Glucose Control, Activity, and Stress

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Educational Handouts

- Glucose Control, Activity, and Stress (slide handout)
- What Makes Glucose Go Up or Down?
- Get Active
- How Many Calories Does Physical Activity Use?
- Resistance Band Exercises
- Ways to Relieve Stress
- Additional Resources:
  - Blood Glucose Logbook
  - Diabetes Online Resources

Class Topics

- Basics of Diabetes and Medication
- Nutrition Basics
- Glucose Control, Activity, and Stress
  - Testing blood glucose and understanding blood glucose patterns
  - Benefits of physical activity
  - Practice in using resistance bands for physical activity
  - Reducing stress and practice in relaxation
- Eat Smart, Change Your Lifestyle

Diabetes Treatment Components

- Healthy eating
- Weight reduction (primarily in type 2 diabetes)
- Medications – how to use insulin
- Glucose Pattern Management
- Exercise
- Stress management
Target Blood Glucose Goals

- Before meals: 80-130 mg/dl
- After meals: Less than 180 mg/dl
- Before bedtime: 110-150 mg/dl
Common Glucose Patterns in Type 2 Diabetes

- High fasting blood glucose levels
- High blood glucose levels after meals
- High blood glucose levels after dinner

Understanding Your Glucose Pattern

- What is the pattern?
  - High, low, normal glucose levels?
  - When are they high, low, and normal?

- What’s causing this pattern?

- What can I do about it?

Case Study #1

- John has type 2 diabetes and works as a full-time factory worker during the week. On the weekends, he stays busy doing activities around the house. His diabetes is currently controlled with oral medication, metformin, which he takes twice a day – 1,000 mg. before breakfast and 1,000 mg before dinner.

- He has been advised to test his blood glucose levels at least once/day at different times (either before or after meals or at bedtime) and when possible, to test twice/day in pairs (either pre/post meal or at bedtime and before breakfast).

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Case Study # 2

- Sarah is a 57 year-old who has had type 2 diabetes for 1 year. At the time of her diagnosis, her primary care physician told her to lose weight or she would need to start on medications.
- Her A1c is now 7.9%, she has not lost any weight, and has been referred for diabetes education. The diabetes educator has asked her to begin glucose testing and to test her blood glucose at least twice/day (in pairs or at bedtime and before breakfast) for the next month.
- Sarah loves to eat and frequently eats out with friends for lunch and with family for dinner on the weekends.

Case Study # 3

- Sean was diagnosed with type 2 diabetes approximately 6 months ago – at which time he began to eat healthier and joined a gym. He was recently promoted to a manager position at the company where he works. His hours have increased and he frequently has early morning and lunchtime meetings. He picks up carry-out on his way home (often after 7 pm) and frequently eats and falls asleep.
- At his recent appointment with the diabetes educator, he was asked to test his blood glucose more frequently to better understand his glucose patterns and begin to problem solve.
Continuous Glucose Monitors (CGM)

- CGM is a way to measure glucose levels in real-time throughout the day and night.
- A tiny electrode is inserted under the skin to measure glucose levels. It is connected to a transmitter that sends the information via wireless radio frequency to a monitoring and display device.
- CGMs measure glucose in interstitial fluid every 5 minutes.
- Readings are comparable to checking blood glucose via meter, although it is not a replacement!
- Brands of CGMs include Medtronic and Dexcom.

General Benefits of Physical Activity

- Increases circulation
- Increases aerobic capacity
- Increases energy levels
- Improves respiratory function
- Uses calories, reduces appetite, helps with weight maintenance
- Decreases percentage of body fat, especially in abdomen
- Improves muscle tone
- Increases HDL (healthy cholesterol)
- Lowers blood pressure

MORE Benefits of Physical Activity!

- Strengthens bones
- Increases flexibility
- Reduces stress
- Increases memory and cognitive function
- Improves mood (natural endorphins)
- Reduces constipation
- Increases testosterone in men
- Decreases need for (or dosage of) medications
- Increases social interaction
- Increases self esteem

Benefits of Physical Activity on Blood Glucose

- Increases sensitivity to insulin
- Lowers glucose by using it for fuel
  - for up to 36 hours, as liver replenishes its stores of glucose from the bloodstream *

*In Type 2 diabetes, exercising with blood glucose >250 mg/dl may increase blood glucose, due to insulin deficiency.
Types of Physical Activity

- **Aerobic**
  - Make you breathe harder and make your heart beat faster
  - Moderate intensity activities
    - Walking briskly
    - Bicycling
    - General gardening
    - Dancing
    - Water aerobics or swimming

- **Muscle-strengthening**
  - Make muscles stronger
  - Resistance bands, lifting weights

- **Balance and stretching**
  - Enhance physical stability and flexibility
  - Gentle stretching, dancing, yoga, pilates, tai chi, martial arts

What are YOUR Goals for Physical Activity?

- Lowering Heart Disease Risk?
  - 2-3 times weekly for 15-30 minutes

- Overall Fitness?
  - 4 times weekly for 15-30 minutes

- Weight Maintenance?
  - 5 times weekly for 45-60 minutes

Other Considerations with Physical Activity

- **FIND SOMETHING THAT YOU ENJOY!**

- Upper body or armchair exercises can also be good to do if you have lower body (joint) problems and difficulty getting around

- Intermittent or small bouts of exercise (10-15 minutes at a time) can be just as beneficial as one 30 minute exercise session; walking for 10-15 minutes after each meal can help to lower postprandial or after-meal blood glucose levels

To order call 1-800-222-2225 or visit http://www.nia.nih.gov/HealthInformation/Publications/
3/21/17

Break: 15 minutes

Easy and Fun Physical Activity Using Resistance Bands

Jennifer Johnson, BS,
Certified Wellness Coach
Fitness/Wellness
Coordinator
Harry L. Coomes Recreation Center
Abingdon, Virginia

Stress

- 60-70% of people with diabetes have some sort of depression, anxiety, or stress related to their disease
- Physical
  - Sickness, Surgery
- Emotional
  - Stress
  - Family challenges
  - Burnout

Sick Day Management

- Never omit insulin or your diabetes pills even if you can't eat
- Test your blood glucose every 3-4 hours; call your doctor if your blood glucose stays below 80 mg/dl or above 250 mg/dl
- If you have type 1 diabetes, test urine for ketones every 4 hours
- Drink sips of juice or sweetened liquid (such as gingerale) at least ¼ cup every hour if you are UNABLE to eat; if you are ABLE to eat, choose light foods (soup, yogurt, ice cream, pudding, cooked cereal, jello, or crackers)
- You should also drink unsweetened liquids (water, tea, diet soda, or broth) – staying hydrated is important
Stress Management

- Exercise
- Eat healthy
- Do something you enjoy 30 minutes/day
- Nurture relationships
- Keep things in perspective
- Work on things you CAN control, let go of things you CAN'T
- Give to and help others!

Deep Breathing and Relaxation

Summary

- Blood glucose testing is important to help you understand glucose patterns and to make lifestyle and medication adjustments
- Diabetes SELF-MANAGEMENT is a goal for all people with diabetes – the smarter you are about glucose testing, the more you will benefit towards a healthy lifestyle!
- Exercise has many health benefits, including blood glucose control
- Managing stress also helps in controlling your blood glucose

Good management of blood glucose is the key to feeling good and living well!