



MODULE 2

CREATING YOUR BEST PATH FORWARD



BEYOND TYPE 1

| BEYOND DIAGNOSIS

WHAT YOU'LL LEARN HERE

- 💧 Managing Your Blood Sugar
- 💧 Building Your Diabetes Care Team
- 💧 Common Blood Sugar Goals
- 💧 Low Blood Sugar (Hypoglycemia)
- 💧 High Blood Sugar (Hyperglycemia)
- 💧 Using Diabetes Technology
- 💧 A To-Do List for Medical Check-Ups

BEYOND DIAGNOSIS

AMBASSADORS



TYPE 1
CAREGIVER



**MISSY
LEITING**

“Ask a lot of questions”



[VIEW MISSY'S VIDEO](#)

LIVING WITH
TYPE 2



**KEITH
CREAR**

*“Find someone who
understands the trials and
tribulations of diabetes”*



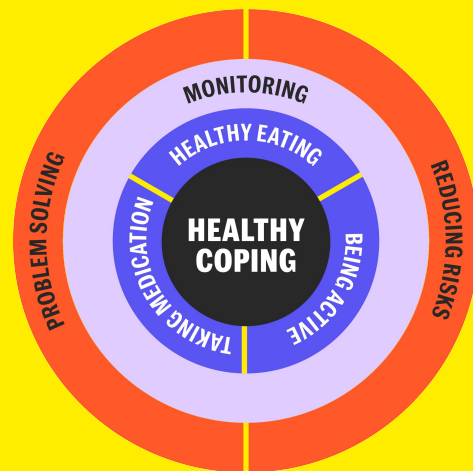
[VIEW KEITH'S VIDEO](#)

MANAGING BLOOD SUGAR

- ◆ There are many effective strategies for managing blood sugar.
- ◆ Find a routine that works for you!
- ◆ There are 42 known factors that influence blood sugar.
- ◆ Keeping track of your blood sugar is VERY important.

ADCES7 SELF-CARE BEHAVIORS

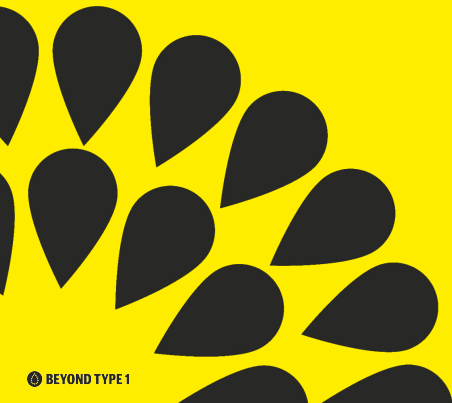
SOURCE: [ADCES.ORG](https://www.adces.org)



42 FACTORS THAT AFFECT BLOOD GLUCOSE

SOURCE: [DIATRIBE.ORG](https://diatribe.org)

The arrows show the general effect these 42 factors seem to have on blood glucose based on scientific research. However, not every individual will respond in the same way, so the best way to see how a factor affects you is through your own data: check your blood glucose more often with a meter or wear a CGM and look for patterns.



FOOD

- ↑↑ 1 Carbohydrate quantity
- ↑ 2 Carbohydrate type
- ↑ 3 Fat
- ↑ 4 Protein
- ↑ 5 Caffeine
- ↓↑ 6 Alcohol
- ↓↑ 7 Meal timing
- ↑ 8 Dehydration
- ? 9 Personal microbiome

ACTIVITY

- ↓ 10 Light exercise
- ↓↑ 11 High-intensity & moderate exercise
- ↓ 12 Level of fitness/training
- ↓↑ 13 Time of day
- ↓↑ 14 Food and insulin timing

MEDICATION

- ↓ 15 Medication dose
- ↓↑ 16 Medication timing
- ↓↑ 17 Medication interactions
- ↑↑ 18 Steroid administration
- ↑ 19 Niacin (Vitamin B3)

ENVIRONMENTAL

- ↑ 20 Expired insulin
- ↓↑ 21 Inaccurate BG reading
- ↓↑ 22 Outside temperature
- ↑ 23 Sunburn
- ? 24 Altitude

BEHAVIOR & DECISIONS

- ↓ 25 More frequent BG checks
- ↓↑ 26 Default options and choices
- ↓↑ 27 Decision-making biases
- ↓↑ 28 Family and social pressures

BIOLOGICAL

- ↑ 29 Too little sleep
- ↑ 30 Stress and illness
- ↓ 31 Recent hypoglycemia
- ↑ 32 During-sleep blood sugars
- ↑ 33 Dawn phenomenon
- ↑ 34 Infusion set issues
- ↑ 35 Scar tissue / lipodystrophy
- ↓↓ 36 Intramuscular insulin delivery
- ↑ 37 Allergies
- ↑ 38 A higher BG level (glucotoxicity)
- ↓↑ 39 Periods (menstruation)
- ↑↑ 40 Puberty
- ↓↑ 41 Celiac disease
- ↑ 42 Smoking

BLOOD SUGAR GOALS FOR ADULTS

The American Diabetes Association recommends a hemoglobin A1c target of less than 7%. This is based on important research that demonstrates keeping blood sugars in this range will protect your body from health problems that can be caused by diabetes. Staying as close to an A1c in this range will protect your body from many of the health problems that prolonged high blood sugars from diabetes can cause.



MOST NON-PREGNANT ADULTS

A1C target	<7%
Preprandial glucose	80-130 mg/dL
Peak postprandial glucose	<180 mg/dL

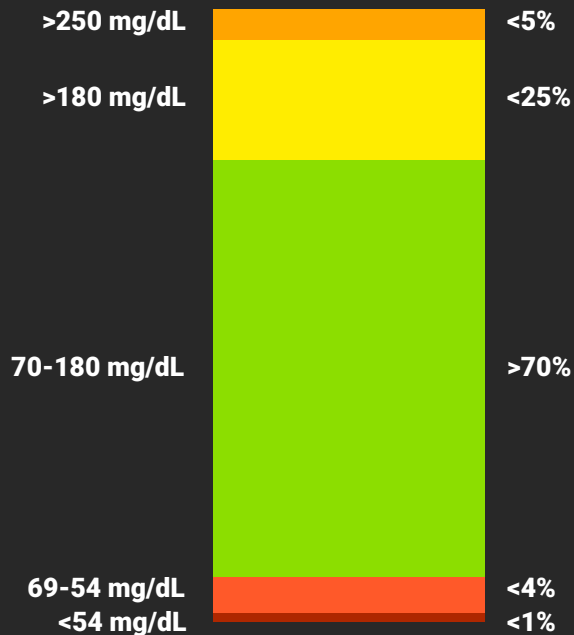
BLOOD SUGAR GOALS (WITH CGM)

For most adults with type 1 or type 2 diabetes, experts recommend aiming for:

- ♦ At least 70% of the day in 70-180 mg/dL (*in-range*)
- ♦ Less than 4% of the day below 70 mg/dL (*below-range*)
- ♦ Minimize time each day above 180 mg/dL (*above-range*)

TIME IN RANGE (TIR) FOR DIABETES

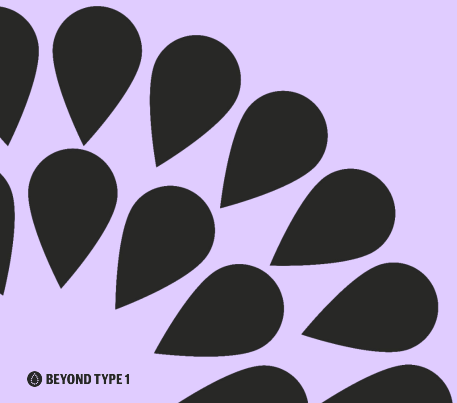
This bar represents the TIR goals for most adults with Type 1 or Type 2 diabetes. But your TIR goals may be different for several reasons.



KNOWLEDGE CHECK

1. What is a healthy hemoglobin A1c level?
2. What's a common blood sugar target before meals? 80-130 mg/dL or less than 180?
3. What is a good target for a blood sugar reading that's taken after a meal (2 hours after eating)?
4. For people using CGM, how much time do we want to spend in our target range of 80-180 mg/dL? 50%? 75% 100%?

KNOWLEDGE CHECK



1. What is a healthy hemoglobin A1c level?

ANSWER: *Less than 7%*

WHY: *Research has shown keeping the A1c below this level is a healthy range and will prevent health problems from prolonged high blood sugar.*

2. What's a common blood sugar target before meals? 80-130 mg/dL or less than 180?

ANSWER: *80-130 mg/dL*

WHY: *Blood sugars should be at the lower range of 80-130 mg/dL before meals. Food usually increases our blood glucose, so we want to start meals at a lower number.*

3. What is a good target for a blood sugar reading that's taken after a meal (2 hours after eating)?

ANSWER: *Less than 180 mg/dL*

WHY: *Blood sugars are impacted by food. Blood glucose rises when we eat. Staying below 180 mg/dL allows us to enjoy a variety of nourishing foods while also keeping our body safe from prolonged high blood sugars.*

4. For people using CGM, how much time do we want to spend in our target range of 80-180 mg/dL? 50%? 75% 100%?

ANSWER: *We should aim for 75% of the time to be spent in the healthy blood sugar range (80-180 mg/dL)*

WHY: *Staying in the target range as much as possible is important to protect our health and body. We want to have the best blood sugar readings we can reasonably achieve. Because diabetes means that we experience higher than normal blood sugars, it is often not feasible to spend 100% of time in the target range without undue stress and restriction on someone's life. Aiming for spending 75% of time in range is a better goal as it is enough to protect our bodies from the harm of prolonged high blood sugar but it also allows for natural blood sugar fluctuations after meals (which are common even in people who do not live with diabetes).*

**SET A TARGET
RANGE GOAL
THAT
IS RIGHT FOR
YOUR SITUATION**

**CHECK YOUR
BLOOD SUGAR
TO KEEP TRACK
OF YOUR LEVELS**

**ANALYZE THE
CAUSES OF YOUR
HIGHS & LOWS**

**WORK WITH A
HEALTHCARE
TEAM TO
IMPROVE
YOUR
NUMBERS**

HYPOGLYCEMIA



- ◆ Hypoglycemia (low blood sugar) is when your blood sugar level drops below 70 mg/dL.
- ◆ Low blood sugar can be caused by missing a meal, exercising a lot, too much diabetes medication without the right amount of food.
- ◆ Low blood sugar is dangerous and needs to be treated immediately.
- ◆ Left untreated, hypoglycemia can have severe consequences like seizures and unresponsiveness.



WHAT ARE THE SIGNS AND SYMPTOMS OF HYPOGLYCEMIA?

Though the symptoms vary from person to person, most who have hypoglycemia experience the following symptoms:

ANXIOUSNESS 	BEHAVIOR CHANGE <i>Similar to being drunk</i> 	BLURRED VISION 	COLD SWEATS 	CONFUSION 	COOL PALE SKIN 
DIFFICULTY CONCENTRATING 	DROWSINESS 	EXCESSIVE HUNGER 	FAST HEARTBEAT 	HEADACHE 	NAUSEA 
NERVOUSNESS 	NIGHTMARES 	RESTLESS SLEEP 	SHAKINESS 	SLURRED SPEECH 	UNUSUAL TIREDNESS OR WEAKNESS 

HOW MUCH TO EAT TO TREAT A LOW BLOOD SUGAR

To start, treat hypoglycemia with 15 grams*
of simple carbohydrates

- 🔹 Glucose tabs (4 tablets)
- 🔹 Glucose gel (1 tube)
- 🔹 Regular soda (4 ounces or half cup)
- 🔹 Juice (4 ounces or half cup)
- 🔹 Granulated sugar (4 teaspoons)

**The number of carbs to treat a low should be personalized, so ask your doctor or other diabetes specialist what it should be for you!*



USING GLUCAGON FOR SEVERE HYPOGLYCEMIA



Glucagon is a hormone medicine used to raise blood sugar in emergencies when a person with diabetes is experiencing severe hypoglycemia and cannot orally (*by mouth*) take sugar.

Glucagon comes in several forms including:

- ◆ A nasal spray
- ◆ Autoinjectors
- ◆ Prefilled syringes, or
- ◆ A powder that must be mixed with a liquid before injecting

The use of glucagon is indicated for the treatment of hypoglycemia in people unable or unwilling to consume carbohydrates by mouth.

If you're unconscious, someone should treat you with Glucagon and call emergency services (9-1-1)



**VIEW ON
INSTAGRAM**

KNOWLEDGE CHECK

1. What number indicates a low blood sugar?
2. What is the best way to treat a mild or moderate low blood sugar?
3. Which should you use to treat a SEVERE low blood sugar of less than 54 mg/dL with loss of ability to eat or swallow? Glucagon or Insulin?
4. What are the types of glucagon that are available?

KNOWLEDGE CHECK

1. What number indicates a low blood sugar?

ANSWER: *Less than 70*

2. What is the best way to treat a mild or moderate low blood sugar?

ANSWER: *The most common treatment is to check your blood sugar then consume fast-acting carbohydrate through foods or drinks like glucose tablets, a small glass or fruit juice, one 4 ounce juice box, or a tablespoon of honey. You can repeat this if the blood sugar does not rise within 15 minutes. Usually mild low blood sugars are easily treatable yourself and don't require help from others*

3. Which should you use to treat a SEVERE low blood sugar of less than 54 mg/dL with loss of ability to eat or swallow? Glucagon or Insulin?

ANSWER: *GLUCAGON raises blood sugar. Insulin decreases blood sugar and will make a severe blood sugar WORSE. Do not give insulin to someone with a severely low blood sugar. Your friends and family should know where your glucagon is located and how to administer it in the event of an emergency.*

4. What are the types of glucagon that are available?

ANSWER: *Glucagon is available in a nasal spray, Autoinjector pen, Prefilled syringe, or a powder (must be mixed with a liquid before injecting)*

HYPERGLYCEMIA

A close-up photograph of a woman with dark hair, wearing a white t-shirt, drinking water from a clear glass. The image is partially obscured by a large yellow text overlay and a yellow graphic of water droplets at the bottom right.

- ◆ Hyperglycemia (high blood sugar) happens when glucose is trapped in the bloodstream due to a lack of insulin.
- ◆ Glucose is a fuel source for the body, and insulin brings it into your cells so they can use it for energy.
- ◆ Without insulin, the glucose stays in the bloodstream—instead of fueling your cells—and can build up to high levels.
 - ◇ High blood sugar: above 180 mg/dL
 - ◇ Severely high blood sugar: above 300 mg/dL
- ◆ ***How do you treat high blood sugar?***
 - ◇ Adjust medications/insulin doses based on instructions from your doctor or diabetes specialist
 - ◇ Drink water or sugar-free electrolyte solution (like Gatorade Zero or sugar free Liquid IV) to help your kidneys remove sugar through urine



WHAT ARE THE SIGNS AND SYMPTOMS OF HYPERGLYCEMIA?

Though the symptoms vary from person to person, most who have hyperglycemia experience the following symptoms:

UNQUENCHABLE THIRST



DRY MOUTH



FATIGUE



FREQUENT URINATION



BLURRED VISION



RECURRING INFECTIONS



SLOW-HEALING CUTS OR SORES



If your blood sugar is abnormally high, contact your healthcare team ASAP


WHAT EVERYONE SHOULD KNOW ABOUT DIABETIC KETOACIDOSIS (DKA)

WARNING SIGNS OF DKA

- ♦ Moderate or large ketones
- ♦ Fruity or acetone (*think nail polish remover*) breath
- ♦ Nausea
- ♦ Rapid breathing
- ♦ Vomiting
- ♦ Flushed skin
- ♦ Abdominal pain
- ♦ Lack of energy

Ketones are chemicals that build up when your body starts to burn fat for energy.

The most common cause of ketones in people with diabetes is insulin deficiency, which can lead to diabetic ketoacidosis (DKA).

A close-up photograph of a person's arm. A white circular continuous glucose monitor (CGM) sensor is attached to the skin. A hand with purple nail polish holds a smartphone displaying a diabetes management app. The app screen shows a circular gauge with a needle pointing to 8.450, a line graph showing glucose trends, and various data points. The background is blurred, showing what appears to be a clinical or hospital setting.

HOW CAN TECHNOLOGY HELP ME MANAGE MY DIABETES?



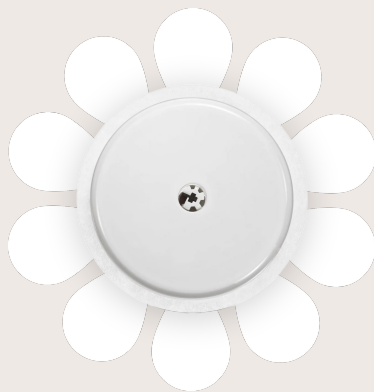
GLUCOSE METERS

A glucose meter—also called a “glucometer”—is a medical device for determining the approximate glucose concentration in blood. The user inserts a glucose “test strip” into the meter, pokes their finger with a sterile lancet/lancing device, and applies the blood to the reagent strip. The glucometer measures the amount of glucose in the blood sample and records this data in the meter’s history. Glucometers are widely used to measure blood glucose and are commonly covered by health insurance plans.



CONTINUOUS GLUCOSE MONITOR (CGM)

A CGM is a small, wearable device that continuously tracks your blood sugar levels throughout the day and night. These devices have alarms and alerts for glucose values that are above and below the user’s target range. Most disposable CGM sensors are inserted by the PWD at home and worn for 10-14 days



FLASH GLUCOSE MONITOR (FGM)

This glucose sensor is similar to the disposable CGM above, except that the user must “scan” their FGM receiver or smartphone over the sensor in order to receive a glucose reading. FGM does not transmit this information to the PWD automatically. This technology offers more intermittent glucose information and requires the user to “scan” their receiver when they want to view the glucose value. This system can be lower in cost than CGM, but does not include the alarms and alerts that CGM does.



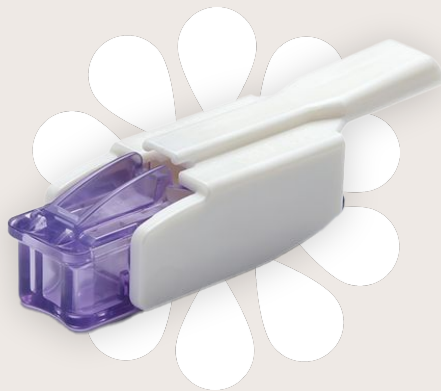
IMPLANTABLE CGM

This type of CGM is implanted once per year in your arm by a healthcare professional. The glucose sensor implant remains in your arm for 365 days, and the user wears a rechargeable receiver on top of it which transmits glucose readings to a smartphone.



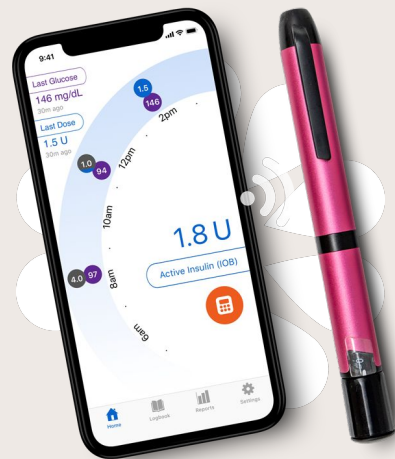
INSULIN PENS

An insulin pen is a device for giving insulin injections. Insulin pens can make taking insulin more convenient because they combine the medication and syringe in one handy unit.



INHALED INSULIN

Insulin powder that is inhaled via disposable cartridges in an respiratory inhaler.



SMART INSULIN PENS

A smart pen is a special insulin pen that works with a phone app to keep track of when and how much insulin you take. Smart pens can be reusable or they can be attachments that go on top of disposable insulin pens.



INSULIN PUMPS

Insulin pumps are small, computerized devices. They are about the size of a pager and deliver insulin doses on a pre-programmed schedule. These devices require the user to input all necessary information (ie, carbohydrates, blood glucose, and activity) into the pump to administer or change the insulin dosing program. Traditional insulin pumps operate as a standalone delivery system which require a blood glucose meter and/or CGM to provide necessary glucose information.



NON-PROGRAMMABLE DISPOSABLE PATCH PUMPS

These are wearable insulin delivery devices designed for convenience and ease of use. They provide continuous insulin infusion without the need for complex programming



CLOSED-LOOP INSULIN-DELIVERY SYSTEMS

Some people with T1D use an insulin pump and real-time continuous glucose monitor (CGM) that “talk to each other.” This is possible through a computer program on your phone or inside the pump. Closed-loop insulin-delivery systems work to mimic the human pancreas by using CGM data to determine when it should or shouldn’t make adjustments to the wearer’s insulin delivery. Closed-loop systems have been around since the early 2000s, but they’ve seen their greatest strides in the past few years.

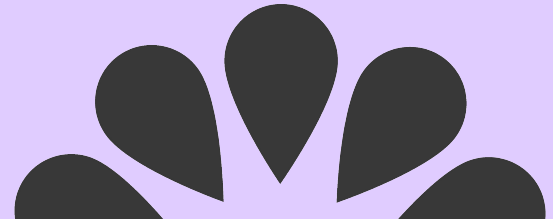


TIME TO REFLECT: OVERCOMING YOUR FEARS

Learning healthy coping together



[DOWNLOAD & VIEW](#)



MEDICAL CHECK-UP TO DO LIST



[DOWNLOAD & VIEW](#)

BEYOND TYPE 1

MEDICAL CHECK-UP TO-DO LIST

Time can either work for you or against you. We prefer to have it work for you. You can help delay T1D complications by getting regular medical check-ups. Think of it as an investment in your long-term health and your future self will thank you for it! Write down the date and result of your last check-up in each field.

CHECK-UP	Specialist	Time	Date	Result
BLOOD PRESSURE	Endocrinologist	Every visit with the doctor. (3-6 months)		
	General Practitioner			
	Internal Medicine Specialist			
WEIGHT	Endocrinologist	Every visit with the doctor. (3-6 months)		
	General Practitioner			
	Internal Medicine Specialist			
FEET	Podiatrist	Annually (without Peripheral Neuropathy)		
	Dentist	Every 1-6 months (with foot related complications).		
MOUTH & TEETH	Dentist	Every 6 months.		
	EYES	Ophthalmologist		
No eye damage/Retinopathy. (once a year)				
Eye damage/Retinopathy. (every 3-6 months)				
KIDNEYS	Nephrologist	No kidney damage/Nephropathy (once a year)		
		Kidney damage/Nephropathy (every 6 months)		



TAKE ACTION

- Discuss your glucose management goals with your healthcare team
- Learn more about diabetes technology
- Ask your team about getting started with diabetes technologies like smart pens, CGM, or insulin pumps
- Complete the medical check up to do list

THANK YOU