



Exercise and Diabetes

The American Diabetes Association recommends 60 minutes of moderate-to-vigorous intensity aerobic activity daily, with vigorous muscle-strengthening and bone-strengthening activities at least 3 days per week.

Exercise is not only good for you! It increases insulin sensitivity, improves A1c, glucose management, and decreases the risk of heart disease. It also improves cholesterol which is important for your overall health.

Aerobic Exercise	Anaerobic Exercise
<ul style="list-style-type: none"> • Activities that involve continuous movements of large muscle groups • Walking, running, cycling, swimming, rollerblading, jumping on trampoline • Typically decreases blood sugar • More prone to low blood sugar <u>during</u> activity 	<ul style="list-style-type: none"> • Activities resistant in nature, using muscle strength to move weight or work against resistance. • Weightlifting, football, baseball, wrestling, volleyball, gymnastics • May initially increase blood sugar, but can cause a decrease in blood sugar later 

Some activities can be considered **both** aerobic and anaerobic and the blood sugar can **increase or decrease**.

- Basketball, soccer, tennis, playground activities, dancing, downhill skiing, golf, yoga, playground activities

Things to keep in mind...

- **Hypoglycemia can occur up to 24 hours after** activity so close blood sugar monitoring is needed.
- During exercise, check blood sugar every 30 minutes.
- Blood sugar typically **increases** during tryouts, performances, or competitions.
- Blood sugar typically **decreases** during practices.

Blood Glucose Targets with Exercise

Goal: above 120 before and during exercise

Do not dose for the snacks in this chart.

Less than 70	70-120	Above 120	Greater than 300
<ol style="list-style-type: none"> 1. Rule of 15 2. Once >70 Eat a carb + protein snack 3. Do not start activity until blood sugar is above 120. 4. Check glucose every 30 minutes. 	<ol style="list-style-type: none"> 1. Eat a 15-gram carb + protein snack, then start activity. 2. Check glucose every 30 minutes 	<ol style="list-style-type: none"> 1. Start activity 2. Check glucose every 30 minutes 	<ol style="list-style-type: none"> 1. Check ketones <ul style="list-style-type: none"> • If ketones are negative, trace, or small okay to exercise • If ketones are moderate or large- do not exercise- follow sick day action plan

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Is there a time when I should NOT exercise?

- If you have moderate or large ketones.
- If a severe hypoglycemic event occurred in the past 24 hours.
 - You're at risk for a more severe hypoglycemic episode during exercise.
- If you are unprepared to monitor blood sugars or treat a low.
 - Blood sugar should be checked before, during, and after exercise. If you don't have your meter or CGM, you should not exercise.

Exercise Considerations

- These recommendations should be used as a starting point. If you are having difficulty with your glycemic control and exercise you should start keeping a logbook to identify patterns of lows or highs. **Exercise plans can be very individualized based off experience and activity.**
- Decreasing bolus dose by 10% at meal prior to activity.
- May need less insulin at meal following activity as exercise can increase insulin sensitivity.
- If on a pump, running a temporary basal, decreasing 10-20%, 60-90 minutes prior to activity.
- Eating a 15-gram carb + protein snack prior to activity if you are having a pattern of lows during or after activity.
- Monitor blood sugar closely overnight if the activity is in the afternoon or evening.

Percent Reduction in Pre-Meal (bolus) Insulin Dose

Exercise Intensity	30 minutes of Exercise	60 minutes of Exercise
Low	25%	50%
Moderate	50%	75%
High	75%	Ask your provider

Additional Option for Pump Users - Basal reduction

Exercise Intensity	Percent reduction in basal insulin dose
Low (30-60 min)	10-20 % basal rate reduction 1 hour before
Moderate (1-2 hours)	30-50 % basal rate reduction 1 hour before and 1 after exercise
Isometric Weight Lifting	You do not need to make any adjustments.
High Intensity	Stop pump before exercise; do not suspend for longer than 90 minutes

Always be prepared!

- Bring several fast-acting carb snacks (juice, glucose tabs, sports drink) with you to all activities.
- Make sure you always have your glucometer and testing supplies.
- Have your Glucagon/Baqsimi/Gvoke with you in case of emergency.
- Always wear a medic-alert ID.
- Let your coach, teammates, or work out buddy know that you have diabetes and teach them how to help you if you have a low blood sugar. Also teach them how and when to use emergency medicine.
- Drink plenty of water to stay hydrated.
- The best way to understand what your body/your child's body reacts to exercise is be consistent and keep accurate logs of what works and what does not. Everybody's different!