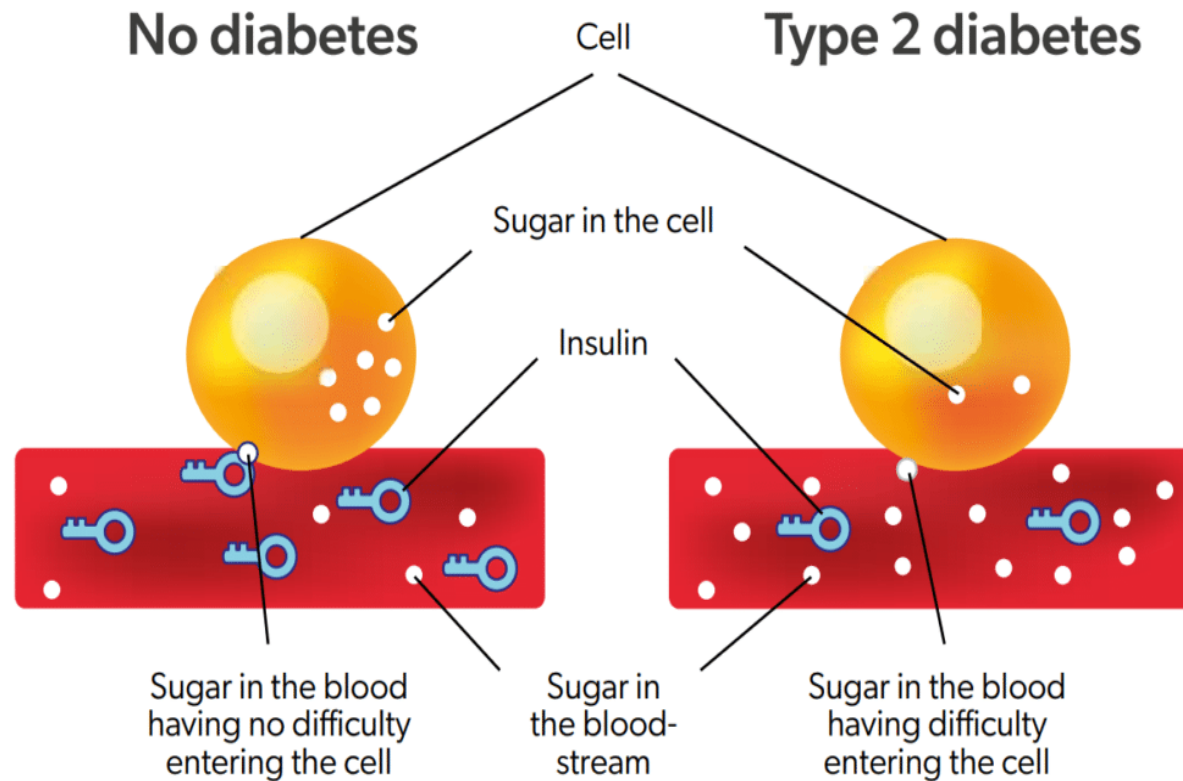# Diabetes Prevention & Management

Megan Weber RD, CDE

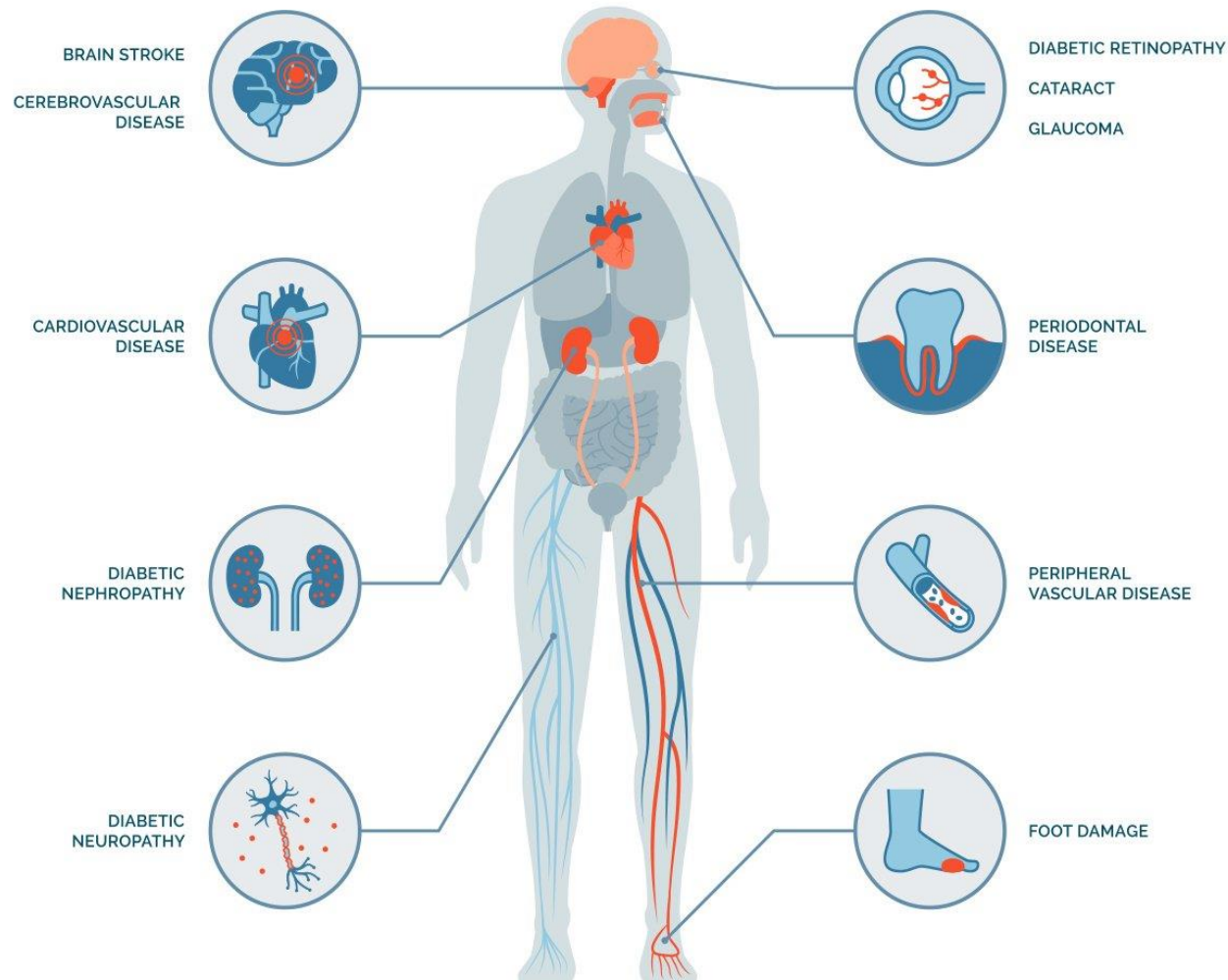Registered Dietitian, Certified Diabetes Educator

# What Is Diabetes?

A chronic condition where the body has high blood sugar because it either can't produce enough insulin or can't effectively use the insulin it produces.



No diabetes
Type 2 diabetes

Cell
Sugar in the cell
Insulin

Sugar in the blood having no difficulty entering the cell

Sugar in the blood-stream

Sugar in the blood having difficulty entering the cell

# Complications

- If left untreated or improperly managed, diabetes can result in:

# People with diabetes are:

**25** times more likely
to experience vision loss

**12** times more likely
to be hospitalized for kidney
failure needing dialysis

## Vision
· Diabetes is the
leading cause of blindness in
Canadians under 50

**3** times more likely
to be hospitalized for heart
attack, stroke and heart failure

**20** times more likely
to be hospitalized for non-traumatic
toe, foot and leg amputations

· 500,000 Canadians have
diabetes-related eye damage that
can lead to blindness

## Diabetes reduces lifespan by 5 to 15 years

# Are You At Risk?

- [ ] I have a parent, brother or sister with diabetes.
- [ ] I am a member of a high-risk group (African, Arab, Asian, Hispanic, Indigenous or South Asian descent, low socioeconomic status).
- [ ] I have health complications that are associated with diabetes.
- [ ] I gave birth to a baby that weighed over 4 kg (9 lb) at birth.
- [ ] I had gestational diabetes (diabetes during pregnancy).
- [ ] I have been told I have prediabetes (impaired glucose tolerance or impaired fasting glucose)
- [ ] I have high blood pressure.
- [ ] I have high cholesterol or other fats in my blood.
- [ ] I am overweight (especially if I carry most of my weight around my middle).
- [ ] I have been diagnosed with any of the following conditions:
  - Polycystic ovary syndrome
  - Acanthosis nigricans (darkened patches of skin)
  - Psychiatric disorders: schizophrenia, depression, bipolar disorder
  - I have obstructive sleep apnea
  - I use glucocorticoid medication

# A Note On Low Socioeconomic Status:

**Food Insecurity**
in Leeds, Grenville & Lanark 2024

**1** in **7** households in LGL are living with food insecurity

**Food Insecurity** = inadequate/insecure access to food due to lack of money
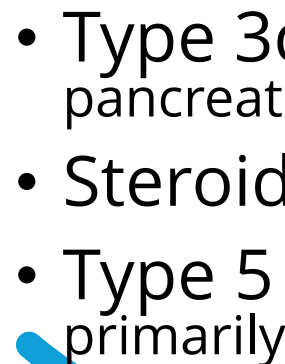
**It is caused by poverty.**

**When money is tight.....**

People cut food budgets to pay for other expenses → They skip meals and buy cheaper, less nutritious foods → Risk of:
- infection
- chronic disease
- poor mental health → Health care costs

# Types of Diabetes

- Prediabetes
- Type 1 (and Latent Autoimmune Diabetes in Adults (LADA))
- Type 2
- Gestational
- Monogenic (Maturity Onset Diabetes of the Young (MODY) and Neonatal Diabetes)
- Type 3 (the hypothesis that insulin resistance in the brain causes Alzheimer's disease)
- Type 3c diabetes (after another disease damages the pancreas (pancreatic cancer, pancreatitis, haemochromatosis, cystic fibrosis)
- Steroid-induced diabetes
- Type 5 (after chronic undernutrition during childhood - affecting 20-25 million people, primarily in Asia and Africa)

# Type 1

- Usually diagnosed in children, when the pancreas is unable to produce insulin and control the amount of sugar in the blood. ~10% of people with diabetes have T1D
- No safe or effective strategies to prevent T1D...yet
- Screening can now identify the early stages of T1D years before symptoms appear
- Relatives of people with T1D are at 15x higher risk than the general population
- Increased risk T1D is linked to five specific antibodies
- Having ≥ 2 of these antibodies is now considered early T1D

# Symptoms

# Prevention of Prediabetes and T2D

- 5% of initial body weight loss with diet and exercise, can reduce the risk of progression to T2D by almost 60%
- When initiated early, the effects of healthy behaviour interventions are long lasting (more than 20 years)

# Monitoring T2D

**A** 1C 7% or less

**B** lood pressure less than 130/80 mmHG

**C** holesterol (LDL) less than 2.0 mmol/L

**D** rugs for decreasing heart disease risk (if applicable)
- ACEi/ARB:
- Statin:
- ASA:
- SGLT2i or GLP1ra:

**E** xercise goals and healthy eating

**S** elf-management support
- Set a personalized goal
- Identify barriers to achieving goals (pain, stress, mental health, financial and/or other concerns)

**S** creening or monitoring for complications
- Heart: ECG every 3-5 years if required
- Foot: Yearly exam or more if required
- Kidney: Yearly blood/urine tests or more if required
- Eye: Yearly exam or more if required

**S** moking cessation (if applicable)

# A1C Monitoring

| | |
|---|---|
| ≤6.5 | Adults with type 2 diabetes to reduce the risk of CKD and retinopathy **if at low risk of hypoglycemia** |
| ≤7.0 | **MOST ADULTS WITH TYPE 1 OR TYPE 2 DIABETES** |
| 7.1 ↓ 8.5 | **7.1-8.0%**: Functionally dependent* <br> **7.1-8.5%:** <br> • Recurrent severe hypoglycemia and/or hypoglycemia unawareness <br> • Limited life expectancy <br> • Frail elderly and/or with dementia** |
| Avoid higher A1C to minimize risk of symptomatic hyperglycemia and acute and chronic complications | |
| End of life | A1C measurement not recommended. Avoid symptomatic hyperglycemia and any hypoglycemia |

# Monitoring

## Blood Glucose (BG) Targets for glycemic management (when indicated/accessible)

| Blood Glucose (BG) Targets | Fasting / Preprandial BG (mmol/L) | 2-hr Postprandial BG (mmol/L) |
|---|---|---|
| For most people with diabetes | 4.0 – 7.0 | 5.0 – 10.0 |
| If not at A1C ≤7.0 % despite the above BG targets → | 4.0 – 5.5 | 5.0 – 8.0 |

## Continuous Glucose Monitoring (CGM) Targets for glycemic management (when indicated*/accessible)

**For most people with Type 1 & Type 2 diabetes** glycemic variability ≤36 % Coefficient of Variation (%CV)

- Functionally-dependent
- Recurrent severe hypoglycemia and/or Impaired awareness of hypoglycemia
- Frail / Cognitively-impaired

Type 1 diabetes: pregnancy

**TAR** Time above range

| | For most people with Type 1 & Type 2 | | Functionally-dependent etc. | | Type 1 diabetes: pregnancy |
|---|---|---|---|---|---|
| TAR | >13.9 mmol/L | <5 % | >13.9 mmol/L | <10 % | >7.8 mmol/L <25 % |
| | >10.0 mmol/L | <25 %[3] | >10.0 mmol/L | <50 %[3] | |
| TIR Time in range | 3.9 - 10.0 mmol/L | >70 %[1] | 3.9 - 10.0 mmol/L | >50 % | 3.5 - 7.8 mmol/L >70 % |
| TBR Time below range | < 3.9 mmol/L | <4.0 %[2] | < 3.9 mmol/L | <1.0 % | < 3.5 mmol/L <4.0 %[2] |
| | < 3.0 mmol/L | <1.0 % | | | < 3.0 mmol/L <1.0 % |

# Benefits of Exercise

- Improved blood pressure
- Stronger bones
- Lower risk of heart disease and cancer
- Increased energy
- Improved sensitivity to insulin
- Lowers blood sugar
- Weight loss

# How Much Exercise?

- ≥ 150 minutes of moderate to vigorous aerobic exercise each week, (30 mins, 5x/week) PLUS Resistance exercise 2-3x/week (3 sets of 8-12 reps for 5 major muscle groups)

- No more than two consecutive days without exercise

# Exercise

**3 EXERCISES TO HELP MANAGE DIABETES**

**Resistance Exercise**

Involves brief repetitive exercises with weights, weight machines, resistance bands or one's own body weight to build muscle strength.

**Aerobic Exercise**

Continuous exercise such as walking, bicycling or jogging that elevates breathing and heart rate.

**Interval Training**

Involves short periods of vigorous exercise such as running or cycling, alternating with 30 second to 3 minute recovery periods at low-to-moderate intensity or, rest.
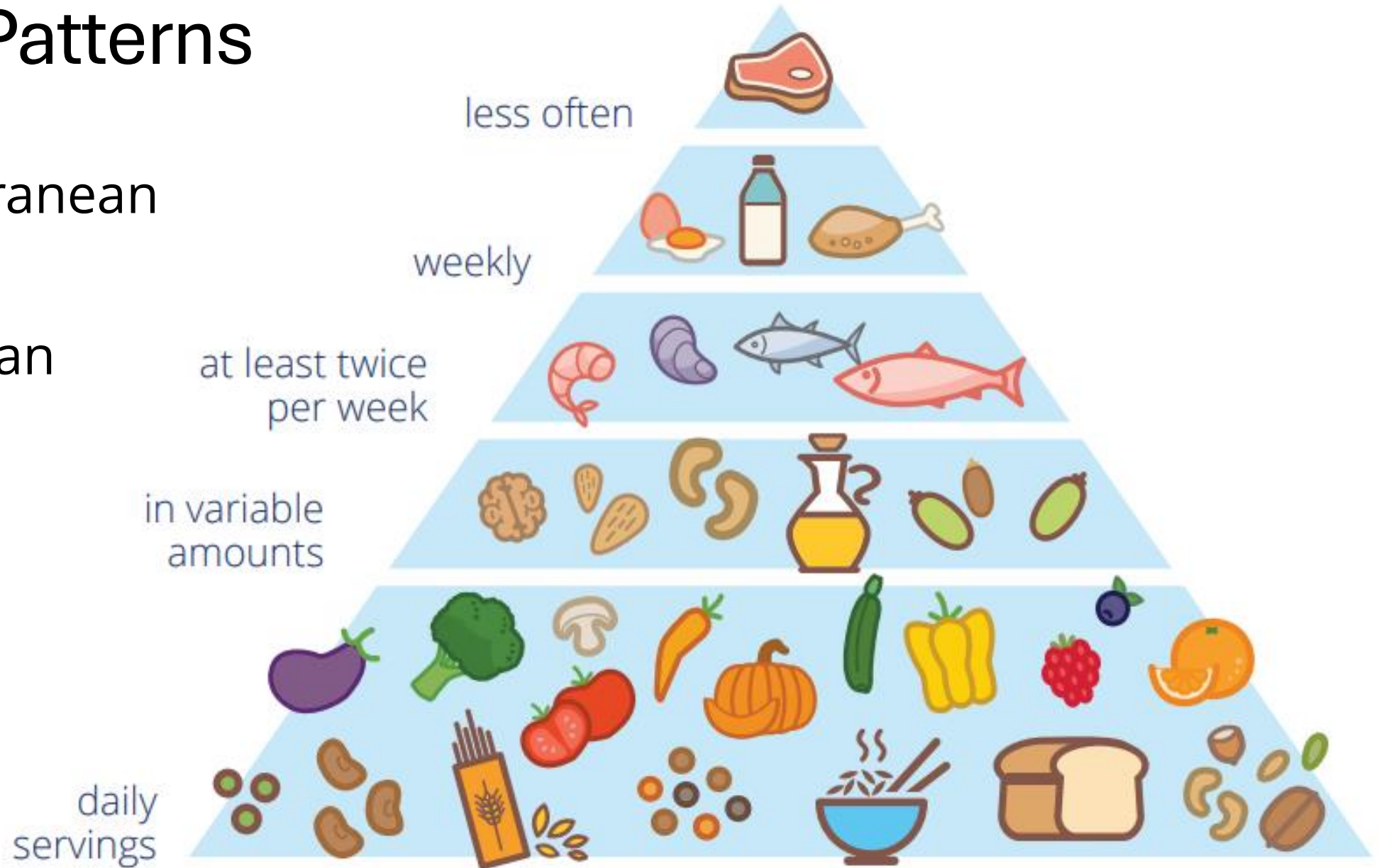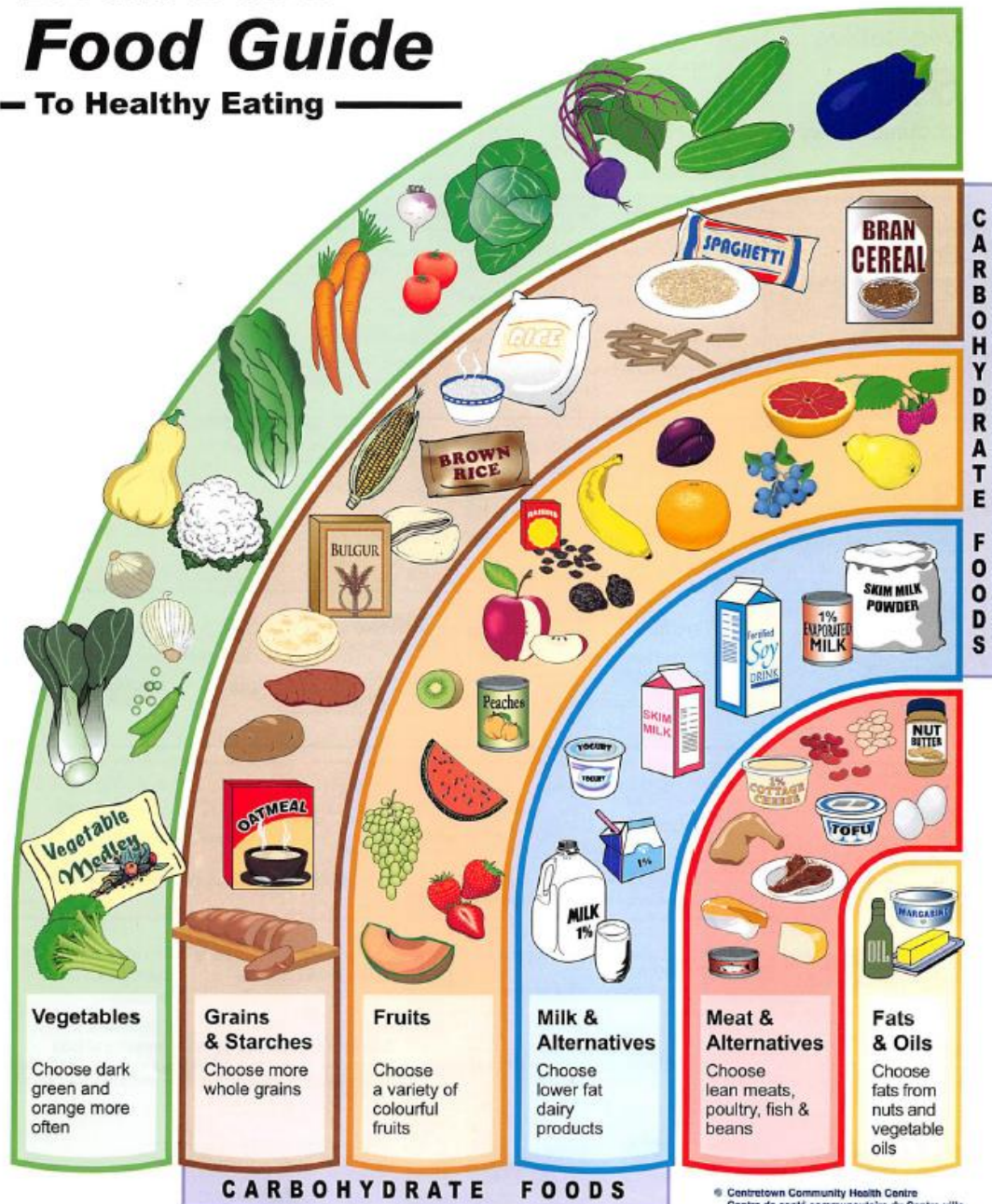
# Aerobic Exercise

- Start at a comfortable pace, gradually increase pace and duration
- Shorter sessions 10 mins 3x/day after meals, can replace a single longer session <u>of equivalent length and intensity</u>

**Intensity is Important**

**Light (RPE 1 - 2)**
easy walking, golf, gardening, dusting, laundry, stretching, yoga, curling, bowling

**Moderate (RPE 3 - 6)**
brisk walking, climbing stairs, mowing the lawn, swimming, dancing, biking

**Vigorous* (RPE ≥ 7)**
running, fast cycling, hockey, basketball, gym workouts

# Resistance Exercise

- Target major muscle groups: arms, chest, back, legs, abdomen
- Aim for 3 sets of 8-12 reps each

Free weights    Weight machines    Resistance bands    Bodyweight

## Maintain Stable and Proper Posture for each Exercise

- Keep your chest out.
- Avoid rounding the shoulders or twisting your back.

## Keep Each Movement Slow and Controlled

- 3 seconds up; 3 seconds down

## Do Not Hold Your Breath

- Exhale with effort.
- Release your breath with each repetition.

## Keep to a Comfortable Range of Motion

- Use a complete range that is comfortable for you.

## Use an Appropriate Resistance

- Pick a band that makes it moderately hard to do the exercise.

## Increasing the Resistance Used

- Change the length of the resistance band
  - Shorter band = harder
  - Longer band = easier

# Interval Exercise

- Short periods of vigorous exercise such as running or cycling, alternating with 30 second to 3-minute recovery periods at low-to-moderate intensity
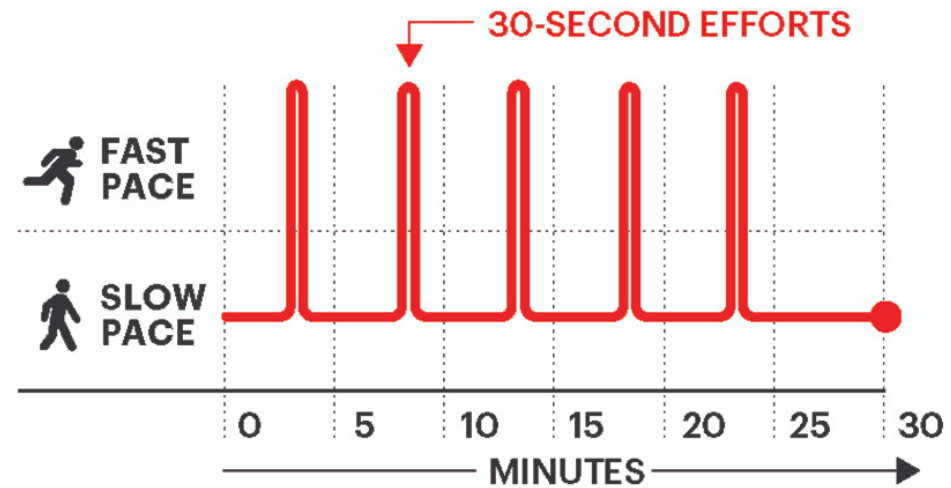
# Diet

# Dietary Patterns

- Mediterranean
- DASH
- Vegetarian



less often

weekly

at least twice per week

in variable amounts

daily servings

# The Diabetes Food Guide
## To Healthy Eating

**CARBOHYDRATE FOODS**

SPAGHETTI
BRAN CEREAL
RICE
BROWN RICE
BULGUR
RAISINS
SKIM MILK POWDER
Soy DRINK
1% EVAPORATED MILK
SKIM MILK
Peaches
OATMEAL
YOGURT
1% COTTAGE CHEESE
TOFU
NUT BUTTER
MILK 1%
OIL
MARGARINE
Vegetable Medley

**Vegetables**
Choose dark green and orange more often

**Grains & Starches**
Choose more whole grains

**Fruits**
Choose a variety of colourful fruits

**Milk & Alternatives**
Choose lower fat dairy products

**Meat & Alternatives**
Choose lean meats, poultry, fish & beans

**Fats & Oils**
Choose fats from nuts and vegetable oils

**CARBOHYDRATE FOODS**

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Centre de santé communautaire du Centre-ville

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# The Diabetes Food Guide

| Recommended Daily Food Choices | What is a choice? | | |
|---|---|---|---|
| **Vegetables** **5+** choices a day | 1 cup raw leafy greens, or ½ cup cooked (spinach, romaine, kale, endive, swiss chard) <br> ½ cup raw/cooked: asparagus, beets, broccoli, green and yellow string beans, carrots, cabbage, cauliflower, celery, cucumber, eggplant, leeks, mushrooms, mixed frozen vegetables, onions, green and red peppers, tomato, turnips, zucchini <br> *\* portions of more than 1 cup of parsnips, peas, winter squash and tomato sauce will add 15 g of available carbohydrate (3 teaspoons of sugar) to your meal.* | | |

1 choice from carbohydrate foods = 15 grams of carbohydrate (3 teaspoons of sugar)

**CARBOHYDRATE FOODS**

| | | | |
|---|---|---|---|
| **Grains and Starches** **6–8** choices a day <br> Measure after cooking | 1 slice whole grain bread <br> ¾ cup hot cereal <br> ½ cup cold cereal <br> ½ cup barley, bulgur, buckwheat, quinoa, wild rice <br> ½ cup pasta, couscous <br> ½ cup corn kernel or ½ cob | ½ medium potato or ½ cup mashed potato <br> 1/3 cup brown rice, white rice, millet <br> 1/3 cup sweet potato <br> 1 (6 inch) whole wheat chapatti, roti, tortilla | ½ (6 inch) pita bread <br> ¼ large bagel <br> 1 (4 inch) pancake or waffle <br> 1 (2 inch) small muffin <br> 3 cups popcorn <br> ½ english muffin <br> 7 soda crackers |
| **Fruits** **3** choices a day | 1 medium: apple, orange, pear <br> 2 medium: kiwi, plums, clementine oranges <br> ½ medium mango <br> 1 small banana, grapefruit <br> 1 large peach, nectarine | 2 cups strawberries, blackberries, raspberries <br> 1 cup blueberries <br> 1 cup melon <br> ¾ cup fresh pineapple <br> 15 grapes, cherries | ½ cup unsweetened applesauce, canned fruit in juice <br> ½ cup unsweetened juice <br> ¼ cup mixed dried fruit |
| **Milk and Alternatives** **2–3** choices a day | 1 cup milk <br> 1 cup fortified soy beverage plain <br> ½ cup chocolate milk | ½ cup fortified soy beverage flavoured <br> 4 tbsp powdered milk | ½ cup evaporated milk <br> ¾ cup plain low fat yogurt <br> ¾ cup artificially sweetened yogurt |

| | | | |
|---|---|---|---|
| **Meat and Alternatives** **4–8** choices a day <br> Measure after cooking | 1 ounce (30 g) lean meat, poultry or fish <br> 1 large egg <br> ¼ cup canned fish | ¼ cup cottage cheese (1-2% MF) <br> 1 ounce (30 g) cheese (<20% MF) <br> ½ cup legumes (beans, peas, lentils)* | ½ block (85 g) tofu <br> 2 tbsp. peanut butter <br> 1/3 cup hummus |

*\* portions of more than 1 cup of beans and lentils will add 15 g of available carbohydrate (3 teaspoons of sugar) to your meal.*

| | | | |
|---|---|---|---|
| **Fats and Oils** Moderation | 1 tsp. butter or non hydrogenated margarine <br> 1 tsp. oil, canola, olive or peanut | 1 tbsp. nuts or seeds <br> 1 tbsp. salad dressing, regular | 1 tbsp. mayonnaise, light <br> 1 slice bacon <br> ¼ avocado |

**Sweets**
Have sweets in moderation and enjoy small portions. Choose food and beverages low in added sugars.

**Physical activity**
Be physically active for at least 30 minutes most days of the week.

**Different people need different amounts of food**
This guide gives you a lower and higher number of servings from each food group. See a Dietitian to help you determine how much you need.

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Centre de santé communautaire du Centre-ville

Produced by
The Community Diabetes Education Program of Ottawa, 2018.

# Healthy Snacks

When building your healthy snack, aim for 15-30 grams of carbohydrate plus some protein. Pairing carbohydrate and protein helps to fill you up, keeps you full longer and slows down the rate of digestion of carbohydrates, helping to manage your blood sugar.

carbohydrate + protein
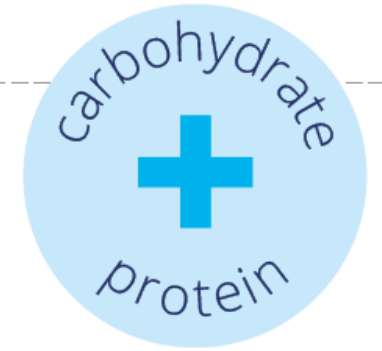
1/2 cup plain Greek yogurt + 1/2 cup berries

1/3 cup hummus + 1/2 cup of vegetables

1 slice of whole-grain toast + 2 Tbsp nut butter
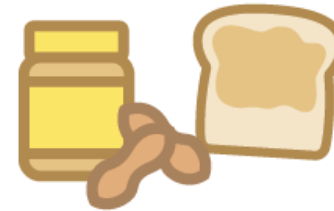
1 orange + 1/4 cup of walnuts
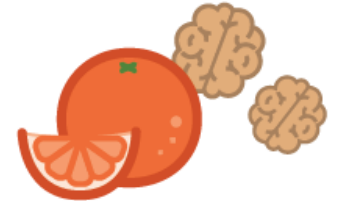
1/4 cup egg salad + 1/2 whole wheat English muffin

1/2 cup low-fat cottage cheese + 4 whole grain crackers
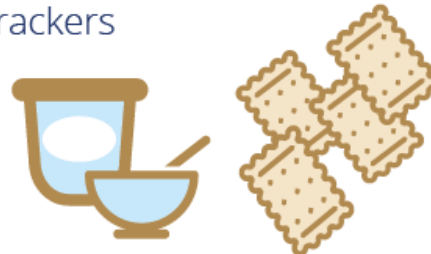
3 cups air popped popcorn + 1/4 cup pumpkin seeds

1 cup steamed edamame

# Quick Label Reading Tips

✓ If you count carbohydrate servings, 15 g is one serving.

✓ In general look for lower sugar products.

✓ Recommended daily fibre intake is 25 to 38 g.

Carbs

✓ Recommended to limit sodium to 1500 mg per day and not to exceed 2300 mg.

Sodium



✓ Recommended to be less than 10% calories, or 20 g per day, based on 2000 calorie intake.

Fats

# Diet

## GRAINS & STARCHES

| Low Glycemic Index (55 or less) Choose MOST Often | Medium Glycemic Index (56 to 69) Choose LESS Often | High Glycemic Index (70 or more) Choose LEAST Often |
|---|---|---|
| **Breads:** | **Breads:** | **Breads:** |
| English Muffin (Whole Wheat, Multigrain) | Chapati (White, Whole Wheat) | Bread, Bagel, Baguette (White, Whole Wheat) |
| Dosa (Foxtail Millet + Dhal) | Gluten-free Bread (Sourdough, Buckwheat, Quinoa, Oat, Pulse) | Dosa (Rice Flour, Finger Millet + Dhal) |
| Idli (Brown rice + Dhal) | Milk Bread | English Muffin (White) |
| Flaxseed/Linseed Bread | Oat Bread | Gluten-free Bread (White, Rice, Corn) |
| Mixed Grain Heavy Breads | Paratha | Idli (White rice + Dhal) |
| Multigrain, Seeded Bread | Pita Bread (White, Whole Wheat) | Matzo |
| Pumpernickel Bread | Spelt Bread | Naan (White, Whole Wheat) |
| Sprouted Grain Bread | Sourdough (Whole Wheat, Rye) | Rice Bread |
| Tortilla (Whole Wheat, White, Corn) | Roti (White, Whole Wheat) | Rice Cakes |
| **Cereal:** | Rye Bread (Light, Dark, Whole Grain) | Sourdough (White) |
| All-Bran™ Cereal | Whole Grain Whole Wheat Bread | **Cereal:** |
| All-Bran Buds™ With Psyllium Cereal | **Cereal:** | Cheerios™ Cereal |
| Red River Cereal | All-Bran Flakes™ Cereal | Corn Flakes™ Cereal |
| Oats (Steel Cut) | Cornmeal porridge | Cream of Wheat™ (Instant) |
| Oat Bran™ | Cream of Wheat™ (Regular) | Puffed Wheat Cereal |
| **Grains:** | Granola | Rice Krispies™ Cereal |
| Adlay, Job's Tears, Chinese Barley (Boiled, Flaked) | Muesli | Shredded Wheat™ |
| Barley | Oats (Large Flake, Rolled, Old Fashioned) | Special K™ Cereal |
| Buckwheat | Oats (Quick) | Oats (Instant) |
| Bulgur | Raisin Bran™ | **Grains:** |
| Chickpea flour | **Grains:** | Millet (Finger, Pearl) |
| Egg Noodles | Amaranth | Ramen (Instant) |
| Kamut | Cornmeal | Rice (Instant) |
| Mung Bean Noodles | Couscous (Regular, Whole Wheat) | Rice (Jasmine) |
| Pasta (Wheat - Al Dente, Firm) | Gluten Free Pasta | Rice (Sticky, Sushi, Short Grain) |
| Pulse Flours | Millet (Foxtail, Little, Kodo, Proso, Barnyard) | Rice Porridge (Congee) |
| Quinoa | Ramen Noodles (Fresh, Buckwheat, Whole Wheat) | Sorghum |
| Rice (Brown) | Rice (Basmati) | |
| Rice (Wild) | Rice (Parboiled) | |
| | Rice (Long Grain) | |
| | Rice Noodles | |
| | Soba (Buckwheat) Noodles | |
| | Spelt | |
| | Tapioca | |
| | Teff | |
| | Udon Noodles | |

# Diet

## GRAINS & STARCHES (continued)

| Low Glycemic Index (55 or less) Choose MOST Often | Medium Glycemic Index (56 to 69) Choose LESS Often | High Glycemic Index (70 or more) Choose LEAST Often |
|---|---|---|
| **Other:** | **Other:** | **Other:** |
| Carrots (Cooked) | Ancient Grain Cracker | Cassava (Peeled, Boiled, Steamed) |
| Melba Toast (Whole Grain, Rye, Oat) | Beets (Cooked) | Corn Starch |
| Green Peas** | Breton™ Wheat Crackers | Gnocchi |
| Plantain (Green, Boiled) | Chestnuts (Roasted, Steamed) | Plantain (Ripe, Fried) |
| Popcorn (Air-popped) | Corn | Potato (Instant Mashed) |
| Sunflower Oat Crisp Crackers (e.g. Ryvita Crispbread™) | French Fries* | Potato (Cooked Hot) |
| Sweet Potato (Boiled, Steamed) | Parsnip | Pretzels |
| Winter Squash | Potato (Cooked Cooled) | Rice Cakes |
| | Pumpkin | Rice Crackers |
| | Rye Crisp Crackers (e.g. Ryvita Rye Crispbread™) | Soda Crackers |
| | Semolina | Sweet potato (Fried, Baked) |
| | Taro, Eddoe (Boiled) | Yam (Roasted, Mashed) |
| | Triscuit™ Original Crackers | |
| | Yam (Steamed, Boiled) | |

**Snow and snap peas are considered non-starchy vegetables so are not included in the chart.

## FRUITS

| | | |
|---|---|---|
| Apple | Banana (Ripe, Yellow) | Banana (Brown, Overripe) |
| Applesauce (Unsweetened) | Cherries (Canned) | Breadfruit (Roasted) |
| Apricots (Fresh, Dried) | Cranberries (Dried) | |
| Banana (Green, Unripe) | Figs (Dried) | |
| Berries | Grapes | |
| Breadfruit (Boiled) | Lychee (Fresh) | |
| Cantaloupe | Jackfruit | |
| Cherries (Fresh) | Pineapple | |
| Dates (Fresh, Dried) | Persimmons | |
| Durian | Raisins | |
| Figs (Fresh) | Watermelon | |
| Guava | | |
| Grapefruit | | |
| Honeydew Melon | | |
| Kiwi | | |
| Longan | | |
| Mandarin | | |
| Mango | | |
| Nectarines | | |
| Orange | | |
| Papaya | | |
| Passionfruit | | |
| Peach | | |
| Pear | | |
| Plum | | |
| Pomegranate | | |
| Pomelo | | |
| Prunes | | |
| Starfruit | | |

# Diet

## DAIRY & ALTERNATIVES

| Low Glycemic Index (55 or less) Choose MOST Often | Medium Glycemic Index (56 to 69) Choose LESS Often | High Glycemic Index (70 or more) Choose LEAST Often |
|---|---|---|
| Almond Milk | Oat Milk, unsweetened | Rice Milk |
| Chocolate Milk (1%, 2%)* | Processed Cheese (e.g. processed cheese slices, cream cheese)* | |
| Cheese (Natural, e.g. cheddar) | | |
| Cottage Cheese | | |
| Cow's Milk (Skim, 1%, 2%) | | |
| Frozen Yogurt (Reduced Fat)* | | |
| Greek Yogurt (Plain, 0%, 2%, Reduced Sugar) | | |
| Ice Cream (Reduced Fat)* | | |
| Kefir (Plain, Unsweetened) | | |
| Soy or Nut Cheese | | |
| Soy Milk (Unsweetened, Reduced Sugar) | | |
| Yogurt, (Plain, Reduced Sugar-0%, 2%) | | |

## PROTEIN SOURCES

| Low Glycemic Index | Medium Glycemic Index | High Glycemic Index |
|---|---|---|
| Baked Beans | Lentil Soup (ready-made) | Broad Beans |
| Black Beans | Split Pea Soup (ready-made) | |
| Black Eyed Peas | | |
| Chickpeas | | |
| Hummus | | |
| Kidney Beans | | |
| Lentils | | |
| Mung Beans | | |
| Nuts, Seeds | | |
| Romano Beans | | |
| Soybeans/Edamame/Tempeh | | |
| Split Peas | | |

# Stress

- For people living with diabetes, the disease can negatively impact **quality of life**

Emotional well-being

Freedom to eat as much as you wish

Work or studies

Relationship with your family

Relationship with your friends

Relationship with your peers

Leisure activities

Financial situation

Physical health
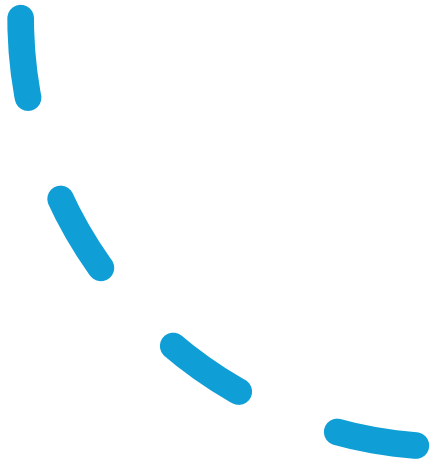
# Stress

- Physical: disease, pain, pregnancy, infection, etc.

- Psychological: anxiety, depression, bereavement, job loss, marriage, moving, family and professional responsibilities, traffic jams, etc.

# Stress

In any stressful situation, it is important to ask ourselves:

**"What CAN I control about this situation?"**

**Problem-focused coping:**
If you CAN control or change these aspects.

**Self-focused coping:**
If you CANNOT control or change these aspects.

# Stress

## Healthy Coping Strategies:

Professional Help

Exercise

Mental Fitness

Play

Sleep

Routine

Social Support
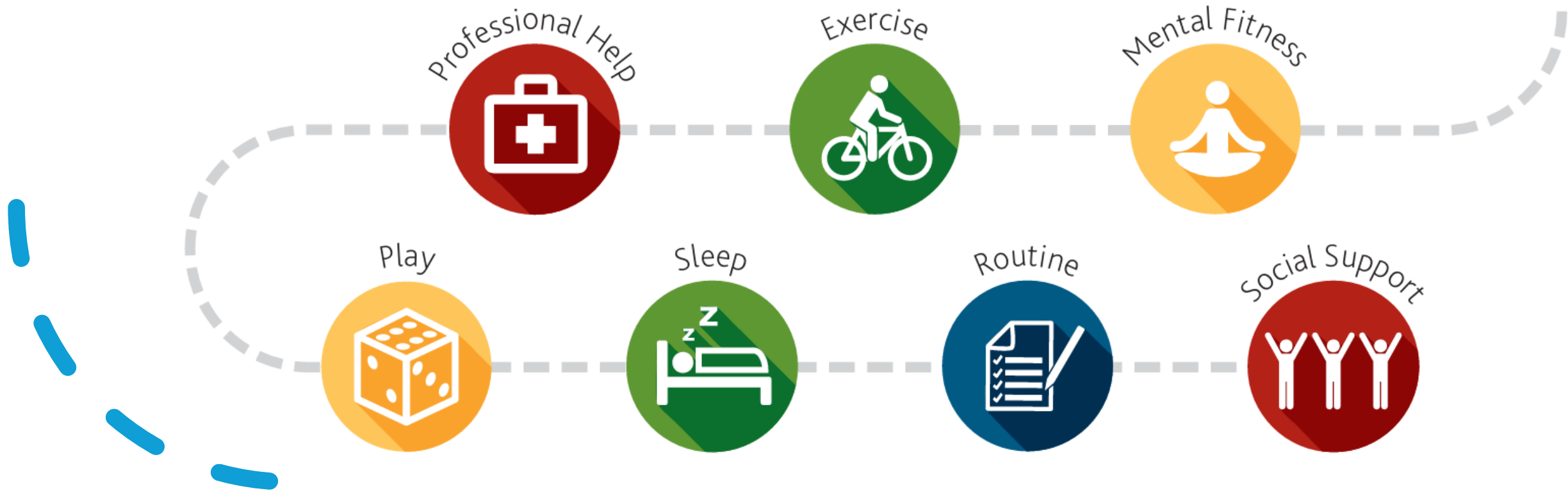
# Pain

- Acute and chronic pain are stressors that can trigger higher sugar from our "flight/flight response"

- High blood sugar can damage nerves over time, which can cause chronic pain, burning, tingling, or numbness in the hands and feet, known as peripheral neuropathy

# Neuropathy

## Best advice

| Do | Don't |
|---|---|
| Wear well-fitting shoes. They should be supportive, have low heels (less than 5 cm high) and should not rub or pinch. Shop at a reputable store with knowledgeable staff who can professionally fit your shoes. | Use over-the-counter medications to treat corns and warts. They are dangerous for people with diabetes. |
| Buy shoes in the late afternoon (since your feet swell slightly by then). | Wear anything tight around your legs, such as tight socks or knee-highs. |
| Wear socks at night if your feet get cold. | Ever go barefoot, even indoors. Consider buying a pair of well-fitting shoes that are just for indoors. |
| Elevate your feet when you are sitting. | Put hot water bottles or heating pads on your feet. |
| Wiggle your toes and move your ankles around for a few minutes several times a day to improve blood flow in your feet and legs. | Sit or cross your legs for long periods of time. |
| Exercise regularly to improve circulation. | Smoke. Smoking decreases circulation and healing, and significantly increases the risks of amputation. |
| Inspect your feet daily and in particular, feel for skin temperature differences between your feet. | Wear over -the- counter insoles - they can cause blisters if they are not right for your feet. |

# Retinopathy

- Diabetes is the single largest cause of blindness in Canada.
- In early stages there may be no symptoms, which is why it is important to have regular eye exams.
- Retinopathy affects 23% of people with T1D and 17% of people with T2D.
- Well controlled sugar, blood pressure, and cholesterol can prevent this.

# Smoking

- Just like high blood sugar, the chemicals in cigarettes attack blood vessels → hardening of the arteries which impairs your ability to carry oxygen throughout your body.

- The combination of high blood sugar and smoking dramatically increases damage to the blood vessels that feed the heart, brain, eyes, kidneys and peripheral nerves, <span style="color:red">speeding up the long-term complications of diabetes.</span>

# Vascular Protection

✓ A • A1C – optimal glycemic control (usually ≤7%)

✓ B • BP – optimal blood pressure control (<130/80)

✓ C • Cholesterol – LDL-C < 2.0 mmol/L or >50%
   reduction if treatment indicated

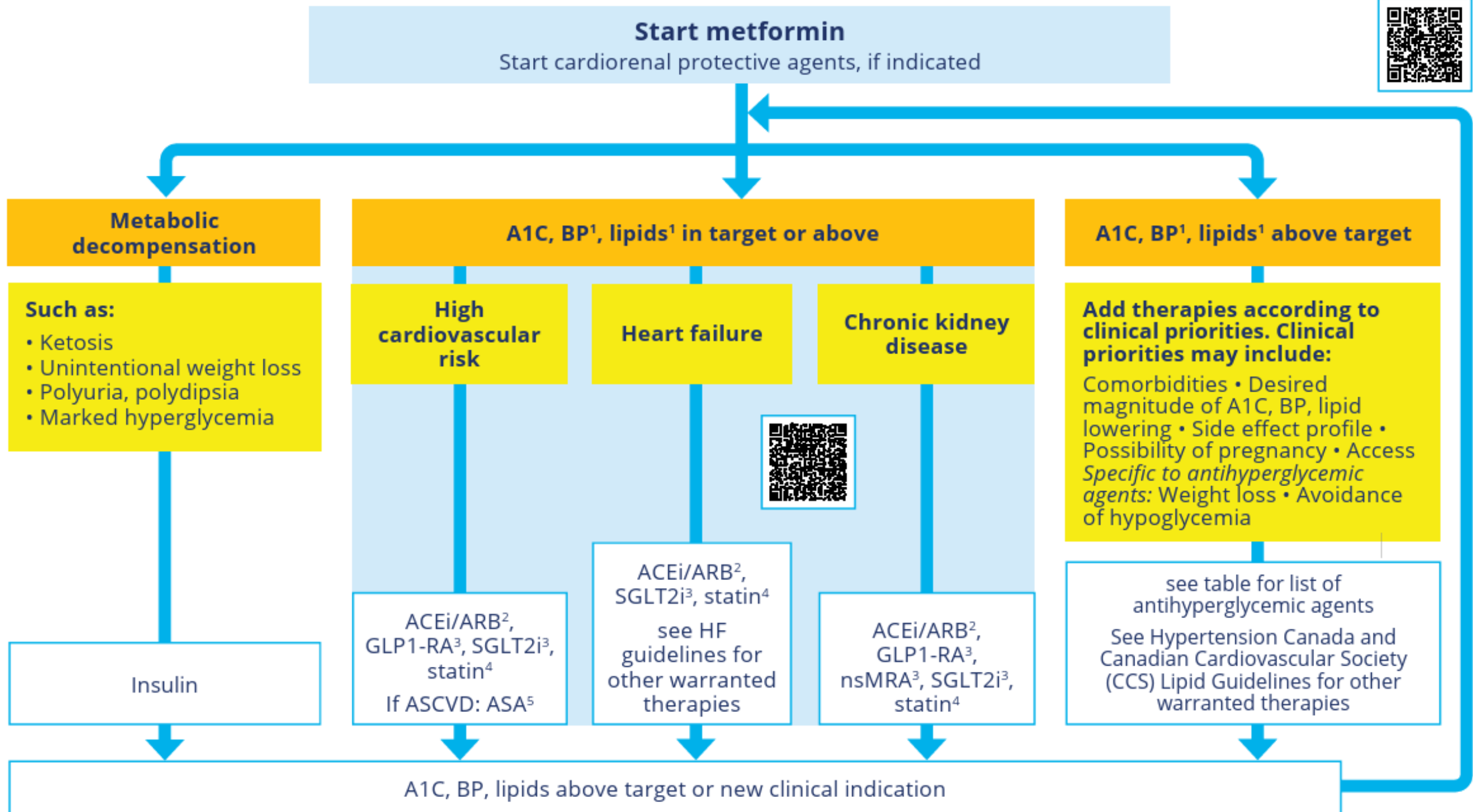✓ D • Drugs to protect the heart

   A – ACEi or ARB  |  S – Statin  |  A – ASA if indicated  |  SGLT2i / GLP-1RA with demonstrated CV
   benefit if type 2 DM with CVD and A1C not at target

✓ E • Exercise / Healthy Eating

✓ S • Smoking cessation

# Pharmacotherapy management for type 2 diabetes

**Start metformin**
Start cardiorenal protective agents, if indicated

**Metabolic decompensation**

Such as:
- Ketosis
- Unintentional weight loss
- Polyuria, polydipsia
- Marked hyperglycemia

Insulin

**A1C, BP[1], lipids[1] in target or above**

**High cardiovascular risk**

ACEi/ARB[2], GLP1-RA[3], SGLT2i[3], statin[4]

If ASCVD: ASA[5]

**Heart failure**

ACEi/ARB[2], SGLT2i[3], statin[4]

see HF guidelines for other warranted therapies

**Chronic kidney disease**

ACEi/ARB[2], GLP1-RA[3], nsMRA[3], SGLT2i[3], statin[4]

**A1C, BP[1], lipids[1] above target**

**Add therapies according to clinical priorities. Clinical priorities may include:**

Comorbidities • Desired magnitude of A1C, BP, lipid lowering • Side effect profile • Possibility of pregnancy • Access
*Specific to antihyperglycemic agents:* Weight loss • Avoidance of hypoglycemia

see table for list of antihyperglycemic agents

See Hypertension Canada and Canadian Cardiovascular Society (CCS) Lipid Guidelines for other warranted therapies

A1C, BP, lipids above target or new clinical indication

# Effective Goal Setting

| | | |
|---|---|---|
| **S** | **S = SPECIFIC** | **S** |
| | "Lose 5 kg (11 lbs)," instead of "lose weight." | |
| **M** | **M = MEASURABLE** | **M** |
| | "Walk 35 minutes a day," instead of "walk more." | |
| **A** | **A = ATTAINABLE** | **A** |
| | "Lose 2 kg (5 lbs) in a month," instead of "10 kg (22 lbs) in a month." | |
| **R** | **R = RELEVANT** | **R** |
| | "I want to lose weight, so I can play with my kids." | |
| **T** | **T = TIME-ORIENTED** | **T** |
| | "Lose 5 kg (11 lbs) in 2 months," instead of "lose weight." | |

# Goal Setting – Decisional Balance

**The change I'm thinking of making is:**

| | PROS | How big a deal is it? | CONS | How big a deal is it? |
|---|---|---|---|---|
| **STEP 1:** Consider staying the same | of staying the **SAME:** | 1 = not such a big deal 10 = big deal! | of staying the **SAME:** | 1 = not such a big deal 10 = big deal! |

| | CONS | How big a deal is it? | PROS | How big a deal is it? |
|---|---|---|---|---|
| **STEP 2:** Consider making the change | of making a **CHANGE:** | 1 = not such a big deal 10 = big deal! | of making a **CHANGE:** | 1 = not such a big deal 10 = big deal! |

**STEP 3:** Add

**STEP 4:** Compare

**Which number is bigger?**

If this number is bigger, the balance is leaning towards **STAYING THE SAME.**

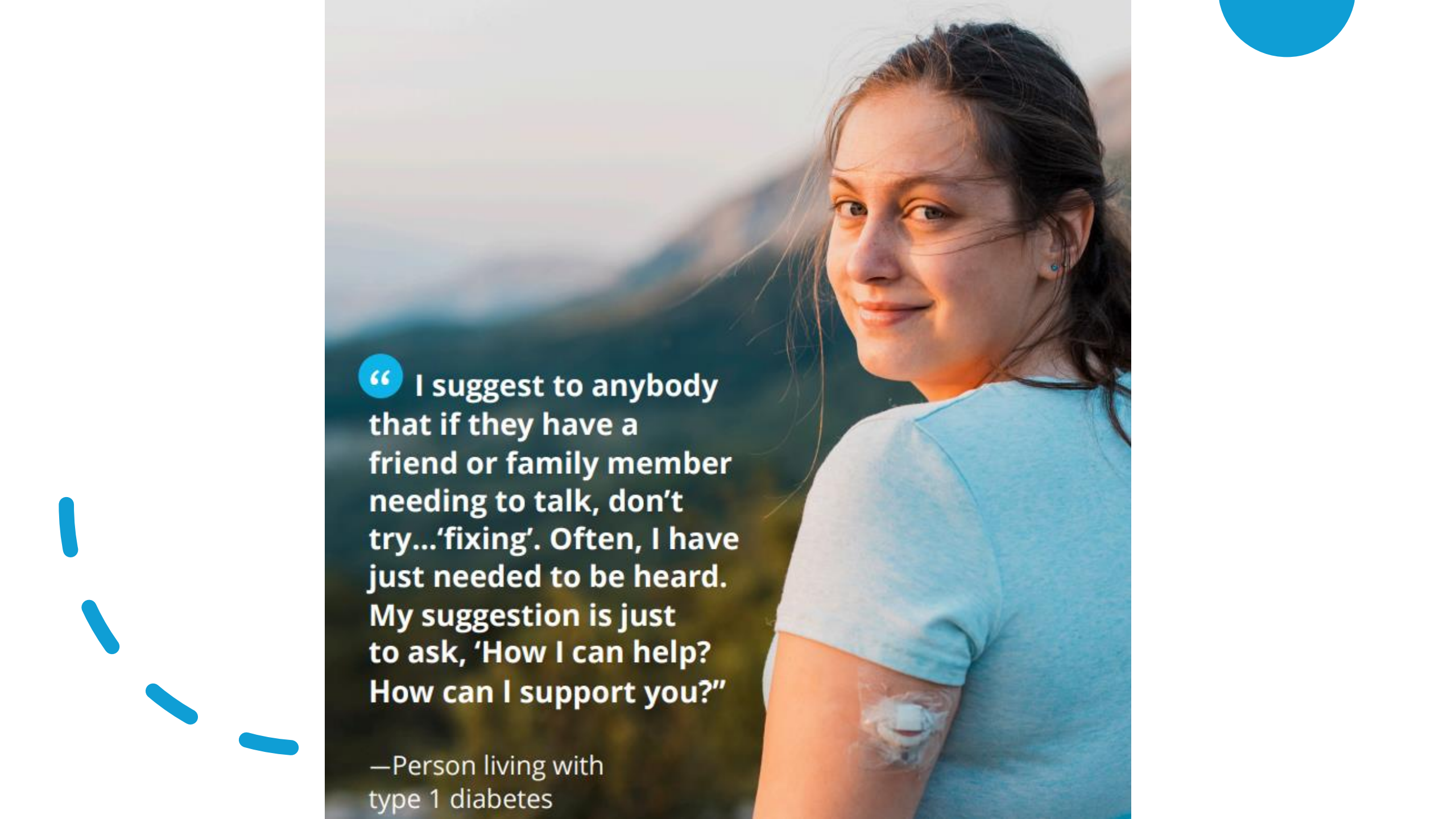If this number is bigger, the balance is leaning towards **MAKING A CHANGE.**

# Stigma

**86% T1D**

**69% T2D**

People have **experienced blame or shame** for having diabetes.

" I suggest to anybody that if they have a friend or family member needing to talk, don't try...'fixing'. Often, I have just needed to be heard. My suggestion is just to ask, 'How I can help? How can I support you?"

—Person living with type 1 diabetes

# Learn More

- Podcasts:



- Social Media – Diabetes Canada