
- Sometimes your doctor might recommend reducing the insulin dose before you exercise to avoid lows.
- If you are too high, you may need to wait to exercise or drink extra water before starting.
- Check your BG ***before*** and ***after*** exercising.
- If exercise lasts longer than 1 hour, test BG during exercise.



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How can physical activity impact my BG?



- Because exercising regularly helps insulin work well, it may even help lower the amount of insulin that you need.
- When you exercise, less insulin is needed to move glucose into muscle cells.
- In most cases (but not all), intense exercise increases the risk for “hypoglycemia” or “crashing”. This can happen during or right after exercise and then 12 -24 hours later, such as overnight.
- Intense exercise can RAISE blood glucose levels right after, but they will fall 1 – 2 hours later and low blood glucose levels can happen afterwards, again sometimes 12 – 24 hours later.
- It is important for someone with diabetes to know whether a certain activity is likely to raise or lower one's blood glucose.
- Your blood glucose may respond in different ways to different types of exercise. For example, you may respond differently to playing baseball than soccer because in soccer you are running all the time. Lifting weights will have a different effect than riding a bicycle.

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What should I do to prepare for exercise?

Before you begin, discuss your plans for exercise with your doctor. They can give you individual recommendations and make sure you are doing the right exercise for your health. In certain cases, such as if you have diabetic eye damage, you may be advised against doing heavy or aerobic exercise.

- Check your BG **before** and **after** exercising.
- **Before exercising, make sure your BG levels are in a safe range, usually between 150 mg/dl and 250 mg/dl.**
 - If you are lower than 150 mg/dl then eat 15 grams of simple carbohydrate before you exercise (1/2 cup of Gatorade for or 1/2 cup of regular soda). Do not take insulin for these carbohydrates.
 - If you are higher you may need to give a little insulin...or not...this should be determined by you and your doctor.
- **Decrease the insulin dose for the meal before you exercise.** This means your blood glucose level will be a bit higher before starting to exercise with less insulin in your body. This is a commonly used strategy to prevent being low before and during exercise.
- **Test blood glucose during exercise** if exercise lasts longer than 1 hour. Often people need 15 to 30 grams of free carbs for every 30 minutes of aerobic exercise. If you are lifting weights, you may NOT go low and will probably NOT need extra carbs.



**Check your blood sugar before and after exercise!
Exercise will change your blood sugar and you don't want to go too low or too high.**

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What if I check my BG before exercise and it's "high"?

The important point here is to determine why your glucose is high (above 250mg/dl). If you are high because you are sick and have ketones, then you shouldn't exercise because your glucose level will only increase.

If you are high because you just ate something or you are often high, then exercise should bring down your blood glucose level.

If your blood glucose is high and you decide to exercise be sure to drink lots of non-sugary fluids (like water) before and during exercise. This will help bring down your blood glucose levels and keep you from getting dehydrated.

A basic guideline is as follows:

- If your blood glucose is higher than 300 mg/dl, test urine for ketones before exercising.
- If ketones are more than trace positive, do not exercise because it could make you very sick.
- If you exercise when your blood glucose is above 250 mg/dl be sure to drink water before, during and after exercise.
- Test your blood glucose level 30 minutes into exercise and stop if it is going up.
- If you feel sick (weak, nauseated, dizzy, etc.) while exercising then stop, test your blood glucose, and give insulin based on your diabetes plan.
- Don't exercise again until your blood glucose level is below 250 and you are feeling better.

Can my BG go high after exercise?

Yes, very intensive exercise can make your blood glucose levels go up after exercise. Your blood glucose will usually come back down within an hour of exercise.

- Discuss how to treat this with your doctor. Often you will need to give some insulin and drink/eat some carbs after exercise but exactly what to do will depend on your situation.
- For very intense exercise, such as preparing for and participating in a race or other sports event, talk with your doctor about what to do while training as well as how to stay healthy on the day of your race/event.

STEPP-UP Handouts

Why do I have to check my blood glucose after exercising?

After exercising you may get what is called a “false high” because your body is producing stress hormones. Once your body regulates then your glucose may drop back down and you may get a ‘hypo’.

For at least 60 minutes after exercise your body is trying to put glucose back into your muscles. To help your body store glucose it is generally a good idea to give yourself some carbs and some insulin after exercising. This means you should test your blood glucose level and give insulin based on the level of your blood glucose and how much carb you are going to eat. HOWEVER, you will often need to give about half as much insulin as you would usually calculate to prevent going too low (your muscles will be very sensitive to glucose). You should plan for what to do with your doctor.

What should I do after I exercise?

- Check your blood glucose 5-15 minutes after you stop your exercise.
- Eat/drink carbs and give some insulin (based on what your doctor tells you) within 30 – 60 minutes after exercise.
- Be prepared to treat a low blood glucose level that can happen after exercise.

Exercise is likely to make your blood glucose level fall in the first hour or two after exercise and then 12 – 24 hours later. This delayed risk for having a low blood glucose reaction is because the exercise has helped your body become more sensitive to insulin. This is a good thing but needs to be anticipated.

The first way to help your blood glucose stay in the normal range is to eat enough carbs after exercise. Remember, glucose is good energy for your muscles. But you may also need to lower your basal rate of insulin the night after you exercise. That means either lowering your longer acting insulin, such as NPH, Levemir or Lantus or to lower your basal rate on your pump. This is something you should talk about with your doctor but be sure to prepare for it!



STEPP-UP Handouts

General Points for Exercise:

- Exercise can continue to lower your blood glucose hours after the exercise has stopped. You may need to reduce your insulin intake at night to prevent a 'hypo' during the night.
- Be sure you have fast acting glucose and your meter near your bed in case you go low.
- Talk to your doctor about how to adjust your insulin overnight after exercise. In many cases, you will need to cut back (but not stop!) your overnight insulin.
- When in doubt about the effect a given type of exercise may have on your blood glucose, do extra blood glucose monitoring.

Here is a chart that is quick and easy guide to use for days you exercise.

Adjustments Based on Blood Glucose Levels Before Exercise

Exercise Duration & Intensity	<100 mg/dL	100-180 mg/dL	180-250 mg/dL
< 30 min. at low intensity	Eat 15 g carbohydrate	N/A	N/A
30-60 min. at moderate intensity	Eat 15 g carbohydrate	100-120: Eat 15 g carbohydrate. 121-180: N/A	N/A
30-60 min. at high intensity	Eat 30 g carbohydrate	Eat 15 g carbohydrate	N/A
> 60 minutes at moderate intensity*	Eat 15 g carbohydrate per hour of activity	Eat 15 g of carbohydrate per hour of activity	After 1 hour of activity, eat 15 grams' carbohydrate

- Examples of low-intensity exercise: yoga, leisurely walking, or biking
- Examples of moderate-intensity exercise: vigorous walking, swimming, tennis
- Examples of high-intensity exercise: running, Spinning, aerobics or kickboxing
- Examples of long-duration (60+ minutes) moderate-intensity exercise: team sports, golfing, cycling or swimming

*[Retest your blood glucose](#) after each hour of activity and follow recommendations based on your reading. Contact your physician if you experience symptoms of hypoglycemia during or after exercise for 2 or more consecutive days.

STEPP-UP Handouts

Have an Exercise Kit

What should I take with me when I go exercise?



What should I put in my exercise carry kit?

Your exercise kit should have everything your everyday kit does plus extra items just in case your blood sugar drops.

Put these in your carry kit:

- Your glucose meter
- Test Strips
- Lancets and Lancet device
- Needles and syringe
- Vial of insulin
- Alcohol swabs
- Hand sanitizer in case you bleed
- Glucose tablets
- Snacks



EXTRA ITEMS FOR EXERCISE

- ✓ 1 serving of a sugary snack or beverage
- ✓ 3-4 glucose tablets
- ✓ 1 serving of glucose gel
- ✓ 1 Tbsp. honey or sugar
- ✓ 4 fl oz. fruit juice or regular soda
- ✓ 5-6 pieces of hard candy
- ✓ Glucagon



You should always have your every day kit! When you exercise, you should have some extra items too.