

Diabetes Management

Graduate Students

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- *This information or content and conclusions are those of the author and should not be construed as the official position or policy of, nor should any endorsements be inferred by HRSA, HHS or the U.S. Government.*
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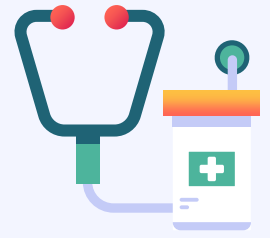
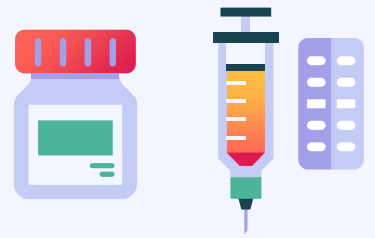
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Introduction to Diabetes



WHAT IS DIABETES?

- Diabetes is a disease that occurs when your body is unable to properly regulate the levels of blood glucose, also called blood sugar, in your body.
- **Blood glucose (blood sugar)** comes from the food you eat and is your body's main source of energy.
- **Insulin** is a hormone made in the pancreas that helps move glucose into your cells to use for energy. If your body does not make enough insulin or loses the ability to properly use insulin, the glucose cannot reach your cells
- As of 2015, **30.3 million** people in the United States had diabetes (9.4% of the population)
- Diabetes has no cure but there are many simple and easy ways to manage it



TYPES OF DIABETES

Type 1

An autoimmune disease in which the body is unable to produce its own insulin; generally diagnosed in children or young adults.

5-10% of diabetes cases

Type 2

A disease linked with lifestyle factors and aging in which the body no longer makes or uses insulin effectively; often diagnosed in adults

90-95% of diabetes cases



TYPE 2 DIABETES SYMPTOMS



Always tired



Crave extra liquids
(more than 10 glasses/
day)



Frequent urination
(especially during night)



Always hungry
(especially after eating)



Unexplained weight loss



Blurred vision



Numbness and tingling of feet



Wounds that won't heal



Infections
(vaginal itching in females)



Sexual dysfunction
(difficulty with erection)

DIABETES

KNOW THE SYMPTOMS



Always tired.



Frequent urination.



Sudden weight loss.



Wounds that won't heal.



Always hungry.



Sexual problems.



Blurry vision.



Vaginal infections.



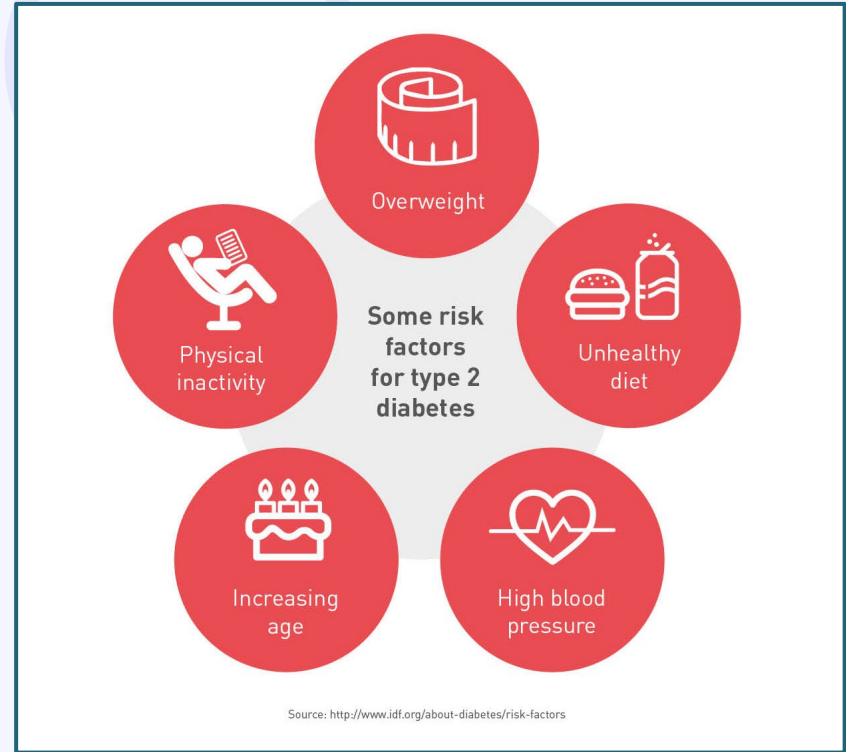
Numb or tingling hands or feet.



Always thirsty.

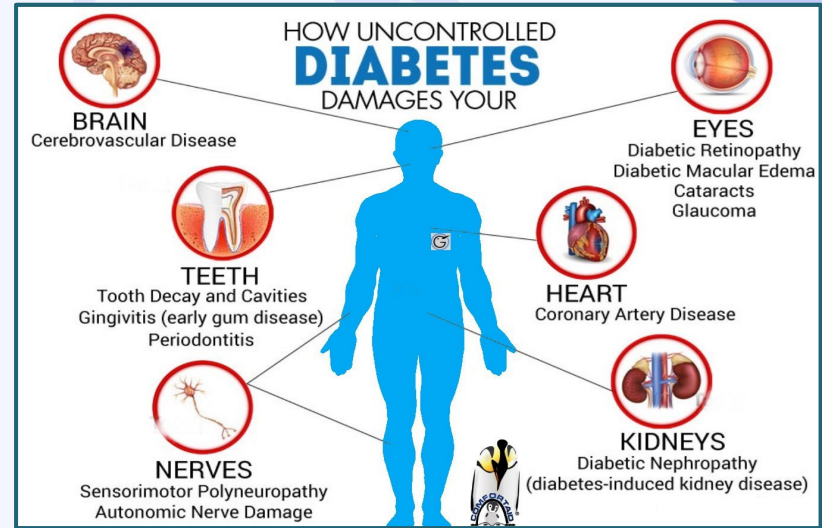
TYPE 2 DIABETES RISK FACTORS

- Age (45 or older)
- Obesity
- Hypertension
- Sedentary Lifestyle
- Family History
- Smoking



DIABETES COMPLICATIONS

- Heart disease
- Stroke
- Blurry vision or blindness
- Nerve damage
- Circulation problems
 - Slow injury healing
 - Foot ulcers
 - Oral problems (gingivitis)



BLOOD GLUCOSE MONITORING



BLOOD GLUCOSE MONITORING: WHAT TO LOOK FOR

Signs of Hypoglycemia: blood glucose levels are below 70 mg/dL



- Fruity odor on breath
- Nausea/vomiting
- Blurred vision
- Increased urine
- Thirst

Signs of Hyperglycemia: blood glucose levels are above 180 mg/dL

- Altered mental state / confusion / irritability
- Dizziness
- Sweating
- Nausea and Weakness

BLOOD GLUCOSE MONITORING: HOW TO PERFORM THE PROCEDURE



- 1) Gather Supplies: glucometer, lancet, test strips, alcohol swabs, gloves
- 2) Wash your hands and put on gloves
- 3) Use an alcohol pad to clean the site and allow it to dry (preferred site is to the side of the fingertip)
- 4) Insert the test strip into the glucometer
- 5) Use the lancet to prick the site
- 6) Bring teststrip to come in contact with the blood droplet
- 7) Observe the results and take the necessary steps, if intervention is needed



BLOOD GLUCOSE MONITORING: HOW TO PERFORM THE PROCEDURE

Do not milk the site in order to produce a larger blood drop as this could alter the test results.

Ensure that the site of the blood sample is not injured.



Before performing the test, make sure the patient knows exactly what you will do.



NUTRITION GUIDELINES

2015-2020 Dietary
Guidelines for Americans



Follow a healthy eating pattern over time to help support a healthy body weight and reduce the risk of chronic disease.

A Healthy Eating Pattern Includes:













A Healthy Eating Pattern Limits:



1. Follow a healthy eating pattern across the lifespan. All food and beverage choices matter. Choose a healthy eating pattern at an appropriate calorie level to help maintain a healthy body weight, support nutrient adequacy, and reduce the risk of chronic disease.

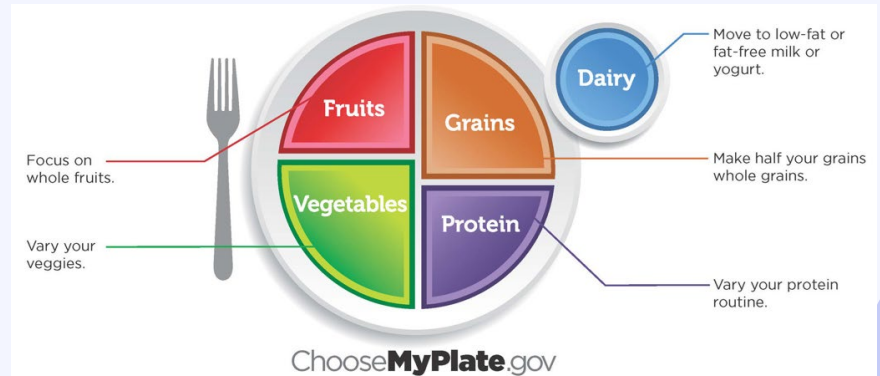
2. Limit calories from added sugars and saturated fats and reduce sodium intake.

200 Calories Compared		
All the below food types equal 200		
Broccoli  588 Grams	VS	Gummy Bears  51 Grams
Celery  1425 Grams	VS	Coca Cola  496 ML
Apple  385 Grams	VS	Peanut Butter  34 Grams
Honeydew Melon  553 Grams	VS	Salted Mixed Nuts  33 Grams
Mini Peppers  740 Grams	VS	Cheeseburger  75 Grams


3. Focus on variety, nutrient density, and amount. To meet nutrient needs within calorie limits, choose a variety of nutrient-dense foods across and within all food groups in recommended amounts. Not all calories are created equal.

4. Shift to healthier food and beverage choices. Consider cultural and personal preferences to make these shifts easier to maintain.

5. Support healthy eating patterns for all.



Regular Physical Activity



MOVE YOUR WAY

Adults need a mix of physical activity to stay healthy.

Moderate-intensity aerobic activity*	Muscle-strengthening activity
Anything that gets your heart beating faster counts.	Do activities that make your muscles work harder than usual.
at least 150 minutes a week	at least 2 days a week
	

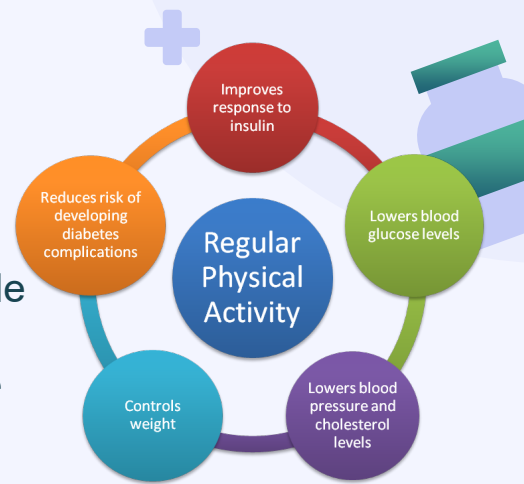
* If you prefer vigorous-intensity aerobic activity (like running), aim for at least 75 minutes a week.

If that's more than you can do right now, **do what you can.** Even 5 minutes of physical activity has real health benefits.

Walk. Run. Dance. Play. What's your move?

Special considerations for people with diabetes

- Check with your healthcare provider to talk about the best activities for you
- Drink plenty of fluids to prevent dehydration
- Check your blood sugar levels before engaging in physical activity, especially if you take insulin
 - If blood sugars are too low, you may need to eat a small snack to prevent hypoglycemia while being physically active.
 - If too high, can risk ketoacidosis which requires immediate treatment
- Wear cotton socks and athletic shoes. Check feet for any injuries.





Carbohydrates

- Provide energy and essential nutrients for our body.
- Any carbohydrate we eat is digested into glucose, which causes our blood glucose level to increase.
- Important to pay attention to how much carbohydrates you eat to manage blood glucose, energy levels and weight.



Remember: Always compare the serving size listed to your actual portion.

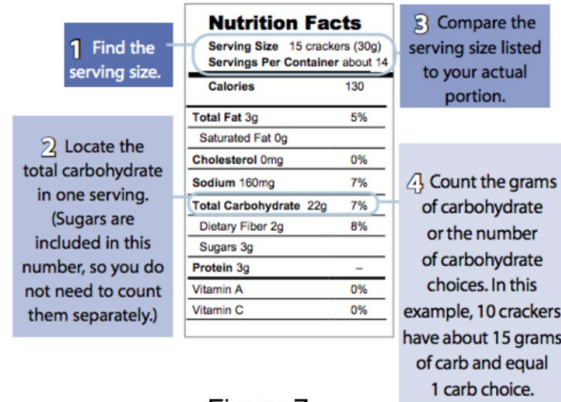


Figure 7

Women

Many women need about 3-4 carbohydrate choices (45-60 grams) at each meal

Men

Many men need about 4-5 carbohydrate choices (60-75 grams) at each meal



How to read food labels

Check serving size. Information on the label is based on 1 serving. Keep in mind that packages often contain more than 1 serving. This example shows that the package contains 8 servings. But the information provided is for only 1 serving.

Look at the amount of fat, especially saturated and trans fat, in each serving.

See how many grams of carbs are in each serving.

You can also see how many grams of Added Sugar the food contains. This is sugar that has been added as the food is made. Try to choose foods with less added sugar.

Decide whether the food fits into your plan.

Nutrition Facts	
8 servings per container	
Serving size	2/3 cup (55g)
Amount per serving	
Calories	230
% Daily Value*	
Total Fat 8g	10%
Saturated Fat 1g	5%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 160mg	7%
Total Carbohydrate 37g	13%
Dietary Fiber 4g	14%
Total Sugars 12g	
Includes 10g Added Sugars	20%
Protein 3g	
Vitamin D 2mcg	10%
Calcium 260mg	20%
Iron 8mg	45%
Potassium 235mg	6%

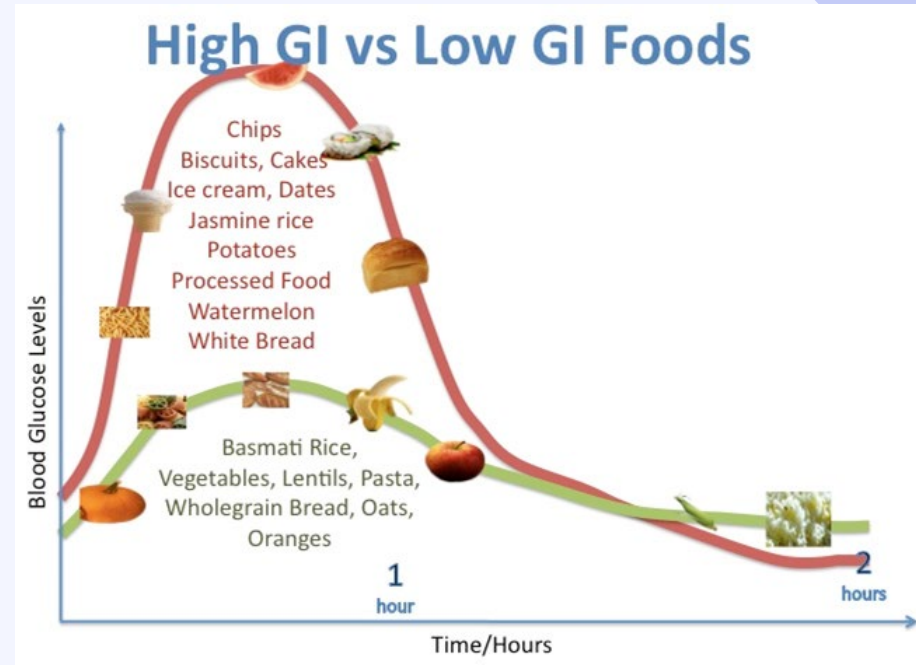
* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Glycemic Index

Foods with low glycemic indexes work with the body's changing metabolism to stabilize blood sugar and hormones.

How to follow a low -glycemic diet?

- Eat fiber-rich, natural carbohydrates like non-starchy vegetables, fruits and beans, with protein and healthy fats like nuts, avocado or olive oil.
- Eat grain products in their least processed state possible (whole wheat instead of white bread)
- Eat sugary treats in moderation and after a balanced meal.
- Drink water instead of fruit juice or sugar-sweetened beverages.





✓ Action Steps

For Monitoring Sugars in Your Diet

Use the **Nutrition Facts Label** as your tool for monitoring consumption of sugars. The Nutrition Facts Label on food and beverage packages shows the amount in grams (g) of sugars in **one serving** of the food.

Sugars have no percent Daily Value (%DV), so use the amount of grams (g) as a guide.

- Look for *added* sugars on the ingredient list on a food package. Some examples are: brown sugar, corn sweetener, corn syrup, dextrose, fructose sweetener, fruit juice concentrates, glucose, high-fructose corn syrup, honey, invert sugar, lactose, maltose, malt syrup, maple syrup, molasses, pancake syrup, raw sugar, sucrose, trehalose, and turbinado sugar.
- Tip:** Ingredients are listed in descending order by weight — the closer they are to the beginning of the list, the more of that ingredient is in the food.
- Focus on eating nutrient-dense foods that contain *naturally occurring* sugars, such as fat-free (skim) or low-fat (1%) dairy products, fruits, and vegetables.
- Choose fruit (fresh, frozen, dried, or canned in 100% fruit juice) as snacks, salads, or desserts.
- Try unsweetened or no-sugar added versions of fruit sauces (such as applesauce) and yogurt.
- Instead of sugars, syrups, or other sweet toppings, use fruit to top foods like cereal and pancakes.
- Whenever possible, choose water, fat-free (skim) or low-fat (1%) milk, 100% fruit or vegetable juice, and unsweetened tea or coffee instead of sugar-sweetened beverages (such as energy drinks, flavored waters, fruit drinks, soft drinks, and sports drinks).
- Limit the amount of sugar you add to foods when cooking, baking, and eating.
- Limit dairy and grain-based desserts (such as cakes, cookies, ice cream, and puddings) and sweets (such as candies, jams, and syrups).
- Consume smaller portions of foods and beverages that are higher in sugars or consume them less often.
- When eating out, ask to see nutrition information (available in many chain restaurants), and then choose options that are lower in sugars.

SHIFT FROM:

High-Calorie Snacks



SHIFT TO:

Nutrient-Dense Snacks



Fruit Products with Added Sugars



Fresh Fruit



Refined Grains



Whole Grains



Snacks with Added Salt or Sugars



Snacks Without Added Salt or Sugars



Solid Fats



Oils



A large, faint, light purple stethoscope is centered in the background, framing the text.

FOOT & ORAL CARE







FOOT CARE

- Diabetes may cause nerve damage that takes away the feeling in your feet.
- May also reduce blood flow to the feet, making it harder to heal an injury or resist infection.
- Patients may not notice a foreign object in their shoe.
- May develop a blister or a sore.
- This could lead to an infection or a nonhealing wound that could put one at risk for an amputation.




Peripheral Neuropathy:

- Nerve damage from Diabetes
 - Can cause tingling, pain, numbness or weakness in the feet and hands
 - Affects mobility and increases fall risk
- 
- 

FOOT CARE

Wagner classification of diabetic foot ulcers

Grade 0	Grade 1	Grade 2
<p>No ulcer in a high-risk foot</p> 	<p>Superficial ulcer involving the full skin thickness but not underlying tissues</p> 	<p>Deep ulcer, penetrating down to ligaments and muscle, but no bone involvement or abscess formation</p> 
Grade 3	Grade 4	Grade 5
<p>Deep ulcer with cellulitis or abscess formation, often with osteomyelitis</p> 	<p>Localized gangrene</p> 	<p>Extensive gangrene involving the whole foot</p>  <p>MD:A.N.</p>

FOOT CARE

DIABETES FOOT PROBLEMS: **WHEN TO SEE YOUR DOCTOR**

Visit your regular doctor or foot doctor if you have any of these symptoms:



Tingling, burning, or pain in your feet.

A change in the color and temperature of your feet.

Dry, cracked skin on your feet.

Loss of feeling or ability to sense heat or cold.

Thick, yellow toenails.

Loss of hair on your toes, feet, and lower legs.

A fungus infection, such as athlete's foot, between your toes.

An ingrown toenail or a sore, such as a blister, ulcer, or infected corn.

LEARN MORE: www.cdc.gov/diabetes/library/features/healthy-feet.html

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FOOT CARE

TIPS FOR HEALTHY FEET

Most people with diabetes can prevent serious foot problems.

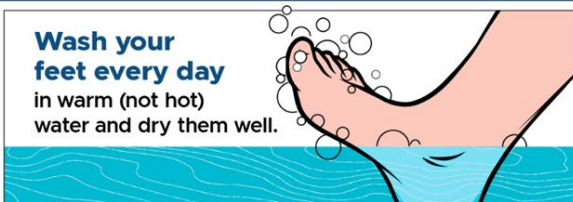
Check your feet every day

for cuts, redness, swelling, sores, blisters, corns, or calluses.



Wash your feet every day

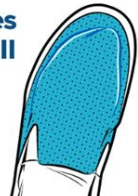
in warm (not hot) water and dry them well.



Never go barefoot, even inside.

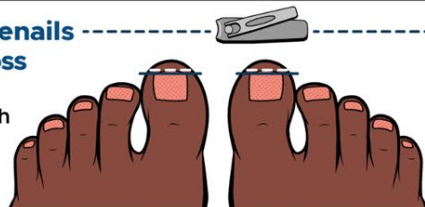


Wear shoes that fit well and always wear socks.



Trim your toenails straight across

and smooth out sharp edges with a nail file.



Don't try to remove corns or calluses yourself.



Get your feet checked at every health care visit and visit your foot doctor at least once a year.



LEARN MORE: www.cdc.gov/diabetes/library/features/healthy-feet.html



ORAL CARE

- Diabetics are at higher risk for oral health problems & longer healing times
- High glucose in saliva promotes bacteria and plaque
- Plaque can cause tooth decay and gum disease



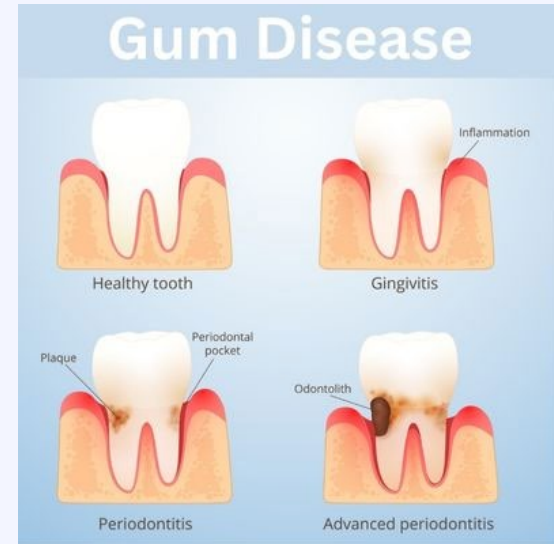
ORAL CARE

Gingivitis

- condition of gums involving redness, inflammation, & bleeding
- early stage gum disease

Periodontitis

- serious disease of the gums & bone that support teeth



ORAL CARE

Increased risk of bacterial infection

+

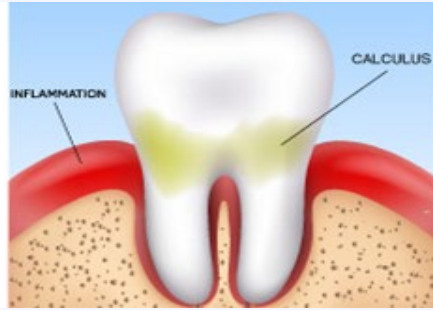
Decreased ability to fight bacteria in gums

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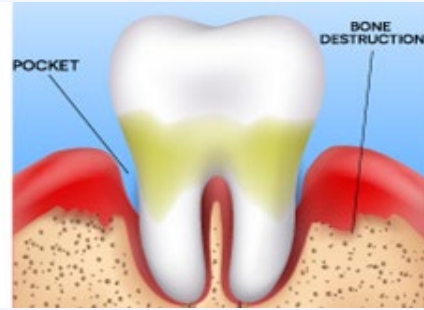
Increased risk for periodontitis



Healthy



Gingivitis



Periodontitis



Advanced Periodontitis



ORAL CARE

Thrush

- fungal infection of the mouth; sore white or red patches



Mouth ulcer/ canker sore

- small painful sore that may interfere with eating, drinking, & talking



Cavity

- tooth decay; permanent damage in hard surface of tooth causing small holes to form



Dry mouth

- lack of saliva; increases risk of tooth decay & gum disease

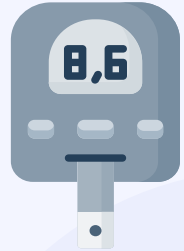





ORAL CARE

Prevention:


- Regular dental visits/cleaning twice a year
- Tell dentist about diabetes
- Brush teeth at least twice a day
- Floss at least once a day
- Fluoride and anti-plaque rinses, gels, or toothpastes
- Mouth exam
- Good control of blood glucose levels
- Healthy diet
- Avoid smoking





STATION 1 & 2 BLOOD GLUCOSE READING

Learn how to take an accurate blood sugar reading to identify normal and dangerous levels.



STATION 3 READING FOOD LABELS

Learn how to read food labels to make educated and healthy choices to keep diabetes under control.




STATION 4: FOOT & ORAL CARE

Learn how to identify and prevent foot ulcers

Learn how to maintain good skin care to prevent breakdown

Learn how to maintain good oral health to prevent oral diseases



Thank you!



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