



TEXAS A&M UNIVERSITY

Healthy South Texas

A close-up photograph of a person's hands holding a smartphone. The person is wearing a white lab coat, suggesting they are a healthcare professional. The background is blurred, showing what appears to be a clinical or office setting with a potted plant and a desk.

# Diabetes Self-Management Education and Support



TEXAS A&M UNIVERSITY  
Healthy South Texas

# PROGRAM OPPORTUNITIES

Program Opportunities



CALL 1-866-524-1408



WALK  
ACROSS TEXAS!

TEXAS A&M AGRILIFE EXTENSION

Website: <https://howdyhealth.tamu.edu>



DINNER  
TONIGHT  
HEALTHY COOKING SCHOOL

TEXAS A&M AGRILIFE EXTENSION

Website: <https://dinnertonight.org>



STEP UP  
SCALE DOWN

TEXAS A&M AGRILIFE EXTENSION



COOKING  
WELL

WITH DIABETES

Website: <https://AgriLifeLearn.tamu.edu>



TEXAS A&M UNIVERSITY  
Healthy South Texas

# Understanding Diabetes





# MYTHS VS. FACT #1

**Myth:** "It's your own fault that you have diabetes."

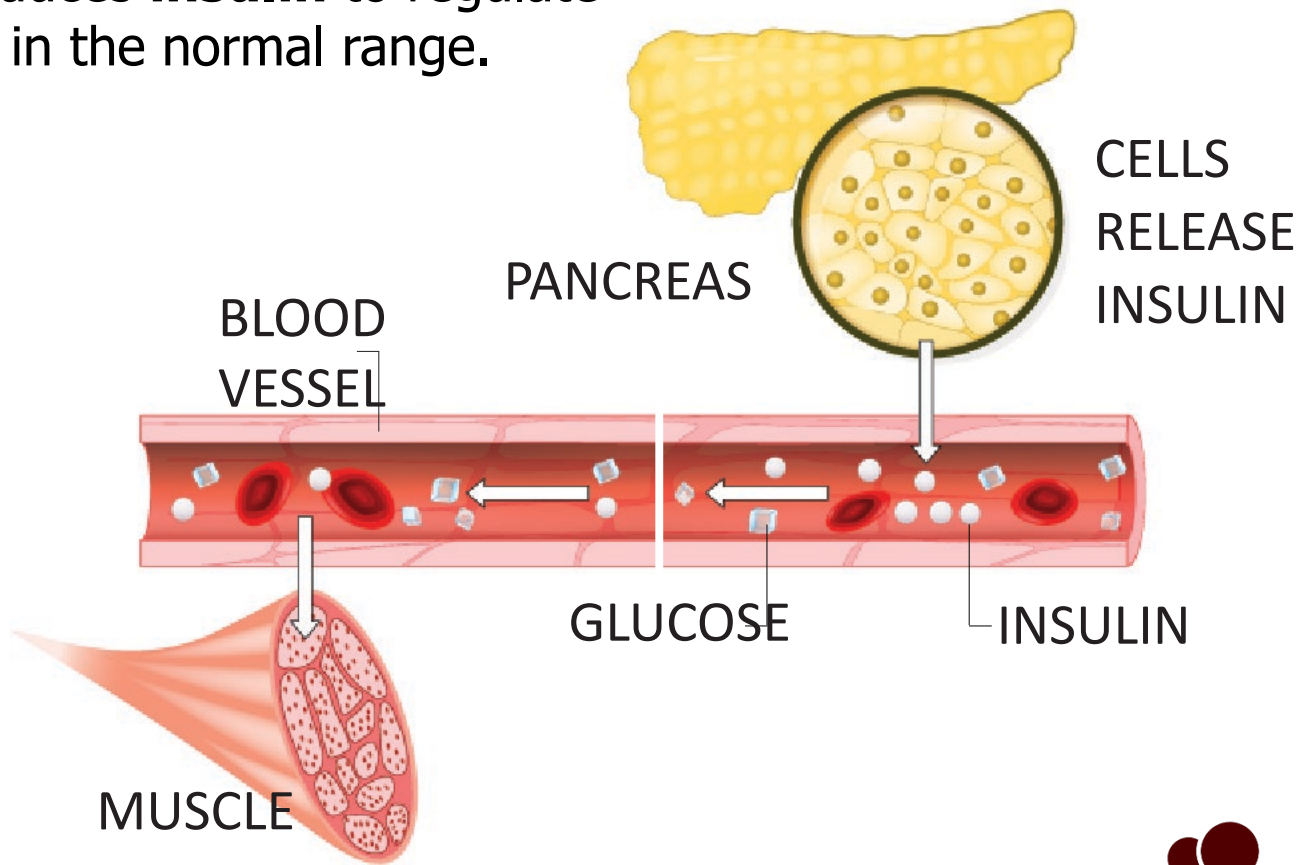
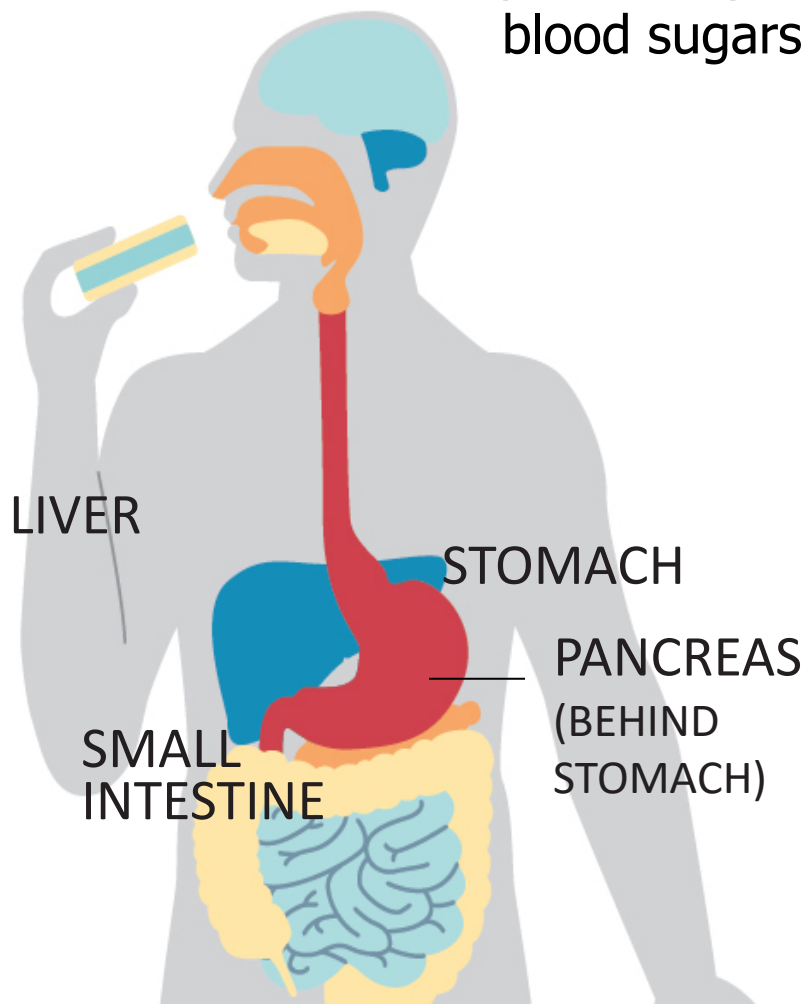
**Fact:** Diabetes isn't anyone's fault. No one knows what causes diabetes.

Eating and activity choices can play a role in your blood sugar control. But it's not the whole story.



# WHAT HAPPENS WHEN WE EAT?

The pancreas produces **insulin** to regulate blood sugars in the normal range.





# WHAT IS DIABETES?

Diabetes is a chronic (**long-lasting**) health condition that affects how your body turns food into energy.

If you have diabetes, your body either

- **does not make enough insulin** or
- **cannot use the insulin it makes as well as it should.**

**Too much blood glucose (sugar) stays in your bloodstream.**

**Healthy living is possible!**





## MYTH VS FACT #2

**Myth:** "Eating too much sugar can cause type 2 diabetes."

**Fact:** As mentioned above, weight gain is one risk factor for getting diabetes. Taking in too many calories causes an increase in weight. Drinking sugary drinks is one way to take in extra calories. The American Diabetes Association recommends not drinking a lot of sugary drinks. Sugar-sweetened drinks include:

- Regular (non-diet) sodas
- Fruit drinks including fruit punch
- Energy drinks
- Sports drinks
- Sweetened tea

Instead, choose from zero or low-calorie drinks like water, unsweetened tea, coffee, or diet soda. A splash of lemon can also make your drink light and refreshing without the added calories.



# TYPE 1 DIABETES



- The pancreas makes too little insulin or none at all
- Type 1 is an **autoimmune disease**
- The **onset is sudden**
- Most commonly occurs in childhood and young adults
- It **cannot be prevented** through diet or lifestyle.

**Healthy eating, lifestyle, and insulin helps manage Type 1 Diabetes.**





## MYTH VS FACT #3

**Myth:** I have borderline diabetes, so I don't need to worry.

**Fact:** Prediabetes is the term used for those whose blood sugar levels are not in the diabetes range but are too high to be called normal. Prediabetes means that you are at high risk for developing diabetes within 10 years. You may be able to lower your blood sugar to normal levels by lowering your body weight and exercising 150 minutes a week. Talk to your provider about your risk for diabetes and what you can do to lower your risk.



# PREDIABETES



**Blood sugar levels are higher than normal**, but not high enough to be diagnosed with type 2. The cells in your body don't respond normally to insulin.

You can have prediabetes for years but have **no clear symptoms**.

Talk to your doctor about getting your blood sugar tested if you have any of these **risk factors**:

- Are overweight
- Are 45 years or older
- Have a parent or sibling with type 2 diabetes
- Are not physically active at least 3 times a week
- History of gestational diabetes
- Are African American, Hispanic/Latino American, or Native American

**You can make lifestyle changes to prevent or delay type 2 diabetes!**



# TYPE 2 DIABETES



The pancreas does not make enough insulin, or the body does not use the insulin it makes. Type 2 **usually develops slowly**.

You are **at risk** for developing type 2 diabetes if you:

- Have prediabetes
- Are overweight
- Are 45 years or older
- Have a parent or sibling with type 2 diabetes
- Are not physically active at least 3 times a week
- History of gestational diabetes
- Are African American, Hispanic/Latino American, or Native American



# GESTATIONAL DIABETES



- The body does not make enough insulin **during pregnancy.**
- Other hormones may block the action of insulin.
- Gestational diabetes often **goes away after the baby is born.**
- Women with this type of diabetes are at **greater risk for type 2 diabetes later in life.**



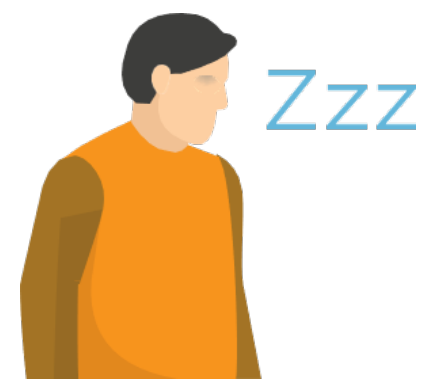
# SIGNS AND SYMPTOMS



INCREASED THIRST



BLURRED VISION



TIRED FEELING



HUNGER



FREQUENT URINATION & FREQUENT YEAST INFECTIONS



BURNING & TINGLING OF FEET



ITCHY SKIN & SLOW HEALING CUTS



# DIAGNOSING DIABETES

DIABETES

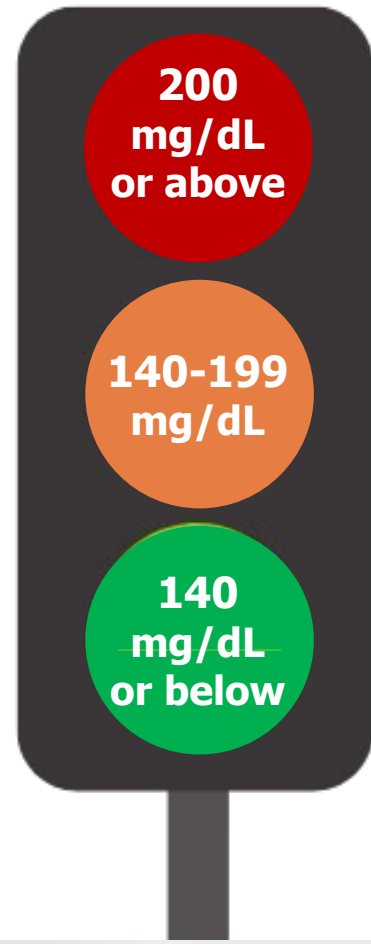
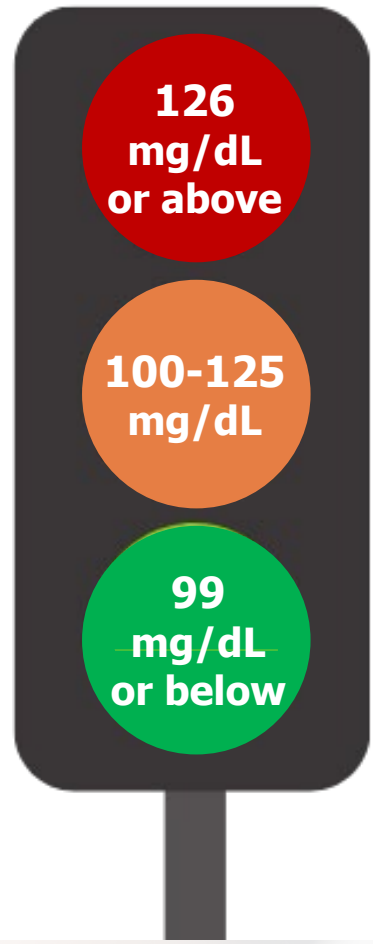
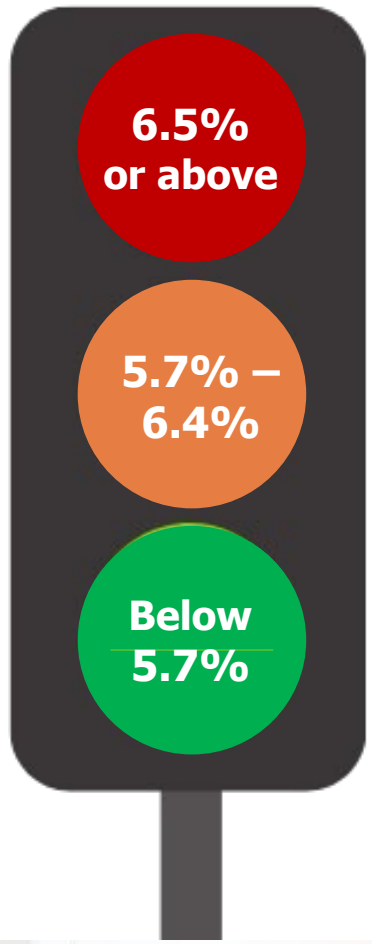
PREDIABETES

NORMAL

A1C TEST

FASTING BLOOD

GLUCOSE TOLERANCE

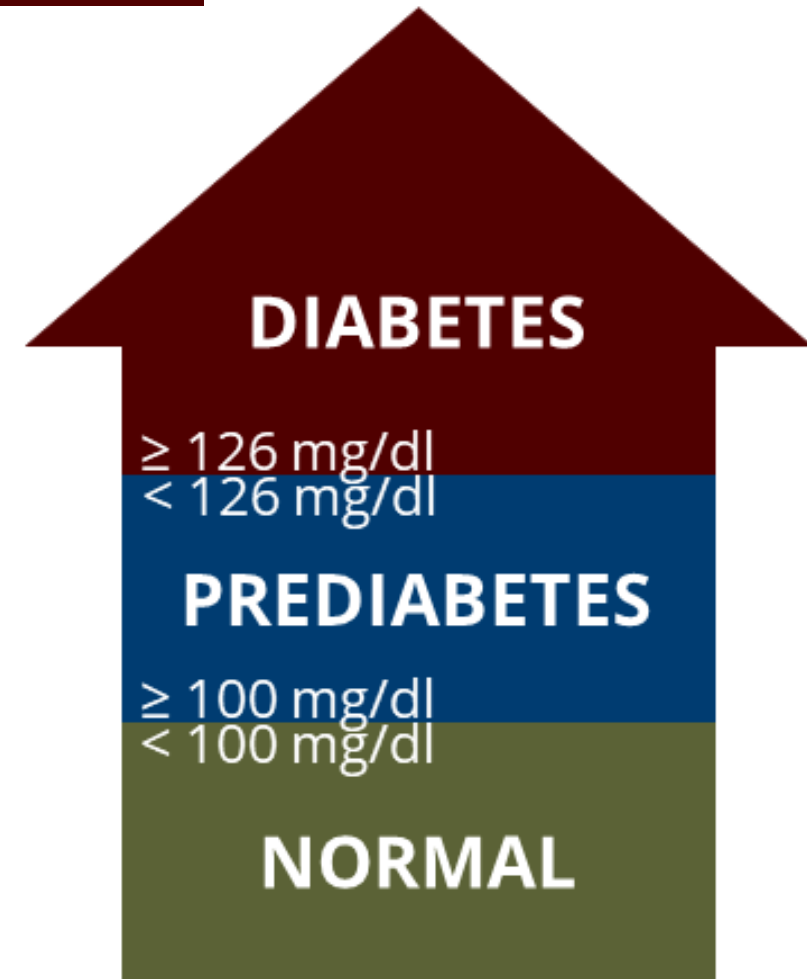




# FASTING PLASMA GLUCOSE TEST

The fasting plasma glucose test (or fasting blood sugar test) measures the amount of glucose in a sample of blood taken when you have not had anything to eat or drink for 8 to 12 hours (fasting).

A fasting blood sugar level of 99 mg/dL or lower is normal.





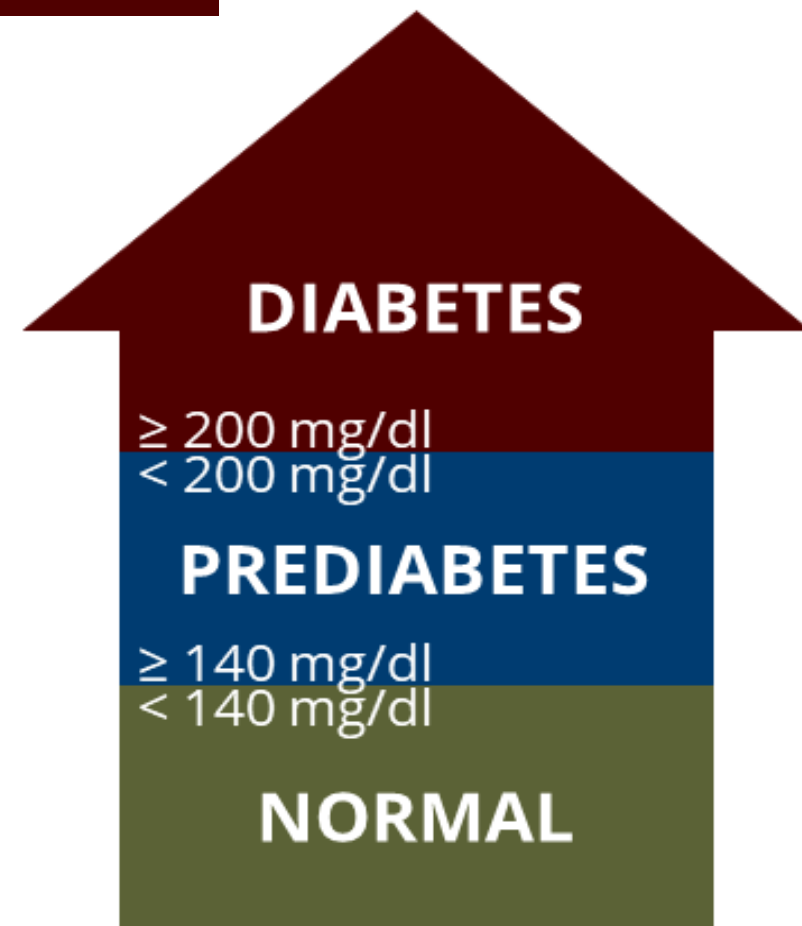
# ORAL GLUCOSE TOLERANCE TEST

Results of this test show **how your body uses glucose over time.**

The test is performed by your doctor after an overnight fast.

A blood sample is taken, you drink a high-glucose beverage, and then a blood sample is taken every hour for up to three hours after drinking it.

At 2 hours, a blood sugar level of 140 mg/dL or lower is normal.



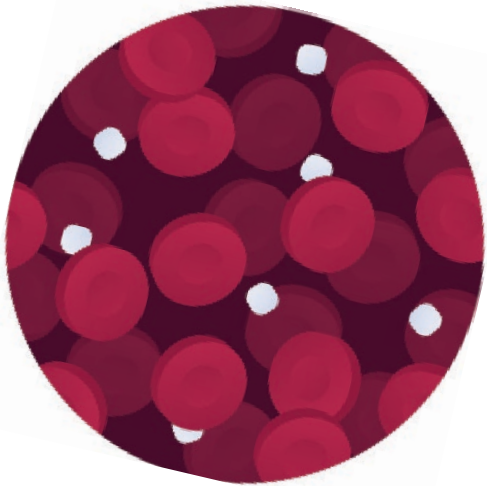




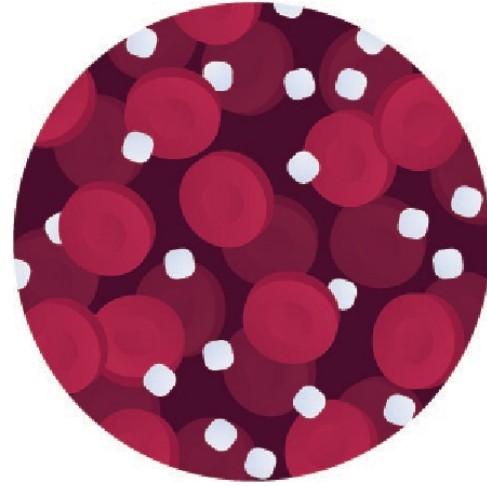
# A1C TEST

A1C tests measure your **average blood glucose range over the past 2 to 3 months.**

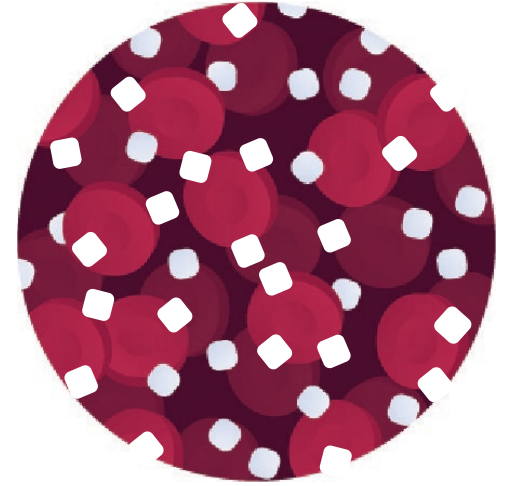
This test shows the amount of **glucose that sticks to the red blood cells (A1C).**



**NORMAL**  
Below 5.7%



**PREDIABETES**  
5.7% to 6.4%



**DIABETES**  
6.5% or above



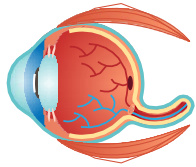
TEXAS A&M UNIVERSITY

Healthy South Texas

# Long-Term Complications



# DIABETES RELATED HEALTH PROBLEMS



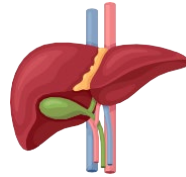
## EYES

Retinopathy, cataracts, and glaucoma, which can all result in vision loss



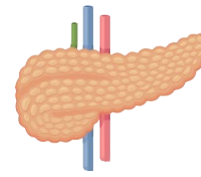
## TEETH

Gum disease



## LIVER

Fatty liver, cirrhosis, and liver failure



## PANCREAS

Damage to pancreas



## BRAIN

Stroke, dementia, and depression



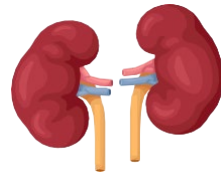
## EARS

Hearing loss due to damaged blood vessels in the ear



## NERVES

Nerve damage, which can cause pain and numbness in hands and feet



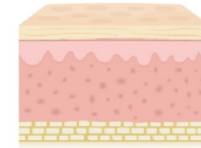
## KIDNEYS

Kidney disease, which could lead to dialysis, kidney failure, or death



## HEART

Heart attack, angina, narrowed or blocked blood vessels, and sudden death



## SKIN

Dry skin, infections, and lesions due to poor circulation and weakened immune system



## LEGS & FEET

Poor circulation and nerve, causing lesions and infections, which could lead to amputations

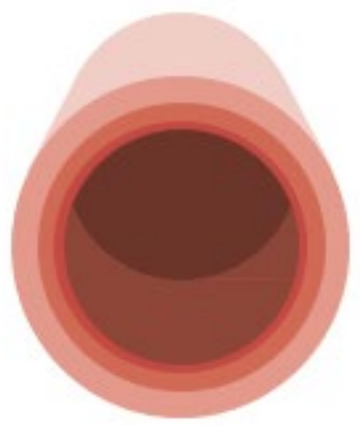


## MUSCLES

Muscle atrophy (muscles waste away)



# HIGH BLOOD SUGAR DAMAGES BLOOD VESSELS



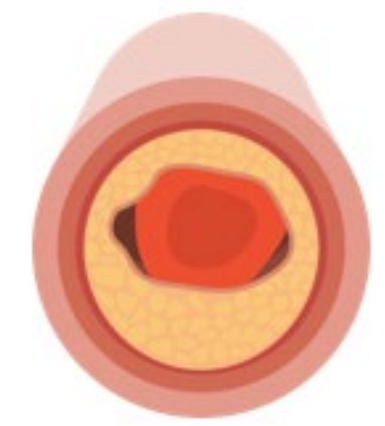
SMOOTH  
LINING



DAMAGED  
LINING



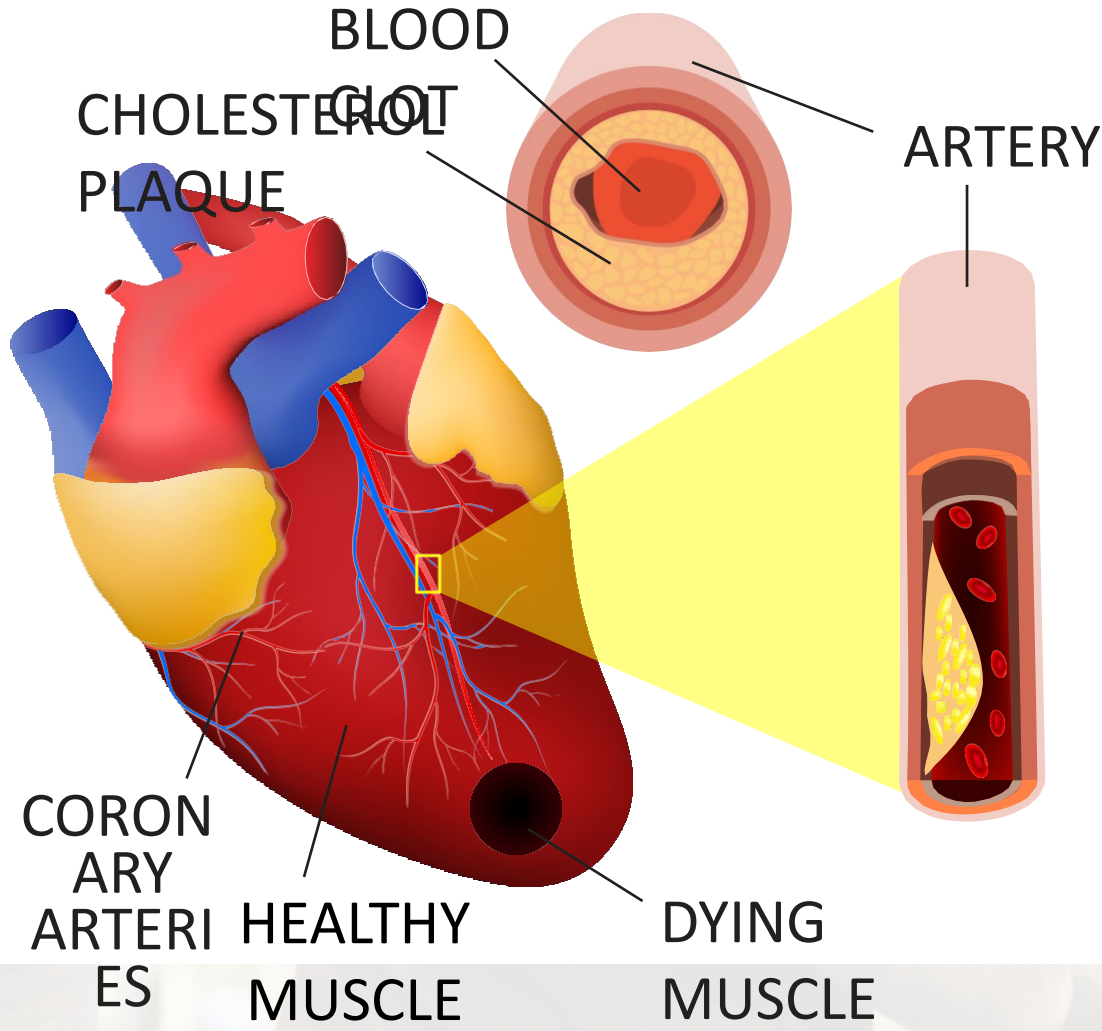
PLAQUE



BLOOD  
CLOT



# HEART ATTACK



## COMMON HEART ATTACK WARNING SIGNS

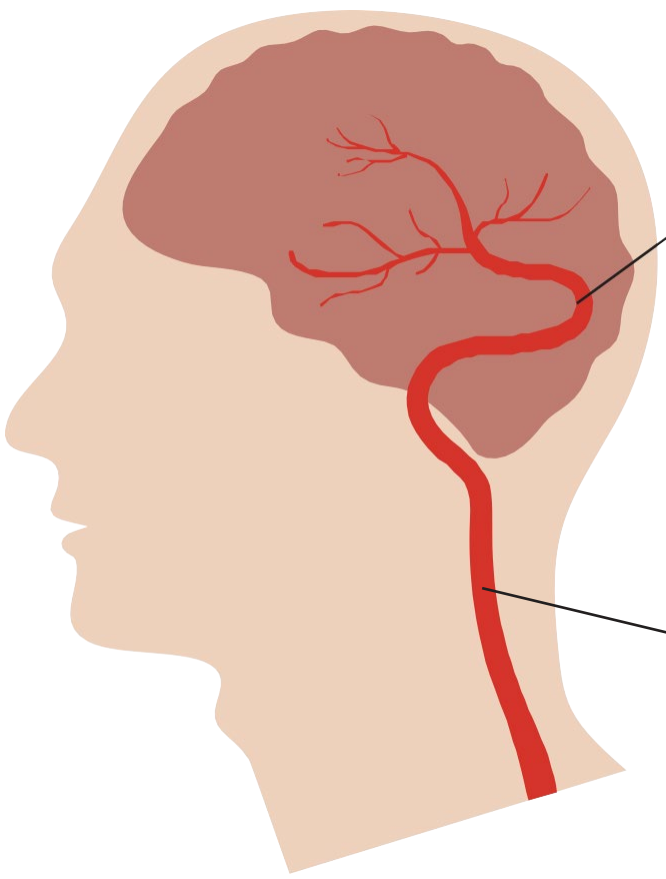
- Pain or discomfort in chest
- Lightheadedness, nausea, or vomiting
- Jaw, neck, or back pain
- Discomfort or pain in arm or shoulder
- Shortness of breath

## **WOMEN are more likely to have**

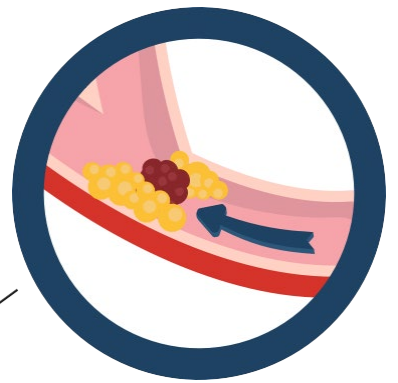
- Shortness of breath
- Nausea/vomiting
- Back or jaw pain



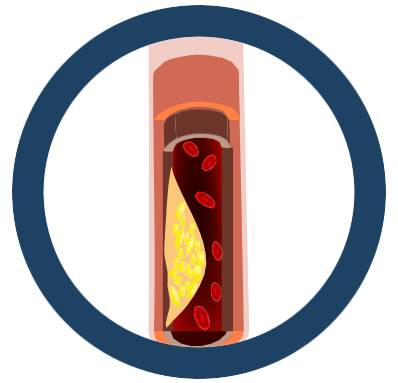
# STROKE



Thrombus lodges in a cerebral artery causing a stroke



Thrombus in the carotid artery breaks off and travels to a cerebral artery in the brain



Diseased Carotid Artery

**F**acial Drooping

**A**rm Weakness

**S**lurred Speech

**T**ime



## MYTH VS FACT #4

**Myth:** Insulin causes blindness

**Fact:** Blindness in those living with diabetes is a complication resulting from elevated blood glucose levels. Insulin is used to control and decrease these levels of glucose in their body. We can summarize it by clarifying that it is the lack of insulin that causes hyperglycemia, and this is what causes several complications, including blindness



# RETINOPATHY

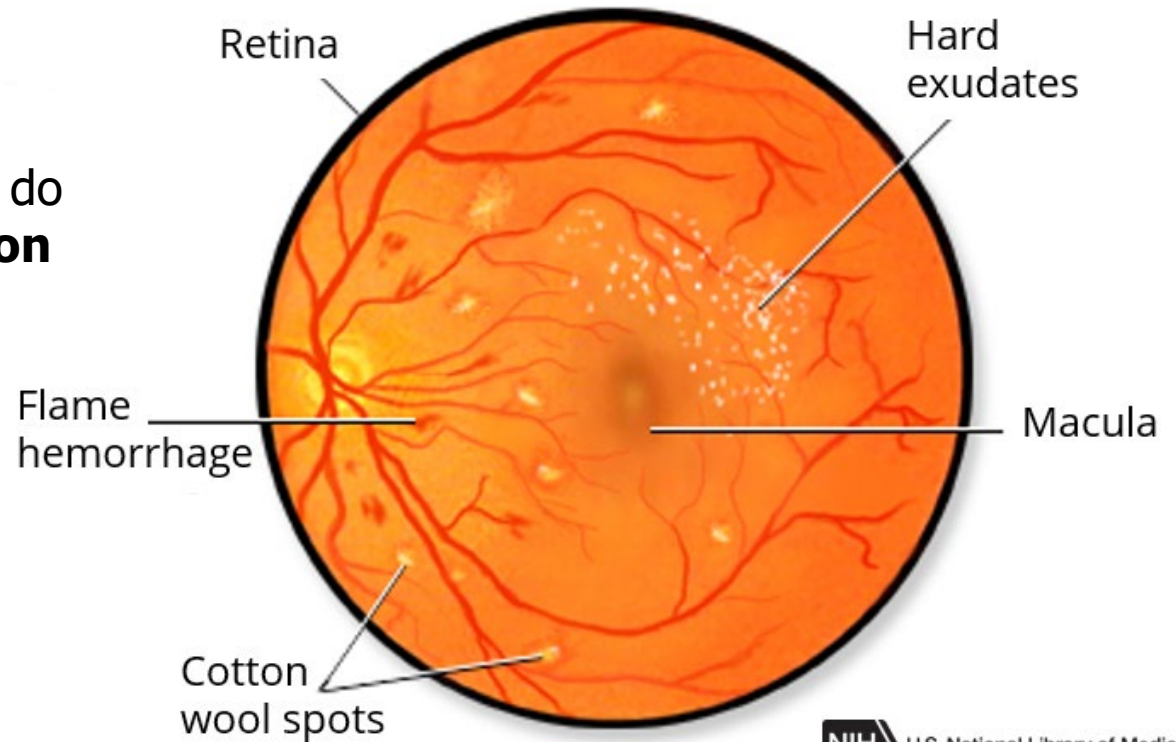
High blood sugar levels and high blood pressure can **damage small blood vessels in the retina.**

New blood vessels can develop, but they do not grow properly and leak, causing **vision loss.**

Leading cause of blindness in adults.

**See an eye doctor ASAP:**

- Black spots or holes in your vision
- Flashes of light
- Loss of side vision
- Halos around lights







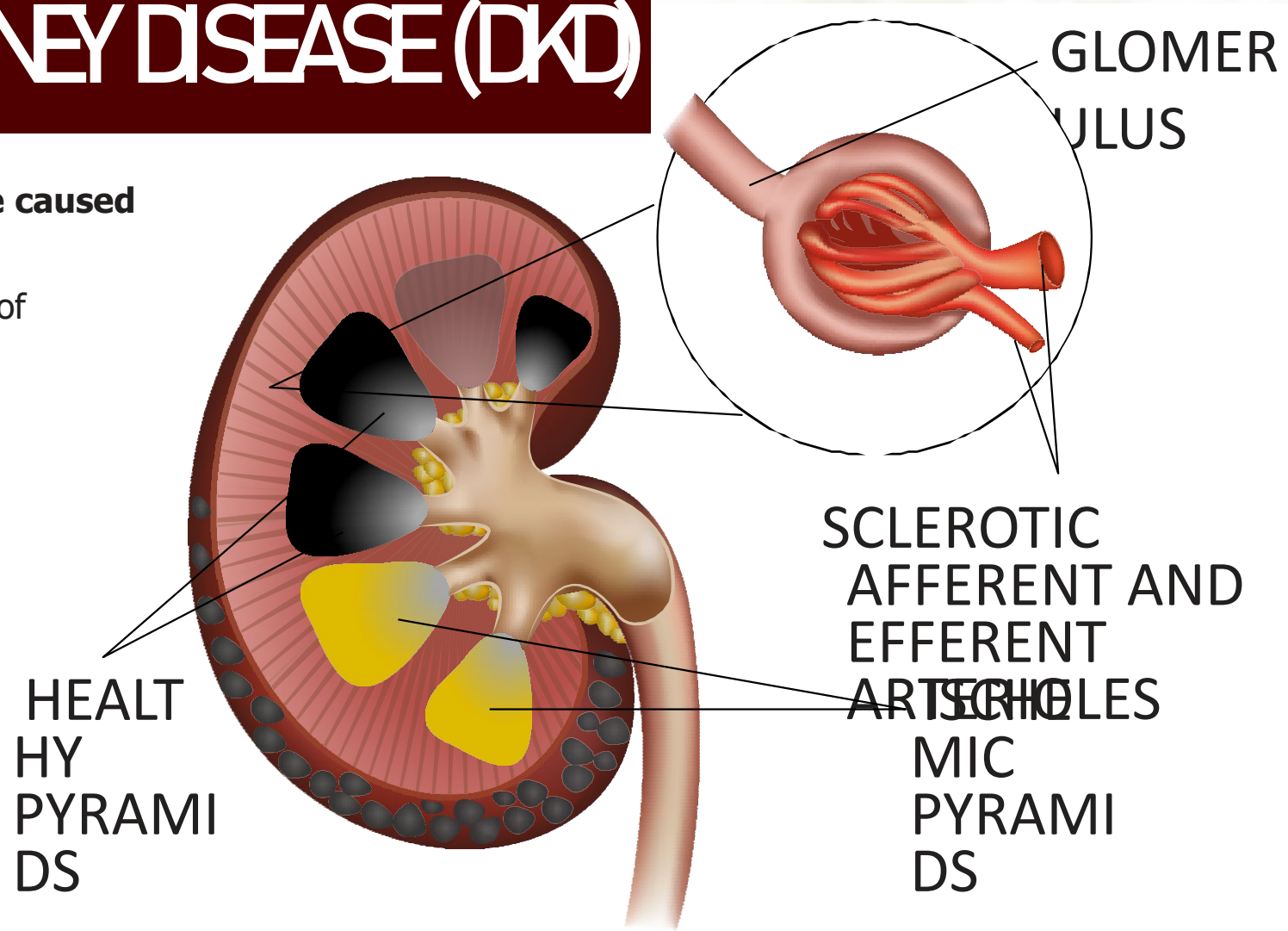
# DIABETIC KIDNEY DISEASE (DKD)

DKD is a type of **kidney disease caused by unmanaged diabetes.**

**Diabetes** is the **leading cause** of kidney disease.

**Symptoms and signs** include:

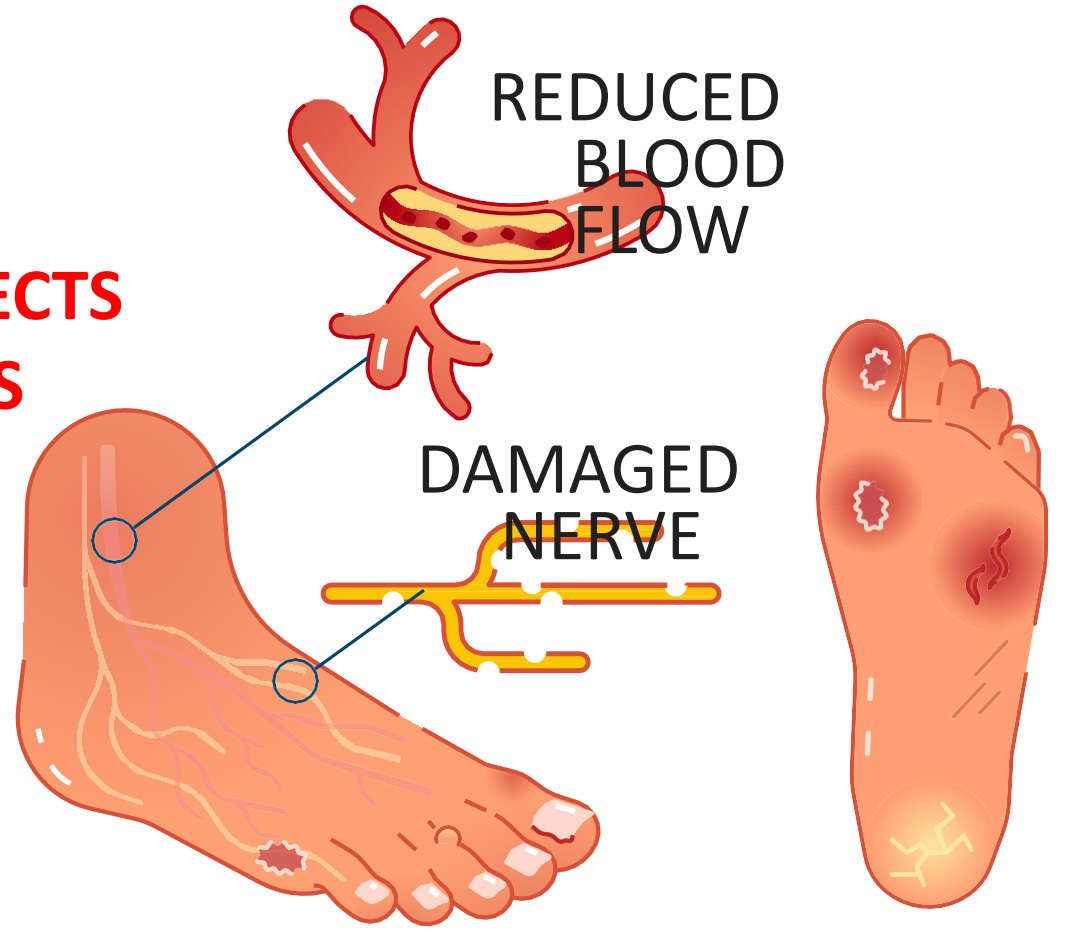
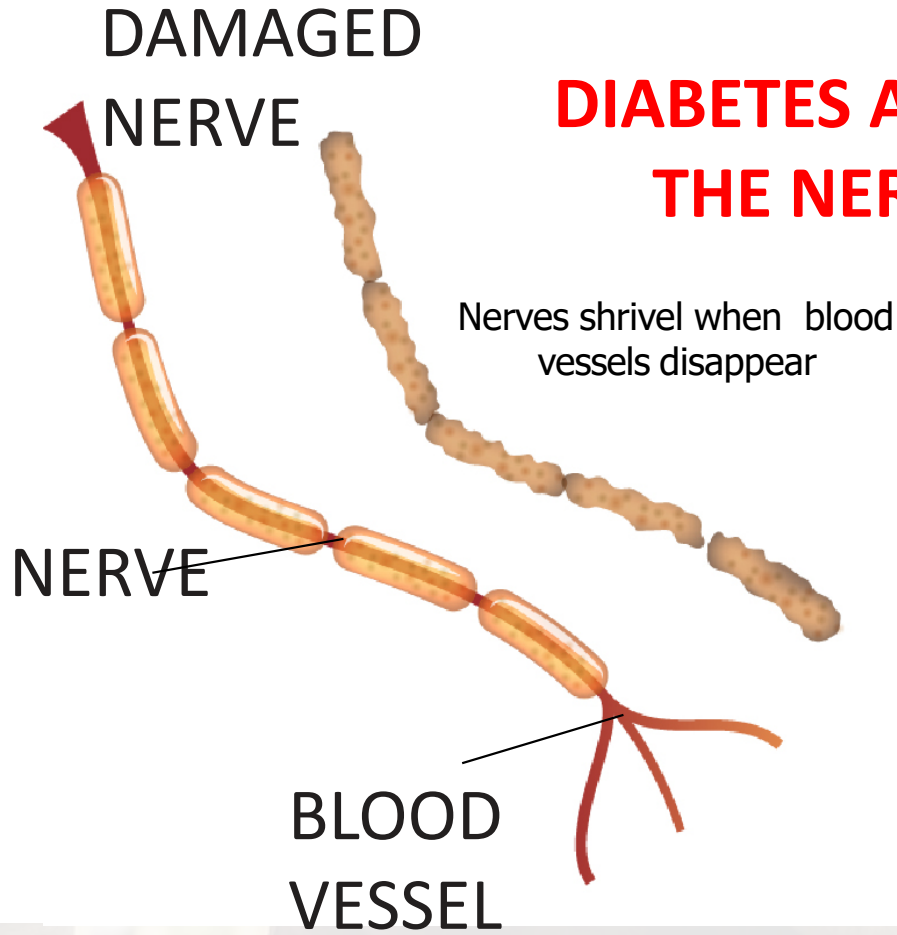
- Fluid buildup
- High blood pressure
- Protein in the urine
- Loss of sleep
- Poor appetite
- Upset stomach
- Weakness
- Difficulty concentrating





# NEUROPATHY

## DIABETES AFFECTS THE NERVES



Blood vessel damage in the feet may cause tissue damage such as sores or lesions and poor circulation that can lead to amputation

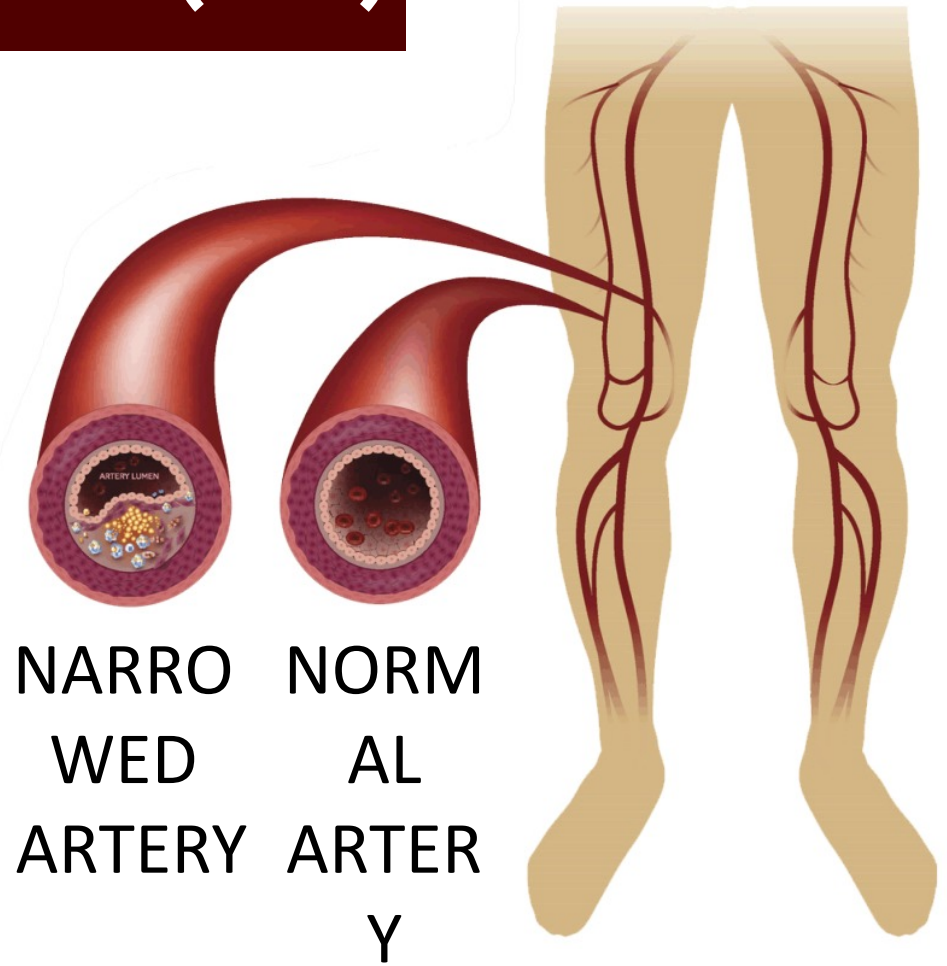


# PERIPHERAL ARTERY DISEASE (PAD)

**Narrowing of the arteries** (blood vessels that carry blood from the heart to the rest of the body) that serve the

- legs
- stomach
- arms
- head

Left untreated, it may increase your risk of **coronary artery disease, heart attack, or stroke.**





TEXAS A&M UNIVERSITY  
Healthy South Texas

# Foot Care





# FOOT EXAMS

- Remove your shoes when you see your healthcare provider
- Monofilament test
- Nerve Pain or Numbness
- Discuss any abnormal feelings in your feet, legs and hands





# TAKE CARE OF YOUR FEET

- Check your feet daily for sores, cuts, blisters, corns or redness
- Wash your feet daily and dry between toes
- Apply moisturizer to your feet but not between toes
- Keep your toenails neat and trim-use an emery board
- Check inside your shoes for any hard objects every time you put them on
- Wear shoes that fit well and don't rub





# DIABETES AND SMOKING

## SMOKING CAUSES

- High Blood Sugars
- Heart and Kidney Disease
- Eye disease leading to blindness
- Poor circulation
- Damages nerves





# HOW DO I GET STARTED?

- Pick a date to quit and write it down on a paper
- Decide who will support you
- Write a list of reasons why you want to quit
- Plan on how to deal with urges
- Ask your healthcare provider for support and about Quit-Smoking Products

**TOBACCO IS NOT SAFE**  
**1-800-QUIT-NOW (1-800-784-8669)**







# THE GOOD NEWS

## You can prevent or delay diabetes related health problems! Your Journey Begins **HERE!**

- Learn about diabetes self-management
- Eat well
- Get active (with your doctor's permission)
- Maintain a healthy weight
- Monitor your blood sugar
- Take your medications as directed
- Manage sick days
- Quit smoking





TEXAS A&M UNIVERSITY  
Healthy South Texas

# Acute Complications





# ACUTE COMPLICATIONS

- Low blood sugar (hypoglycemia)
- High blood sugar (hyperglycemia)
- Diabetic ketoacidosis (DKA)
- Diabetic hyperosmolar syndrome





# LOW BLOOD SUGAR

Less than 70 mg/dL

## Causes

- Taking too much insulin
- Taking other diabetes medicines
- Delaying or missing medication
- Delaying or missing a meal or snack
- Exercising more than normal
- Drinking alcohol
- Being sick





# MILD LOW BLOOD SUGAR

## SYMPTOMS



SHAKINESS



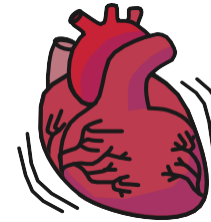
WEAKNESS



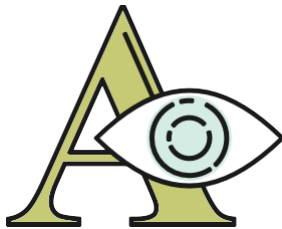
SWEATING



DIZZINESS



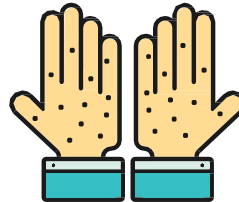
FAST HEART RATE



BLURRED VISION



TROUBLE FOCUSING



TINGLING FINGERS OR LIPS



ANXIETY



HEADACHE

## TREATMENT

15 grams of carbohydrate:

- 3-4 glucose tabs
- 8 Lifesavers
- 1/2 cup fruit juice
- 1/2 cup regular soda
- 8 oz Milk

Wait 15 minutes.

Check blood sugar.

If still below 70 mg/dL, have another serving.

If no improvement, CALL FOR MEDICAL HELP.

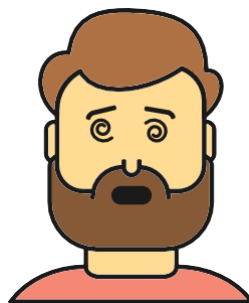


**SYMPTOMS**

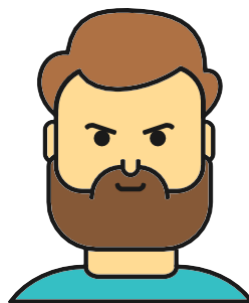
# MODERATE LOW BLOOD SUGAR



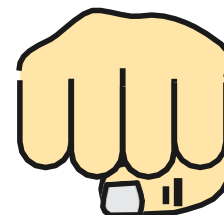
**IMPAIRED MOTOR  
FUNCTION**



**CONFUSIO  
N**



**INAPPROPIA  
TE  
BEHAVIOR**



**COMBATIV  
E  
BEHAVIOR**

## TREATMENT

30 grams of carbohydrate:

- 1 cup of fruit juice
- 1 tube of glucose gel
- 1 cup of regular soda

Wait 15 minutes.

Check blood sugar.

If still below 70 mg/dL, have another 30 grams of carbs.

If no improvement, **CALL FOR MEDICAL HELP.**



SYMPTOMS

# SEVERE LOW BLOOD SUGAR



**SEIZURE**



**COMA**

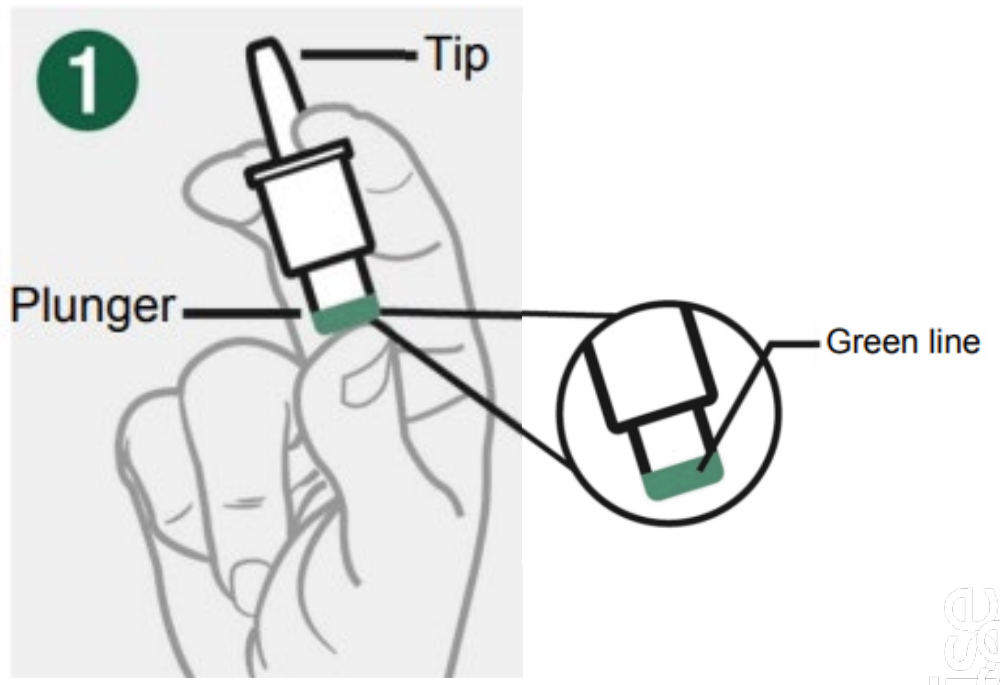
## TREATMENT

- **CALL 911**
- Place person on side-lying position
- Administer BAQSIMI in one nostril
- Administer Glucagon in upper arm, upper thigh, or buttocks



# BAQSIM: GIVING THE DOSE

Acute Complications

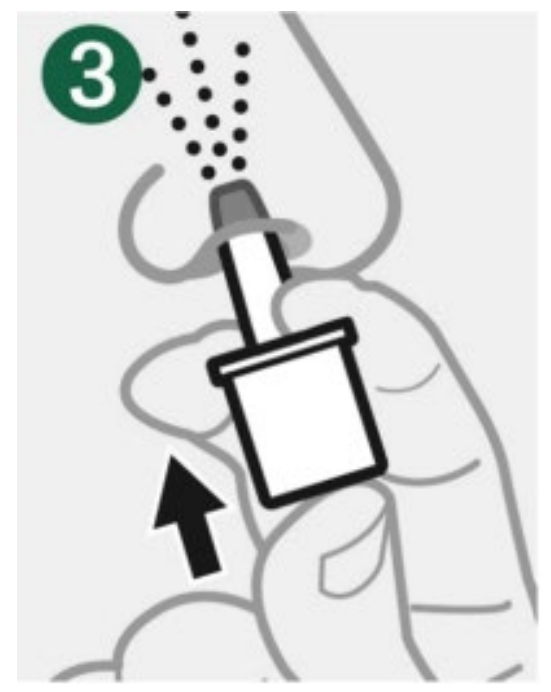


**Hold device** between fingers and thumb.  
**Do not push** plunger yet.

Revise



**Insert tip** gently into one nostril until finger(s) touch the outside of the nose.



**Push plunger** firmly all the way in.  
**Dose is complete** when the **green line** disappears.





# PREMIXED AUTOINJECTOR GLUCAGON

## Gvoke HypoPen

- Premixed and ready-to-go, so it's easy-to-use
- Simple 2-step administration
- No visible needle
- No refrigeration required
- Store at room temperature (68°F - 77°F)
- Comes in two premeasured doses:
  - adolescents and adults (1.0 mg)
  - kids (0.5 mg)

\*Kids younger than 12 who weigh at least 100 pounds may be prescribed the 1.0 mg dose.





# HOW TO USE GVOKE HYPOPEN



**Pull red** cap off



Administer into upper arm, stomach, or thigh.

**Push yellow** end down on skin and hold 5 seconds. Window will turn red.

**After using, turn person on their side if they have passed out or are seizing.**

**Call 911 for emergency help.**



# PREVENTING LOW BLOOD SUGARS

- Monitor your blood sugar
- Don't skip or delay meals or snacks
- Measure medication carefully and take it on time
- Adjust your medication or eat a snack if you increase your physical activity
- Eat a meal or snack with alcohol, if you choose to drink with your doctor's permission
- Record your low blood sugar reactions
- Carry a form of diabetes identification (necklace, bracelet, wallet card)





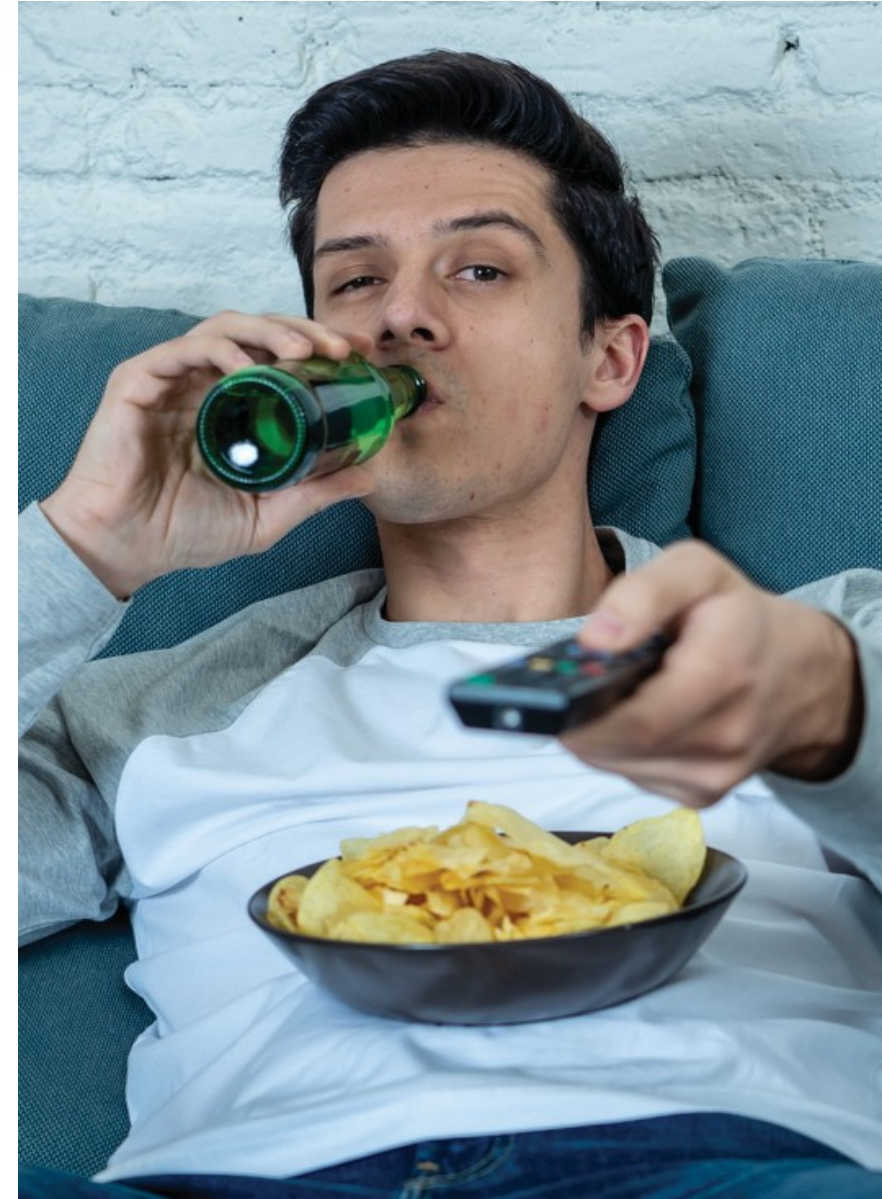
# HIGH BLOOD SUGARS

Higher than 130 mg/dL **before** a meal

Higher than 180 mg/dL **two hours after** a meal

## Causes

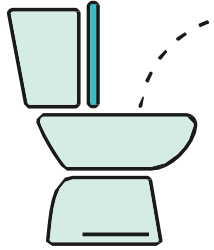
- Skipped or wrong medications doses
- Ate more carbohydrate than usual; overeating
- Less active than usual
- Too little diabetes medicine (pills or insulin)
- Infection or illness, such as a cold or the flu
- Certain medications (steroids)
- Stress





# HIGH BLOOD SUGARS

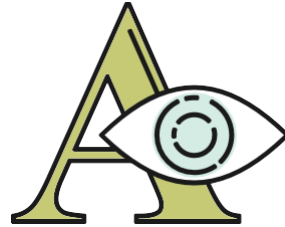
## SYMPTOMS



FREQUENT URINATION  
ALWAYS THIRSTY



FEELING VERY TIRED/  
WEAKNESSES



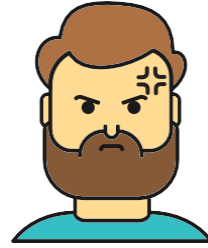
BLURRED VISION



HEADACHE



TROUBLE CONCENTRATING



MOODINESS, IRRITABILITY

## TREATMENT

- Drink plenty of water
- Take diabetes medications as directed
- Exercise\*

\*If your blood sugar is above 240 mg/dL, check your urine for ketones. If you have ketones, do not exercise.

## Acute Complications



# PREVENTING HIGH BLOOD SUGARS

- Check your blood sugar as directed by your doctor
- Take medicines as instructed
- Drink plenty of water each day
- Keep a blood sugar log
- Follow your meal plan
- Manage your stress
- Be more active.
- **Do not exercise if ketones are present in your urine.**





# KETONES

When your cells do not get the glucose they need for energy, **your body begins to burn fat for energy** and produces ketones.

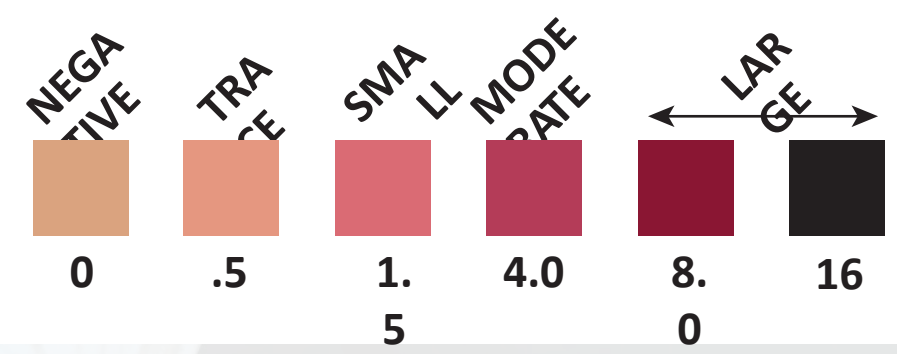
May occur

- Not enough insulin
- Not enough food
- Illness
- Extreme bodily stress
- Dehydration

When **too many ketones** are produced too fast, they can cause DKA.



Read at exactly 15 seconds





# DIABETIC KETOACIDOSIS (DKA)

**DKA develops quickly, sometimes within 24 hours.**

## Signs and Symptoms

- **Blood sugar level of 300 mg/dL or higher**
- **High ketone levels in urine**
- Excessive thirst
- Frequent urination
- Weakness or fatigue
- Dry/flushed skin
- Nausea, vomiting, abdominal pain
- Shortness of breath
- Fruity-scented breath

## Causes

- **Illness or infection**
- Missed insulin treatment
- Stress





# DIABETIC HYPEROSMOLAR SYNDROME (DHS)

DHS can take **days or weeks to develop.**

## Signs and Symptoms

- **Blood sugar level of 600 mg/dL or higher**
- Excessive thirst
- Dry mouth
- Increased urination
- Warm, dry skin
- Fever
- Drowsiness, confusion
- Hallucinations
- Vision loss

## Causes

- **Illness or infection**
- Not following your diabetes treatment plan
- Certain medications, such as water pills



TEXAS A&M UNIVERSITY  
Healthy South Texas

# QUESTIONS

## Acute Complications





TEXAS A&M UNIVERSITY  
Healthy South Texas

# Nutrition: Making A Lifestyle Change





# THE BREAKDOWN

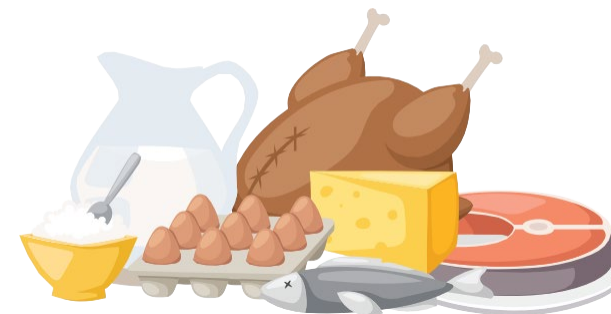
- **Carbohydrates:** The body's preferred fuel. They break down into sugar in your blood.

**Raise** blood sugar



- **Protein:** Provides body with tools to repair and grow.

**Does not raise** blood sugar



- **Fat:** Helps carry nutrients throughout the body and acts as stored energy.

**Does not raise** blood sugar





TEXAS A&M UNIVERSITY  
Healthy South Texas

# MEAL PLANNING

## Nutrition: Making A Lifestyle Change

### CARBOHYDRATES

STARCHES



1/2 cup =



In one serving:

15g carbohydrate  
2g or more fiber  
2g protein  
0-1g fat



These foods raise blood sugar

Choose whole grains, 100% whole wheat or foods with 3g or more of fiber per serving.

**One Serving**

**Beans, Peas, & Lentils:**

Beans, baked, 1/3 cup  
Beans, cooked, 1/2 cup  
Lentils, cooked, 1/2 cup  
Refried beans, canned, 1/2 cup

**Starchy Vegetables:**

Corn, 1/2 cup  
Peas, cooked, 1/2 cup  
Potato (large), baked, 1/4  
Potato, mashed, 1/2 cup  
Squash (winter, acorn, butternut), 1 cup  
Yam, sweet potato, 1/2 cup

**Cereals & Grains:**

Rice, cooked, 1/3 cup  
Oatmeal, cooked, 1/2 cup  
\*Pasta, cooked, 1/3 cup  
\*Cereal, dry, 1/2 - 3/4 cup  
Couscous, 1/3 cup

**\*Breads:**

Bagel (large), 1/4  
Bread, 1 slice  
English muffin, 1/2  
Bun, hamburger, 1/2  
Bun, hotdog, 1/2  
Tortilla (6"), corn or flour, 1

**\*Crackers & Snacks:**

Chips, regular, 9-13  
Crackers, whole wheat, 2-5  
Popcorn, low fat, 3 cups  
Pretzels, 3/4 oz.

FRUITS



1 medium sized piece or 1 cup =



In one serving:

15g carbohydrate  
2g or more fiber  
0g protein  
0g fat



These foods raise blood sugar

Eat fruit with meals or as a snack. Watch portion sizes of fruit. Avoid juice, unless blood sugar is low.

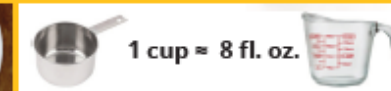
**One Serving**

Apple (small), 1  
Apricots, 4  
Banana (extra small), 1  
Blueberries, 3/4 cup  
Blackberries, 3/4 cup  
Cantaloupe, cubed, 1 cup  
Cherries, 12  
Dates, 3  
Grapefruit (large), 1/2  
Grapes (small), 1/2 cup  
Kiwi, 1  
Mango (small), 1/2 cup  
Nectarine (small), 1  
Orange (small), 1  
Papaya, cubed, 1 cup  
Peach (medium), 1  
Pear (large), 1/2  
Pineapple, 3/4 cup  
Plums (small), 2  
Prunes, 2  
Raspberries, 1 cup  
Strawberries, whole, 1 1/2 cup  
Tangerines (small), 2  
Watermelon, cubed, 1 cup  
Honey dew, 1 cup  
Juices, 1/3 to 1/2 cup  
Dried fruit, 2 Tbsp.  
Canned fruit, light, 1/2 cup

MILK/YOGURT



1 cup = 8 fl. oz.



In one serving:

12g carbohydrate  
0g or more fiber  
8g protein  
0-3g fat



These foods raise blood sugar

Choose fat-free or 1% milk and milk products. Look for 3g or less fat.

**One Serving**

Soy milk/rice, light, 1 cup  
\*Yogurt, plain or light, 2/3 cup  
\*Buttermilk, low fat, 1 cup  
\*Milk, low fat/fat-free, 1 cup  
Chocolate milk, 1/2 cup  
No sugar added vanilla ice cream, 1/2 cup

**1 carb choice = 15 grams**

Meal	Carb Choice
------	-------------

Breakfast	___ choices
-----------	-------------

Lunch	___ choices
-------	-------------

Snack(s)	___ choices
----------	-------------

Dinner	___ choices
--------	-------------

Daily Total:	___ choices
--------------	-------------







\*processed/not plant-based/avoid/limit



TEXAS A&M UNIVERSITY  
Healthy South Texas

# MEAL PLANNING

## Nutrition: Making A Lifestyle Change

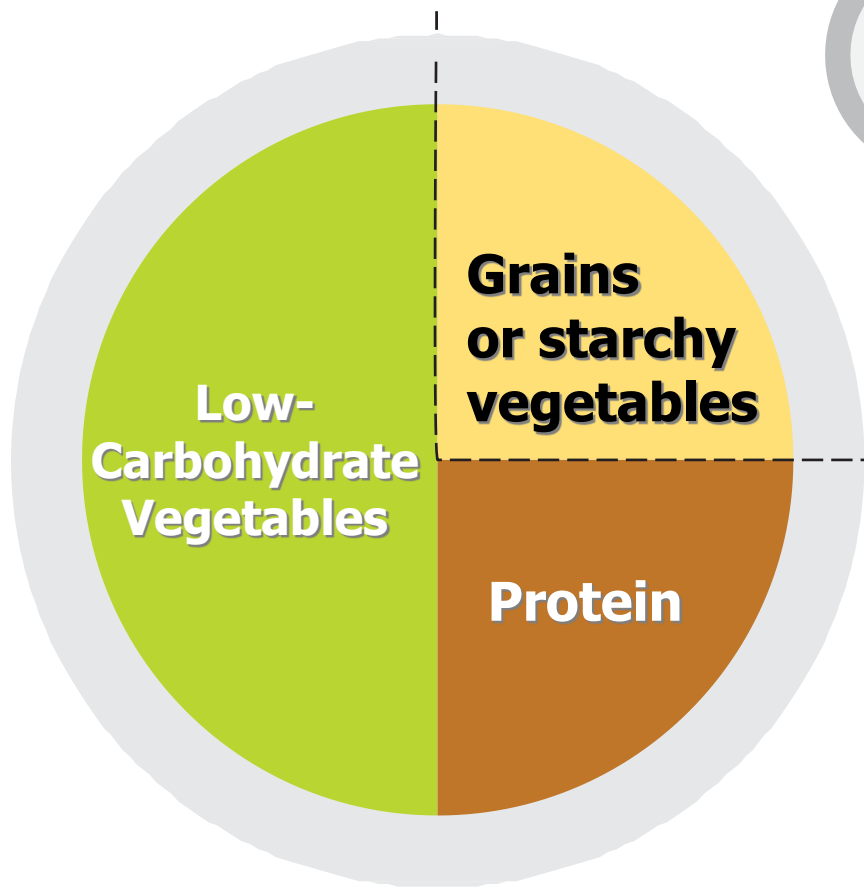
VEGETABLES 	PROTEIN 	FAT 
FREE FOODS	6-9 oz. per day	1-2 servings per meal
1 cup ≈ 	3 oz. ≈ 	1 tsp ≈ 
In one serving: 5g carbohydrate 2g or more fiber 2g protein 0g fat	In one animal protein serving: 0g carbohydrate 0g or more fiber 7g protein 0-8g fat	In one serving: 0g carbohydrate 0g or more fiber 0g protein 5g fat
These foods do not raise blood sugar	These foods do not raise blood sugar	These foods do not raise blood sugar but can affect weight & cholesterol.
Choose vegetables of all colors.	Choose plant-based proteins over animal proteins.	Choose plant-based, unsaturated fats. Avoid animal-based, saturated fats.
<p>One Serving ½ cup cooked or 1 cup raw</p> <p>Artichoke hearts Asparagus Baby corn Bamboo shoots Beans (green, wax, or Italian) Beets Broccoli Brussels sprouts Cabbage Carrots Cauliflower Celery Cucumbers Eggplant Greens (collard, kale, mustard or turnip) Lettuce Mushrooms Okra Onions Pea pods Peppers, all varieties Radishes Sauerkraut Spinach Squash Tomatoes Turnips</p>	<p>One Serving</p> <p><b>Plant-based:</b> Beans, all kinds, ½ cup (1 carb choice) Peas, 1 cup (1½ carb choices) Chickpeas, ½ cup (1½ carb choices) Soy products, tofu, 3 oz.</p> <p><b>High-fat, plant-based: 15+ g of fat</b> Natural peanut/almond butter, 2 Tbsp. Pistachios, ¼ cup</p> <p><b>*Lean, animal-based: 0-3 g of fat</b> Fish, fresh or frozen, no fat added: Catfish, cod, flounder, salmon, shrimp, 1 oz. Tuna, canned in water, 1 oz.</p> <p><b>Poultry without skin:</b> Chicken, turkey, duck, 1 oz.</p> <p><b>Game:</b> Buffalo, venison, 1 oz.</p> <p><b>*Medium-fat, animal-based: 4-7g of fat</b> Egg, whole, 1 Fish, any fried type, 1 oz. Pork, cutlet, shoulder roast, 1 oz. Beef, corned beef, ground beef, meatloaf, short rib, 1 oz. Cheese, feta, mozzarella, string, cheese spread, 1 oz.</p> <p><b>*High-fat, animal-based: 8+ g of fat</b> Bacon, turkey, 3 slices Cheese, regular, American, bleu, brie, cheddar, Swiss, 1 oz. Hot dog, beef, pork, turkey, chicken, or combination, 1 Pork, ground, sausage, 1 oz.</p>	<p>One Serving</p> <p><b>Unsaturated fats:</b> Oil, canola, olive, peanut, 1 tsp. Avocado, 2 Tbsp. Almonds, 6 Cashews, 6 Peanuts, 10 Peanut/almond butter, 2 tsp. Olives, green, stuffed, 10 *Margarine, 1 tsp. *Margarine, low-fat, 1 Tbsp. *Mayonnaise, 1 tsp. *Mayonnaise, low-fat, 1 Tbsp. *Salad dressing, 1 Tbsp. *Salad dressing, low-fat, 2 Tbsp.</p> <p><b>Saturated fats:</b> Oil (coconut, palm, palm kernel): 1 tsp. Coconut milk, light, 1/3 cup Coconut milk, regular, 1 ½ Tbsp. *Bacon, 1 slice *Butter, reduced-fat, 1 Tbsp. *Butter, stick, 1 tsp. *Cream, half and half, 2 Tbsp. *Cream, heavy, 1 Tbsp. *Cream, whipped, 2 Tbsp. *Lard, 1 tsp.</p>
		*processed/not plant-based/avoid/limit



TEXAS A&M UNIVERSITY  
Healthy South Texas

# MEAL PLANNING

Nutrition: Making A  
Lifestyle Change





TEXAS A&M UNIVERSITY  
Healthy South Texas

# PLATE METHOD - EXAMPLE



Nutrition: Making A  
Lifestyle Change





# INDIVIDUAL CARBOHYDRATE GOALS

## Carbohydrate Choices

- 3-4 carb choices at breakfast, lunch & dinner
- 1-2 carb choices at snacks, if needed

## Consistent carb choices makes for consistent blood sugars!

- Eat the same amount of carbs at each meal.
- Eat meals at the same time of day.

## Practice carbohydrate counting

- Remember **15 grams of carbohydrates = 1 carb choice**
- 3-4 carb choices = 45-60 grams of carbohydrates



# INDIVIDUAL CARBOHYDRATE GOALS

## Breakfast

Food	Grams/servin g	How Much I Eat	Grams of Carb
<u>Orange Juice</u>	<u>15 g/ 6 oz</u>	<u>1/2 cup</u>	<u>15</u>
<u>2 Eggs</u>	<u>                    </u>	<u>                    </u>	<u>0</u>
<u>English Muffin</u>	<u>15 g/ half</u>	<u>1 whole</u>	<u>30</u>
<u>Margarine</u>	<u>                    </u>	<u>                    </u>	<u>0</u>
<u>Banana</u>	<u>15 g/ half</u>	<u>1 whole</u>	<u>30</u>
		<b>Meal total</b>	<u>75</u>

BG Before

113

\* Carb  
Grams

45

Insulin

5u

BG 2 Hrs  
After

51

	Carbohydrate Choices	Total Carbohydrate grams
Breakfast	4	60
Snack (if needed)	-	-
Lunch	4	60
Snack (if needed)	1	15
Dinner	4	60
Snack (if needed)	-	-
<b>DAY TOTAL</b>	<b>13</b>	<b>195</b>



# CARBOHYDRATE COUNTING

**2/3 cup rice =  
2 carb choice**



**1 cup raspberries =  
1 carb choice**



**1 small dinner roll =  
1 carb choice**

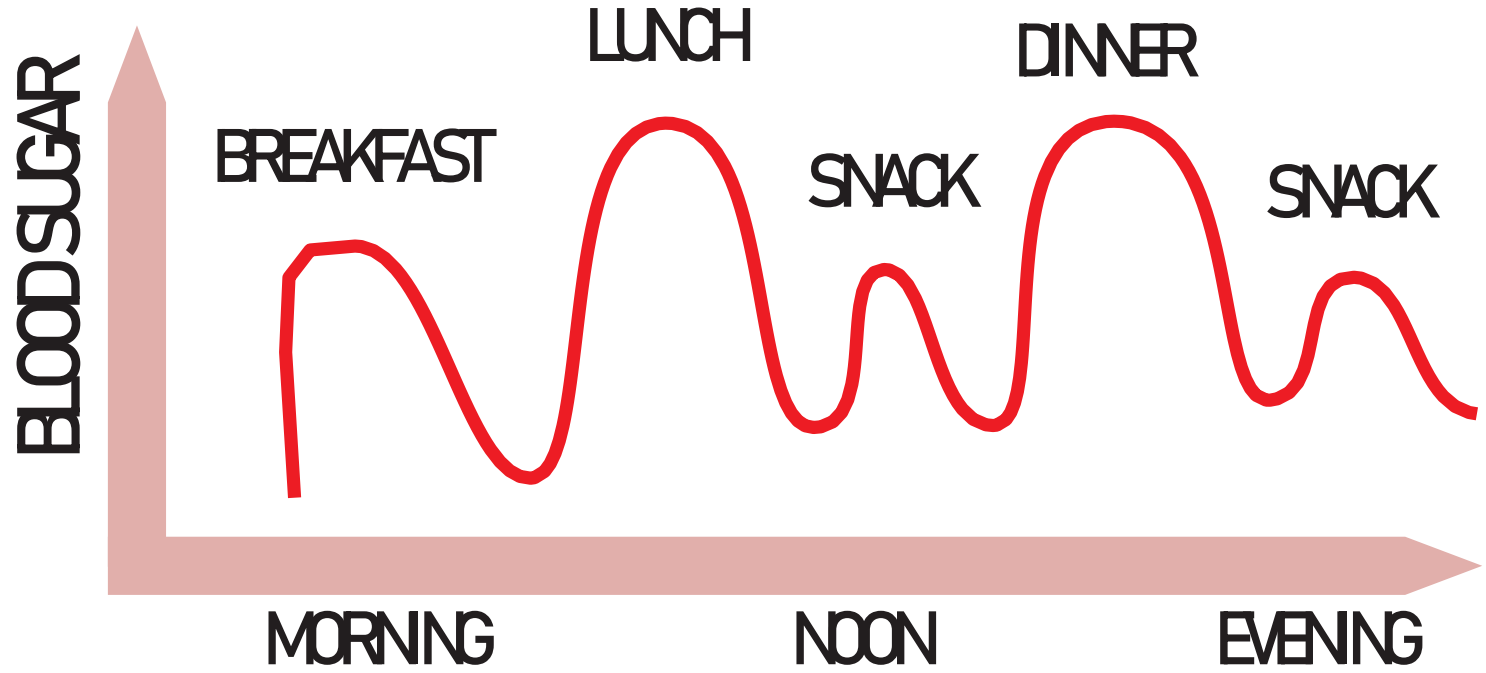


# LEARN WHAT WORKS FOR YOU

What would you do if your blood sugar 2 hours after a meal is greater than 180 mg/dL?

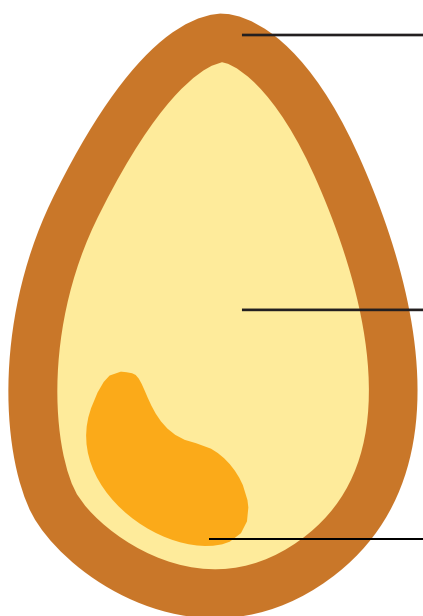
**Monitor your sugar 2 hours after a meal to learn what works best for you.**

### Blood Sugar Levels During A Typical Day





# WHOLE GRAINS



## BRAN

The fiber-rich layer that protects the seed and contains B vitamins and trace minerals

## ENDOSPERM

The middle layer that contains carbohydrates along with proteins.

## GERM

The small nutrient-rich core that contains antioxidants, including vitamin E, B vitamins and healthy fats.



## A whole grain is the entire grain:

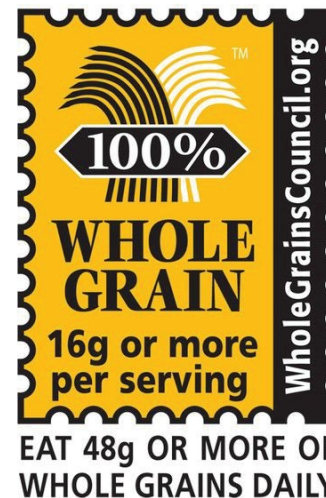
- Bran, germ and endosperm

## Refined flours (white or enriched wheat flour):

- Not whole grains
- Missing many nutrients found in whole wheat flour

## Whole grain products:

- 100% whole wheat bread, pasta, tortillas, and crackers





# READING NUTRITION LABELS

## When carb counting:

1. Find the serving size and amount per container
2. Locate the number of carbs in the **TOTAL** carbohydrate area of the label

**Remember:** 1 choice=15 g carb

**Question:** How many carb choices are there?



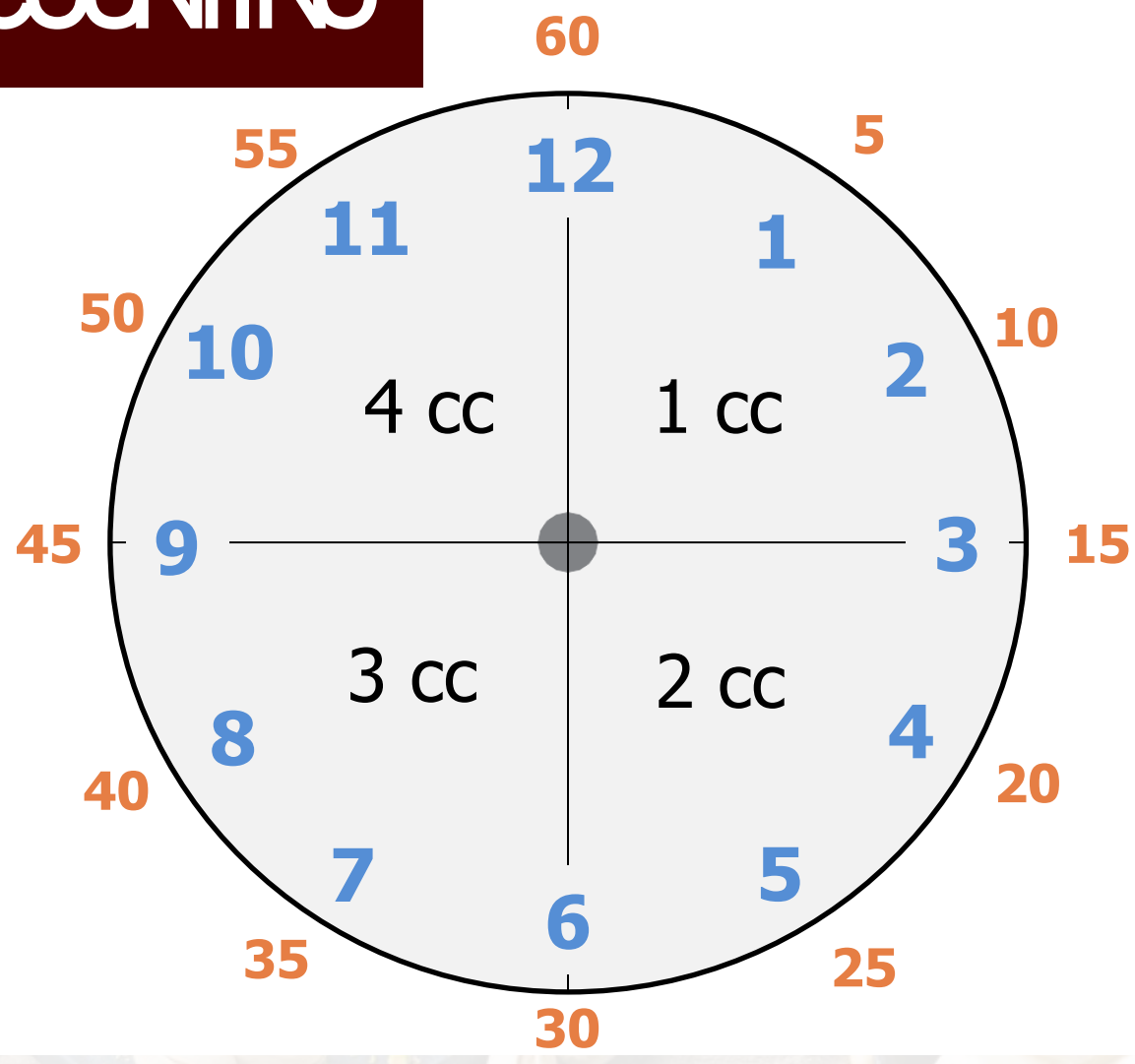
<b>Nutrition Facts</b>	
4 servings per container	
<b>Serving size</b>	<b>1 cup (227g)</b>
<b>Amount per serving</b>	
<b>Calories</b>	<b>280</b>
	<b>% Daily Value*</b>
<b>Total Fat</b> 9g	<b>12%</b>
Saturated Fat 4.5g	<b>23%</b>
Trans Fat 0g	
<b>Cholesterol</b> 35mg	<b>12%</b>
<b>Sodium</b> 850mg	<b>37%</b>
<b>Total Carbohydrate</b> 34g	<b>12%</b>
Dietary Fiber 4g	<b>14%</b>
Total Sugars 6g	
Includes 0g Added Sugars	<b>0%</b>
<b>Protein</b> 15g	
Vitamin D 0mcg	0%
Calcium 320mg	25%
Iron 1.6mg	8%
Potassium 510mg	10%

\* 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.



# CARB COUNTING

Nutrition: Making A  
Lifestyle Change





# HEALTHY SNACKS IDEAS

## Carb + Protein (1 carb serving snack)

- 1 small apple with 1 tbsp. peanut butter
- 1 small container of Greek yogurt with 1/3 cup blueberries
- 2-5 whole wheat crackers with low-fat cheese
- 1 slice whole wheat bread with 1 tbsp. peanut butter

## Carb + Protein (2 carb serving snack)

- 2 slices of bread with turkey
- 1 small tortilla with 1/2 cup beans
- 20 tortilla chips with salsa
- 1 slice whole wheat bread with 1 tbsp. peanut butter and apple slices

**Remember:** following these guidelines will help keep blood sugars steady preventing any low or high blood sugar levels





# MEALS & SNACKS

## Carbohydrate Choices

- Include consistent amount of carbohydrate choices
- Same/consistent time everyday
- Eat 4 to 5 hours apart. If you must skip a meal, then eat a snack!
- Be high in whole grains, vegetables, fruits, legumes, nuts, seeds
- Limit saturated fats and cholesterol
- Low in simple and processed sugar





# EATING AWAY FROM HOME

- Plan ahead if taking insulin
- Remember the amount of carbs allowed per meal
- Know your serving sizes
- Do not overeat --Take leftovers home
- Omit sauces, heavy dressings, cheese and extra breads
- Order baked, broiled, grilled, or steamed foods rather than fried foods
- Use low-fat or fat-free dressings
- Ask for dressing on the side
- Exchange soda and other sugary drinks for water, save money





TEXAS A&M UNIVERSITY  
Healthy South Texas

Nutrition: Making A  
Lifestyle Change

# EATING OUT



34g Carbs



34g Carbs



34g Carbs



71g Carbs



22g Carbs



Grilled Chicken | 18g Carbs  
Crispy Chicken | 36g Carbs



M 54g Carbs

L 72g Carbs

[whataburger.com/food](http://whataburger.com/food)



# EATING OUT



## ITEM

## CONTENT

<b>6 inch sandwich</b>	<b>38-45g carbs</b>
<b>Garden salad</b>	<b>15-25g carbs</b>
<b>Fat Free Honey Mustard Dressing (1.5oz)</b>	<b>7g carbs</b>
<b>Fat Free Sweet Onion Dressing (1.5oz)</b>	<b>9g carbs</b>
<b>Ranch Dressing (1.5oz)</b>	<b>3g carbs</b>



[subway.com/en-us/menunutrition/menu](http://subway.com/en-us/menunutrition/menu)



# EATING OUT



ITEM	CHO CONTENT
Wing	8g carbs
Leg	5g carbs
Thigh	7g carbs
Breast	16g carbs
3 Tenders	26g carbs
Biscuit	26g carbs
<i>Regular Side</i>	
Cajun Fries	30g carbs
Mashed Potatoes	18g carbs
Red Beans & Rice	23g carbs
Cole Slaw	19g carbs



TEXAS A&M UNIVERSITY  
Healthy South Texas

Nutrition: Making A  
Lifestyle Change

# EATING OUT



ITEM	PER SLICE
Personal Pan	17g carbs
Original Pan	35g carbs
Hand Tossed	33g carbs
Thin & Crispy	20g carbs
6 boneless wings	
Buffalo	35g carbs
Honey BBQ	50g carbs
Asian Sweet Chili	62g carbs
Crazy Bread	15g carbs

[m.nutritionix.com/pizza-hut/menu/premium](http://m.nutritionix.com/pizza-hut/menu/premium)



# CEREALS!

**3/4 cup  
22g carbs**



**1 cup  
24g carbs**



**3/4 cup  
27g carbs**



**Look for portion size  
and total carbs**

**1 cup  
20g carbs**



**1/2 cup  
47g carbs**



**3/4 cup  
26g carbs**





# TREATS!

ITEM	CONTENT
Small Bag Hot Cheetos (21 pieces)	13g carbs
Small Bag Doritos (11 pieces)	16g carbs
3 Chips Ahoy Cookies	22g carbs
1 Oatmeal Crème Pie	26g carbs
3 Oreos	24g carbs
1/2 cup Vanilla ice Cream	21g carbs
1 Pop Tart	35g carbs







# CANDY!

Nutrition: Making A Lifestyle Change

## ITEM

## CONTENT

<b>Small Oreo Blizzard</b>	<b>92g carbs</b>
<b>1 Snickers Bar</b>	<b>33g carbs</b>
<b>9 pieces of Hershey Kisses</b>	<b>25g carbs</b>
<b>1 package of TWIX</b>	<b>34g carbs</b>





TEXAS A&M UNIVERSITY  
Healthy South Texas

Nutrition: Making A  
Lifestyle Change

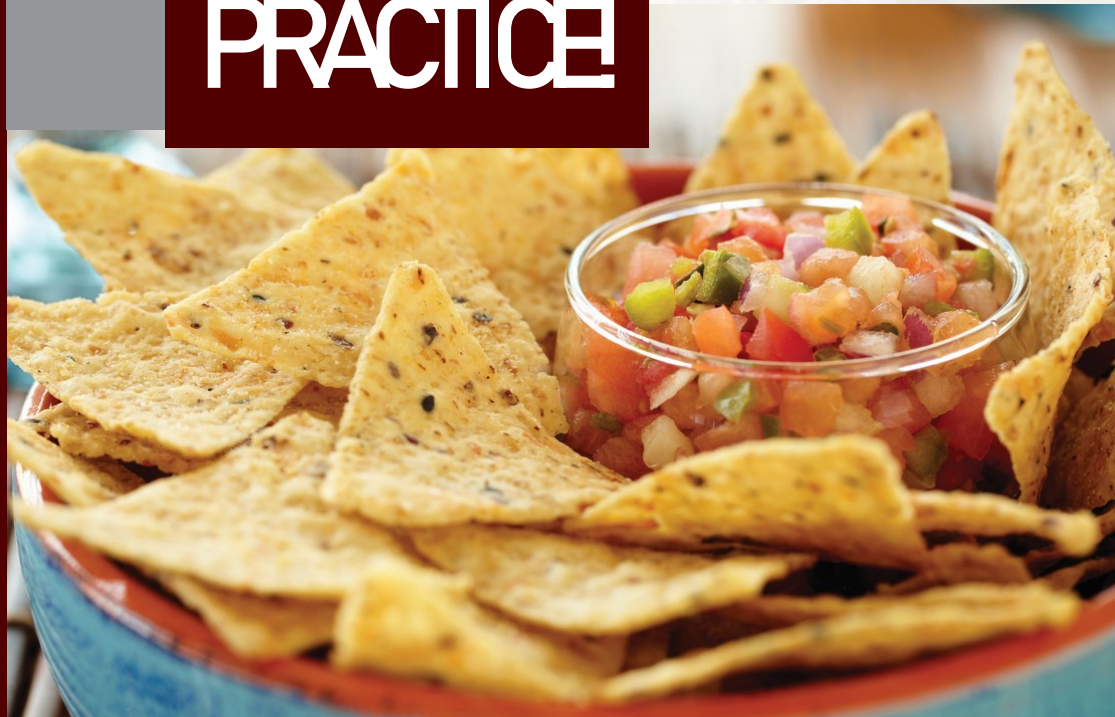
# SOFT DRINKS

ITEM	CONTENT
Starbucks Venti Chocolate Chip Frappuccino	76g carbs
Sonic Cherry Slush	49/72/158
Coca Cola (12 oz)	39g carbs
Monster Energy Drink	54g carbs
Sweet Tea	45g carbs





# PRACTICE



How many carb servings in this meal?  
What would happen to your blood sugar after this meal?  
What would you change to make it work with your meal plan?



# THE 6 CS OF SALT

1. Canned foods
2. Convenience foods: TV dinners, fast foods (fried), pizzas
3. Cold cuts (processed meats): summer sausage, bologna
4. Condiments: ketchup, tartar sauce, soy sauce
5. Chips/crackers that are salted
6. Cut out the saltshaker





# ALCOHOL



## First, ask for your doctor's approval

- Side effects:
  - Low blood sugar
  - Dull senses, forgetting to take medication
  - Increase triglycerides

## If doctor approves:

**Women: 1 serving/day**

**Men: 1-2 servings/day**

- 1 serving=
  - 4 oz. of dry wine (1 small glass)
  - 12 oz. of light beer
  - 1 ½ oz. of hard liquor



# SICK DAYS

**Follow your meal plan**

**If unable to tolerate solid foods,  
substitute with liquids or soft foods:**

## **SICK DAY MEAL PLAN**

- Stay hydrated and drink fluids
- Drink ½ cup to 1 cup of fluid every 30-60 minutes





# FOOD RECOMMENDED FOR SICK DAYS

## **Foods easy on stomach that have 10-15 g carbohydrate**

- 6 crackers
- ½ cup cooked cereal
- ½ cup regular Jell-O
- 1 slice dry toast
- ½ cup mashed potatoes
- 1 cup chicken noodle soup
- ½ cup ice cream
- ¼ cup sherbet
- popsicle (1 bar or ½ of twin)

## **Fluids – Need extra fluids when sick**

- 1 cup Gatorade
- 1 cup milk
- 1 cup soup
- ½ cup fruit juice
- 1 cup reg cocoa
- ½ cup lemonade
- ½ cup reg soda
- ½ cup Kool-Aid



# SICK DAY MEAL PLAN

## MEAL PLAN EXAMPLE

Lunch: 4 Carbohydrate Servings

<b>1/2 cup of regular pudding</b>	<b>1</b>
<b>1 cup of chicken noodle soup</b>	<b>1</b>
<b>1 1/2 cup of Gatorade</b>	<b>1</b>
<b>6 saltine crackers</b>	<b>1</b>
<b>Total</b>	<b>4</b>







TEXAS A&M UNIVERSITY

Healthy South Texas

# MYTH VS FACT # 5

**Myth:** Cinnamon, bitter melon, turmeric, aloe vera, prickly pear, moringa, stone fruit, or hibiscus leaves cure diabetes.

**Fact:** There is no cure for any type of diabetes.

While some herbs and foods can improve a person's insulin sensitivity or insulin resistance in type 2 diabetes, there is absolutely no magic spice, herb, plant or food that can cure anyone of any type of diabetes.

In type 2 diabetes, when it is detected very early, some individuals can reverse the disease with major lifestyle changes including a healthy diet along with exercise under doctor supervision. This is a kind of remission which needs constant attention for life.



# Cooking Well with Diabetes

This four-lesson course expands on food and nutrition information that is helpful for people living with Diabetes.

Together we will:

- Review carbohydrate foods, portions, and learn to count them
- Explore fats in meals and make healthy substitutions
- Look at side dishes and focus on the role of sodium and fiber
- Learn to celebrate festivities and holidays sensibly
- Find ways to access easy and healthy recipes

Find this course at [AgriLifeLearn.tamu.edu](https://AgriLifeLearn.tamu.edu)



TEXAS A&M UNIVERSITY  
Healthy South Texas

# Dinner Tonight

- Family Friendly Recipes
- Healthy Cooking Tips
- New Recipes Every Week
- Recipes to meet a variety of dietary needs.

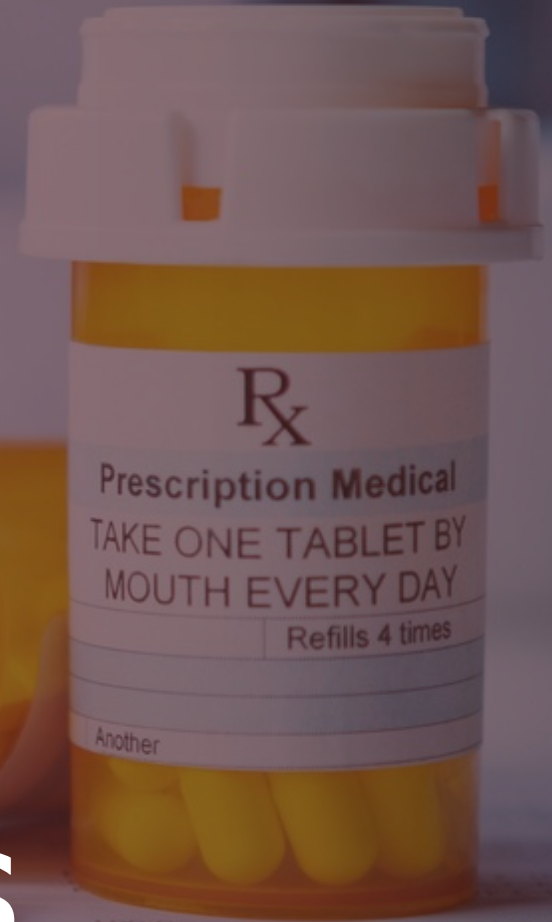
Check with your County Extension Agent for any local or virtual Dinner Tonight Cooking Schools or visit [dinnertonight.org](https://dinnertonight.org) for recipes and cooking tips.

Nutrition: Making A  
Lifestyle Change



TEXAS A&M UNIVERSITY  
Healthy South Texas

# Taking Medications



R<sub>x</sub>  
Prescription Medical  
TAKE ONE TABLET BY  
MOUTH EVERY DAY  
Refills 4 times  
Another



# DIABETES MEDICATION

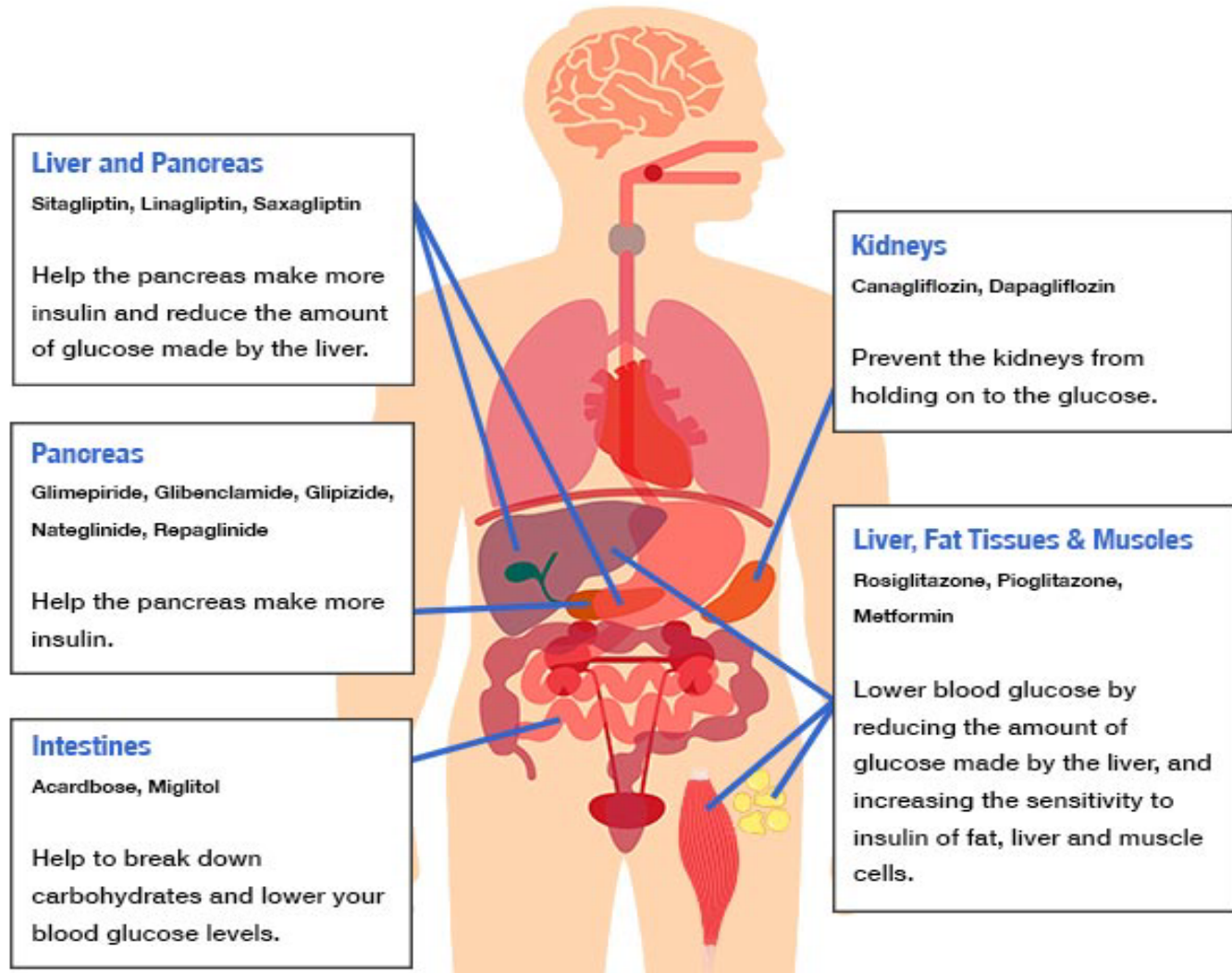
If lifestyle changes, such as losing weight, **eating healthy**, engaging in regular **physical activity**, and **coping with stress** are not managing your blood sugar levels, you may need **medication** to help reduce your risk of complications related to diabetes.





# DIABETES MEDICATION THERAPIES

## Taking Medications





## MYTHS VS FACT #6

- **Myth:** My doctor put me on insulin. This means I am not doing a good job managing my blood sugar.
- **Fact:** People with type 1 diabetes must use insulin because their body no longer produces this important hormone. Type 2 diabetes is progressive, which means that the body makes less insulin over time. So over time, exercise, diet changes, and oral medicines may not be enough to keep your blood sugar in control. Then you need to use insulin to keep blood sugar in a healthy range.





# INSULIN

You may need **insulin injections** if your body

- is not making enough insulin
- does not use the insulin efficiently.

## Normally

- Your body makes insulin 24 hours a day. This is called **basal** insulin or background insulin.
- When you eat or your blood sugar goes up, your pancreas releases extra insulin to help bring the sugar down to normal levels. This extra insulin is called **bolus**.





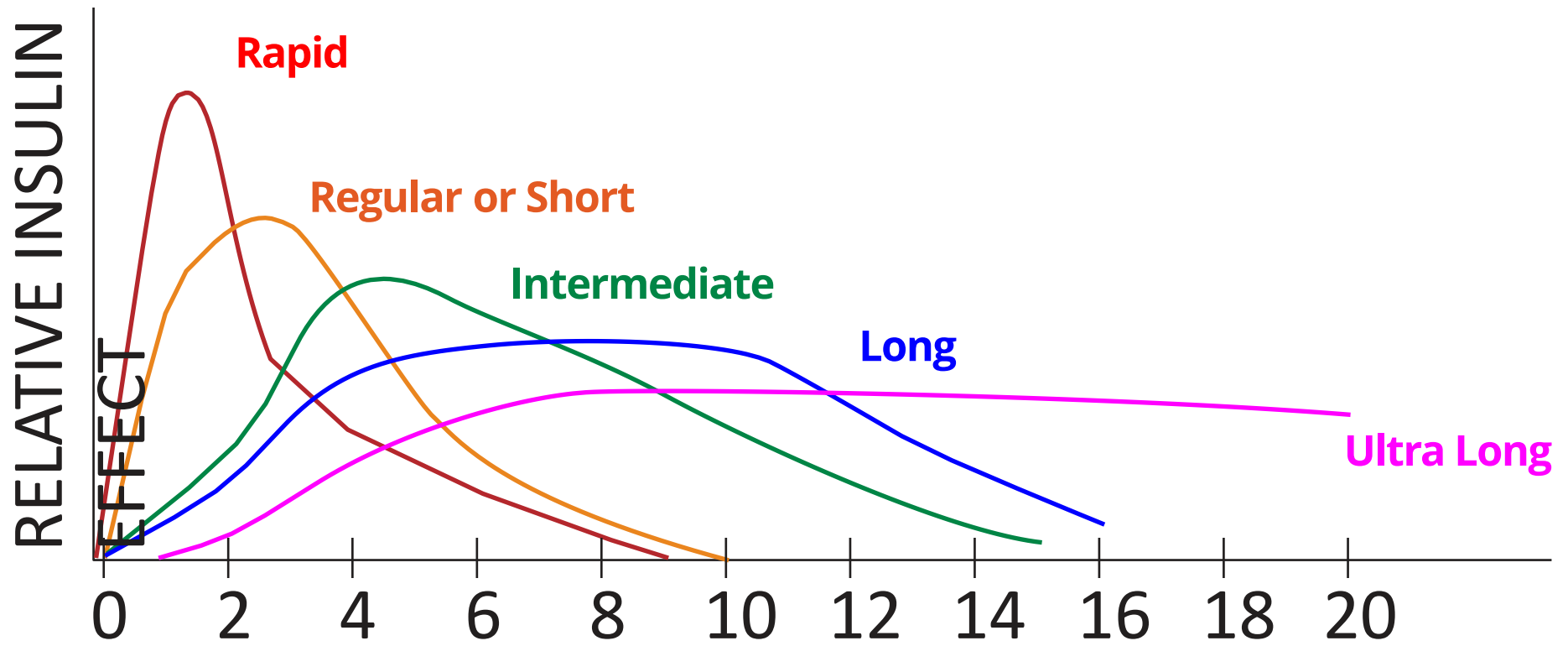


INSULIN TYPE	ONSET OF ACTION	PEAK	DURATION OF ACTION
Lispro U-100 (Humalog)	Approx. 15 minutes	1-2 hours	3-6 hours
Lispro U-200 (Humalog 200)	Approx. 15 minutes	1-2 hours	3-6 hours
Aspart (NovoLog)	Approx. 15 minutes	1-2 hours	3-6 hours
Glulisine (Apidra)	Approx. 20 minutes	1-2 hours	3-6 hours
Regular U-100 (Novolin R, Humulin R)	30-60 minutes	2-4 hours	6-10 hours
Humulin R Regular U-500	30-60 minutes	2-4 hours	Up to 24 hours
NPH (Novolin N, Humulin N, ReliOn)	2-4 hours	4-8 hours	10-18 hours
Glargine U-100 (Lantus)	1-2 hours	Minimal	Up to 24 hours
Glargine U-100 (Basaglar)	1-2 hours	Minimal	Up to 24 hours
Glargine U-300 (Toujeo)	6 hours	No significant peak	24-36 hours
Detemir (Levemir)	1-2 hours	Minimal*	Up to 24 hours*
Degludec U-100 & U-200 (Tresiba)	1-4 hours	No significant peak	About 42 hours
Afrezza	<15 minutes	Approx. 50 minutes	2-3 hours

\*Depends on size of dose and length of time since therapy started.



# INSULIN ACTION





# INSULIN SIDE EFFECTS

Insulin causes changes in your blood sugar and can cause **hypoglycemia** (low blood sugar).

**Tell your doctor if any of these symptoms are severe or do not go away:**

- redness, swelling, and itching at the injection site
- changes in the feel of you skin, skin thickening (fat build-up), or a little depression in the skin (fat breakdown)
- weight gain
- constipation





# INSULIN DELIVERY METHODS



INSULIN PEN



INSULIN PUMP



INSULIN SYRINGE

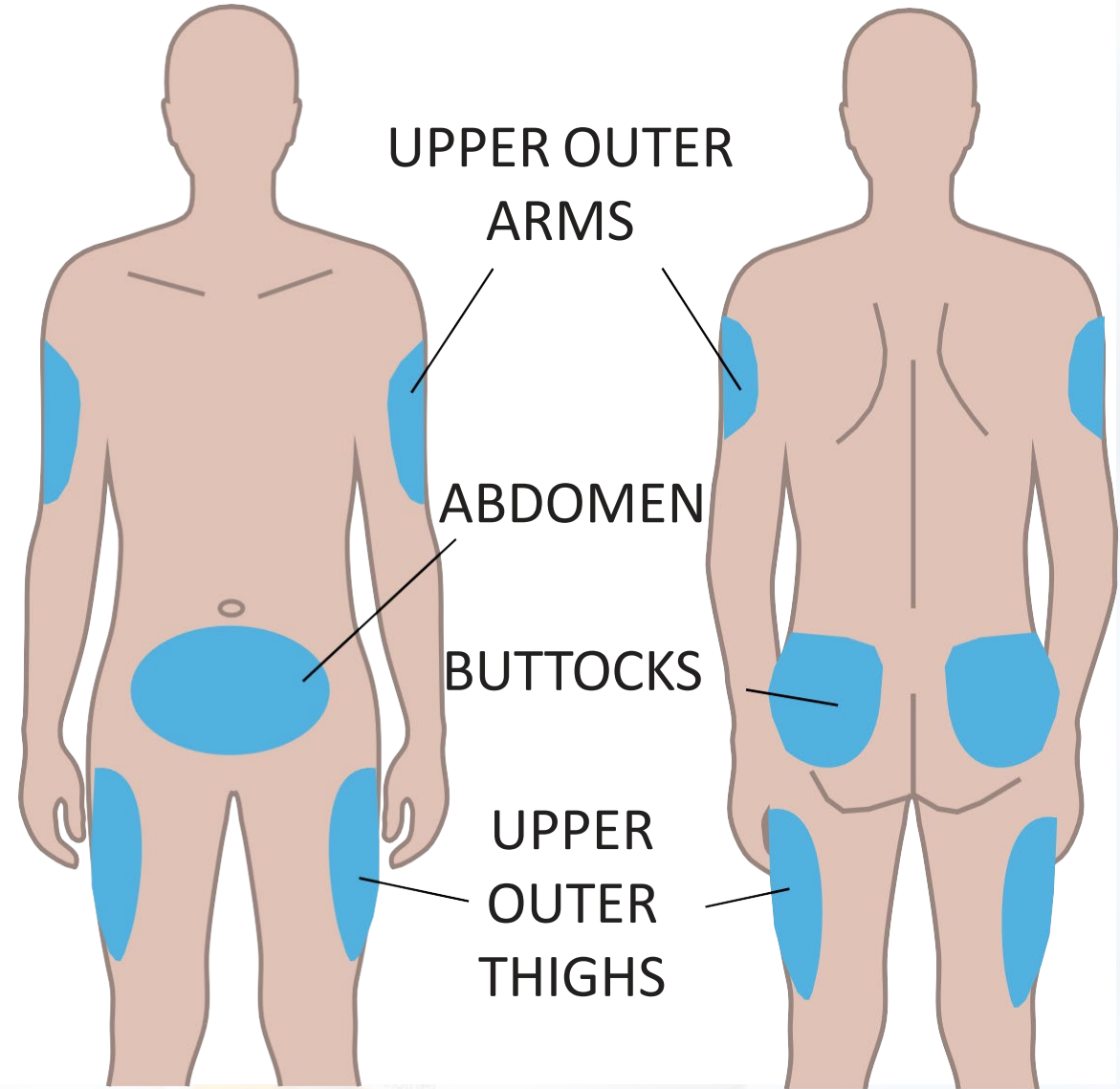


INHALED  
INSULIN



# INJECTION SITES

- Insulin is injected into **fatty tissue**
- **Abdomen** is a preferred site
- **Change sites** to
  - avoid lumps and infections
  - delay insulin absorption





# CARE OF INJECTABLES

## Insulin & GLP-1

- Keep open vials or pens at room temperature once opened
- Prime insulin pens when first opened
- Do not leave insulin in a hot or cold car
- Never use expired insulin
- Opened insulin is only good for set number of days
- Unopened insulin is good until the expiration date on box





# DISCARDING OF SHARPS: DO'S/DON'T'S

- **Do** discard in plastic container
- **Seal** container with duct tape when full
- **Place** sealed container in household garbage container



- **Don't** throw loose sharps in the trash
- **Don't** put sharps in recycling bins
- **Don't** keep sharps where children can reach them
- **Don't** flush sharps down the toilet
- **Don't** overfill or force needles inside





## MYTH VS FACT #7

**Myth:** I can stop taking diabetes medicines once my blood sugar is under control.

**Fact:** Some people with type 2 diabetes, are able to control their blood sugar without medicine by losing weight, eating a healthy diet, and getting regular exercise. But diabetes is a progressive disease, and over time, even if you are doing all you can to stay healthy, you may need medicine to keep your blood sugar within your target range.







# MANAGING YOUR MEDICATIONS

- Stick to a routine
- Refill your prescriptions before they run out
- Take a small medications travel kit with you everywhere you to
- Ask for help remembering to take your medications
- Use a pill organizer





# MEDICATION SAFETY TIPS

- **TAKE AS DIRECTED BY MD**
- **Do not share medications**
- Keep a list of all your current medications
- Keep MD up to date on your meds
- Never add vitamins, herbs, supplements, or OTC meds without MD approval

**DO NOT CHANGE YOUR DOSAGE  
OR STOP TAKING ANY OF YOUR MEDS ON YOUR OWN.  
ALWAYS TALK WITH YOUR MD FIRST.**





# MEDICATION ASSISTANCE PROGRAM



The Medication Assistance Program helps those without insurance or limited prescription coverage obtain their prescribed medication free or at an affordable cost.

Assistance covers most maintenance medications to treat diabetes, cardio disease, respiratory conditions and most other chronic diseases.

For more information call **1-866-524-1408**



TEXAS A&M UNIVERSITY  
Healthy South Texas

# QUESTIONS

## Taking Medications





# BIGUANDES

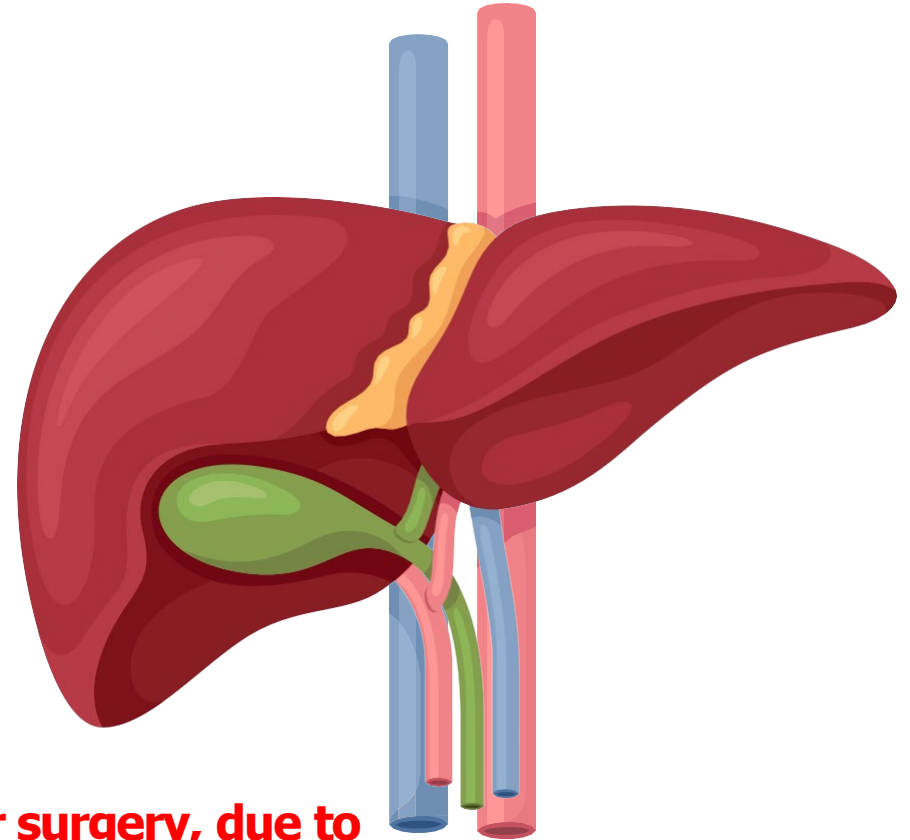
**Metformin** (Glucophage), **Metformin XR**  
(Glucophage XR, Fortamet, Glumetza)

**How to take:** Twice a day with meals (extended release is taken once daily)

**Benefits:** Decrease liver glucose production, and blood lipid (fat) levels and uses body tissues to use insulin more effectively.

**Side Effects:** Bloating, gas, diarrhea, upset stomach, loss of appetite.

**CAUTION:** Notify MD prior to diagnostic studies or surgery, due to possible medications interactions.



**DO NOT STOP MEDICATIONS WITHOUT ASKING MD**



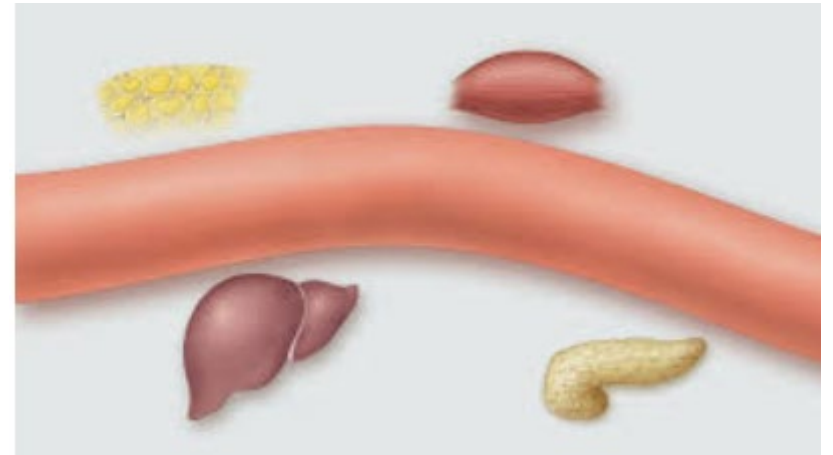
# THAZOLIDINEDIONES (TZD)

**Pioglitazone**, (Actos) Rosiglitazone (Avandia)

**How to take:** Take once a day, take same time everyday

**Benefits:** Sensitizes the body to use the insulin it makes effectively

**Side Effects:** Swelling (edema), fluid retention





# SULFONYLUREAS

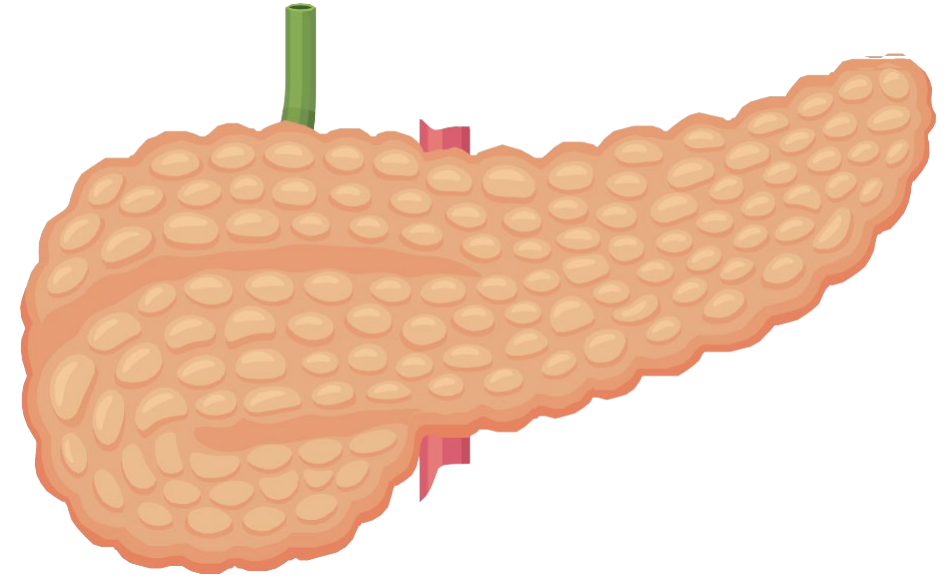
**Glimepiride** (Amaryl) **Glyburide** (Diabeta, Micronase), **Glipizide** (Glucotrol, Glucotrol XL)

**How to take:** take with meals once or twice daily

**Benefits:** Stimulate the pancreas to release and produce more insulin.

Can be long acting and last in body 24-72 hours.

**Side Effects:** Low blood glucose, occasional skin rash, irritability and upset stomach.





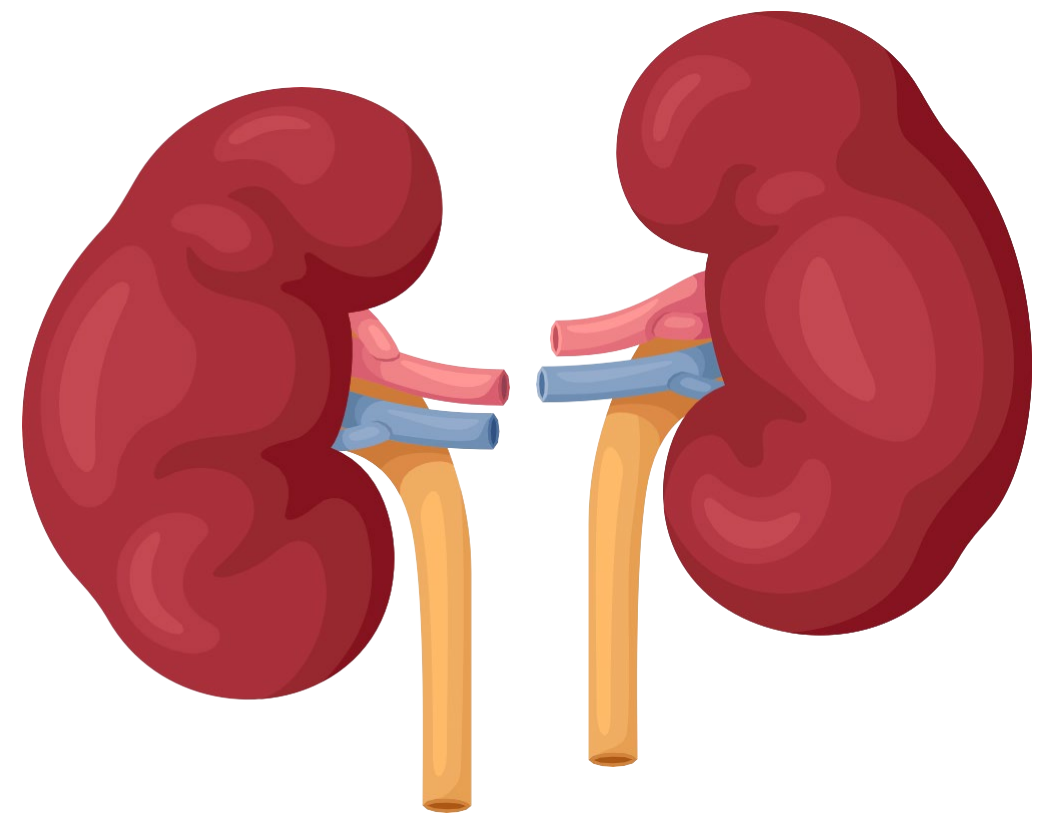
# SGLT-2 INHIBITORS

**Canagliflozin** (Invokana), **Empagliflozin** (Jardiance) **Dapagliflozin** (Farxiga)

**How to take:** before the first meal of the day

**Benefits:** Prevent glucose from being absorbed in the kidneys, decrease glucose in the blood and spills into the urine.

**Side Effects:** Increased risk for bladder and genital infections, dehydration







# GLP-1 AGONISTS-INJECTABLES

# GLUCAGON-LIKE PEPTIDE 1 RECEPTOR AGONISTS

- **Exenatide (Byetta, Bydureon)**
- **Liraglutide (Victoza, Saxenda)**
- **Lixisenatide (Lyxumia)**
- **Albiglutide (Tanzeum)**
- **Dulaglutide (Trulicity)**
- **Semaglutide (Ozempic)**
- **Rybelsus** (the oral tablet form of **Ozempic**)

**Benefits:** Incretin mimetics, suppress post-prandial glucagon release, delay stomach emptying, and increase insulin sensitivity, lower rates of hypoglycemia accompany GLP-1 therapy, modest weight reduction and reduction of systolic blood pressure.

**Side Effects:** nausea

Injectable medications (**NOT INSULIN**)



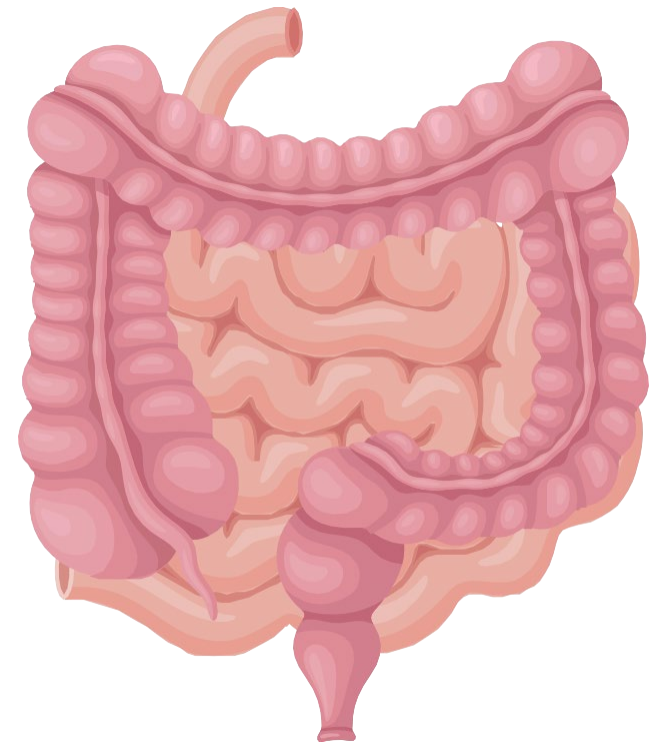
# DPP-4 INHIBITORS

**Alogliptin** (Nesina), **Sitagliptin** (Januvia),  
**Saxagliptin** (Onglyza), **Linagliptin** (Tradjenta)

**How to take:** take once a day, at same time  
each day

**Benefits:** Incretin enhancers, increases  
availability of own gut hormone, increases  
insulin release with meals and suppresses  
glucagon. Improves insulin level and lowers  
amount of glucose made by your body.

**Side Effects:** Pancreatitis, (symptoms – severe  
pain in upper stomach spreading to your back,  
nausea and vomiting) and joint pain.





TEXAS A&M UNIVERSITY

Healthy South Texas

# My Diabetes Emergency Plan





# IMPORTANT INFORMATION

- Type of diabetes you have
- Other medical conditions and allergies
- Current medications
- Pharmacy name, address, and phone number
- Doctor's name, address, and phone number
- Phone numbers and email addresses of your family, friends, and work contacts
- Copy of health insurance card
- Copy of photo ID
- Cash







# OTHER SUPPLIES

- 2-day supply of non-perishable ready-to-go food: tuna, beans, cheese and cracker snacks, high fiber/protein bars, dried fruits
- Manual can opener
- 3-day supply of bottled water
- Notepad and pen to record blood sugar
- First aid supplies
- Extra clothing
- Cell phone and charging supplies
- Flashlight and batteries





# OTHER RECOMMENDATIONS

- If you lose power, save your unused insulin, do not throw it out!!
- Make sure all your immunizations are up to date
- Choose a meeting place with your family
- Wear a medical ID or alert bracelet
- If a hurricane is headed your way:
  - Refill your prescriptions early
  - Double-check your kit to make sure, replenish needed supplies.





# TRAVELING

## PLANE - BUS - CAR

- Keep testing supplies, medications, glucose meters, and fast-acting supplies, and snacks with you at all times
- DO NOT store in your checked baggage or the overhead compartment or in trunk
- Always have on hand a Medical ID of Diabetes

**Always wear medical identification necklace or bracelet.**







TEXAS A&M UNIVERSITY  
Healthy South Texas



# Monitoring



# BENEFITS

## Monitoring your blood glucose helps you:

- Reach your **target goals** for blood glucose
- **Prevent and detect** low and high blood glucose
- Learn how **food and physical activity** affect your blood glucose
- Informs of medication **efficacy**
- Know the right amount of **insulin** to take
- **Reduce** chance of **long-term complications**
- Improve long-term diabetes control (**lower A1c**)





# TYPES OF METERS



Blood Glucose Meters



Continuous Glucose Meters



# GENERAL GUIDELINES

Standard precautions

Cleaning and calibration

Control testing

Storage of testing strips

- Check expiration dates
- Keep in dry place (avoid high humidity)
- Avoid extreme temperatures
- If no a/c in your home, store in a dresser drawer
- Keep container tightly capped

Recording your results (logbook)

Disposing of sharps





# CHECKING YOUR BLOOD SUGAR

- Wash your hands with soap and water  
OR clean your finger with alcohol
- Dry finger well
- Prick your finger (off center) with a lancet device to obtain a small blood sample
- Touch and hold the edge of the test strip to the drop of blood; strip will wick blood
- Record your results in a logbook





TEXAS A&M UNIVERSITY

Healthy South Texas

# WHEN AND HOW OFTEN

**Talk to your doctor about  
how often you need to check your blood sugar.**

**The most common times are:**

- when you first wake up
- before a meal
- 2 hours after a meal
- at bedtime
- when you are sick
- if you suspect low or high blood sugar
- when CGM alarm sounds

**Your doctor may also recommend  
you check your blood sugar:**

- before, during, and after exercise
- during the night (between 2 am and 3 am)

**and more often if you:**

- change your daily routine
- start a new medication



# BLOOD SUGAR TARGETS

**Before a meal**

**80 – 130  
mg/dL**

**1 – 2 hours after you start a meal**

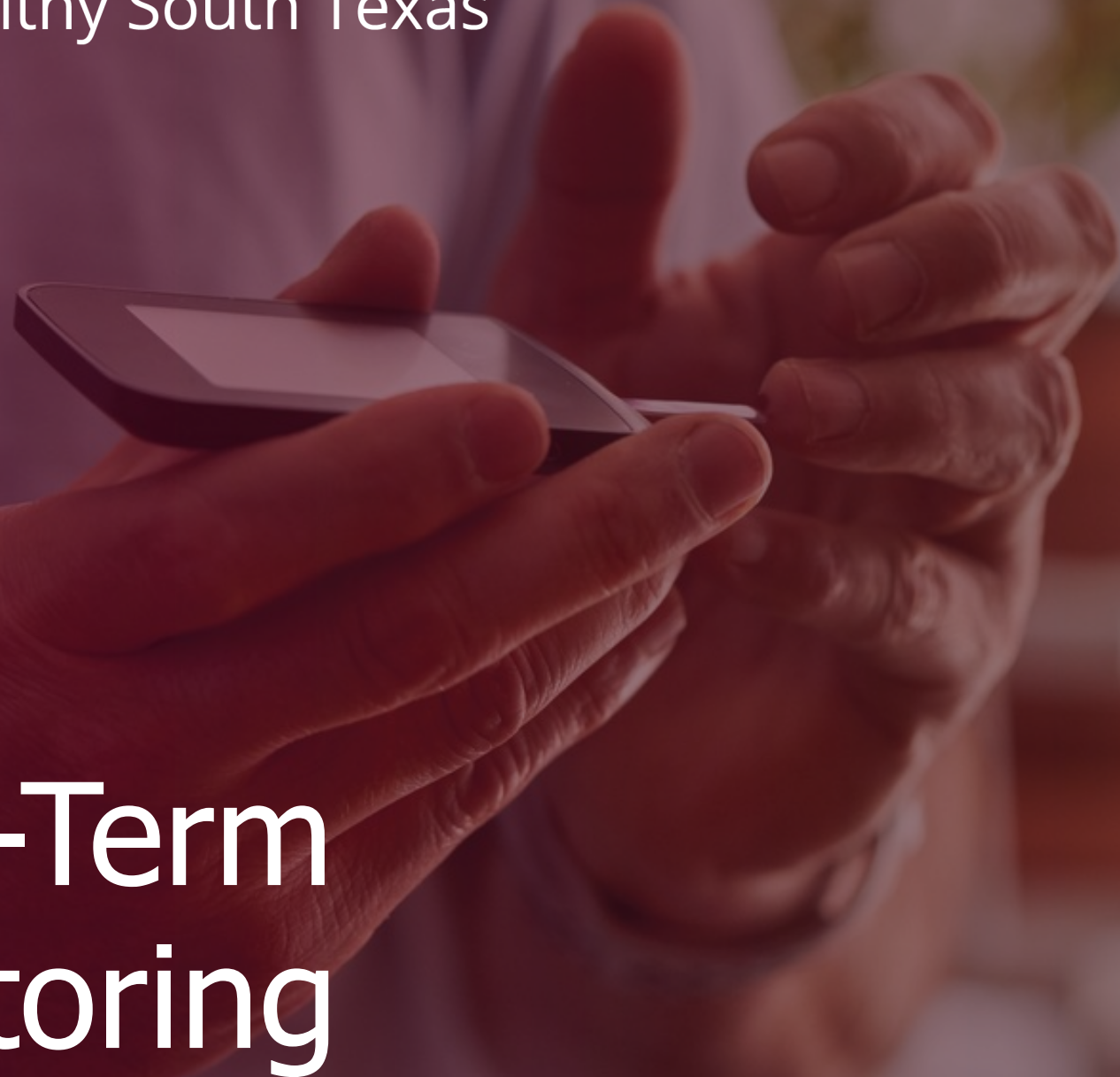
**< 180 mg/dL**





TEXAS A&M UNIVERSITY  
Healthy South Texas

# Long-Term Monitoring







# A1C

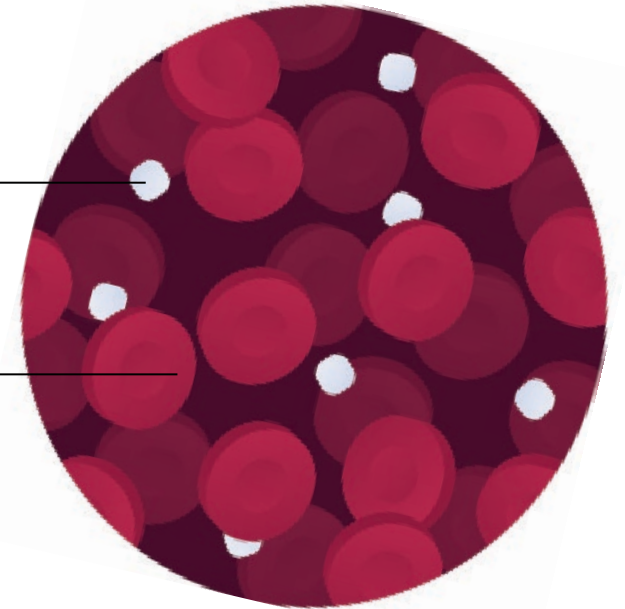
The A1C test gives you a picture of your **average blood glucose control for the past 2 to 3 months.**

The A1C test can help you manage your diabetes by:

- Confirms self-testing results
- Decides if your treatment plan is working
- Shows you how healthy choices can make a difference in controlling blood glucose

GLUCOSE PARTICLES

RED BLOOD  
CELL



**A1C = % of red blood cells with sugar-coated protein in your red blood cells (hemoglobin)**



# A1C AND EAG

Your A1C can also be reported as **estimated average glucose (eAG)**, the same numbers (mg/dL) you are used to seeing on your blood sugar meter:

A1C %	eAG mg/DL
14.0%	355
13.0%	326
12.0%	298
11.0%	269
10.0%	240
9.0%	212
8.0%	183
7.0%	154
6.0%	126
5.0%	97



TEXAS A&M UNIVERSITY  
Healthy South Texas

# QUESTIONS

Long-Term Monitoring





TEXAS A&M UNIVERSITY  
Healthy South Texas

# Physical Activity & Diabetes





# MYTHS VS FACT #8

**Myth:** It is not safe to exercise with diabetes.

**Fact:** Getting regular exercise is an important part of managing diabetes. Exercise helps boost your body's sensitivity to insulin. It can also help lower your A1C, a test that helps tell how well your diabetes is controlled. A good goal is to aim for at least 150 minutes per week of moderate-to-vigorous exercise like brisk walking. Include two sessions a week of strength training as part of your exercise routine.

**If you haven't exercised in a while**, walking is a great way to slowly build your fitness. Talk to your provider to make sure your exercise program is safe for you. Depending on how well-controlled your diabetes is, you will need to prevent and monitor for problems with your eyes, heart, and feet. Also, learn how to take your medicines when you exercise or how to adjust the dosage of medicines to prevent low blood sugar.



TEXAS A&M UNIVERSITY  
Healthy South Texas

# BENEFITS OF EXERCISE

- Lowers blood pressure, cholesterol
- Increases insulin sensitivity
- Increases muscle mass
- Improves circulation
- Improves mood
- Helps reduce stress
- Supports muscle strength and endurance for improved balance and flexibility
- Decreases fat weight



Physical Activity &  
Diabetes



# EXERCISE

- Flexibility
- Use of Resistance Training
- Return for more info with Juanita and team





# HOW DO I GET STARTED?



1. Get permission from your healthcare provider
2. Find a friend/buddy





TEXAS A&M UNIVERSITY  
Healthy South Texas

# GET STARTED

- Walking is a great way to start!
- Start slow and gradually increase
- Warm up and cool down by doing some gentle stretching exercises
- Always work within your body's limits
- Try chair exercises





# ACTIVITIES I CAN CHOOSE

**Moderate to Vigorous Intensity Level Exercises for  
30 minutes, 5 days a week:**

<b>Walking briskly</b>	<b>Chair exercises</b>
<b>Water aerobics</b>	<b>Dancing</b>
<b>Bicycling 10 MPH</b>	<b>General gardening</b>
<b>Resistance Training</b>	<b>Sports &amp; group activities</b>
<b>Washing you car</b>	<b>Housework, such as vacuuming</b>

**TRY THE "TALK TEST"**



# BEST TIME TO EXERCISE



- 2 hours after a meal
- Monitor before you begin

**Do NOT exercise if blood sugar is lower than 100 or higher than 300**

**IF EXERCISING AT NIGHT,  
CHECK BLOOD SUGAR  
BEFORE BED**



# EXERCISE SAFETY



- Carry a carbohydrate (sugar)
- Wear well-fitting athletic shoes
- Wear medical identification



- Carry a cell phone
- Keep hydrated



# EXERCISE SAFETY

Do not do strenuous exercise if you are starting out or if ill.

**STOP exercising AND** contact your healthcare provider **OR call 911**, if you have any of these symptoms:

- **Discomfort in your chest, neck, jaw or arms**
- **Dizziness, fainting or nausea**
- **Short-term changes in your vision**
- **Shortness of breath**





# Walk Across Texas

- Program goal: establish and maintain the habit of regular physical activity
- Two unique programs that are open to all ages and abilities (WAT! Adult / WAT! Youth)
- Goal is to, as a team, log mileage to virtually travel across Texas over 8 weeks!

Ready to take the first step? Register today at  
<https://howdyhealth.tamu.edu>



TEXAS A&M UNIVERSITY  
Healthy South Texas

QUESTIONS?



Physical Activity &  
Diabetes



TEXAS A&M UNIVERSITY  
Healthy South Texas



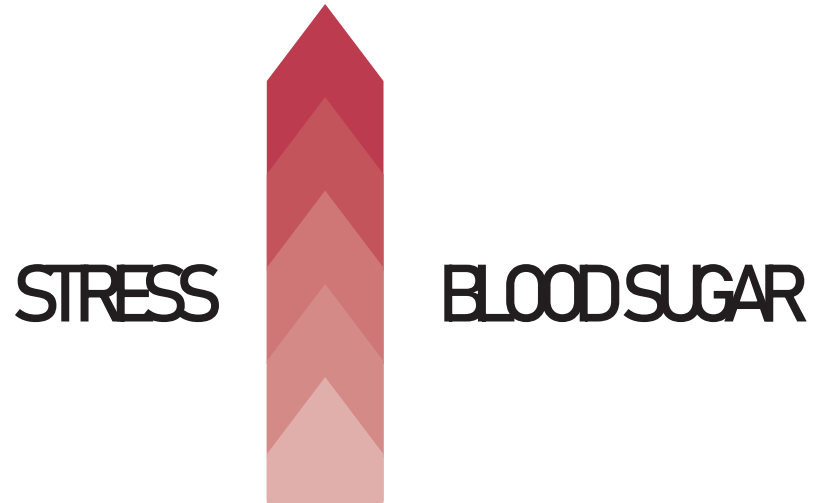
# Healthy Coping





# TYPES OF STRESS

- Physical stress
- Emotional stress
- Mental stress





# SYMPTOMS OF DEPRESSION

- Loss of pleasure
- Change in sleep patterns
- Change in appetite
- Feeling worthless/guilty
- Irritability
- Trouble concentrating
- Loss of energy/fatigue
- Nervousness
- Weight changes
- **Suicidal thoughts**

**Time to get help: Feeling 3 or more symptoms, or just 1 or 2, but have been feeling bad for 2 or more weeks.**

**Call the National Suicide Prevention Lifeline @ 1-800-273-8255, available 24/7 and is CONFIDENTIAL**



# DIABETES DISTRESS (DD)

## Diabetes Distress is very common

- More common for people who take insulin
- Dealing with multiple medications
- Multiple finger sticks
- Dietary restrictions
- When exercise is no longer an option
- Feel overwhelmed with managing Diabetes

## Recommendations

- Referral to Diabetes Self -Management Education/Support
- Referral to mental health counselor





# HOW TO MANAGE STRESS

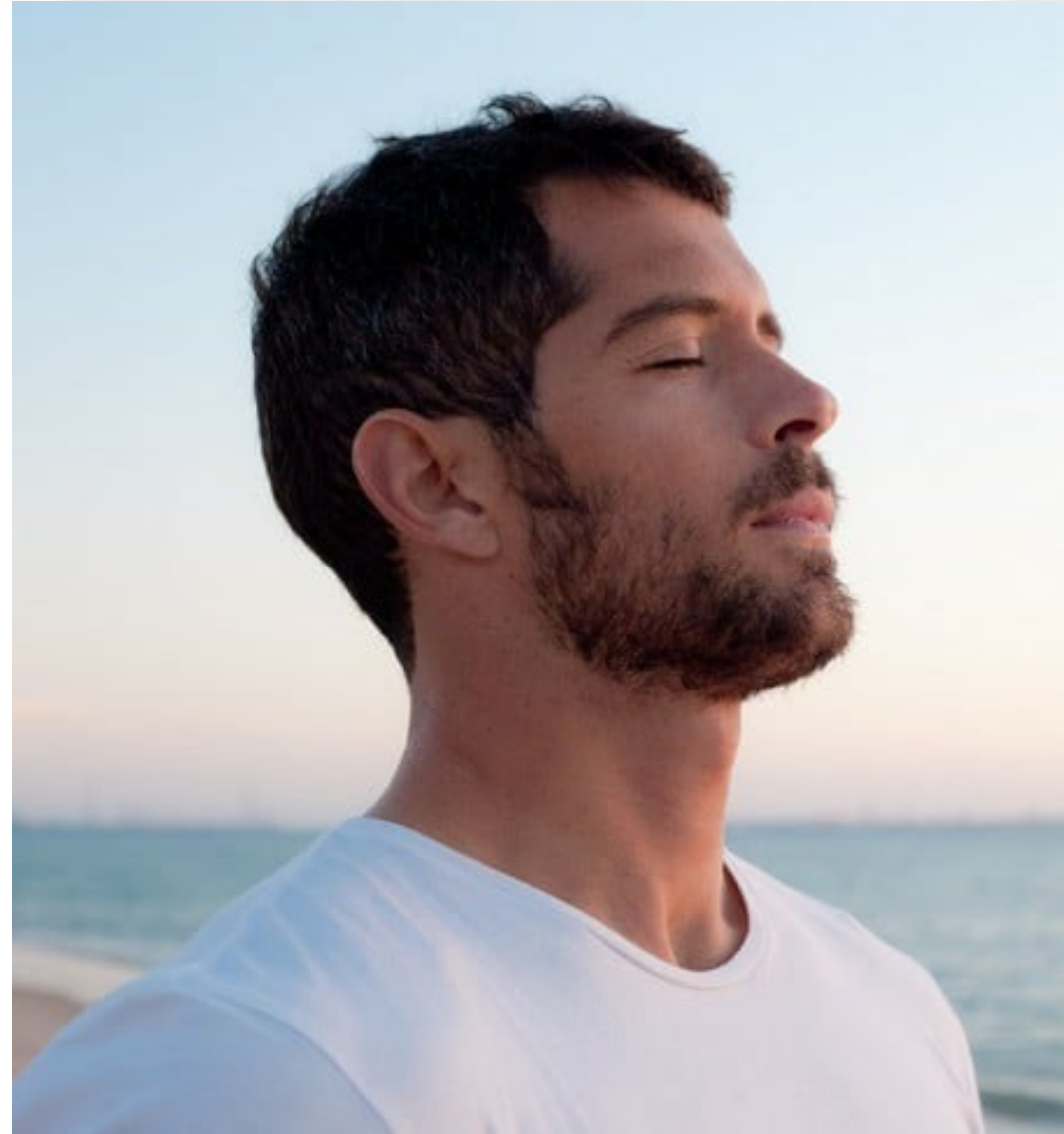
1. Identify the cause of your stress
2. Make time for fun
3. Learn to RELAX (5-20 minutes of quiet time) Practice Deep Breathing
4. Replace negative thoughts with positive thoughts; learn to say "NO"
5. Get Moving- Start an exercise program
6. Other Strategies to Help you:
  - Get plenty of sleep
  - Limit caffeine
  - Eat breakfast
  - Organize your time





# DEEP BREATHING

- Find a quiet spot.
- Get comfortable.
- Place one hand on your stomach.
- Inhale slowly and deeply through your nose, starting at the bottom of your belly.
- Count slowly to three as you inhale. Imagine your belly expanding like a balloon.
- Pause for a count of two.
- Exhale gently to a count of three, as if you're slowly blowing out birthday candles.





# 5-MINUTE STRESS SOLUTIONS

## How to begin

- Breathe deeply for a minute
- Set an intention
- Act wholeheartedly

## When you're ready

- Wind down
- Write it out
- Feel gratitude
- Take a mental holiday





# DEPRESSION TREATMENT

- Reach out to your health care provider to discuss symptoms
- Diabetes self-management programs
- Counseling/therapy
- Medications
- Support group
- Volunteer





TEXAS A&M UNIVERSITY  
Healthy South Texas

QUESTIONS?

Healthy Coping







TEXAS A&M UNIVERSITY  
Healthy South Texas

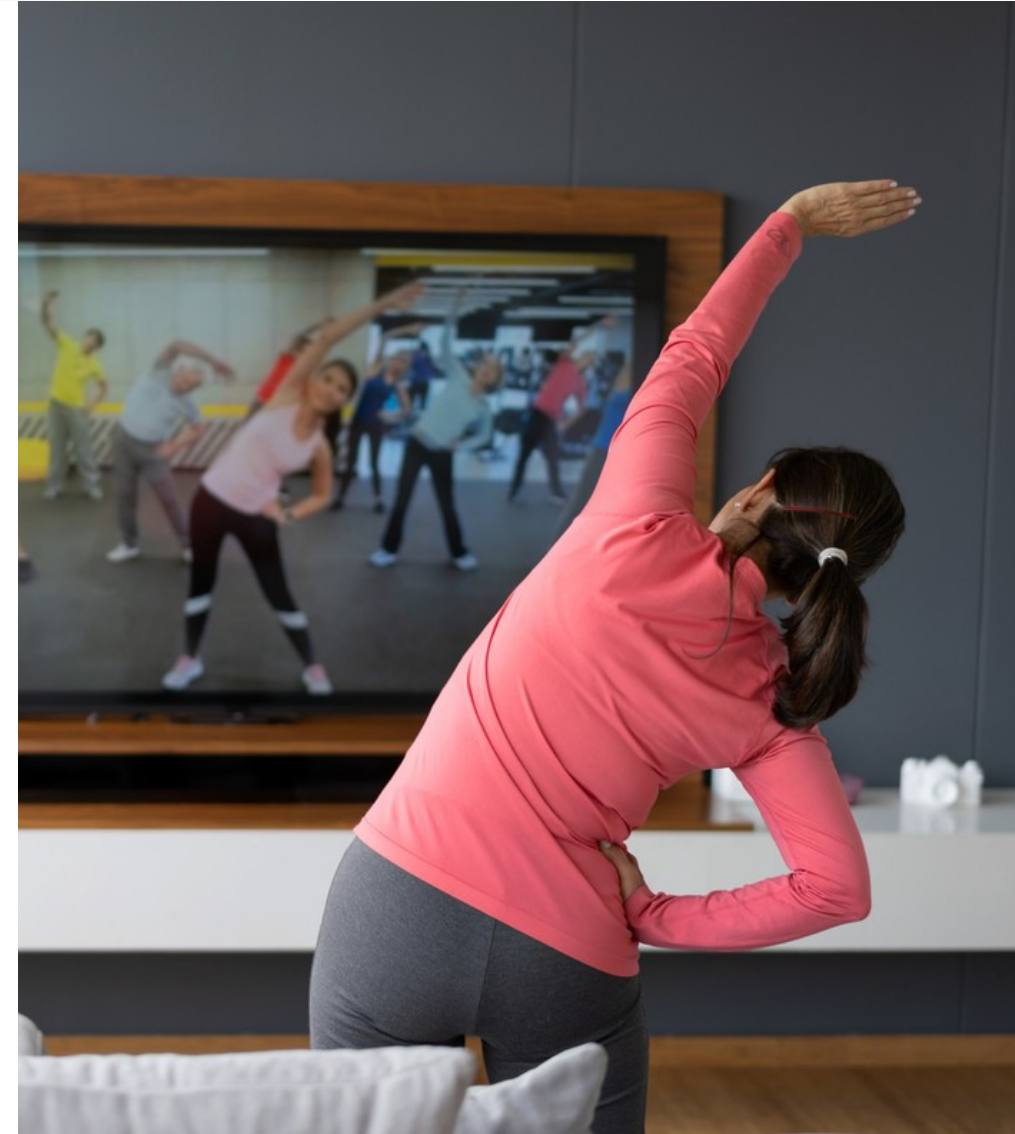
# Preventive Exams and Immunizations





# ABCS OF DIABETES CARE

<b>A</b>	<b>A1C</b>
<b>B</b>	<b>Blood Pressure</b>
<b>C</b>	<b>Cholesterol</b>
<b>D</b>	<b>Healthy Diet /Drug Therapy</b>
<b>E</b>	<b>Exercise</b>
<b>S</b>	<b>Stop Smoking</b>





# PREVENTIVE EXAMS

TEST	CONDITION CHECKED	HOW OFTEN	TARGET RANGE	TREATMENT
A1C	Blood sugar targets and risk of complications	3 months	7% or less	Healthy eating, physical activity and meds
BM (BODY MASS INDEX)	Insulin resistance and risk of complications	3 months	25 or less	
BLOOD PRESSURE	High blood pressure, coronary artery disease	Yearly	130/80	
HEART RATE	Physical activity & medication	6 months	60-100 beats/min	Physical activity



# PREVENTIVE EXAMS

TEST	CONDITION CHECKED	HOW OFTEN	TARGET RANGE	TREATMENT
SKIN	Infection, ulcers, wounds	3 months	Normal	Moisturize
FOOT EXAMS BY DOCTOR	Infections, foot ulcers, numbness, tingling	3 months		Protect, moisturize, medication
EYE EXAM	Retinopathy, cataracts	Yearly		maintain normal blood glucose and blood pressure control
DENTAL EXAM	Dental caries, gum disease	6 months		Brush teeth twice a day and floss daily



# PREVENTIVE EXAMS

## BLOOD LIPIDS

Cholesterol	Heart Disease		<200	Healthy eating, physical activity, medications, tighter glucose control
HDL(healthy)		Yearly	>50	
LDL(lousy)			<100	
Triglycerides			<150	

## KIDNEYS

Microalbumin/Creatinine Ratio	Kidney dysfunction	Yearly	< than 30mg	Blood pressure control, medications, tighter glucose control
Estimated glomerular filtration rate (eGFR)		Yearly	> than 60mL/min	



# VACCINES

- Flu Vaccine – Yearly
- Pneumonia – Centers for Disease Control (CDC) recommends pneumococcal vaccines:
  - Before the age of 65, every 5 years
  - Greater than 65 years, 2 doses every 5 years
- COVID-19 Vaccines as available





TEXAS A&M UNIVERSITY  
Healthy South Texas

QUESTIONS?

Preventive Exams  
and Immunizations





TEXAS A&M UNIVERSITY  
Healthy South Texas



# Goal Setting, Problem Solving & My Health Goals





# ACTION PLANS

1. Something **YOU want to do**
2. Achievable
3. Action-specific
4. Answer these questions:
  - **What?**
  - **How much?**
  - **When?**
  - **How often?**
5. Confidence level of **7 or more** on a scale of 0 (not sure at all) to 10 (totally sure).





# SMART GOALS

- S**pecific      General goals don't often get met. Action plans break your goals into detailed activities you can do to meet your goals.
- M**easurable      This means there is a "before" and "after" that you can measure to track your progress. Action plans break your goal down into measurable parts.
- A**chievable      Your action plan should be realistic for your current state of health—in your mind and body—and reasonable so you can complete it and feel successful.
- R**ealistic      How confident are you that you can complete your action plan?
- T**iming      When will you start your action plan? How long will you keep it up?



# SMART GOALS IN ACTION

Problem: "I feel stressed at work."

Possible goal: "Every weekday, I will use 10 minutes of my lunch break to take a walk."

## Evaluation of goal using SMART:

**Specific:** When the walks will take place and for how long are specified. Where the walks will take place needs to be established.

**Measurable:** Goal is easily measured by noting what days walks will be taken and how long they will last.

**Achievable:** Do you have a lunch break every day? Do you have easy access to a safe place to walk during lunch? Will you have enough time to eat lunch if you walk for 10 minutes during your break?

**Realistic:** Are you confident you can take a 10-minute walk every day, or at least most days of the work week? What might get in your way?

**Timing:** When will you start this plan? For how long will you keep it up?



# MY ACTION PLAN



Work on something that's bothering me



Improve my food choices



Stay more physically active



Reduce my stress



Take my medications



Cut down or quit smoking





# MY ACTION PLAN

- What am I going to do?
- How much am I going to do?
- When am I going to do it?
- How often am I going to do it?
- How sure am I that I can do it?

**Not Sure At All**

**Very Sure**



(If less than 7, select a different goal.)





# PROBLEM SOLVING

1. Describe the problem...I notice that...
2. Brainstorm your options for solving the problem.
3. Pick one option to try... I can...
4. Make an action plan to put the chosen option into effect... I will...
5. Try it.





# EXAMPLE

Sandra is a busy woman with a job and a family.

Yesterday she was extremely busy at work.

She did not eat lunch, because she did not have time to go out.

In the afternoon, her boss was critical and demanding, and Sandra felt stressed and anxious.

At the end of the day, Sandra went home tired, upset, and hungry.





# STEP 1: DESCRIBE THE PROBLEM

- Be specific.
- Look at what led to the problem.
- Find the action (or behavior) chain.
- Try to see the links in the action chain. Look for:
  - ✓ cues that make you want to eat or be inactive,
  - ✓ people who do not support you, and/or
  - ✓ thoughts or feelings that get in your way.

**What was Sandra's action or behavior chain?**

**What events led to her eating the cookies?**

**Sandra ate cookies.**







# SANDRA'S PROBLEM

## Sandra's Action Chain

1. Did not eat lunch
2. Boss was angry
3. Felt stressed
4. Came home tired, upset, and hungry
5. Went right to the kitchen
6. Saw cookies on counter
7. Ate cookies





# STEP 2: BRAINSTORM OPTIONS

Events (links) in Sandra's Action Chain	Some of Sandra's Options
Did not eat lunch.	<input type="checkbox"/>
Boss was angry.	<input type="checkbox"/>
Sandra felt stressed and anxious.	<input type="checkbox"/>
Came home tired, upset, and hungry.	<input type="checkbox"/>
Went right to the kitchen.	<input type="checkbox"/>
Saw cookies on the counter.	<input type="checkbox"/>
	<input type="checkbox"/>
	<input type="checkbox"/>
	<input type="checkbox"/>
	<input type="checkbox"/>
	<input type="checkbox"/>



# SANDRA'S OPTIONS

Events (links) in Sandra's Action Chain	Some of Sandra's Options
Did not eat lunch.	<input type="checkbox"/> Pack a bag lunch.
Boss was angry.  Sandra felt stressed and anxious.	<input type="checkbox"/> Talk with boss about solving problems at work. <input type="checkbox"/> Take a break. <input type="checkbox"/> Get support from a coworker.
Came home tired, upset, and hungry.	<input type="checkbox"/> Go for a walk after work to unwind. <input type="checkbox"/> Eat a healthy snack.
Went right to the kitchen.	<input type="checkbox"/> Enter house through different door. <input type="checkbox"/> Plan something to do immediately after arriving home.
Saw cookies on the counter.	<input type="checkbox"/> Do not buy cookies. <input type="checkbox"/> If other family members have cookies in the house, keep them out of sight. <input type="checkbox"/> Keep fruit in sight.



## STEP 3: PICK ONE OPTION TO TRY

- Weigh the pros and cons of each option.
- Choose one that is likely to work and that you can do.
- Try to break as many links in your action/behavior chain as you can, as soon as possible.

**What are some of Sandra's options?**





## OPTION TO TRY

- ✓ **It will be much easier for me to control my eating in the evening if I eat lunch and do not come home hungry.**
- ✓ I can avoid the cookies if I do not buy them in the first place.
- ✓ Even if I eat lunch, I may still come home hungry. If I do not buy the cookies, it will be easier to choose healthy snacks such as fruit when I get home.





# STEP 4: MAKE AN ACTION PLAN

- What?** Sandra will pack a healthy lunch
- How much?** At least one non-starchy vegetable
- When?** Starting next week on Tuesdays and Thursdays
- How often?** Two days a week for a month
- Confidence?** 7 on a scale of 0 (not sure) to 10 (totally sure)





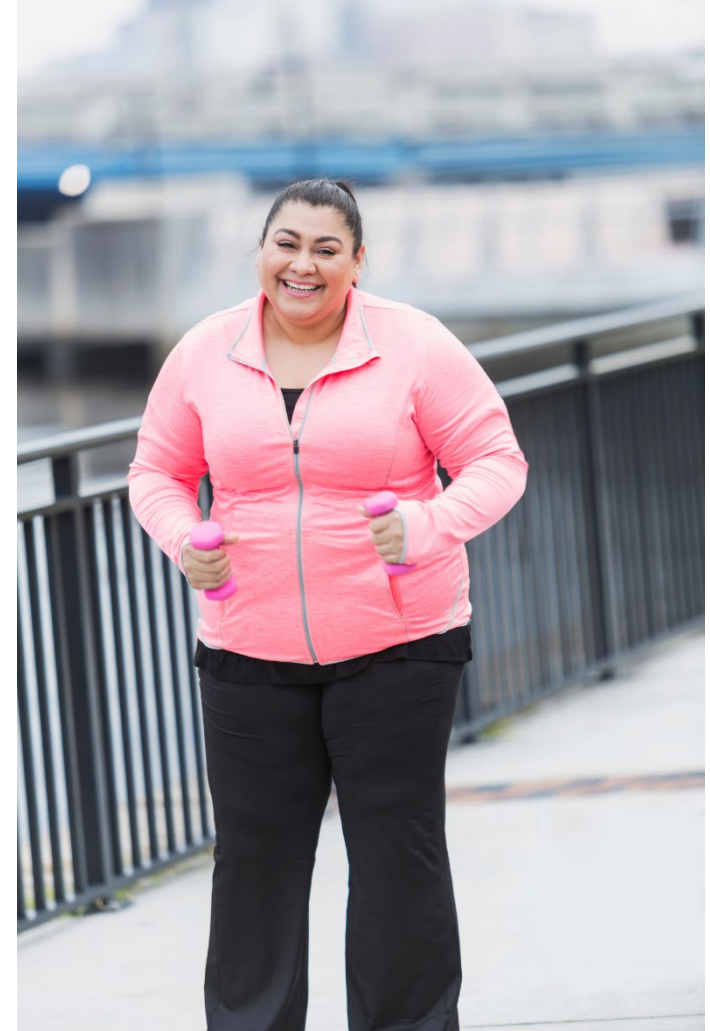
# STEP 5: TRY YOUR PLAN

Afterwards ask yourself these questions:

- Did it work?
- If not, what went wrong?
- What can I do next time to make this plan work better?
- What other plan can I try if this one will not work?

**Do not give up!**

**If you don't succeed, try again!**





TEXAS A&M UNIVERSITY  
Healthy South Texas



SEARCH THIS WEBSITE



## Welcome to Step Up Scale Down

Step Up Scale Down is a research-based program designed to help you achieve and maintain a healthy weight in 12 weeks. The USDA Dietary Guidelines inform the program, which focuses on forming habits to promote health and reduce your risk for chronic disease. Step Up Scale Down is available online or face-to-face. Contact your county extension agent [here](#) if you are interested in a face-to-face program. In 2021, Step Up Scale Down will kick off on January 11, 2021. Sign up [here](#) to be reminded when registration is open!

<https://stepupscaldown.org/>

Setting Goals &  
Problem Solving





# DIABETES RESOURCES

## ACCESS DIABETES INFORMATIONAL WEBSITES

[www.diabeteseducator.org](http://www.diabeteseducator.org)

(American Association of Diabetes Educators)

[www.diabetes.org](http://www.diabetes.org)

(American Diabetes Association)

[www.dLife.com](http://www.dLife.com)

(Diabetes Life)

[www.americanheart.org](http://www.americanheart.org)

(American Heart Association)

[www.eatright.org](http://www.eatright.org)

(Academy of Nutrition and Dietetics)

[www.ndep.nih.gov](http://www.ndep.nih.gov)

(National Diabetes Education Program)



TEXAS A&M UNIVERSITY  
Healthy South Texas

# Program Opportunities



**HEALTHY TEXAS**

**MEDICATION ASSISTANCE  
PROGRAM**

**CALL 1-866-524-1408**



**WALK  
ACROSS TEXAS!**

TEXAS A&M AGRILIFE EXTENSION

Website: <https://howdyhealth.tamu.edu>



**DINNER  
TONIGHT**  
HEALTHY COOKING SCHOOL

TEXAS A&M AGRILIFE EXTENSION

Website: <https://dinnertonight.org>



**STEP UP  
SCALE DOWN**

TEXAS A&M AGRILIFE EXTENSION



**COOKING  
WELL**

WITH DIABETES

Website: <https://AgriLifeLearn.tamu.edu>

Setting Goals &  
Problem Solving





TEXAS A&M UNIVERSITY  
Healthy South Texas

QUESTIONS?

Setting Goals &  
Problem Solving





# PROBLEM SOLVING CHECKLIST

Setting Goals &  
Problem Solving

- I notice...(problem)**  
\_\_\_\_\_  
\_\_\_\_\_
- I can ... (solution options)**  
\_\_\_\_\_  
\_\_\_\_\_
- I will (choose)**  
\_\_\_\_\_  
\_\_\_\_\_



# MY HEALTH GOALS

Tests	Targets*	My Results	My Goals
Blood Pressure	lower than 130/80mm/Hg		
Blood Sugar	80-180		
Fasting/premeal	80-130 mg/dL		
1-2 Hours Postmeal	Less than 180 mg/dL		
A1C	7% or less		

*\*ADA (American Diabetes Association)*



# MY HEALTH GOALS

Status	Targets*	ADA Rec.	My Results	My Goals
<b>Weight</b>	<b>BMI</b>			
Normal	18-24	Aim for Weight Loss Of 5-7%		
Overweight	25-29			
Very Overweight	30 or Higher			
<b>Body Fat</b>	<b>&lt; 30 Years of Age</b>	<b>&gt; 30 years of age</b>		
Female	17-24%	20-27%		
Male	14-20%	17-23%		

\*ADA (American Diabetes Association)



# MY ACTION PLAN



Work on something that's bothering me



Improve my food choices



Stay more physically active



Reduce my stress



Take my medications



Cut down or quit smoking





# MY ACTION PLAN

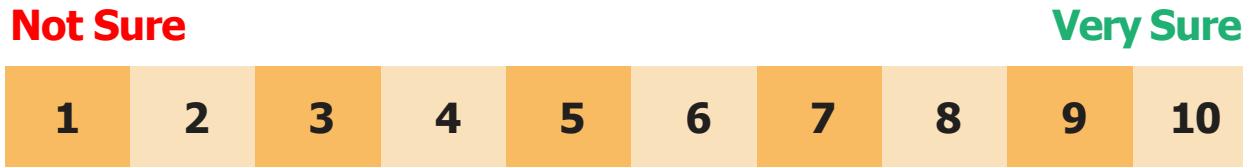
I am going to:

---

How often am I going to do it?

---

This is how sure I am that I will reach this goal (circle number):



(If the # is <6, select a different goal)







# SETTING GOALS

<b>S</b>	<b>Specific - write clear goals</b>
<b>M</b>	<b>Measurable - ability to track progress</b>
<b>A</b>	<b>Achievable - set challenging but achievable goals</b>
<b>R</b>	<b>Realistic - set goals relevant to your life plan</b>
<b>T</b>	<b>Timely - goal has a target finish time attached</b>





TEXAS A&M UNIVERSITY

Healthy South Texas

# MY ACTION PLAN

**If you don't  
succeed,  
TRY again!**



Setting Goals &  
Problem Solving



# Step Up Scale Down

- Work on goals, physical activity, and nutrition to maintain a healthy lifestyle for you!
- 12-week program
- Learn healthy lifestyle skills to manage a healthy weight
- Have virtual community support throughout the course.

Join us to kick off a healthy 2021 on January 11, 2021.  
Visit [AgriLifeLearn.tamu.edu](https://AgriLifeLearn.tamu.edu) for more information.



TEXAS A&M UNIVERSITY  
Healthy South Texas

QUESTIONS?

Setting Goals &  
Problem Solving

