DIABETES ESSENTIALS

ICEBREAKER

Please share with the group if you feel comfortable:

- How long you've lived with diabetes (or prediabetes)
- One thing you'd like to learn today

OUTLINE

The Basics

- What is diabetes?
- Risk factors
- Symptoms
- The numbers

Monitoring & Staying Healthy

- Complications
- Blood sugar monitoring

Medications

- How do they work?
- Things to consider

DID YOU KNOW?

- Approximately 400,000 people live with diabetes in Manitoba
- About 30% of our population
- Good news: Diabetes is manageable!

WHAT IS DIABETES?

GLUCOSE = SUGAR

CARBOHYDRATES AND SUGARS GET CONVERTED TO GLUCOSE BY THE BODY

GLUCOSE IS THE TYPE OF SUGAR THAT THE BODY USES FOR ENERGY

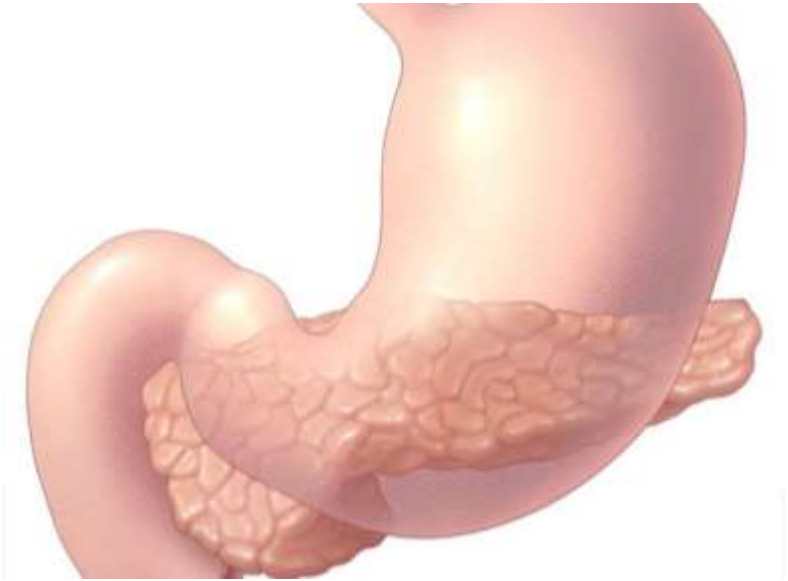
INSULIN

- A hormone produced by the pancreas
- Insulin moves glucose from blood to cells (where it’s used as energy)

INSULIN

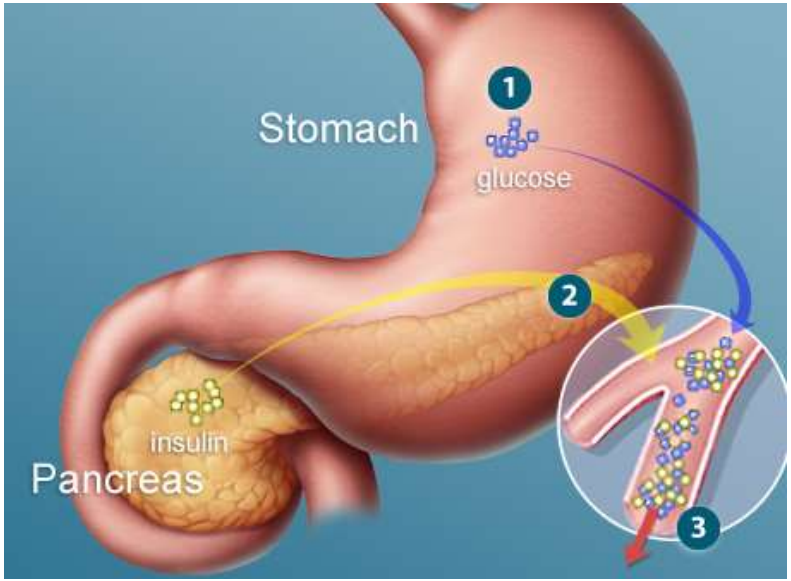
- Insulin is like a key
- It unlocks the door to a cell to let glucose in

UNDERSTANDING BLOOD GLUCOSE



- Food moves through:
  - Mouth
  - Stomach
  - Intestines
- Intestines absorb nutrients like glucose by moving them into the blood

UNDERSTANDING BLOOD GLUCOSE



1. ***Glucose*** enters the bloodstream
2. Pancreas releases ***insulin***
3. Insulin moves glucose from the ***blood*** into ***cells***

UNDERSTANDING BLOOD GLUCOSE

- The body balances the right amount of insulin for the amount of sugar in the blood
- Diabetes = something goes wrong in this process

DEFINITION OF DIABETES

1. Pancreas cannot make enough insulin

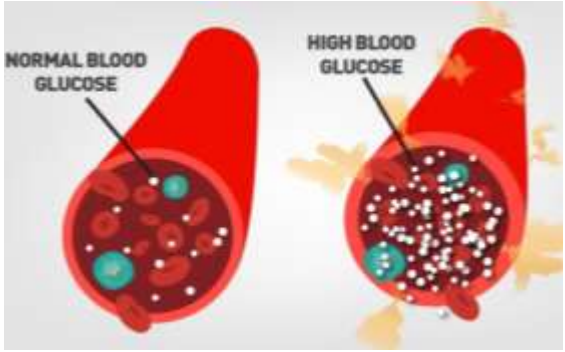
AND

2. Your body cannot properly use insulin

↓

Glucose (sugar) builds up in the blood
(instead of being used as energy)

UNDERSTANDING BLOOD GLUCOSE



Too much glucose ends up in the blood!

Cells don't get enough energy!

Type 1 Diabetes:

- The pancreas stops making insulin
- The person must take insulin injections to survive

Type 2 Diabetes:

- The pancreas may not make insulin properly

AND

- The cells don't use insulin properly

WHAT ELSE RAISES BLOOD GLUCOSE?

- The **LIVER**
  - The liver stores glucose and releases it when needed

- In type 2 diabetes, the liver can ***leak glucose*** into the blood at any time (even when not needed)

WHAT ELSE AFFECTS BLOOD GLUCOSE?

- **ILLNESS**
  - Infection or fever, Physical trauma, Some cancers
- Emotional and physical **STRESS**
- Some medications for other conditions
- Pregnancy-related (Gestational Diabetes)

Video

https://www.youtube.com/watch?v=t0hc6zhcQy0

TRUE OR FALSE?

Diabetes is caused by eating too much sugar

FALSE

THE FACTS

- NO LINK between sugar consumption and diabetes onset
- Diabetes = insulin and sugar are out of balance
- Eating sugar or “white” carbs can UPSET the balance, but does not cause it
- There are many factors that might cause or trigger diabetes

RISK FACTORS

- Age 40+
- Family history
- Ethnicity
- Diabetes during pregnancy
- High cholesterol
- High blood pressure
- Sleep apnea
- Being physically inactive
- Excess weight (abdominal area)

Remember:
These are not the
causes of diabetes

SYMPTOMS

- ↓ energy
- ↑ thirst
- ↑ urination
- Blurry vision
- Infections
- Tingling / numbness
- Difficulties with sexual function

Have you felt any of these symptoms?

TRUE OR FALSE?

I would know if I had diabetes because I would feel it

FALSE

THE FACTS

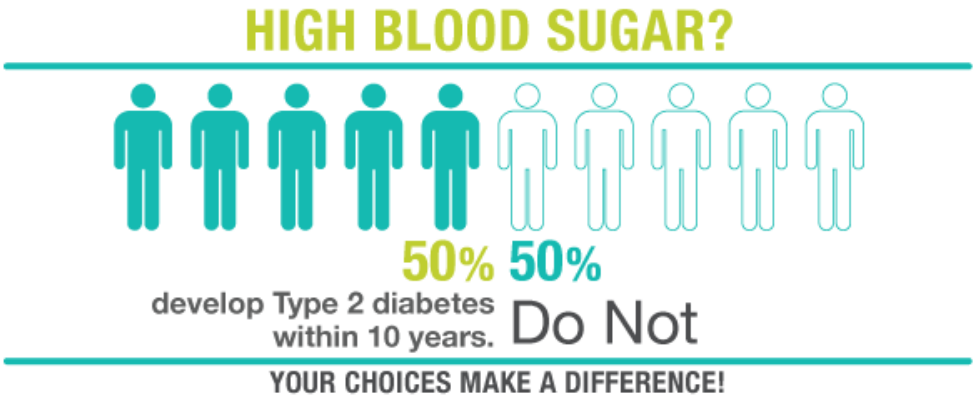
- Many people don’t have any symptoms!
- Sometimes symptoms are vague and we don’t realize they are from diabetes

TRUE OR FALSE?

I’m only *slightly* diabetic

FALSE

THE FACTS



Prediabetes

- When blood sugar is high (elevated) but ***not high enough*** to be diagnosed with diabetes
- BUT – Prediabetes is ***reversible!***

HOW DO WE DIAGNOSE DIABETES?

THE NUMBERS

Fasting Glucose

- How much glucose (sugar) is in the blood
- Can measure at a lab or at home

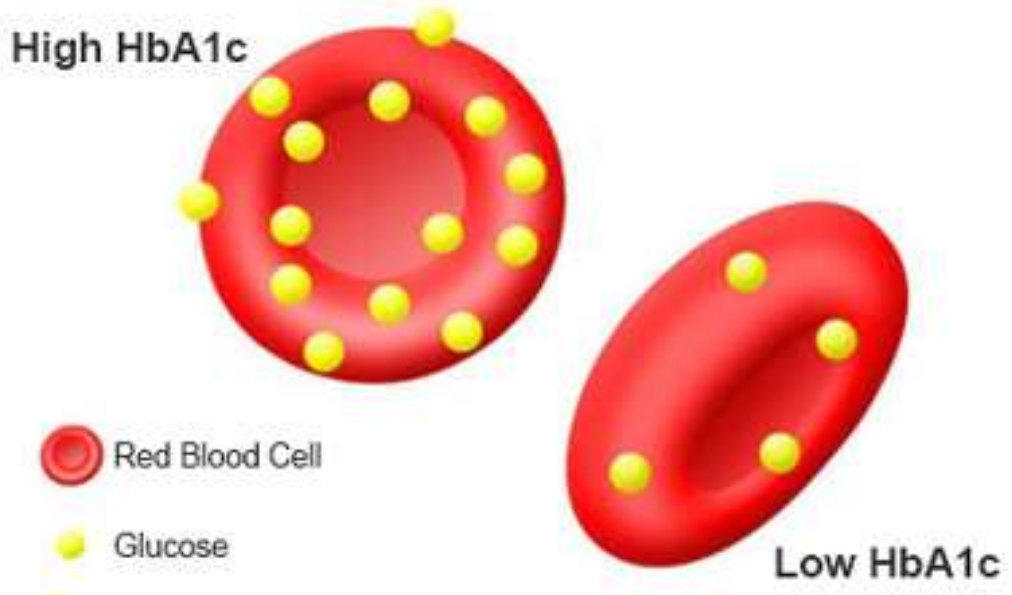
Hemoglobin A1c

- Average blood glucose from the past 2-3 months
- Measured at the lab

Hemoglobin A1c

- How much glucose is “stuck to” red blood cells
- The higher the blood sugar over time → the more glucose gets stuck

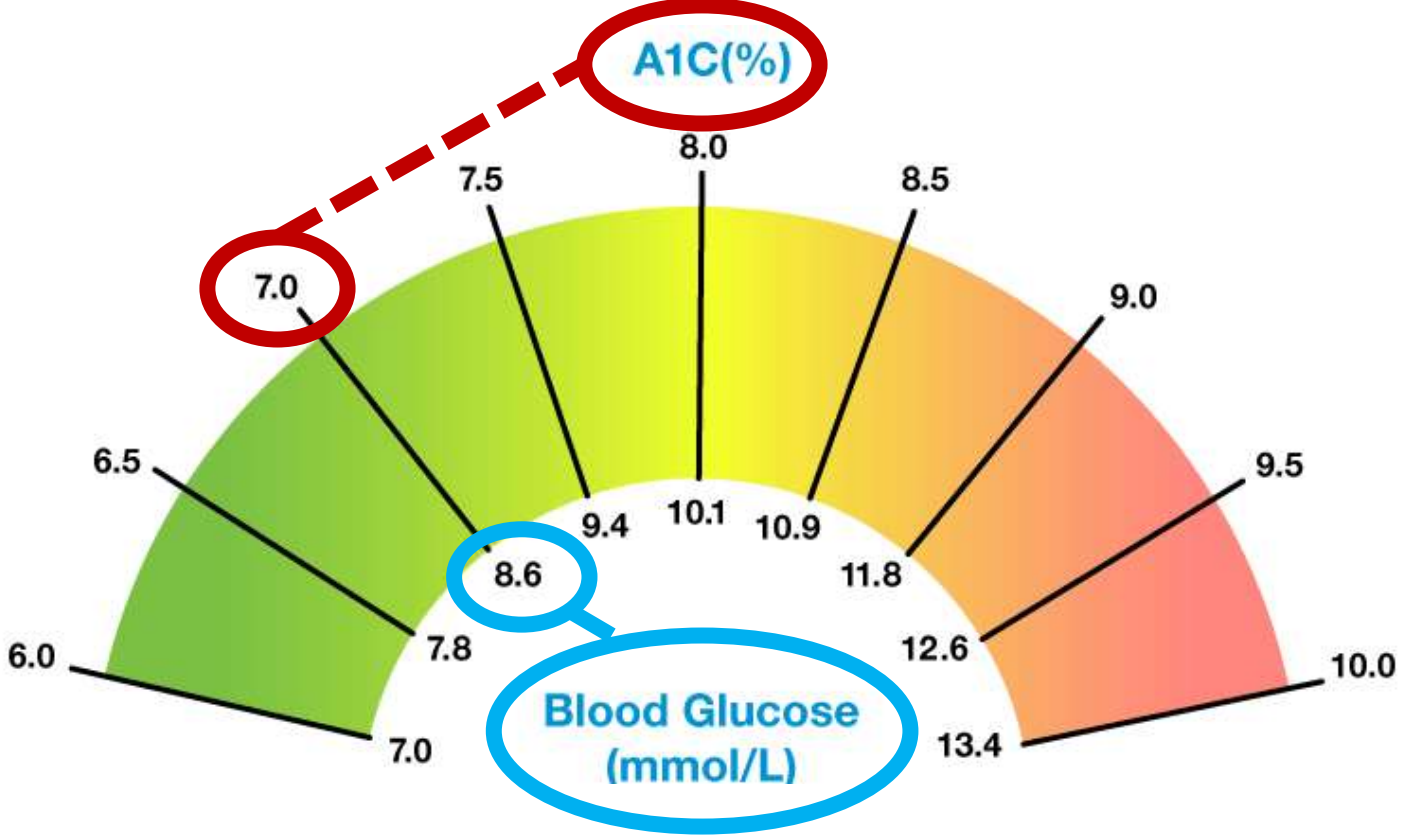
→ higher A1c



DIAGNOSING DIABETES

	A1c	Fasting Glucose
No diabetes	**5.9%** or lower	**6.0 mmol/L** or lower
Prediabetes	**6.0-6.4%**	**6.1–6.9 mmol/L**
Type 2 diabetes	**6.5%** or higher	**7.0 mmol/L** or higher

Note: These are <u>not</u> the same as targets!



The numbers for A1c and Fasting Glucose are close, but <u>don't</u> mean the same thing!

WHAT ELSE SHOULD WE CHECK?

SELF MONITORING BLOOD GLUCOSE

- Glucose levels change constantly throughout the day
- Eating a meal, exercising, and taking medications all affect blood glucose (↑ or ↓)

SELF MONITORING BLOOD GLUCOSE

Not everyone needs to test their glucose!

If you test, get curious!

- What happens after different meals? After doing exercise?
- How do you feel at different glucose levels?
- Is there a pattern?

BLOOD SUGAR TARGETS FOR DIABETES

- Targets should always be *individualized*
- Note that these are not the “normal” values

A1c	
6.5%	Considered for some people
7.0% (or less)	**Most adults with type 2 diabetes**
7.1% - 8.5%	People with risk factors

Blood Sugar	
Before meals	4.0-7.0 mmol/L
After meals (2 hours)	5.0-10.0 mmol/L

TRUE OR FALSE?

If my blood sugars go back into the normal range, then I no longer have diabetes

FALSE

THE FACTS

- Once you have been diagnosed with diabetes, you will always have it
- However you treat it (diet, exercise, medications) diabetes must be managed for life

DIABETES COMPLICATIONS

WHAT DO YOU KNOW?

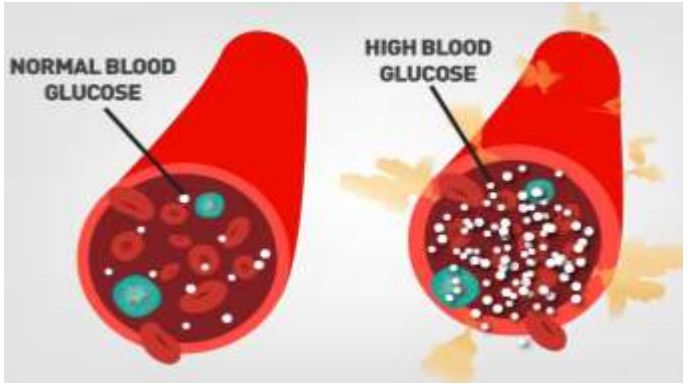
WHAT HAVE YOU HEARD?

WHAT ARE YOUR FEARS?

COMPLICATIONS: WHAT CAN I DO?

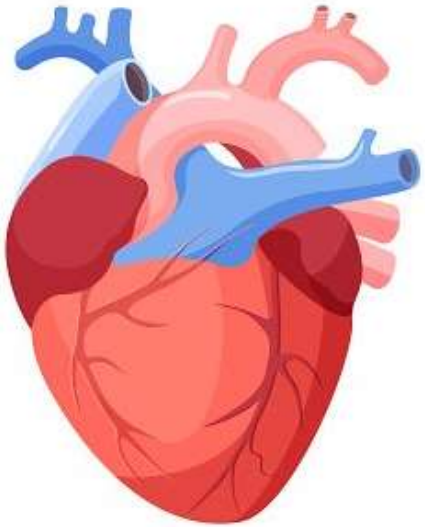
- Healthy eating
- Regular physical activity
- Take medications as prescribed
- Manage stress
- Quit smoking

COMPLICATIONS



- High blood sugar decreases blood flow and damages blood vessels
- Decreased blood flow to organs causes damage
- We treat diabetes to prevent complications, *even if you feel well*

HEART DISEASE



- High blood sugar makes blood “sticky”
- High sugar also irritates blood vessels
- “Sticky” blood gets stuck to irritated vessel walls and can cause a blockage

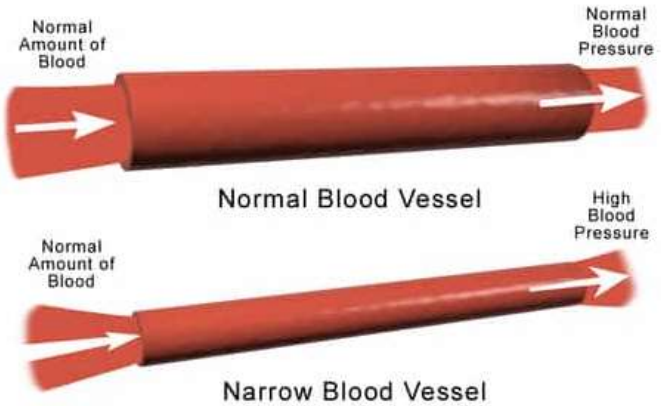
HEART DISEASE

- Heart disease is the most common complication of diabetes
- Diabetes increases your risk of heart attack and stroke

Blocked vessel in the heart = *heart attack*

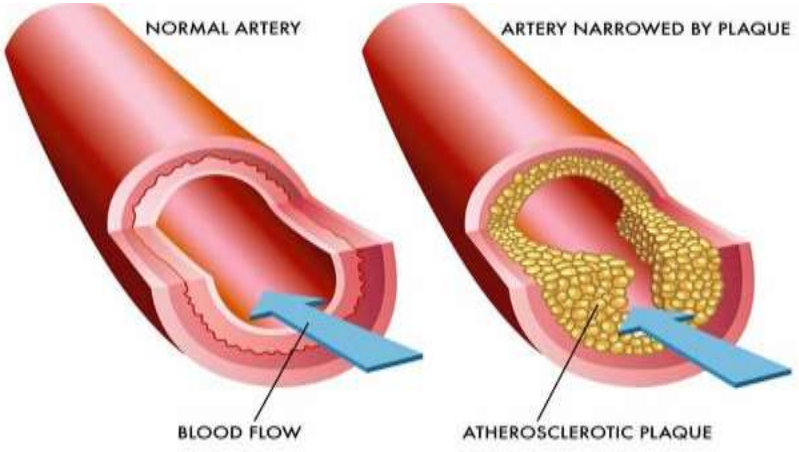
Blocked vessel in the brain = *stroke*

BLOOD PRESSURE



- High blood pressure means blood vessels are squeezed tight
- Less room for blood flow
- Blockages can happen more easily

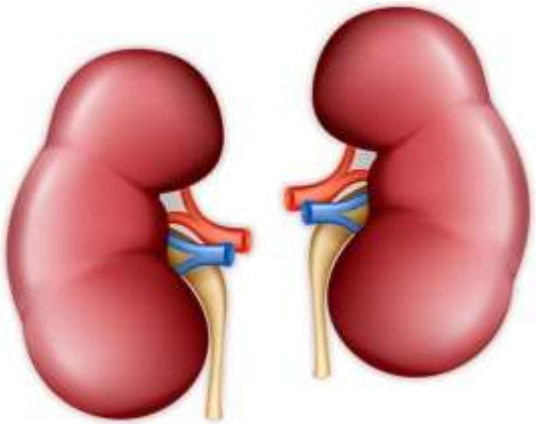
CHOLESTEROL



- Cholesterol plaque makes blood vessels narrow
- Not all cholesterol is bad!

- LDL (bad cholesterol) ***builds up / worsens*** plaque
- HDL (good cholesterol) ***removes*** plaque

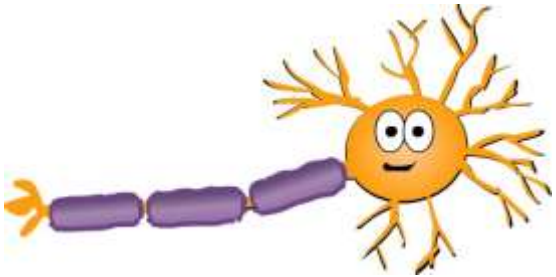
KIDNEYS



- Diabetes increases risk of kidney disease and can lead to dialysis
- Kidneys filter blood
- “Sticky” blood flows slowly and gets stuck (causes kidney damage)

Imagine putting syrup through a coffee filter!

NERVES



- Nerves have tiny blood vessels
- “Sticky” blood can clog the nerve vessels
- Leads to chronic pain or numbness

Dying nerves = *pain*

Dead nerves = *numbness*

FEET

- High sugar in blood feeds bacteria
- A small injury that goes unnoticed (nerve damage) can get infected
- High blood sugar causes ***delayed healing*** of cuts and wounds
- Worst case scenario = amputation

EYES

- Diabetes increases risk of eye problems
  - Cataracts, Glaucoma, Retinopathy
- The eye has many tiny nerves and blood vessels
- “Sticky” blood can clog the eye vessels and damage nerves
- Worst case scenario = blindness

ORAL HEALTH

- High sugar feeds germs in the mouth
- Diabetes increases risk of:
  - Dry mouth
  - Thrush (yeast infection)
  - Cavities
  - Dental or gum infections
- Gingivitis (gum disease) increases risk of heart disease

MENTAL HEALTH

- Brain cells use glucose for energy (fuel)
- Not enough insulin = brain cells can’t use glucose (brain cells “starve”)
- Starving brain cells can’t produce neuro-transmitters
- Diabetes can cause or worsen depression, anxiety, and dementia

SEXUAL HEALTH

- ***Blood flow*** and ***Nerve function*** are important for sexual function
- Erectile dysfunction can be an early warning sign of heart disease

THINGS TO MONITOR

Hemoglobin A1c

- Blood test every 3-6 months

Blood pressure

- Check at every doctor's visit
- Different target for each person

Cholesterol

- Blood test to determine your cardiovascular risk
- Some people may benefit from medication (statin)

THINGS TO MONITOR

Kidneys

- Blood test (measures filtering speed)
- Urine test (measures kidney damage)

Feet and Nerves

- Yearly monofilament test (checks the sensation of your feet)
- Daily foot check at home
  - Look for cuts, broken nails, or infection
  - Tips: Use a mirror; Moisturize; Dry well between toes

THINGS TO MONITOR

Eyes

- Yearly eye exam
- Tell your optometrist that you have diabetes

Oral health

- Daily mouth care
- Watch for gums that are red, puffy, tender, or bleeding *(even a little bit)* or persistent bad breath
- Dental check-up and cleaning every 6-12 months
- Tell your dentist and dental hygienist that you have diabetes

THINGS TO MONITOR

Mental health

- Talk to your doctor if you have concerns
- Counseling, medications, and other supports are available

Sexual dysfunction - improve symptoms by

- Improving diabetes control (lowering glucose)
- Improving mental health
- Taking medications if needed

DIABETES MANAGEMENT

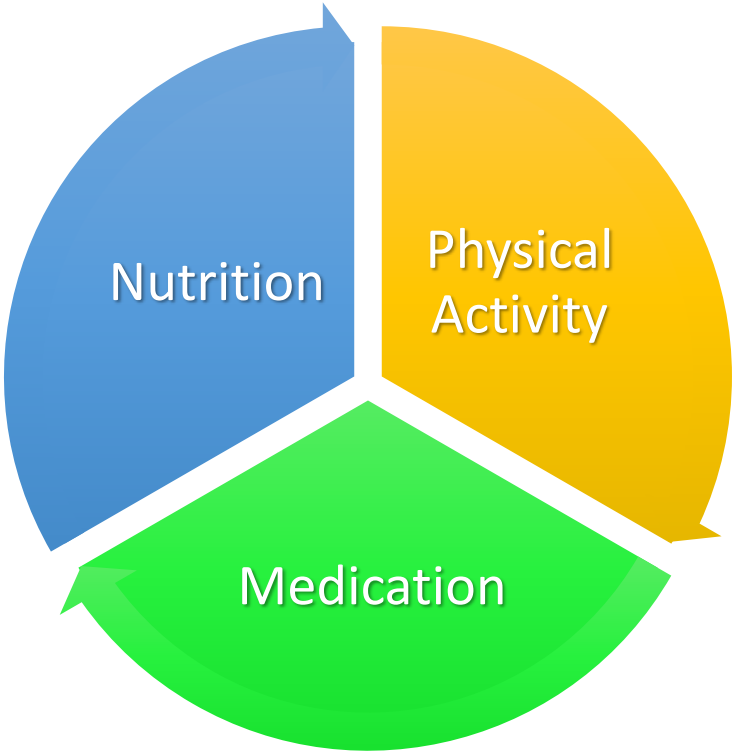
WHAT ELSE CAN I DO TO STAY HEALTHY?

THE GOOD NEWS

Every complication that we discussed can be prevented, improved, or delayed by:

- Taking medications as prescribed
- Healthy eating (Class 2)
- Regular physical activity (Class 3)
- Managing stress (Class 4)
- Quitting smoking

MANAGING BLOOD SUGARS AND DIABETES



MEDICATIONS

TRUE OR FALSE?

Going on a medication for diabetes means that I've failed my diet / exercise plans and my diabetes is getting worse

FALSE

THE FACTS

- Diabetes is progressive
  - What works today may not always be enough in the future
- Healthy behaviours are always beneficial
  - Medications are used ***in addition*** to lifestyle changes
- The higher your risk, the more benefit medications provide

It's a combined effort!

WHAT DO MEDICATIONS DO?

IMPROVE
SYMPTOMS

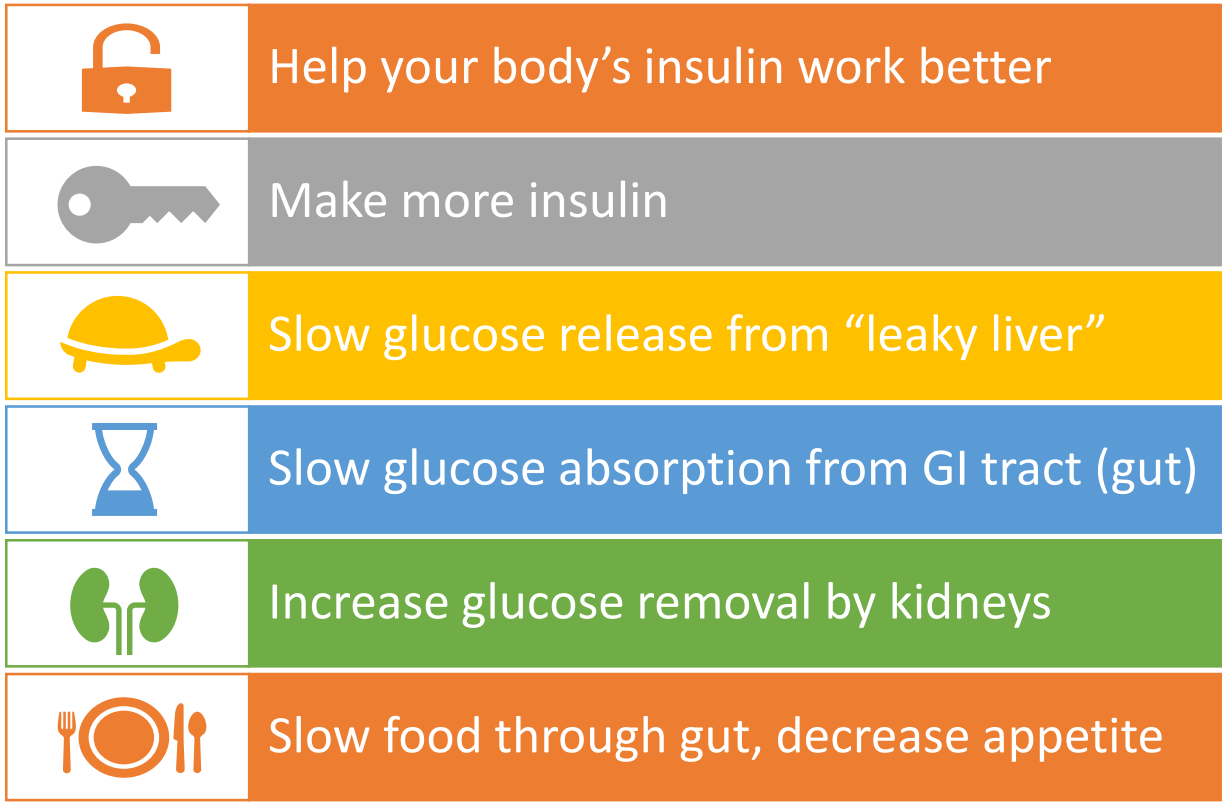
DECREASE
HEALTH RISKS

MEDICATION: THINGS TO CONSIDER

PROS	CONS

• Lower cost medications
• Possible side effects
  • Weight loss
  • Lower risk of complications, heart disease, or death
• Frequency (once a day, once a week)
	• Higher cost medications
	• Possible side effects
	  • Risk of low blood sugar
	  • Upset stomach
	  • Weight gain
	  • Yeast infections
	• Injection (insulin or other drugs)

WAYS THAT MEDICATIONS LOWER GLUCOSE LEVELS



Metformin

- Helps insulin work more effectively
- Slows down the “leaky liver”

Empagliflozin	Dapagliflozin	Canagliflozin
Jardiance	*Forxiga*	*Invokana*

- Increase glucose removal by the kidneys

Glyburide	Gliclazide	Repaglinide
Diabeta	*Diamicron*	*Gluconorm*

- Increase the amount of insulin produced in the body

Sitagliptin	Linagliptin	Saxagliptin
Januvia	*Trajenta*	*Onglyza*

- Increase the amount of insulin produced in the body
- Decrease appetite / slows food leaving stomach

Liraglutide
Victoza

Semaglutide
Ozempic

Dulaglutide
Trulicity

- Increase the amount of insulin produced in the body
- Decrease appetite / slows food leaving stomach

Pioglitazone
Actos

- Helps insulin work more effectively

Insulin

- Increases the amount of insulin in the body
- Used when other medications are not enough

Remember:

- Diabetes is progressive
- Over time, insulin-making cells in the pancreas wear out
- Insulin injections “top up” the body to the insulin level it needs

MEDICATIONS

- Medications work in different ways
- You may need several medications in combination to lower glucose and reduce your risk of diabetes complications

OTHER MEDICATIONS

Blood pressure pills

- Lower heart disease risk (if you have high blood pressure)
- Some may help protect your kidneys, *regardless* of your blood pressure level

Cholesterol pills (statins)

- Reduce heart disease risk, *regardless* of cholesterol level

POLL QUESTION

How would you prefer to manage your diabetes?

- Prescription medications
- Vitamins / Natural supplements
- Both (prescriptions + natural products)
- Neither (diet + exercise only)

NATURAL HEALTH PRODUCTS

- Natural health products can be advertised as treatments, regardless of how safe or effective they are
- Natural products are ***not*** required to be studied as in-depth as prescription medications
- If you are taking a supplement for any reason, tell your health care team, so they can make sure it is safe for you

YOU ARE AT THE CENTER OF YOUR CARE

DIABETES RESOURCES

- Diabetes Canada
www.diabetes.ca

- Heart & Stroke Foundation
www.heartandstroke.ca

- Other health education groups
www.wrha.mb.ca/groups

- Health Links (204) 788-8200

- Your diabetes care team: Doctor/NP, Nurse, Dietitian, Community Pharmacist, Physiotherapist, OT, etc.

SMOKING RESOURCES

- Smoker's Helpline
  1-877-513-5333

- Manitoba Lung Association
  www.mb.lung.ca

- Peer support online
  www.facebook.com/groups/ManitobaQuits

- Education / support groups, including *Commit To Quit* and *Packing It In* classes
  www.wrha.mb.ca/groups

Any questions?

Use the chat function
or un-mute your microphone