

Exercise & Type 1 Diabetes

(AEROBIC ACTIVITIES)

- In general, “**aerobic**” activities (walking, jogging, swimming, biking) will **decrease** your blood sugars during and hours after the activity.
- Exercise is important for people with diabetes, because it **improves your insulin sensitivity!**
- The recommendation is a minimum of **30 minutes** of exercise at least **5 days** per week
- For some people, decreasing the amount of insulin given before and during activity is enough to prevent lows. For others, they need to eat extra food beforehand. Some need to do both! To figure out how your blood sugar will respond to different activities, it is important to check your blood sugars before, during and after different activities! **Experience is the best teacher!**

BEFORE AEROBIC EXERCISE:

- **Check your blood sugar!** A general rule is to be **above 150** before starting to exercise.
 - If you are lower than 80, use the Rule of 15’s to bring your blood sugar above 150
 - If you are greater than 250, correct your blood sugar, drink water, and wait until your blood sugar is between 80 and 150 to start exercising
- **Eat extra food** to cover exercise:

Expected Length of Exercise	Blood Sugar Level	Examples of foods
Short (15-30 minutes)	<80	8oz of sports drink OR 4-6oz juice (both 15g)
	80-150	Fresh fruit (15g)
	>150	None
Longer (30-120 minutes)	<80	8oz sports drink OR 4oz juice + ½ sandwich with protein (30g total)
	80-150	8oz sports drink OR milk + fresh fruit (30g total)
	>150	½ sandwich with protein (15g)
Longest (2-4 hours)	<80	8oz sports drink OR 4oz juice; whole sandwich with protein (45g total)
	80-150	Fresh fruit OR whole sandwich with protein (45g total)
	>150	Whole sandwich with protein (30g)

- **Reduce your insulin dose** before exercise
 - For injection users: You can decrease the amount of insulin before exercise:

Time of Exercise	Infants 0-2 years	Preschool 3-4 years	School Age 5-9 years	Pre-Teen 10-12 years	Adolescent 13-25 years
Before breakfast Decrease dinner bolus OR evening before basal by:	0.25-0.50u	0.50u	0.50-1.0u	1.0u	1.0-2.0u
Mid-morning Decrease breakfast bolus by:	0.25-0.50u	0.50u	0.50-1.0u	1.0u	1.0-2.0u
Afternoon	0.25-0.50u	0.50u	0.50-1.0u	1.0u	1.0-2.0u

Decrease lunch bolus by:					
Evening Decrease dinner bolus by:	0.25-0.50u	0.50u	0.50-1.0u	1.0u	1.0-2.0u
All day Decrease all insulins by:	10-50%	10-50%	10-50%	10-50%	10-50%

- For pump users: You can set a temporary basal rate of 50% starting one hour before exercise and continuing through the activity. You can also suspend your pump altogether. To determine what might work best for you – experiment!
- **Be mindful of your injection site**
 - Exercising increases blood flow to different parts of your body and can make your insulin work more quickly. If you are going to walk/run, don't inject into your legs right before. If you are going to play tennis, don't inject into your arm right before. In general, the abdomen is a safe place to inject right before exercise!

DURING AEROBIC EXERCISE:

- **Check your blood sugar!** This will help you to determine how YOUR body will respond during different activities
- Always have short-acting glucose available to take in case of lows!
- For vigorous exercise, some find taking 4-8oz of sports drink every 30 minutes helpful in keeping their blood sugars from going low
- If your blood sugar goes low during activity – STOP! Treat your low with the Rule of 15's and wait at least 30 minutes before starting again
- Make sure someone around (coach, friend) knows you have diabetes and where to find your short-acting glucose/glucagon in the event of a severe low

AFTER EXERCISE:

- **Check your blood sugar!** This will help you to determine how YOUR body will respond after different activities
 - If your blood sugar is greater than 180, correct your blood sugar with HALF the amount you normally would
 - If your blood sugar is lower than 80, have a 15-30g snack without insulin
- **“Delayed hypoglycemia”** means that you can have low blood sugar three to 12 hours after the exercise is over. To prevent this, you can decrease the amount of insulin given at the meals/snacks after exercise (by the amount in the chart above), or you can set a temp basal rate of 80% on your pump after exercise. To determine how long might be best for you to set your temp basal rate – experiment! Some people find they need to do it up at 9 hours after the activity!