

Diabetes/Pre-Diabetes Prevention and Management Week 1

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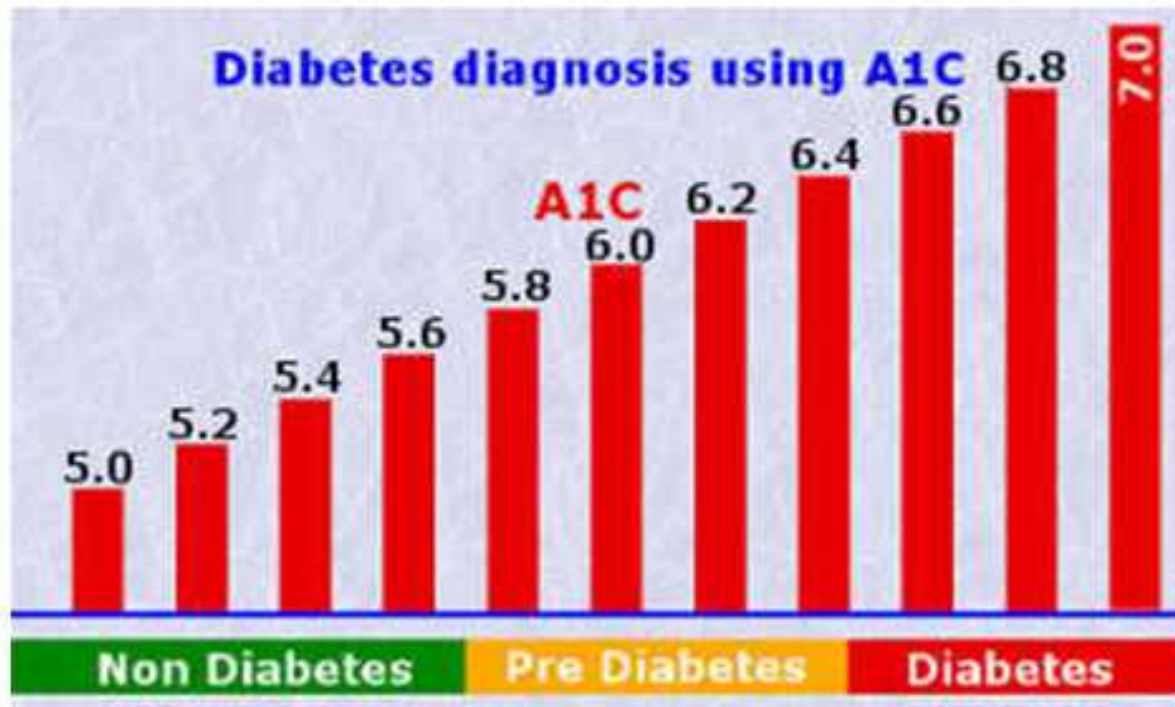


Diagnosing Diabetes

- 3 different blood tests can be used to diagnose diabetes
- A1c
- FBG – Fasting Blood Glucose
- OGTT-Oral Glucose Tolerance Test

Pre-Diabetes: 5.7% to 6.4%

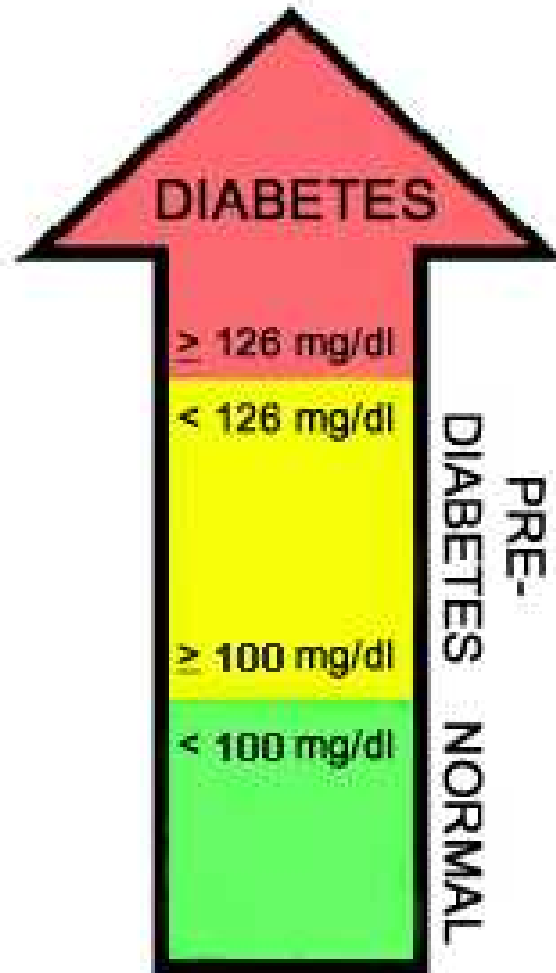
Diabetes: 6.5% or higher



Fasting Blood Glucose

Pre-Diabetes: \geq or = 100-125

Diabetes: 126 or greater, two separate tests



Post Meal Tolerance Test

2 Hours after a large meal or GTT Beverage

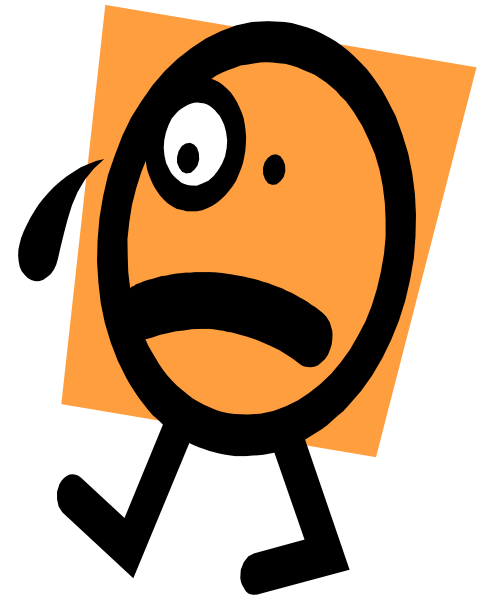
- Pre-Diabetes:
- Blood glucose between 140-199

- Diabetes:
- Blood glucose 200 or greater



Diabetes is

- Too much sugar in the blood
- The body has trouble processing sugar correctly

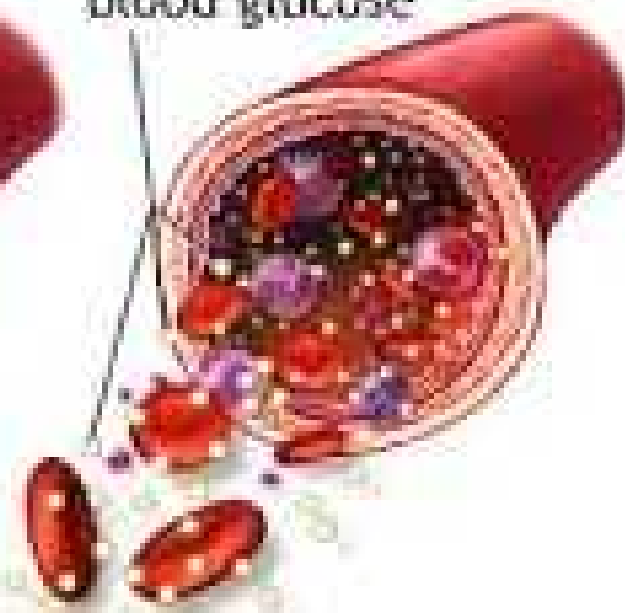


Your goal is to maintain normal blood glucose levels

Glucose
in blood



Excessive
blood glucose



Definition of Diabetes

- The insulin the body makes does not work – insulin resistance.
- This makes the pancreas work overtime to try to make enough insulin to keep the sugar normal.
- Over time, the pancreas can't make enough insulin to keep blood sugars at normal levels, **AND**
- The liver makes too much sugar.

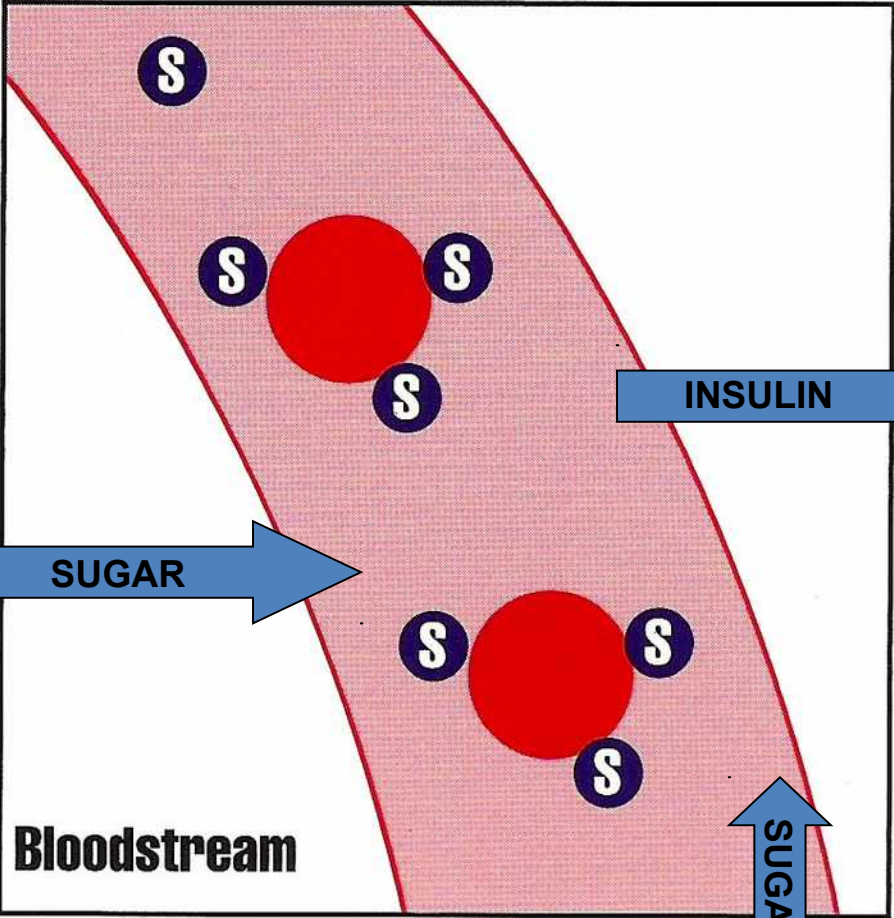
Normal Blood Sugar

PANCREAS

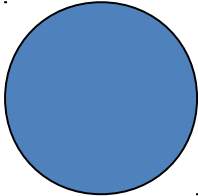


INSULIN

Normal



MUSCLE AND FAT



INSULIN



SUGAR



SUGAR



LIVER

CARBS
starches
fruit & juice
milk & yogurt
sweets

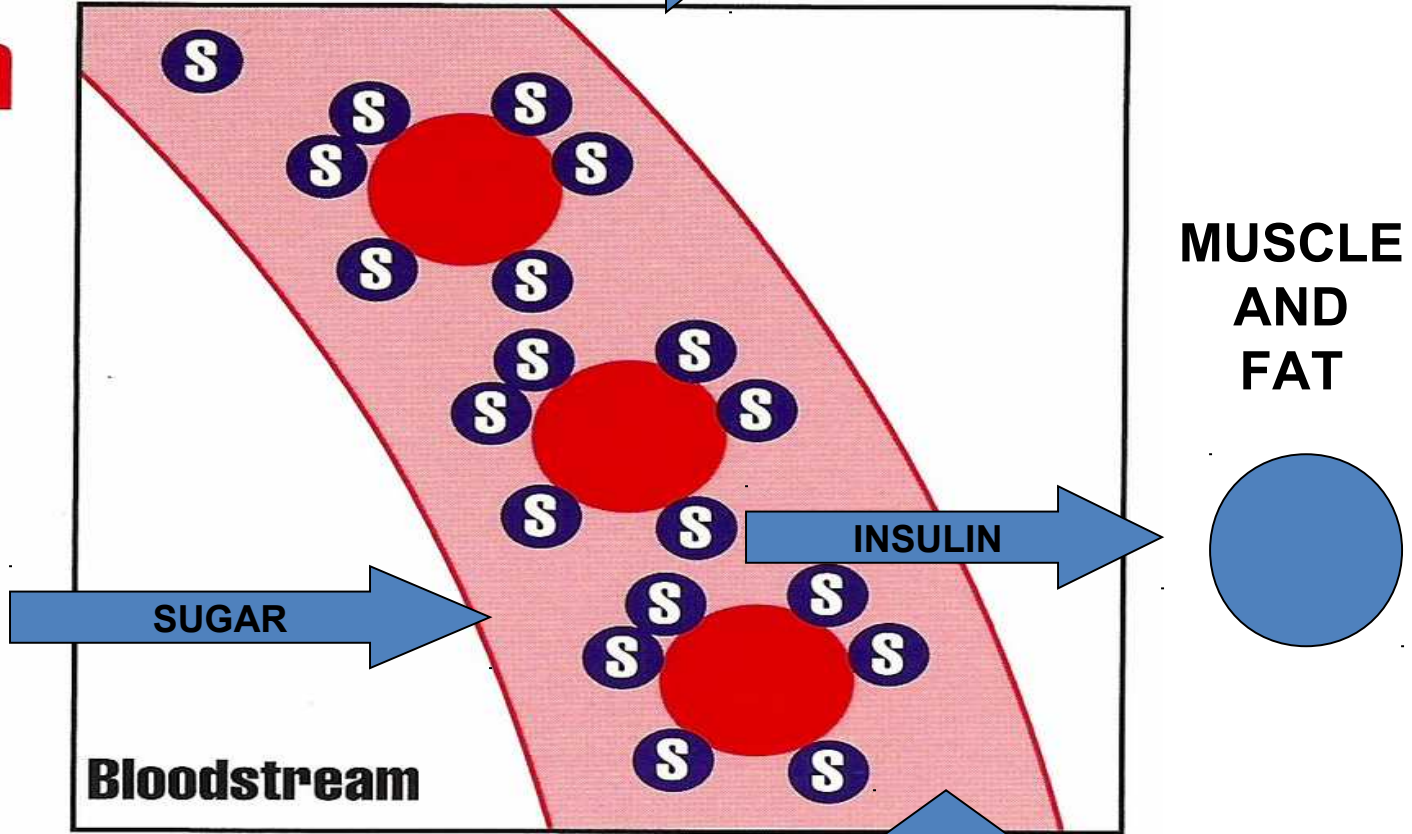
High Blood Sugar

PANCREAS



INSULIN

High



CARBS
starches
fruit & juice
milk & yogurt
sweets

Bloodstream

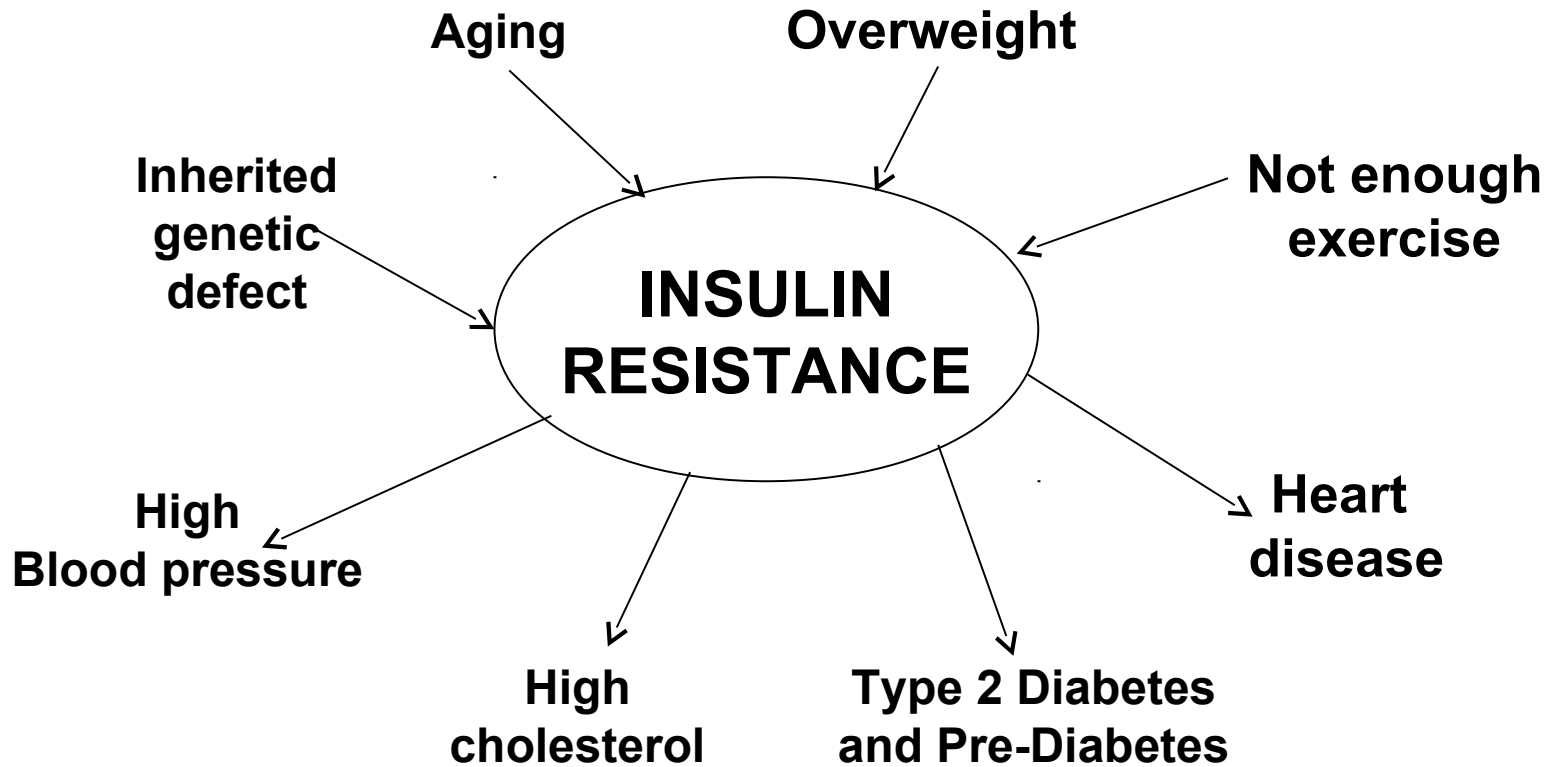
**MUSCLE
AND
FAT**

S Sugar

Red Blood Cell

SUGAR
LIVER

Insulin Resistance



What Can You Do About Insulin Resistance?

- ***Exercise***



- ***Lose weight***



Diabetes

Type 1

- Occurs most often in children and young adults
- The pancreas makes no insulin
- Insulin injections are necessary to live

Type 2

- Usually begins in adulthood, younger if overweight
- The pancreas does not make enough insulin; insulin doesn't work well
- Treated with diet, exercise, pills, and/or insulin

Other Types of Diabetes

- Gestational diabetes: high blood sugar during pregnancy
- Pre-diabetes: blood sugar that falls between “normal” and “diabetic” levels

Gestational or pre-diabetes: increased risk of developing type 2 diabetes in the future

Diabetes Risk Factors

- Overweight (central obesity) – insulin resistance
- Advancing age
- Race
- Lack of physical activity or exercise
- Family history (parent or sibling)
- Pre-Diabetes
- Gestational Diabetes/women who delivered baby over 9 lbs.
- High blood pressure
- HDL <35 and/or triglycerides > 250
- Women with PCOS – Polycystic Ovarian Syndrome
- History of heart disease
- Acanthosis nigricans



Diabetes Symptoms

- Type 1 (symptoms usually occur suddenly)
 - frequent urination
 - excessive thirst
 - extreme hunger
 - dramatic weight loss
 - irritability
 - weakness and fatigue
 - nausea and vomiting
- Type 2 (symptoms usually occur gradually)
 - any of the type 1 symptoms
 - recurring or hard-to-heal skin, gum or bladder infections
 - drowsiness
 - blurred vision
 - tingling/numbness in hands/feet
 - itching

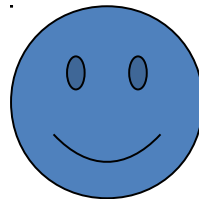
DIABETES

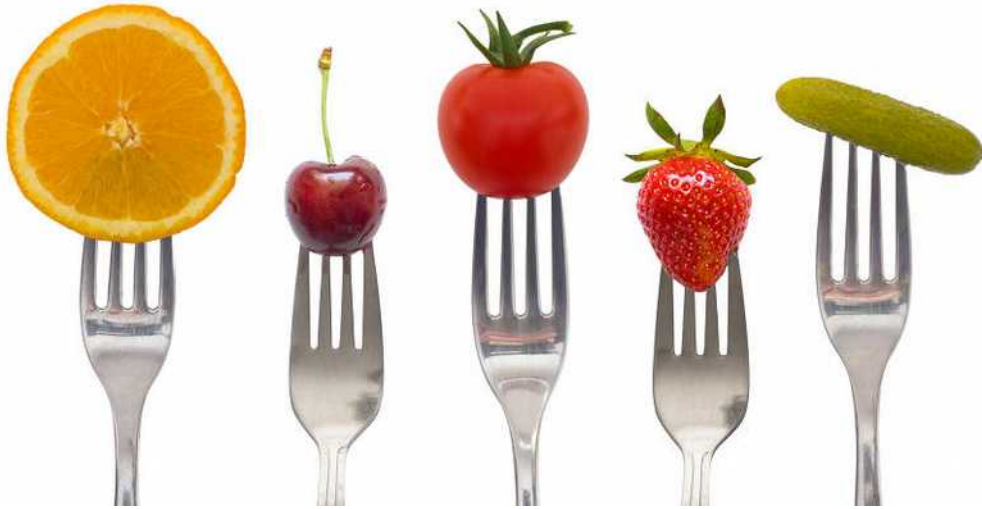
KNOW THE SYMPTOMS



Diabetes is Treated By:

- **Healthy eating** – spread carbs out throughout the day so you don't overwork your pancreas
- **Weight loss** – to help your insulin work better
- **Exercise** – so your body will need less insulin and your insulin will work better
- **Medicine** – Your body's own insulin is also your medicine. Other diabetes medicines may also be needed





Hemoglobin A1c

- Is another tool for keeping track of diabetes
- Three month average of what your blood sugars have been running

Problem:

- Doesn't tell us where there are highs and lows

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

When to Check Blood Sugars

Typically

- If not on insulin, once or twice daily – alternating before and 2 hours after meals
- If on insulin, at least 3 times daily – before each meal and/or bedtime
- Pre-Diabetes: 2 to 3 times a week or daily if able. Alternate times when you check.

Target Blood Sugars for Diabetes*

	ADA	AACE
Before Meals	80 to 130 mg/dl	< 110 mg/dl
2 Hours After Meals	< 180 mg/dl	< 140 mg/dl
A1C	< 7.0%	<6.5%

ADA = American Diabetes Association

AACE = American Association of Clinical Endocrinologists

*Your doctor may adjust these for you.

Target Blood Sugars for Pre-Diabetes

- Lower your A1C
- Don't let blood sugar numbers get higher
- Even better: get A1C and blood sugar numbers in the normal range



Stand Up and Move Every 30 Minutes!



Acute Complications

Hypoglycemia

(low blood sugar)



Hyperglycemia

(high blood sugar)



Hypoglycemia

Low Blood Sugar

Blood sugar level drops below 70

Symptoms include:

hunger

nervousness and shakiness

sweating

light-headedness

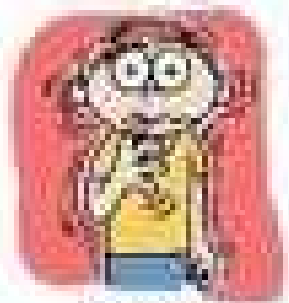
sleepiness

confusion

anxiety



Low Blood Sugar Symptoms



SHAKING



SWEATING



ANXIOUS



DIZZINESS



HUNGER



FAST HEARDBEAT



IMPAIRED VISION



WEARINESS
FATIGUE



HEADACHE



IRRITABLE

Low Blood Sugar

Causes

- Not enough food
- Skipped or delayed meal
- Too much insulin or diabetes medicine
- Extra activity

Onset

- Sudden
- May progress to insulin shock

Low Blood Sugar

- If blood sugar is too low:
 1. check blood sugar - if blood sugar is 70 or less, eat or drink a fast-acting sugar
 2. if you don't have your meter and have symptoms, assume it is low and treat with:
 - 3 – 5 glucose tablets or gel or liquid
 - ½ cup fruit juice
 - ½ cup regular soda
 - 1 cup low-fat milk
 - 5 to 7 pieces of soft candy (peppermint)*
 - 1 tablespoon of sugar or honey

***Do not treat lows with chocolate or peanut butter crackers**

Low Blood Sugar

3. Wait 15 minutes. Recheck blood sugar

If still below 70, eat/drink sugar again

If your next meal is more than 1 hour away, eat a snack

Let your doctor know if you have frequent low blood sugars:

Change meal plan

Change exercise

Change diabetes meds





Low Blood Sugar

- Always wear medical ID.
- Carry some form of sugar with you at all times.



"I'm the Blood Sugar Fairy.
If you can see me, yours is too low."

Hyperglycemia

High Blood Sugar

Caused by

- too much food
- meals or snacks too close together
- too little insulin or diabetes medicine
- illness or stress

Onset

- gradual
- may progress to diabetic coma

High Blood Sugar

- Symptoms include:
 - extreme thirst
 - frequent urination
 - dry, itchy skin
 - hunger
 - blurred vision
 - drowsiness
 - decreased healing

High Blood Sugar

- test your blood sugar
- drink extra water
- if over 130 before meals or over 180 two hours after meals
- ask your doctor about checking for ketones



Call Your Doctor



Getting Started

- Choose healthy foods
- Be active
- Eat out less often



Choose Healthy Carbs

Eat Daily:

- 2-4 servings fruit (fruit, not juice)
- 3-5 servings low-carb vegetables
- 3 whole grains (oats, quinoa, barley, popcorn, whole wheat bread/crackers)
- 3 low-fat dairy foods
- Starchy beans and peas (pinto, black, butter beans, black-eyed peas). Try bean pastas. May lower blood sugars.



Low-Carb Vegetables

- Slow carbs
- Fill you up
- Contain fiber
- Low calories



Low-Carb Vegetables

Asparagus

Green Beans

Beets

Broccoli

Brussel Sprouts

Carrots

Cauliflower

Greens (collards, kale)

Lettuce/greens

Mushrooms

Okra and Onions

Bell Peppers

Spinach

Tomatoes

Turnips

Zucchini & yellow squash

What's One Thing you can do to be healthier?

- I will eat 2 servings of low-carb vegetables a day
- I will walk for 20 minutes 3 times a week (check with your doctor first)
- Write it down:
- Bring to class next week: this sheet, one food label