



What Every School Nurse Should Know: Nutrition and Exercise

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Objectives

- Illustrate the importance of physical activity and benefits of activity in patients with diabetes
- Discuss the risks associated with insulin dependent students and considerations to prevent hypoglycemia
- Identify pre and intra activity snack options for in range blood sugars and hypoglycemia

American Diabetes Association Guidelines

Physical Activity and Exercise Recommendations

14.5 Physical activity is recommended for all youth with type 1 diabetes with the goal of 60 min of moderate- to vigorous-intensity aerobic activity daily, with vigorous muscle-strengthening and bone-strengthening activities at least 3 days per week

14.58 Youth with prediabetes and type 2 diabetes, like all children and adolescents, should be encouraged to participate in at least 60 min of moderate to vigorous physical activity daily (with muscle and bone strength training at least 3 days/week) and to decrease sedentary behavior.

Benefits of physical activity

- Improves metabolic health and reduces cardiovascular risk factors
- Emotional and mental health
- Strength, weight management and conditioning
- Improved insulin sensitivity
- Improved bone density

Balancing Act

Factors that increase blood glucose:

- Carbohydrates, protein and fats
- Insulin resistance
- Various hormones (growth, stress, counter regulatory)



Factors that decrease blood glucose:

- Insulin
- Muscle contraction
- Insulin sensitivity

So how do we help our patients with diabetes?

If patients are not on insulin (or other hypoglycemic medications)

- Encourage safe, and regular physical activity

If the patient is on insulin:

- Encourage safe and regular physical activity
- Monitor blood glucose before, during depending on duration and after
- If insulin will be given within 2 hours of activity consider a reduction in insulin dose (if needed)
- Add carbohydrates when appropriate.
- Technology can help us be proactive

Not all exercise has the same impact

Anaerobic activity is more likely to stabilize or raise blood sugars

- Weightlifting, sprinting, gymnastics, jumping activity, wrestling, volleyball

Aerobic activity is more likely to decrease blood sugars

- Walking, jogging, biking, swimming

Most team sports will have a mixed impact

- Football, soccer, basketball, tennis, field hockey



Trending arrows help our decision making

Continuous Glucose Monitors (CGM)

- Many of our patients will wear a CGM
- Provides estimated glucose
- Trending arrows can help with prevent hypoglycemia
 - A single arrow down means a drop in BG of 60-90pts in 30minutes

Making adjustments

If exercise is planned:

- Consider a reduction of meal time insulin by 0.5-1 unit if within 2 hours of physical activity
- Balanced meals are best for sustained energy
- Refer to school plan/may need updates if frequent lows

If exercise is not planned (injections only):

- Monitor blood sugars and determine if a snack is needed
- If blood sugars are below 130mg/dL consider a 10-15 gram carbohydrate snack
- Depending on the individual different thresholds may be needed

If blood sugars are elevated after activity:

- Consider adrenaline



Snack options

If blood sugar is in range, eat:

- Fruit
- Yogurt
- Popcorn
- Crackers with cheese or peanut butter
- Half of a sandwich

If blood sugar is low, eat:

- High glycemic index form of carbohydrate (sugar)
- Juice / soda / sports drinks
- High sugar candy
- Glucose tabs/gels

Both situations:

- Typical starting point is about 15 gram carbohydrates but may need more or less depending on blood sugars and trends (CGM)

Mindful Messaging - low hanging fruit (juice)

- Carbohydrates are necessary
- Use supportive and encouraging language when talking about foods
- Fast digesting carbs when not treating lows can make problem solving difficult

Questions?