

Insulin needs change during exercise or whenever your activity level is higher (or lower) than usual. Learning how to think and act like a pancreas is crucial to help you maintain optimal blood glucose (BG) control. Using an insulin pump offers you one of the best ways to match your insulin needs during these times. It is important to realize that the same activity can have very different effects on BG from one person to another. There are even times when the same activities can result in different effects in the same person!

When you first start on the pump, your healthcare provider (HCP) may ask you to refrain from doing exercise for a little while. This may be helpful as everyone (including you) is working to get your basal rates on target. If you have a very consistent exercise routine, this becomes less of an issue. Check with your HCP for specific recommendations.

In general, during increased physical activity, BG levels drop and you need less insulin. This is because your body is working harder and uses up glucose for the extra fuel the muscles require. In people without diabetes, the body automatically reduces the level of insulin during exercise. People with diabetes need to either adjust their insulin or eat extra food to maintain target BG levels when exercising. Insulin pump wearers have the ability to spontaneously and precisely adjust insulin levels.

You can either program your Animas[®] pump with a temporary basal rate before your activity level increases (for example, set a temporary basal of – 50% for 2 hours which will reduce your basal insulin in half), or you can decrease your carb bolus at the meal or snack before you exercise. You may find it works best to do both. It is important to know that exercise can actually lower BG for up to 36 hours. This is called the “lag effect.”

BG levels sometimes rise during exercise. During very high intensity exercise and/or competitive events, stress hormones are released. These hormones trigger stored glucose to be released into the bloodstream. Many times this high glucose will come down to target on its own a short time after the exercise. It is important for you to check with your HCP for specific recommendations.

In other cases, if your BG is high prior to exercise and insulin levels are low, your BG level can rise with the increased activity. The low insulin level will trigger your liver to release stored glucose. Since the insulin level is low, the extra glucose cannot enter the cells and eventually ketones will be released as your body resorts to breaking down fat to meet the muscles' need for energy. This is a dangerous situation.

Physical activity can affect BG levels differently in different people. Check BG levels before, during and after exercise to learn what your personal response will be. Keep in mind that your glucose response will also vary based on the type, intensity and the duration of the activity.

General Exercise Tips

Follow these suggested guidelines when activity is increased:

- Before you begin exercising with an insulin pump, talk to your HCP to get help on adjusting your insulin doses.
- If your BG is 250 mg/dL or greater prior to exercise, check to see if you have ketones. If ketones are present, refer to the guidelines listed in the Troubleshooting high BG (hyperglycemia) Handout. Your HCP may advise that you do not exercise when you have a positive ketone test—follow their guidance.
- Wear medical identification.
- Check BG before, during and after activity to establish your specific patterns. Keep written records!
- Try the same exercise at different times of the day to see if your glucose response differs depending on the time of day.
- Carry carbs to treat low BG.
- Drink plenty of water to stay properly hydrated.
- Consult with an exercise specialist who is experienced with diabetes management.

Insulin Adjustment Tips

These are just some general tips to consider. Remember to consult your own HCP for specific guidelines.

- In general, exercise lasting longer than 30 minutes will require extra carbs or a decrease in insulin.
- Adjust the insulin that has the greatest effect during the exercise session: basal insulin or the bolus dose.
 - If you are exercising within an hour or two of a bolus, decrease the bolus.
 - If your exercise is not close to a bolus, consider a basal adjustment using the Temporary Basal Rate.
 - You may find adjusting both basal and bolus insulin is best for you.
- When possible, set your temporary basal rate 30 to 60 minutes before you increase your activity.
- Remember, because of the “lag effect” of exercise, you may need to decrease insulin for as long as 24 to 36 hours after the exercise. This is especially true for activities that last for several hours or more.

Wearing or Disconnecting the Pump During Exercise

Many new pumpers ask if they should disconnect during exercise. There is no right or wrong answer as your decision depends on your individual comfort and the specific situation. Here are some tips on pumping and exercise:

- Body heat, perspiration, moisture, friction, and agitation may irritate the infusion site. Choose a site that will not be flexed or irritated during the exercise. Wear the pump away from the infusion site to avoid rubbing and friction. Remember that perspiration may affect the infusion set tape as well. Check your infusion site and tape carefully.
- If you are having difficulty keeping your infusion sets attached to your skin, discuss with your HCP or contact Animas® Customer Support at 1-877-YES-PUMP (1-877-937-7867) for a list of products that may help this problem.
- It is usually recommended to remove the pump during contact sports. Do not remove the pump for longer than 1 hour without a plan for insulin replacement.
- There are many cases and protective covers to keep your pump safe and comfortable during exercise. Visit the Animas.com website for ideas and to view accessory items.