Module 7. Exercise for Better Health

EDUCATIONAL OBJECTIVES

Upon completion of this activity, participants should be better able to:

1. Identify the physiologic benefits of all types of exercise in patients with diabetes;
2. Discuss exercise recommendations for patients with diabetes based on current evidence-based standards of care;
3. Explain how exercise may lead to both hypoglycemia and hyperglycemia;
4. Discuss how insulin needs may change during and after exercise, and how food intake may need to be adjusted;
5. Describe the impact of some medications on blood glucose levels during exercise; and
6. Recognize that some patients with diabetes have limitations to certain types of exercise and how to adjust exercise based on patient capabilities.

Post-test/Rationale

1. Which of the following is not a usual health benefit of exercise in patients with diabetes?
   A. Greater risk of a heart attack***
   B. Improved blood glucose levels in most patients with diabetes
   C. Lower cholesterol levels
   D. Weight loss

Correct Answer: A
Exercise training in patients with diabetes is associated with a lower risk of heart disease and reductions in blood pressure.

2. What are the recommended activities for older adults with diabetes?
   A. Low-intensity balance training and lifestyle activity
   B. Flexibility and strength training
   C. Moderate-intensity aerobic exercise and resistance, balance, and flexibility training***
   D. Vigorous aerobic training at least three days per week

Correct Answer: C
For optimal health in addition to lifestyle improvements, a complete exercise training program for individuals with diabetes should include aerobic exercise and balance and flexibility training as well.
3. What are good balance training exercises for people with diabetes?

   A. Practice standing on one leg
   B. Yoga and tai chi
   C. Lower body resistance training
   D. All of these are good balance exercises***

**Correct Answer: D**
Lower body resistance training, yoga, tai chi, and standing on one leg can all be included in the definition of balance training.

4. What is the fastest and best treatment for hypoglycemia?

   A. Turkey Sandwich
   B. Glucose or dextrose (tablets, gels, etc)***
   C. Doughnuts or other pastries
   D. Chocolate milk

**Correct Answer: B**
The fastest treatments for hypoglycemia contain straight (pure) glucose.

5. What is the high blood glucose cutoff at which people may need to wait to exercise if they have moderate urinary or blood ketones?

   A. 120 mg/dL (6.79 mM)
   B. 250 mg/dL (13.9 mM)***
   C. 300 mg/dL (16.7 mM)
   D. There is no cutoff for hyperglycemia and ketones.

**Correct Answer: B**
Avoid physical activity if starting blood glucose levels are greater than 250mg/dl and moderate or high ketones are present in the urine or blood.

6. What is a normal response when someone with diabetes does a moderate-intensity activity such as brisk walking?

   A. Insulin levels in the body increase
   B. Blood glucose levels decrease***
   C. Blood glucose levels increase
   D. Both insulin and blood glucose levels stay the same
**Correct Answer: B**
The most usual response to physical activity in patients with diabetes is that blood glucose will decrease because contracting muscles will utilize glucose without needing insulin.

7. Which oral diabetes medication is most likely to cause hypoglycemia with exercise by causing the release of insulin from the pancreas?

   A. Sulfonylureas***
   B. Metformin
   C. SGLT2 inhibitors
   D. DPP-4 inhibitors

**Correct Answer: A**
Sulfonylureas can cause hypoglycemia because of their mechanism of action, which is to effect the release of insulin from the pancreas.

8. Which people with diabetes need to have a medical checkup before starting exercise?

   A. Anyone with known heart disease
   B. Anyone at least 30 years old with diabetes for 10 years or longer
   C. Anyone with lower leg pain while walking
   D. All of these people would benefit from having a checkup first***

**Correct Answer: D**
These are all part of criteria that would make it necessary to get a doctor’s permission/release before attempting to begin an exercise routine in patients with diabetes.

9. Which exercises are more appropriate for most people with peripheral nerve damage in their feet?

   A. Running and jogging
   B. All weight-bearing activities, as long as they are done moderately
   C. Seated, non-weight-bearing, and aquatic activities, and some walking***
   D. Jumping rope and box jumping

**Correct Answer: C**
Seated, non-weight bearing exercise is recommended for people with peripheral nerve damage because they are low impact. Peripheral nerve damage causes lack of sensation which increases the risk of injury from more high-impact activities.
10. What is an appropriate recommendation to help people with diabetes exercise safely?

   A. Stay properly hydrated with frequent sips of cool water
   B. Check blood glucose levels before, possibly during, and/or after exercise
   C. Check feet daily for signs of trauma, such as blisters, redness, or other irritation
   D. All of these are appropriate to ensure safe exercise***

**Correct Answer: D**
These are all listed as safety measures for people with diabetes when exercising.