



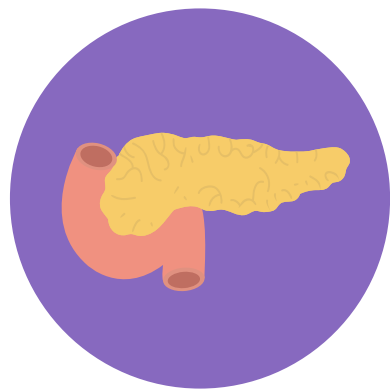
ALL ABOUT TYPE 1 DIABETES

An educational guide for individuals and families



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T1International's Vision

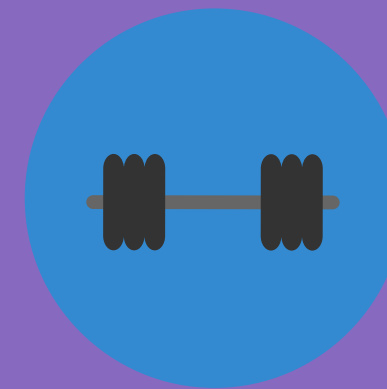
We believe in a world where everyone with type 1 diabetes – no matter where they live – has everything they need to survive and achieve their dreams.

T1International's Mission

We support our local communities by giving them the tools they need to stand up for their rights so that access to insulin and diabetes supplies become a reality for all.

WHY THIS BOOKLET?

To empower people with type 1 diabetes to live a happy and healthy life.



Disclaimer: The objective of this booklet is to provide educational material to people living with type 1 diabetes. It delivers main health messages to understand life with type 1 diabetes, with key information about the condition. It does not replace the advice given by your healthcare professional. If you face any health issue, you should refer to your doctor or your healthcare provider first.

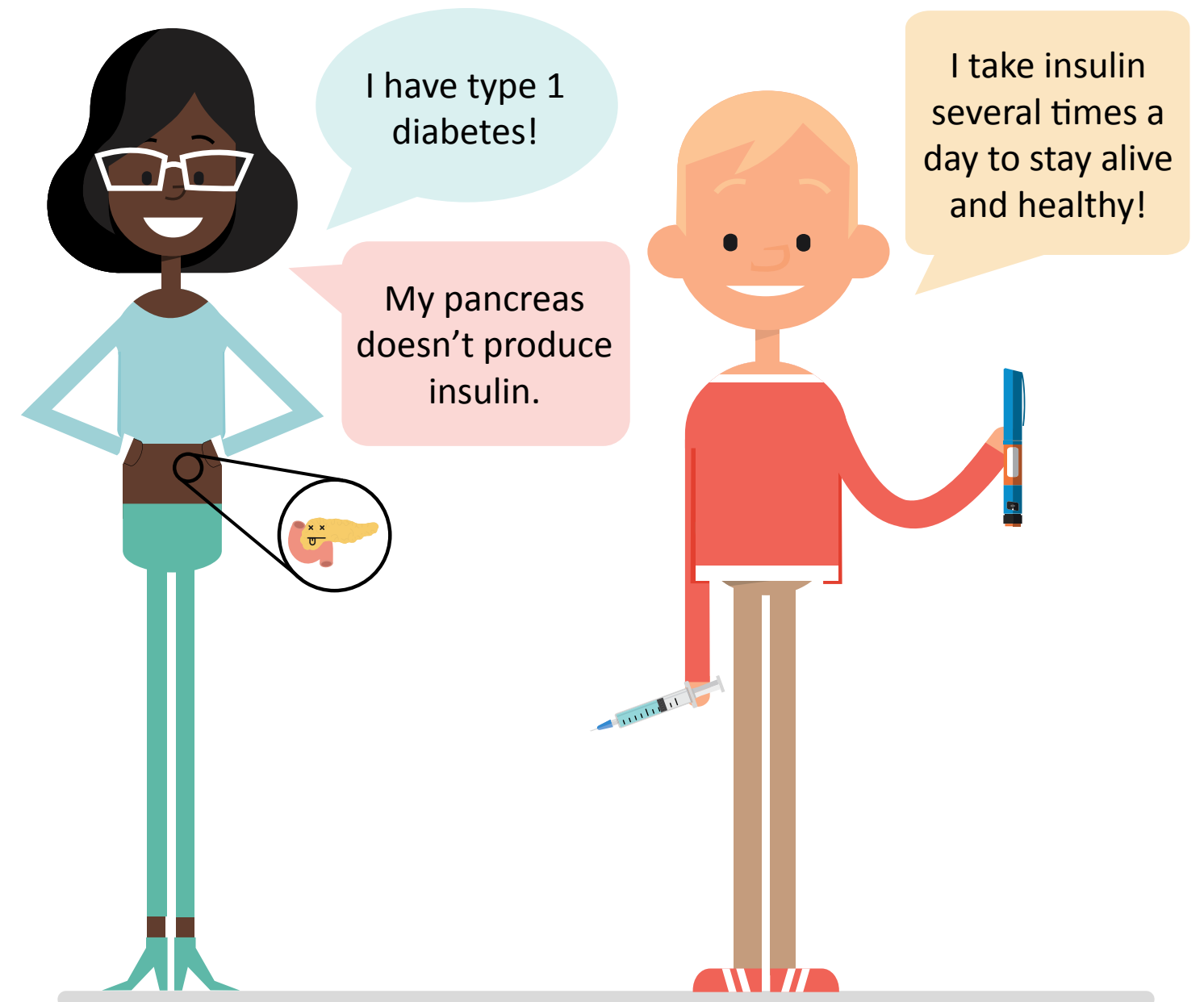
WHAT IS TYPE 1 DIABETES?



TYPE 1 DIABETES DEFINED

Type 1 diabetes (T1D) is a lifelong condition where the pancreas can't produce insulin. Insulin is a hormone that regulates how much sugar is in your blood.

People with T1D need to check their blood sugar and take insulin every day.

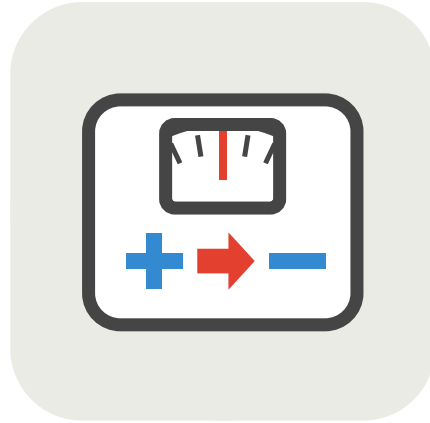


SYMPTOMS

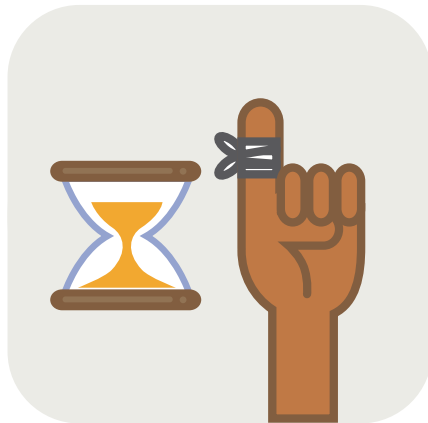
If you have T1D, you may experience some or all of these symptoms.



BLURRY VISION



WEIGHT LOSS



SLOW HEALING



FREQUENT URINATION



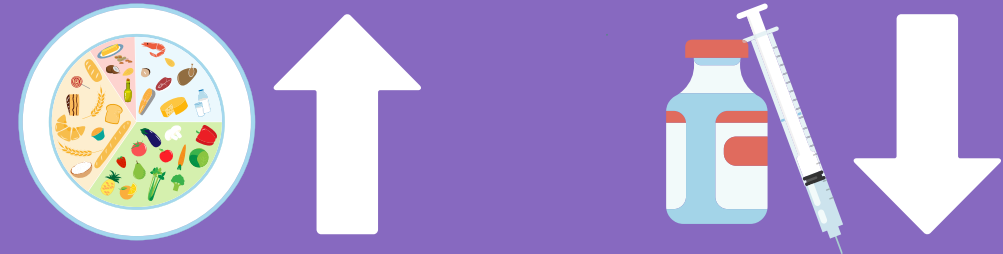
FATIGUE



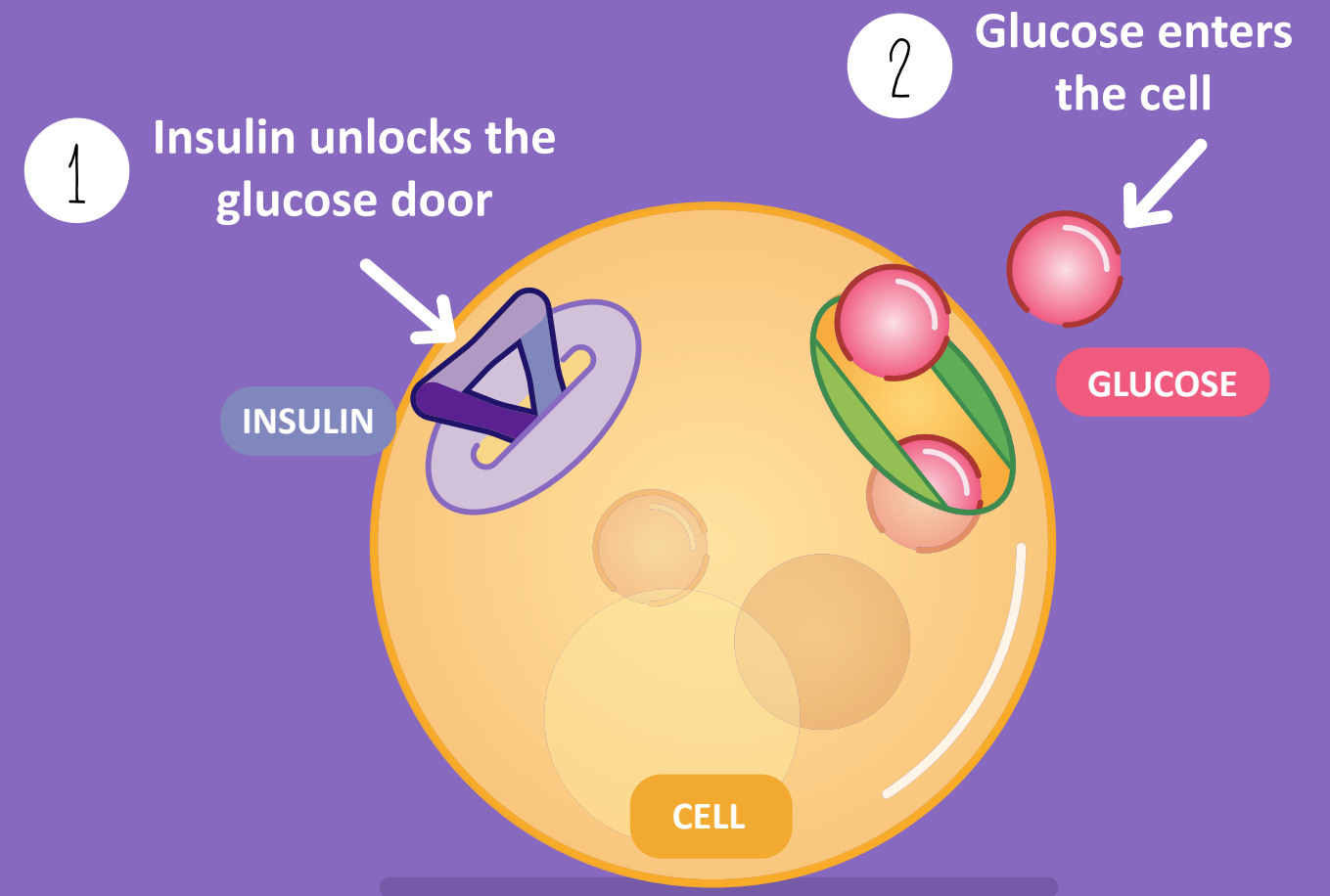
EXTREME THIRST

WHY DO YOU NEED INSULIN?

Eating makes your blood sugar go up, and insulin makes your blood sugar go down. Other factors such as emotions and exercise can also affect your blood sugar.

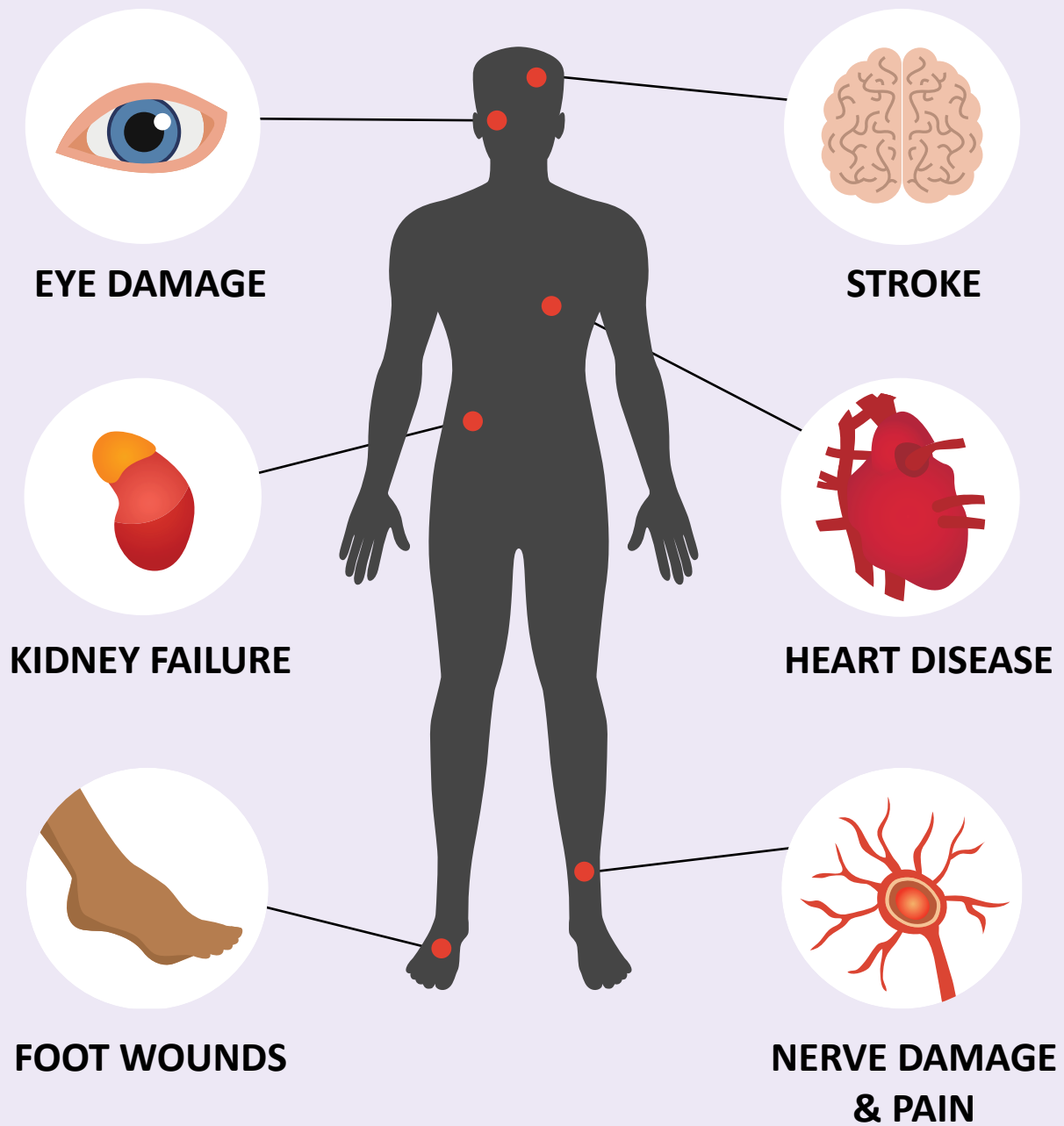


The pancreas, an organ located behind the stomach, produces the hormone insulin. Insulin allows glucose (also known as sugar) to enter your cells to be used to produce energy. Insulin is also responsible for regulating blood sugar, storing glucose, interacting with hormones and storing fat.



HEALTH COMPLICATIONS

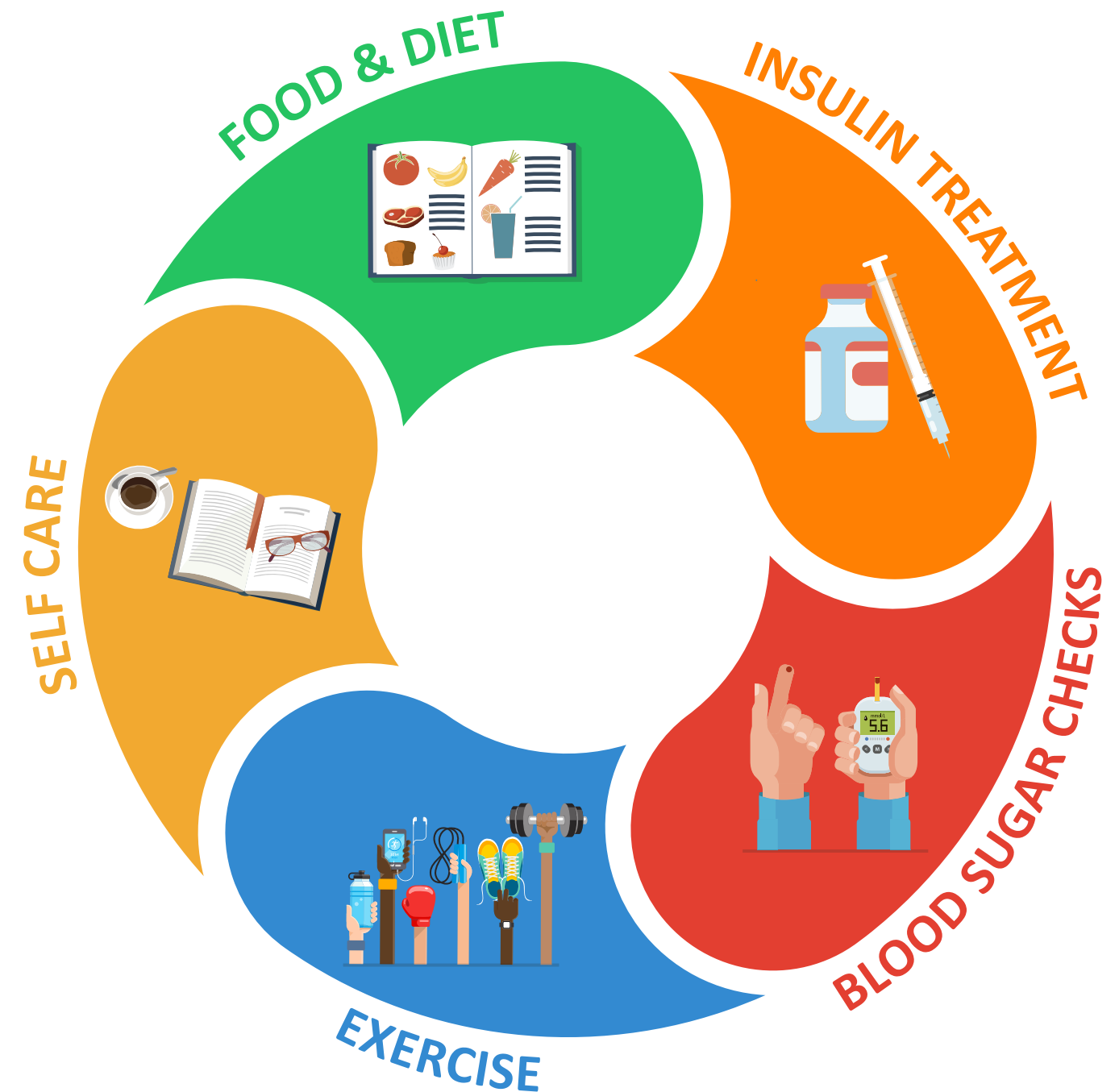
If you don't control your blood glucose, you can experience serious complications. This is why it's so important to take care of your body.



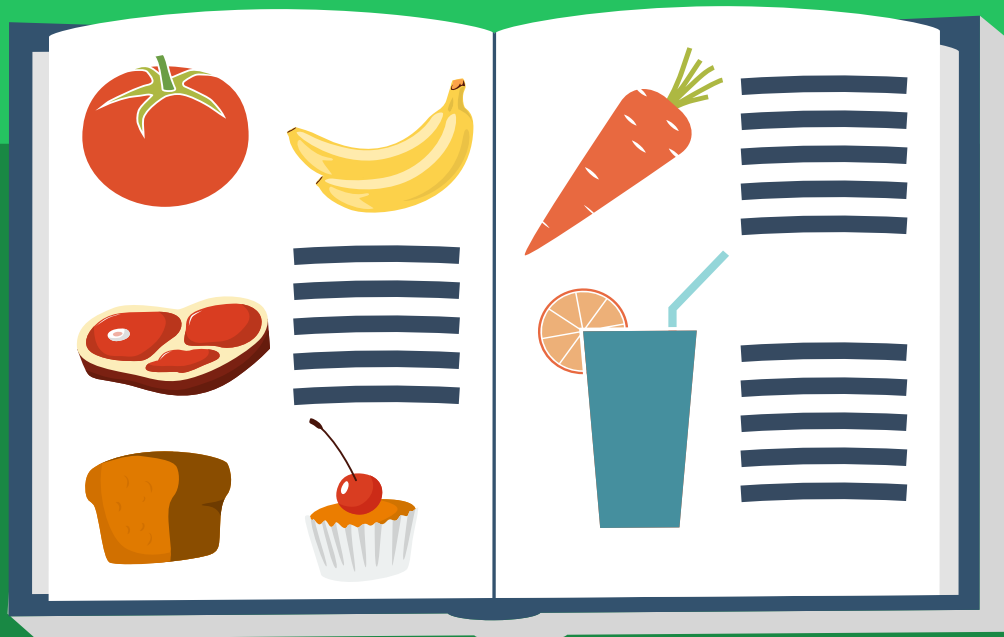
Check your skin and feet daily to make sure they are healthy, and visit your doctor regularly to avoid complications.

5 WAYS TO HELP MANAGE T1D

You can live a happy and healthy life by managing your diabetes. Do your best to make these five habits part of your daily lifestyle.



MANAGING FOOD AND DIET



NUTRITION

Healthy sources of fibers, proteins, carbohydrates and fats are all recommended as part of a healthy diet.

FIBERS



Fibers are a source of vitamins, minerals, water and sugar.

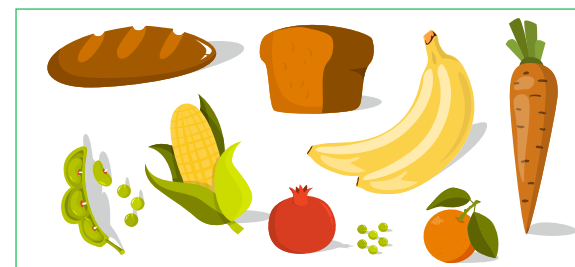
PROTEINS



Proteins are a source of energy, and they help build muscles.

CARBOHYDRATES

HEALTHY

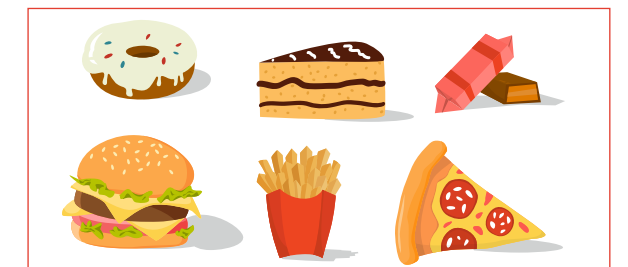
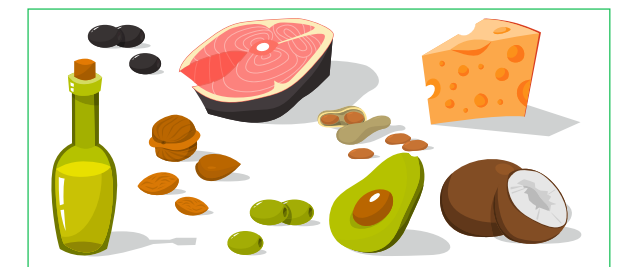


UNHEALTHY



Healthy carbs are a main source of energy, giving "fuel" to the body.

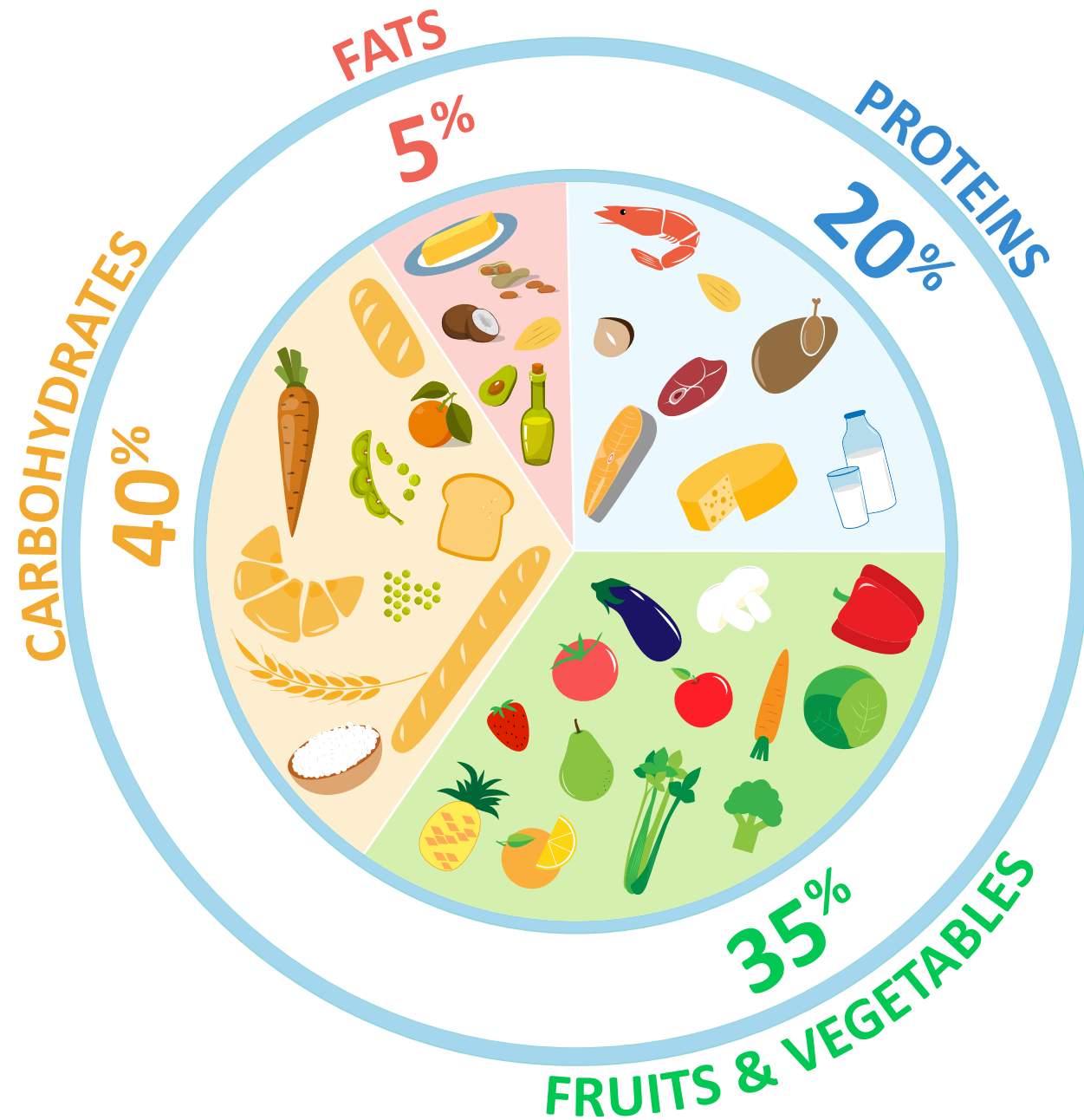
FATS



Healthy fats are a source of energy. Fats are stored in body fat.

BALANCED MEALS

Eating regular meals throughout the day helps stabilize your blood sugar. Most doctors say that every meal should contain fibers, proteins, carbohydrates and fats in this proportion.



CARBOHYDRATES

Carbohydrates (carbs) are starches and sugars that your body breaks down into glucose. With the action of insulin, carbs are used to produce energy.

Counting the number of carbs in your food will help you decide the amount of insulin to inject. You will find the carbohydrate content on the food's nutrition label.



Nutrition Facts	
Serving size	Serving per Container
Amount per serving	Calories
% Daily Value*	
Total fat	...g ...%
Saturated fat	...g ...%
Cholesterol	...g ...%
Sodium	...g ...%
Total carbohydrate	...g ...%
Dietary Fiber	...g ...%
Sugar	...g ...%
Protein	...g ...%
Vitamin A	...% Vitamin C ...%
Calcium	...% Iron ...%

*Percent Daily Values are based on 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

INSULIN TREATMENT AND MANAGEMENT



INSULIN TYPES AND DEVICES

There are several different insulin types and devices. Discuss your options with your doctor to decide what would be best for you.

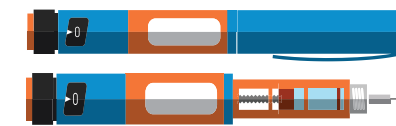
INSULIN TYPES

- 1. Rapid-acting:** Starts working in 10-30 minutes; lasts 2-3 hours
Lispro (Humalog®), Aspart (NovoLog®), Glulisine (Apidra®)
- 2. Short-acting:** Starts working in 30 minutes-1 hour; lasts 6-8 hours
Insulin Regular-Human/R (Humulin®, Novolin®)
- 3. Intermediate-acting:** Starts working in 1.5-4 hours; lasts 10-16 hours
NPH (Insulatard®, Huminsulin basal®)
- 4. Long-acting:** Starts working in .4-4 hours; lasts 36-42 hours
Glargine (Lantus®, Toujeo®, Abasaglar®), Detemir (Levemir®), Degludec (Tresiba®)

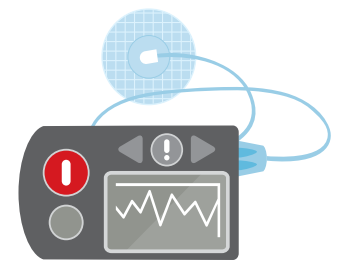
INSULIN DEVICES



SYRINGE



INSULIN PEN



INSULIN PUMP

INSULIN TREATMENT PLANS

Insulin treatment is the most important aspect of diabetes management. Because your pancreas doesn't produce insulin, you have to inject it into your body yourself. There are two types of insulin treatment plans. Discuss your options with your doctor.

PLAN 1: FIXED DOSE

- Inject mixed insulin twice daily, usually at morning and at night. This insulin is a mixture of long-acting and rapid-acting insulin. Your doctor will set the dosage. Mixed insulin covers your daily insulin needs.

ADVANTAGES

- Control blood sugar by managing how many carbs you eat
- Don't need to test blood sugar as frequently

DISADVANTAGES

- Lack of flexibility with when and how much you eat
- Have to manually mix two types of insulin or use pre-mixed insulin
- Difficult to lower blood sugar quickly



PLAN 2: BACKGROUND-BOLUS

- Inject background insulin once or twice daily to stabilize your overall blood sugar. Your doctor will set the dosage. Background insulin affects your blood sugar for about 24 hours.
- Inject bolus insulin every time you eat to keep blood sugar levels under control for the following hours. This dosage depends on how many carbs you eat (see page 17). Bolus insulin affects your blood sugar for 3-6 hours.

ADVANTAGES

- Imitates the way the pancreas naturally functions
- Allows for flexibility with when and how much you eat

DISADVANTAGES

- Must calculate bolus insulin dosage before every meal
- More costly and can be harder to access

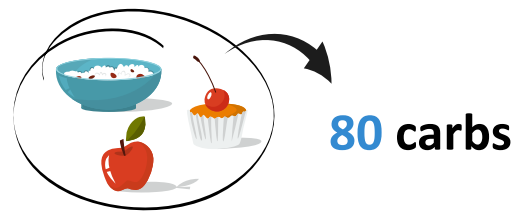


BOLUS INSULIN DOSAGE IN BACKGROUND-BOLUS PLAN

If you are using the background-bolus scheme (see page 16), follow these three steps to figure the amount of insulin you need to take with your meal or snack.

1 COUNT YOUR CARBS

Count the total number of carbs in your food and drink (see page 12 for help counting carbs).



2 DIVIDE CARBS BY INSULIN-TO-CARB RATIO

Divide the total number of carbs by your *insulin-to-carb ratio*, how many carbs you eat per 1 unit of insulin. Ask your doctor for this information.

Example ratio:
1 unit of insulin
per 12 carbs.

$$80 \text{ carbs} \div 12 \text{ carbs per 1 unit of insulin} = 6.7$$

3 TAKE BOLUS INSULIN DOSAGE

This number shows how much insulin you need to inject to cover the amount of carbs in your food.

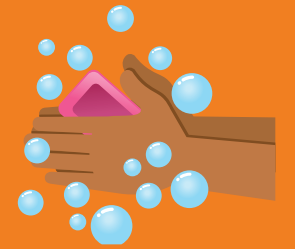


INJECTION METHOD

Follow these steps to safely and successfully inject insulin. Practice insulin injections with your healthcare provider.

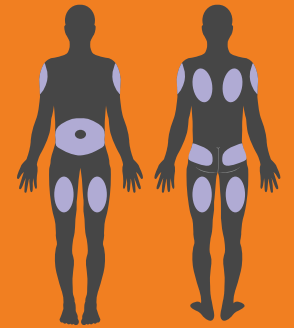
1. PREPARE

- Wash hands with soap and water.
- Roll insulin vials between hands.
- Prepare insulin injection device with correct amount of insulin.



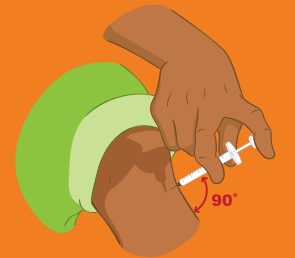
2. CHOOSE INJECTION SITE

- Choose injection site that has body fat, such as abdomen, thighs, buttocks, or arms.
- Rotate injection site each time to avoid skin lumps or bruises.
- Clean injection site.
- Pinch fat around injection area.



3. INJECT INSULIN

- Insert needle into skin at 45-90° angle.
- Inject insulin, let go of pinched skin, and leave syringe/pen in place for at least 5 seconds.
- Slowly remove needle.



4. CLEAN UP

- Dispose of needles and syringes in appropriate container.
- Store insulin in refrigerator. If needed, insulin can stay up to 28 days at room temperature of 15-25°C (59-77°F).
- Do not freeze insulin and keep out of direct sunlight and hot temperatures.



BLOOD SUGAR MANAGEMENT



CHECKING YOUR BLOOD SUGAR

There are three reasons to check your blood sugar:

1. To see how insulin affects your blood sugar
2. To be certain your blood sugar goes down with each injection
3. To make sure your blood sugar does not go too low or too high before your next injection

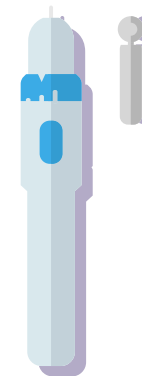
Practice checking your blood sugar with your doctor so you are confident doing it on your own.

MATERIALS NEEDED

- Lancet device
- Lancet needle
- Blood drop
- Blood glucose monitor
- Blood glucose strip

1

Insert lancet needle into lancet device and prick the side of the finger.



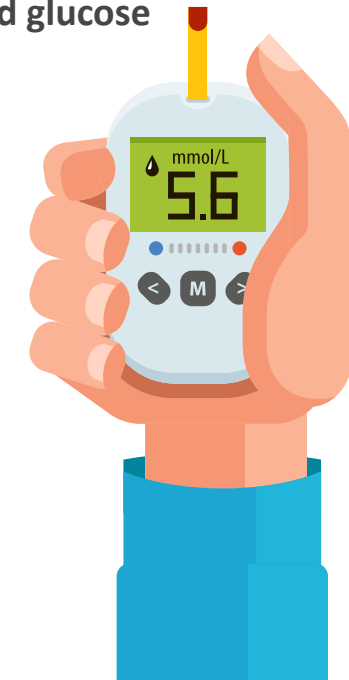
2

Insert test strip into blood glucose monitor.



3

Place blood on the strip, and wait for results.



HYPERGLYCEMIA

Hyperglycemia (high blood sugar) means that your sugar is above 200 mg/dL or 11.1 mmol/L.

These factors can cause your sugar to go too high:

- Forgetting or skipping insulin treatment
- Eating a lot of high-carb food
- Reducing physical activity
- Being ill or having an infection
- Facing stress
- Experiencing hormone changes

SYMPTOMS



Weakness



Dry mouth



Increased thirst



Blurry vision



Frequent urination



Headache

TREATMENT

These actions can help lower your blood sugar.



Do exercise



Take insulin



Drink water

Your doctor will teach you how much insulin to take to correct high blood sugar levels.

If you have ketones (see below), contact your doctor. Exercise will not lower your blood sugar when ketones are present.

SEVERE HYPERGLYCEMIA

If your blood sugar is too high for too long, it can cause diabetic ketoacidosis. This is a serious and sometimes deadly complication that occurs when your body produces high levels of blood acids called ketones. You can check your ketone levels with urine ketone strips.

Go to the **hospital** if:

- Your blood sugar is consistently higher than 16.7 mmol/L (300 mg/dL)
- You have prolonged symptoms of hyperglycemia, along with nausea, vomiting, stomach pain, shortness of breath, fruity-scented breath and confusion







HYPOGLYCEMIA

Hypoglycemia (low blood sugar) means that your sugar is below 70 mg/dL or 4 mmol/L.

These factors can cause your sugar to go too low:

- Taking too much insulin with your meal
- Eating later than usual or skipping a meal
- Overcorrecting a high blood sugar
- Doing unplanned exercise
- Taking medication (check with your doctor)
- Being ill or having an infection
- Drinking alcohol (without eating)

SYMPTOMS

 Sweating	 Loss of color	 Hunger
 Irritability	 Sleepiness	 Dizziness

TREATMENT

If you feel symptoms of hypoglycemia and are able to check your blood sugar, do so as soon as possible. If your blood sugar is low, eat or drink quick-acting sugar immediately.

 1/2 cup of non-diet juice	 4-6 pieces of candy or sugar cubes	 1 tablespoon of honey
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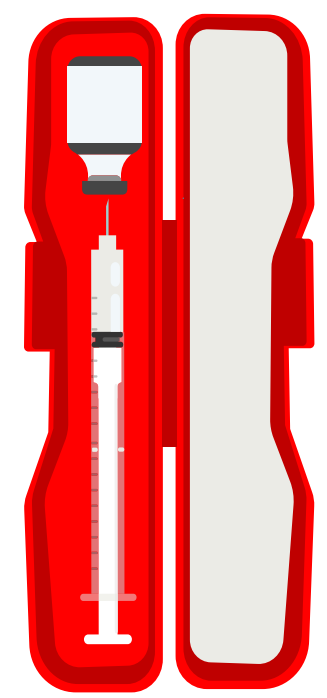
If possible, check your blood sugar level after 15 minutes. If it is still under 70 mg/dL or 4 mmol/L or if you still feel symptoms, take 15 grams of fast-acting carbs again.

SEVERE HYPOGLYCEMIA

Extreme low blood sugar can cause you to faint or even go into a coma. If possible, carry a glucagon injection kit with you in case of emergencies, and make sure that someone with you knows how to use it.

Glucagon causes the liver to release all stored glucose at once. It can be injected in the thigh, buttock or arm. Once you are able to speak and swallow, consume sugar and food.

If symptoms persist, go to the hospital.



EXERCISE

IMPORTANCE OF EXERCISE

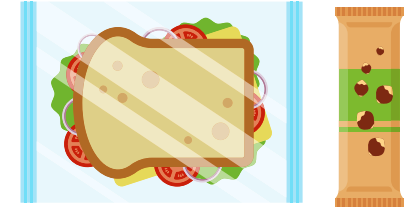
Why is exercise important?

1. Helps sugar be used in the body
2. Builds muscle, burns fat and helps circulate blood
3. Stimulates the brain to produce endorphin, the “feel good” hormone
4. Improves insulin sensitivity



HELPFUL TIPS

EXERCISE IS MEANT TO BE ENJOYED! Do something physically active 3-5 times per week for at least 30 minutes. Listen to your body, and don't go beyond your physical capacity.



Eat a carb-containing snack before exercise. This will help stabilize your blood sugar throughout your workout.



If possible, reduce your rapid-acting insulin before intense exercise. This will help prevent low blood sugar.



Check your blood sugar before, during and after exercise to make sure that it's stable. Be attentive to any low blood sugar symptoms.



Carry rapid-acting sugar with you (sugar cubes, candies, fruit juice) in case your blood sugar goes low. Sit down and rest if possible.

SELF CARE AND MENTAL HEALTH



DAILY HYGIENE

Daily hygiene is important. Every day, try to:

- Brush your teeth to prevent cavities
- Wash and dry your feet to avoid wounds and foot fungus
- Maintain a healthy weight



HEALTHY LIFESTYLE

Living a healthy lifestyle means taking care of all aspects of your health:

- Eat a healthy diet
- Do regular physical activity
- Do not smoke
- Get enough sleep
- Manage your stress
- Care for your mental health



DOCTORS VISITS

Visit your doctor regularly to prevent T1D-related complications. If possible, receive these medical tests:

- **HbA1c and fasting blood glucose:** every 3-6 months
- **Feet examination:** every 3-6 months
- **Blood pressure and weight:** every 3-6 months
- **Eye check (fundoscopy):** every year
- **Kidney function (blood test):** every year
- **Vaccinations:** check with your doctor



MENTAL HEALTH RISKS

Managing type 1 diabetes can be tiring and can affect your mood. People with T1D are at risk for having depression. If you experience any of these symptoms, talk to your healthcare provider.



TROUBLE SLEEPING



FATIGUE



TROUBLE CONCENTRATING



FEELINGS OF GUILT & SADNESS



IRRITABILITY



OVEREATING OR APPETITE LOSS



LOSS OF INTEREST



SUICIDAL THOUGHTS OR ACTIONS

MENTAL HEALTH CARE

There are many ways to care for your mental health. Do your best to incorporate enjoyable self-care activities into your daily life.



Set aside time to rest and do activities you enjoy.



Meditate and/or practice deep breathing.



Ask for help and support from people you trust.



Set realistic and motivating goals for yourself.

Remember, you are not alone. People in your life want to support you and care for you. Don't keep your feelings to yourself!



**This book contains information
about type 1 diabetes, including:**

- 1 Type 1 Diabetes Defined
- 2 Food & Diet
- 3 Insulin Treatment
- 4 Blood Sugar Management
- 5 Exercise
- 6 Self Care & Mental Health

Created by Carly E. Baumgartner
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www.t1international.com