A Dive Into Diabetes Part 1

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Make a Fresh Start

Get 1% Better Every Day

"Habits are the compound interest of self-improvement. Getting 1% better every day counts for a lot in the long run."

Atomic Habits by James Clear

Be Patient!

Todays Topics

- Diabetes Disease Process
- Target BG and A1C numbers
- Treatments for Diabetes
- Intro: Eating to Nourish your Body

Key Terms and Abbreviations

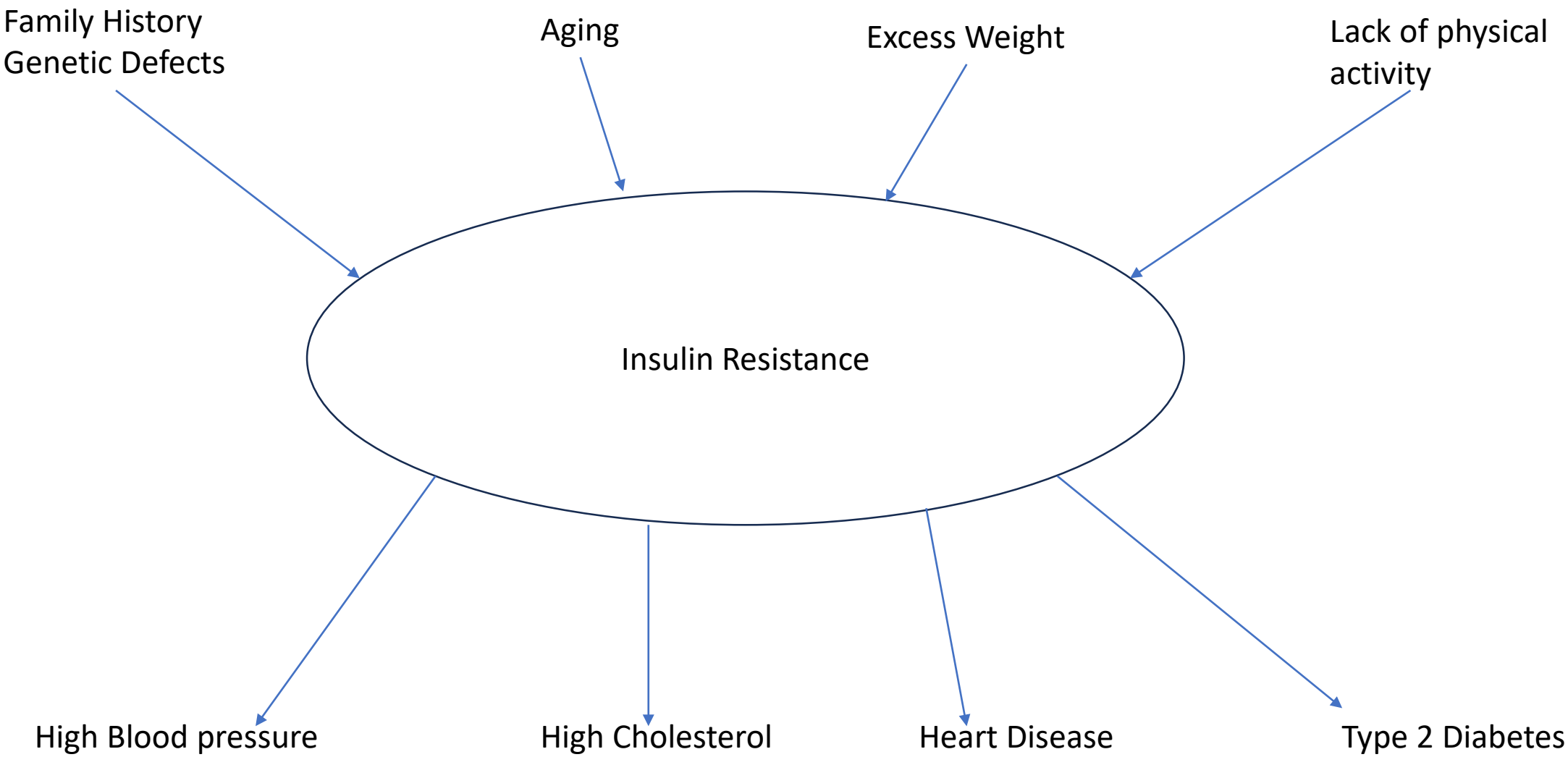
- Glucose: a form of sugar
- Blood Glucose (BG): sugar in the bloodstream
- Pancreas: organ (part of the body) that makes insulin and other hormones
- Hormone: chemicals in your body that carry messages through your blood to your organs and tissues. These signals tell your body what to do and when to do it.
- Insulin: hormone made by the pancreas. It's needed to process and control blood glucose.

Diabetes = too much glucose in the blood

- The pancreas doesn’t make enough insulin
- Insulin resistance: your body is making insulin but it isn’t working. Your insulin is lazy!
- The body has trouble processing blood glucose correctly

Insulin Resistance

- Lazy insulin. Your body makes insulin but it isn’t working.
- Your body can’t process BG correctly and glucose can’t enter your cells.
- Blood glucose remains high, so your pancreas makes more insulin (that doesn’t work). Your pancreas can’t keep up, causing high blood glucose.


Family History
Genetic Defects
Aging
Excess Weight
Lack of physical activity
Insulin Resistance
High Blood pressure
High Cholesterol
Heart Disease
Type 2 Diabetes

Can You Decrease Insulin Resistance?

YES!!

Physical Activity
Weight Loss

Weight Loss

- Lose 5-7% of current weight
  - ⬇ blood sugar, blood pressure, blood fats

- Challenge is keeping the weight off
- Medications can help
- Diet: higher protein (not if kidney disease)
- Eat filling foods
- Eat enough –won't work if you're hungry

And not healthy for metabolism

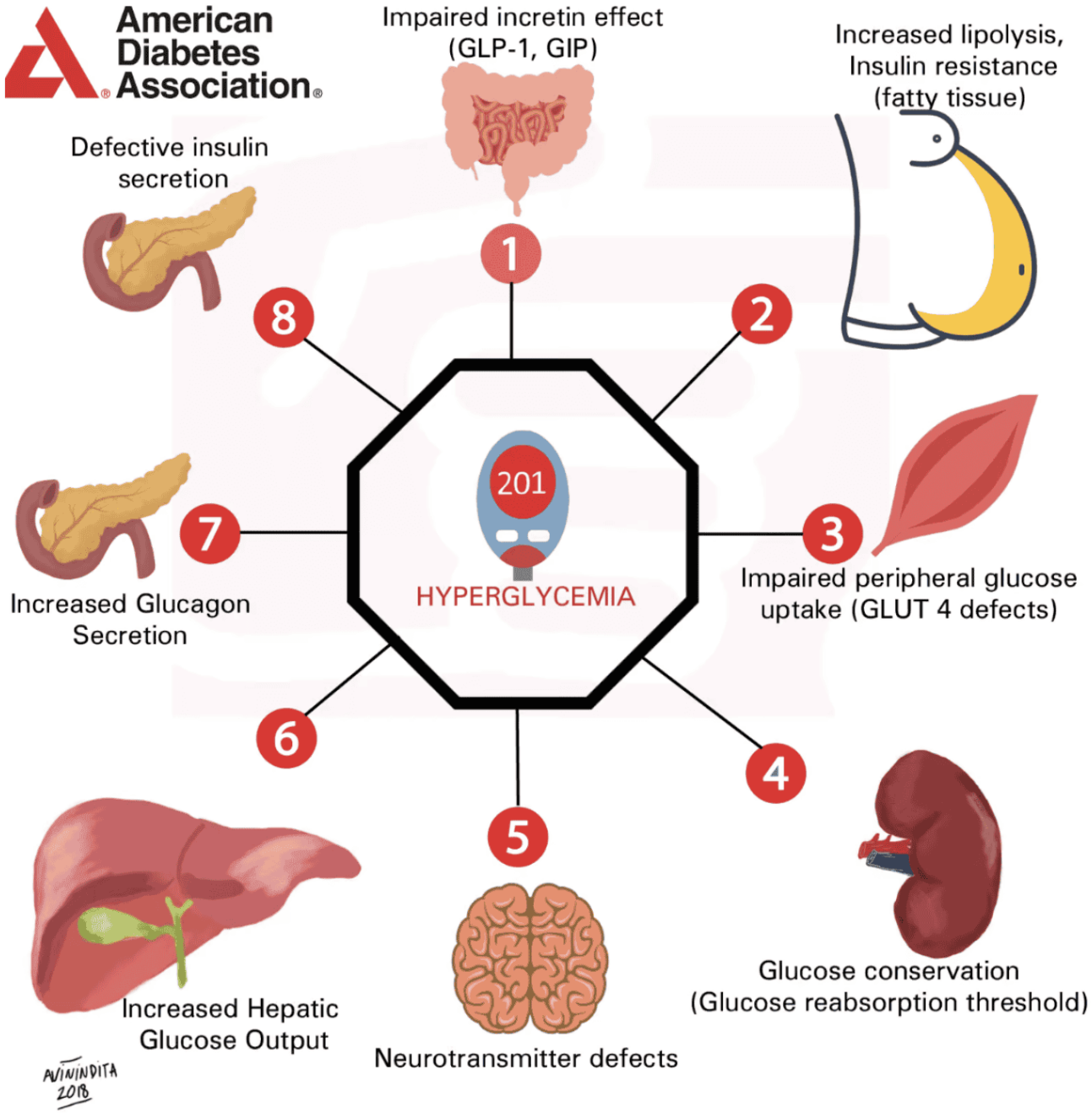
Weight vs. Waist

- Waist circumference for women: 35” or less
- Waist circumference for men: 40” or less

- Pear shape vs. apple shape

DIABETES MELLITUS : THE OMINOUS OCTET

American Diabetes Association®



The Ominous Octet

- Do you follow all recommendations but your BG remains high?
- Are you often tired, frustrated with weight gain, unable to lose weight, or have cravings and poor energy levels?

- The strategy is tackling the underlying cause of diabetes: insulin resistance
- Lifestyle changes and diabetes medications can address the dysfunction described in the Ominous Octet

It’s Not Always About the Food!

- It’s not always about the amount of carbohydrate or fat you eat
- It’s not always about the size of your meal
- It’s about other organs in your body that aren’t working like they’re supposed
- **BUT. . .** Healthy eating and lifestyle changes improve BG

Diabetes Medications Target all of the Ominous Octet

- Metformin
- SGLT2 (Farxiga, Jardiance, Invokana)
- GLP-1 and GIP (Ozempic, Mounjaro, Trulicity, Victoza injections), (oral form, Rybelsus)
- Insulin

What to Know

- When and How Much to Take
- Side Effects-does it cause weight gain?
- Contact doctor if side effects aren't manageable
- How to inject
- How the medicine works
- What to do if miss a dose?
- Contact doctor if having low or high BG

This list doesn't include all diabetes medicines

Different Types of Diabetes

Type 1 Diabetes

- Begins in children & young adults
- The body **Doesn't Make Any Insulin**
- Treatment: Insulin

Gestational Diabetes

- High blood sugar during pregnancy

Pre-Diabetes

- Blood sugar above normal but not high enough for diabetes

• Type 2 Diabetes

- Often begins in adulthood, but is showing up more often in overweight children and teens
- Insulin resistance – lazy insulin
- The body doesn't make enough insulin
- Treatment:
  - Physical activity
  - Healthy Eating
  - Lifestyle Changes
  - Pills and/or injectables
  - Insulin

Which Type of Diabetes is More Serious?

Both!!

What matters is how well your blood sugars are controlled.

- No matter which type of diabetes you have, if there is too much sugar in your blood it can damage your eyes, heart, kidneys, feet, nerves, and other parts of the body.

Targets for BG and A1C

Keeping Your Numbers on Target Helps to Prevent, Delay, and Treat Diabetes Related Complications

Uncontrolled BG can increase your risk for:

- Heart and blood vessel disease
- Eye disease (retinopathy)
- Kidney disease (nephropathy)
- Nerve disease (neuropathy)
- Sexual-related problems
- Skin problems
- Teeth and gum problems
- Feet problems

Test results for diagnosis of prediabetes and diabetes

Diagnosis	A1C	Fasting Plasma Glucose	Oral Glucose Tolerance Test*	Random Plasma Glucose Test‡
Normal	below 5.7%	99 mg/dL or below	139 mg/dL or below	N/A
Prediabetes	5.7% to 6.4%	100 to 125 mg/dL	140 to 199 mg/dL	N/A
Diabetes	6.5% or above	126 mg/dL or above	200 mg/dL or above	200 mg/dL or above

* 2 hours after glucose intake

‡ Used when there are symptoms

Source: American Diabetes Association

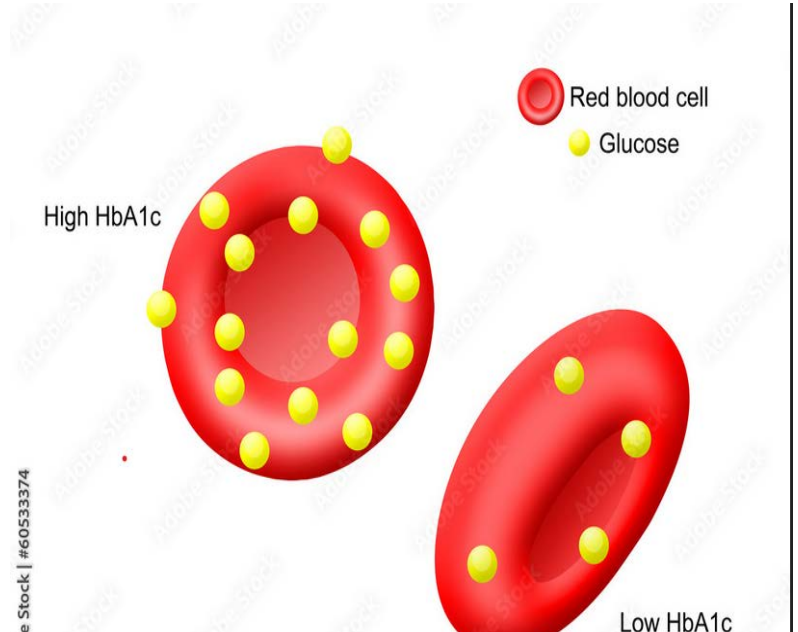
Recommended Target Blood Sugars

	ADA **American Diabetes Association**	**AACE** **American Association of Clinical Endocrinologists**
Before Meals “Fasting BG”*	80 to 130 mg/dl	<110 mg/dl
2 hours After Meals “Post-Prandial BG”*	<180 mg/dl	<140 mg/dl
A1C	<7.0%	<6.5%

Goals and numbers may be different for each person. Talk to your doctor about what numbers are best for you. * BG = Blood Glucose

Hemoglobin A1C

- What is the A1C?
  - ➢Measures the glucose on your red blood cells
  - ➢3 month average
  - ➢Doesn't show when your blood sugars are high or low



A1C and Blood Glucose

A1C %	Estimated Average Glucose mg/dl
5.0	97
5.5	111
6.0	126
6.5	140
7.0	154
7.5	169
8.0	183
8.5	197
9.0	212
9.5	226
10.0	240
10.5	255
11.0	269
11.5	283
12.0	298

Monitoring Blood Sugars

Glucose Meter

- Tells you the amount of sugar (glucose) in the blood with just a small drop of blood from your fingertip

CGM: Continuous Glucose Monitor

- Shows you the amount of sugar in your blood in real time

Know Thy Numbers!!

- If you don't know WHEN and HOW OFTEN your blood glucose is too high or too low:
  - It makes it difficult for your doctor to adjust your diabetes medicines AND you need to know when to contact your doctor
  - You won't know how to make adjustments
    - Do you need to adjust your types/amounts of carbs at a certain meal?
    - Do you need to add a snack to prevent overeating at a meal?
    - Do you need to consider your physical activity? (i.e, do a short walk after supper, increase physical activity)

When to Monitor Blood Sugars

- It depends on:
  - Your insurance
  - Talk to your doctor about what is right for you

- Options
  - Type 2 diabetes: Twice/day before and 2 hours after meals, alternating meals
  - On insulin: before each meal and bedtime
  - If on CGM: swipe/look at BG numbers often! Download data.
  - Monitor whenever you don’t feel “right”

How Can You Manage your Diabetes?

- Lifestyle changes can improve your blood sugars and decrease your risk of long-term complications
- Healthy eating: Spread carbohydrates throughout the day so you don’t stress out your pancreas
- Physical activity: helps your insulin work better
- Weight loss: 5-7% matters! Improves insulin resistance
- Take medicines as prescribed: balance with healthy eating and physical activity

What are the target numbers??

- Blood glucose before meals?_____
- Blood glucose 2 hours after meals?_____
- A1C?_____
- Your blood sugar should never go below _____?

MEALS

Eating Patterns to Nourish your Body

- Eat often: low-carb vegetables, fruit, whole grains, nuts and seeds, starchy beans and peas (legumes), lean proteins, low-fat dairy or alternatives, plant foods, olive oil
- Eat less often: red meat (beef, pork, lamb), sugar-sweetened beverages, refined grains, processed foods

- Drink plenty of water

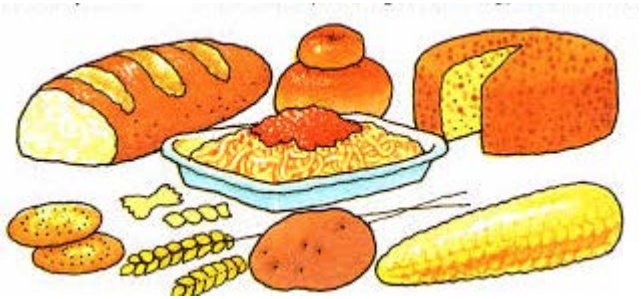
Starchy Beans and Peas (Legumes)

- Black, pinto, navy, garbanzo, kidney, cannellini beans, black-eyed peas
- Canned: low sodium or rinse and drain regular
- Dried beans/pea: soak and cook in instapot
- Eat often!!!

Carbohydrates

Starchy Foods
Fruits and Fruit Juice
Milk and Yogurt
Sweets and Desserts

Blood Sugar



Carbohydrates = Starch + Sugar

Eat More Low Carb (non starchy) Vegetables

- Bell peppers
- Broccoli
- Cabbage
- Carrots
- Cauliflower
- Celery
- Green Beans
- Greens
- Salad Greens
- Spinach

Low Carb Vegetables

- 1 serving = ½ cup cooked, 1 cup raw
- Eat 3 to 5 servings per day
- Fill ½ of your plate with low carb vegetables
- 1 serving = 5 grams total carbohydrates

5 Easy Ways to Eat More Low-Carb Vegetables

1. Add shredded carrot, sliced squash to chili, stews and casseroles
2. Eat raw vegetables with hummus or peanut butter for a snack
3. Mix in frozen vegetables or fresh spinach into scrambled eggs
4. Make a super sandwich by adding sliced bell peppers, tomato, cucumber slices or lettuce to a sandwich (add sliced avocado too!)
5. Add frozen mixed vegetables into stir fries and casseroles

What are the target numbers??

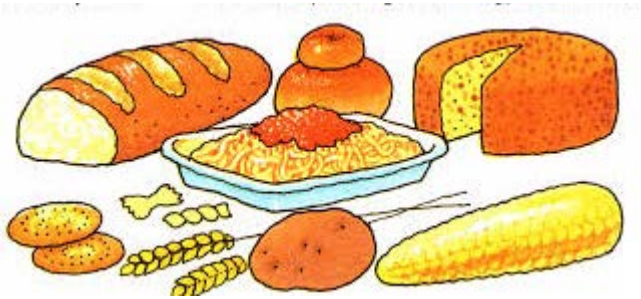
- Blood glucose before meals_____?
- Blood glucose 2 hours after meal_____?
- A1C_____?
- Your blood sugar should never go below_____?

Name the 4 Types of Carbohydrates

Carbohydrates

Starchy Foods
Fruits and Fruit Juice
Milk and Yogurt
Sweets and Desserts

Blood Sugar



What is your 1%??

Chick Pea Spread

- 1 14.5 ounce can chick peas, drained and mashed
- Add to taste: olive oil, diced onions, garlic and/or onion powder, hot sauce, hummus
- Whole grain bread

- Drain and rinse chick peas
- Mash with potato masher or hand blender
- Add binder: olive oil or hummus
- Mix in desired seasonings
- Spread on bread for open-faced or whole sandwich