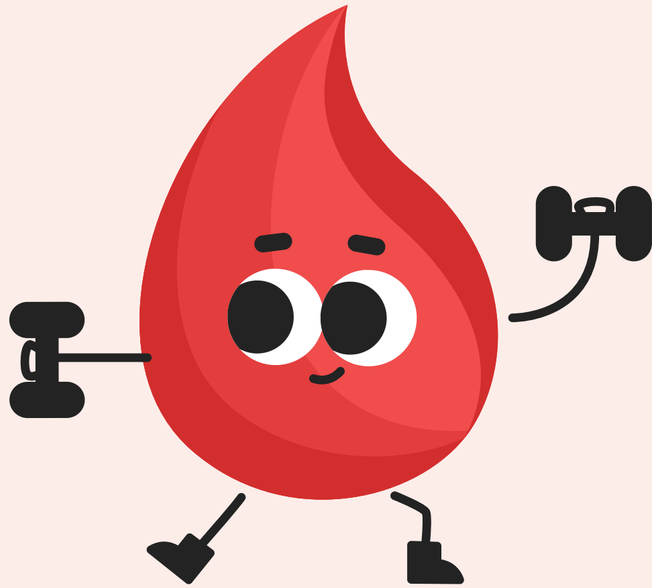
BLOOD SUGAR IN MOTION

How exercise keeps blood sugar stable



WHAT IS TYPE 2 DIABETES?

Type 2 diabetes develops when the body does not make enough insulin or does not respond to it normally.

The body does not use sugar properly which leads to high blood sugar levels.

Symptoms include: fatigue, hunger, thirst, and frequent urination.

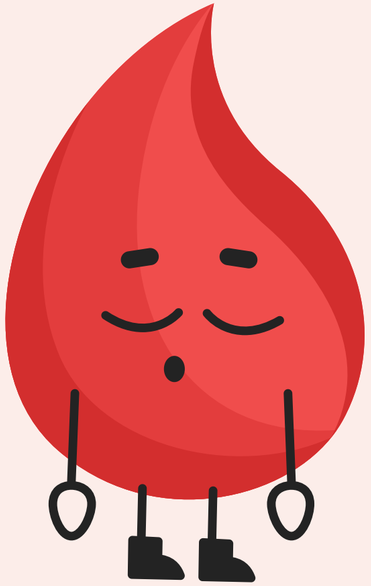
WHAT IS THE ROLE OF INSULIN?

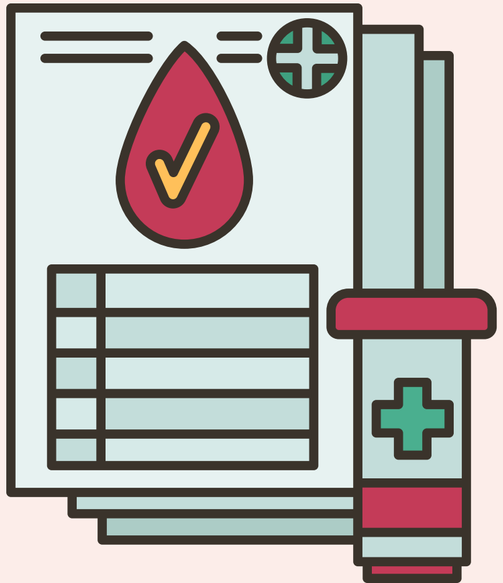
Insulin is like a key that helps sugar (glucose) get from your blood into your cells, where it’s used for energy. If too much sugar stays in your blood for too long, it can hurt your blood vessels and lead to health problems over time.

HOW DOES EXERCISE KEEP BLOOD SUGAR LEVELS STABLE?

When you exercise, your muscles need more energy, so they take in more sugar (glucose) from your blood. Exercise also helps your body use insulin better, which makes it easier for sugar to move into your cells. This is why your blood sugar levels usually go down during and after exercise.

ACTIVITY “YOU ARE THE BODY”





ASSIGNED ROLES

Sugar (glucose) molecules

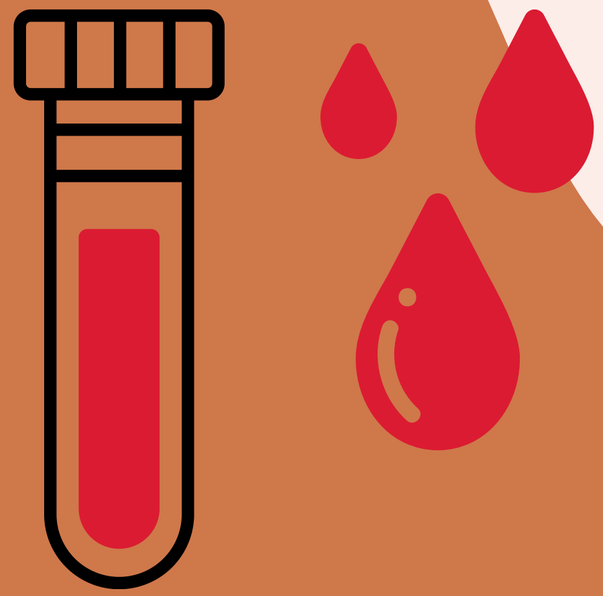
5-7 students

Muscle cells

3-4 students

Insulin

2 students



Exercise

1 student

RECALL

Sugar (glucose) molecules

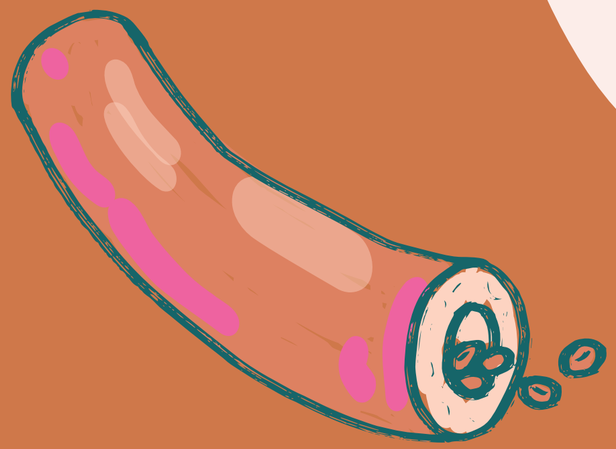
What we want to keep stable

Muscle cells

Need energy from sugar (glucose)

Insulin

Helps sugar (glucose) enter cells to be used for energy



Person with type 2 diabetes

Causes resistance to insulin, so more sugar in the bloodstream

Exercise

The hero who opens more doors to let glucose in without needing as much insulin

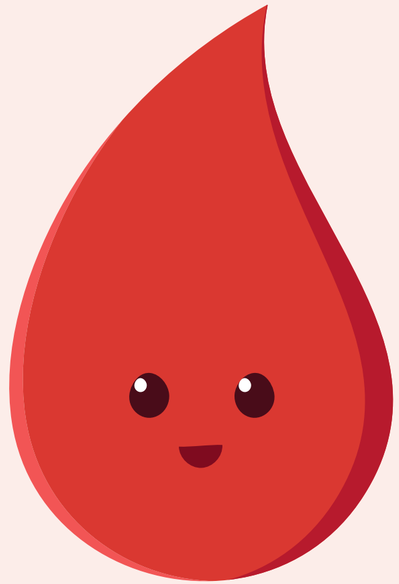
ACTIVITY-PART 1: NO EXERCISE

Sugar (glucose) tries to get into the muscle cells
Insulin students try to help sugar get inside the muscle cells (pretend to "unlock" doors of the muscle cell students).
BUT... insulin can only open 2 of the doors.
Only 2 sugar students get inside (2 sugar students stand behind muscle cell students).
The rest stay “stuck” in the blood (pretend to float around the room).
“This is what happens in type 2 diabetes. The body has insulin, but it doesn’t work very well. More sugar stays in the blood.”

ACTIVITY-PART 2: EXERCISE

Everyone does a little bit of real exercise!
(Jumping jacks, push-ups, dancing)
Sugar (glucose) tries to get into the muscle cells.
·Sugar students stand beside muscle cell students.
·The exercise student goes around and "opens" all the muscle cell doors.
·All the sugar students go into the muscle cells (all sugar students stand behind muscle cell students)!
“Exercise helps open the doors even without insulin! So sugar leaves the blood and goes into the muscles to be used for energy.”

DISCUSSION: WHAT CHANGED WHEN EXERCISE WAS INTRODUCED?



WHO WORKS WITH DIABETES AND BLOOD SUGAR CONTROL?

Diabetes researcher/health educator

Registered nurse

Nurse practitioner

Doctor

Medical laboratory technologist

Patient care attendant

Dietitian

Endocrinologist

WHERE CAN YOU WORK WITH DIABETES AND BLOOD SUGAR CONTROL?

Hospitals

Community clinics

Diabetes clinics

Public health

Universities

Pharmacies

Home care

WHO KEEPS BLOOD SUGAR LEVELS STABLE IN THE HOSPITAL AND HOW DOES THIS WORK?

Blood sugar control starts with knowing whether the patient takes insulin or oral medications to regulate their glucose levels. Blood sugar control is the responsibility of the team of Doctors, Medical Laboratory Technologists, Nurses, and Patient Care Attendants (PCAs), each of them having their own specific role, which we will discuss next!

WE START WITH THE DOCTOR

The doctor decides how often blood glucose should be monitored—this may range from once daily, to before every meal and at bedtime. The doctor also prescribes the amount of Insulin or oral medication a patient may need depending on their blood sugar levels.

MEDICAL LABORATORY TECHNOLOGIST

Medical Laboratory Technologists are responsible for specific lab tests that are essential for diagnosing diabetes before regular monitoring, dietary support, and other interventions begin. There are also ongoing lab tests that complement glucometer checks (such as HbA1c and kidney function evaluations) which are important for long-term management.

PCA, RN OR LPN

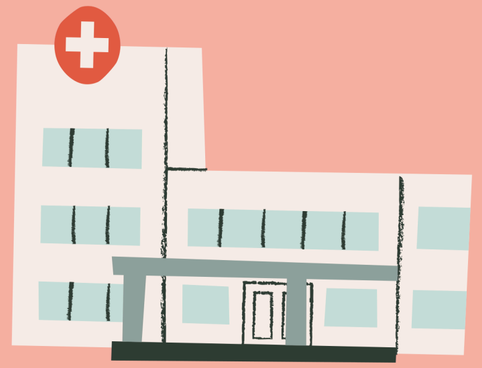
Depending on the hospital and unit of the hospital, Registered Nurses (RNs), Licensed Practical Nurses (LPNs) or Patient Care Attendants are responsible for checking blood sugar levels. For example, if a Doctor orders blood sugar checks four times daily (before each meal and at bedtime), the nurse or PCA will perform these using a glucometer. This involves cleaning the finger, pricking it with a lancet, and applying the drop of blood to a test strip.

THE NURSE

If the patient's blood sugar is elevated, the nurse checks the doctor’s insulin or oral medication orders, to determine if either is needed and how much. The nurse then administers the appropriate dose. PCAs **cannot** administer insulin or oral medications.

The nurse also documents the blood sugar level and communicates with the healthcare team as needed to ensure the patient’s blood sugar remains within a safe range.

MEDICAL MAP



Doctor ordersblood sugar checksand prescribes insulin or oral medication.

First point of contact: Doctor, Nurse Practitioner or Walk-in clinic for mild-moderate symptoms, ER or call 911 for severe symptoms. Referral to dietician and diabetes resource center for ongoing support .

Medical Laboratory Technologists do specific lab tests for diagnosing diabetes and do ongoing lab tests that complement blood sugar checks.

Patient Care Attendant or nurse checks blood sugar levels as prescribed by the Doctor.

Nurse administers medication prescribed by doctor and documents.

THANK YOU!