



# Diabetes

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# Goals

- ▶ Get a better understanding of types 1 and 2 diabetes
- ▶ Learn about insulin resistance and its role in pre-diabetes and diabetes
- ▶ Be more informed about diabetes complications
- ▶ Discuss diabetes prevention

# Statistics

- ▶ 10.5% of the U.S. population has diabetes
- ▶ 13.0% of adults in the U.S. have diabetes
- ▶ ~25.4% of adults in the U.S. had prediabetes in 2018



Source: CDC National Diabetes Statistics Report, 2020

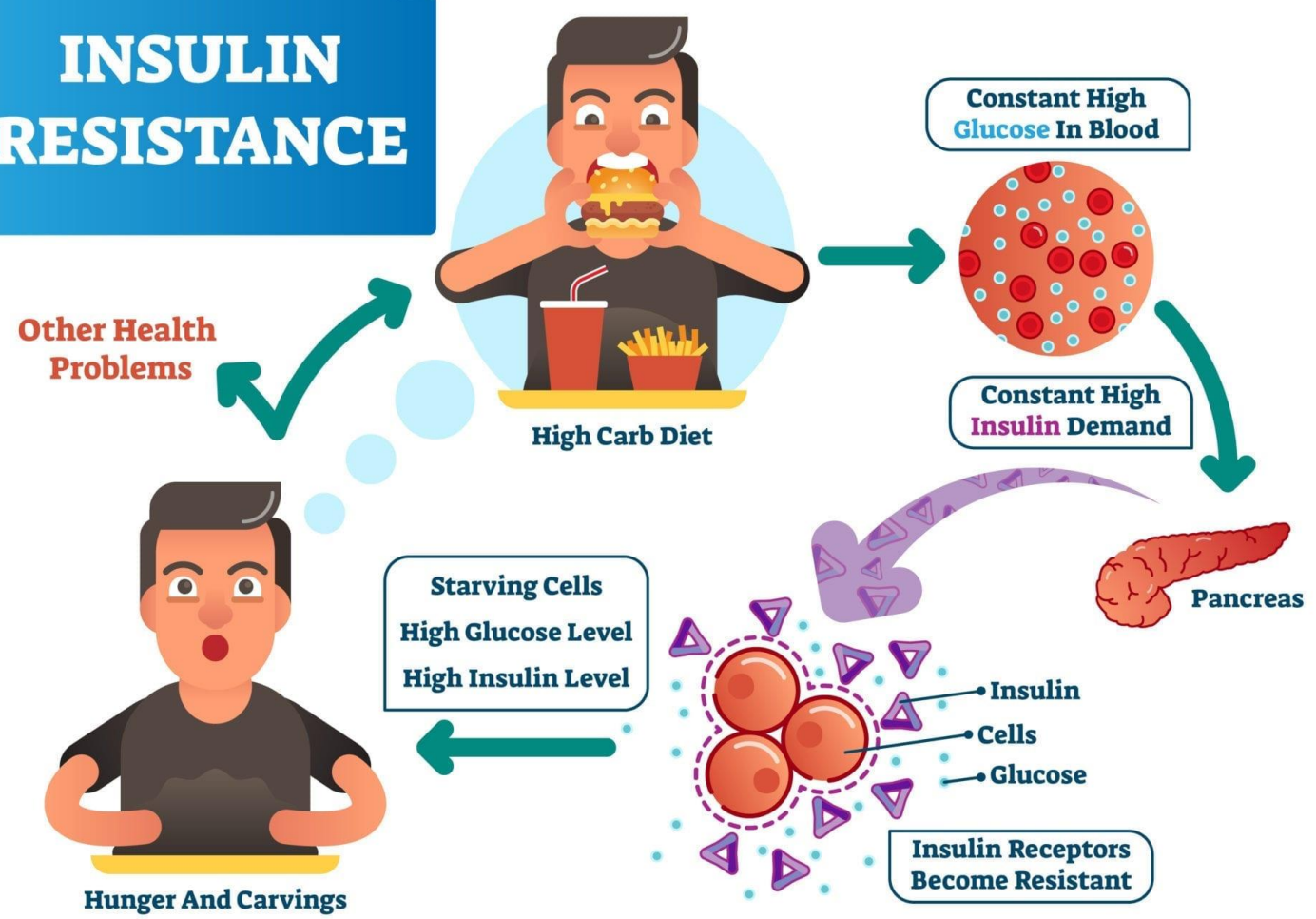
# Type 1 and Type 2...the difference

- ▶ Type 1
  - ▶ Autoimmune
  - ▶ Can't produce insulin
  - ▶ Needs insulin to survive
  
- ▶ Type 2
  - ▶ Due to insulin-resistance
  - ▶ Can be managed with lifestyle modifications
  - ▶ May need oral medications and/or insulin

# Risk Factors

- ▶ Age
  - ▶ Any age, but increased in childhood (DM1)
  - ▶ >45 (DM2)
- ▶ History of diabetes in 1st generation relative (DM1 and DM2)
- ▶ Prediabetes (DM2)
- ▶ Afr.-Am., Native Am., Latin Am. (DM2)
- ▶ Physical inactivity (DM2)
- ▶ Medications (DM2)
- ▶ Gestational DM or gave birth to a baby >9 lbs (DM2)
- ▶ NAFL (DM2)
- ▶ Sleep disturbances (DM2)

# INSULIN RESISTANCE



# Symptoms

- ▶ Fatigue
- ▶ Increased thirst
- ▶ Increased urination
- ▶ Numbness and tingling in hands and feet
- ▶ Blurry vision
- ▶ Yeast infection

# Diagnosis

- ▶ Hemoglobin A1c
  - ▶ 3-month average of glucose readings
  - ▶ Prediabetes
    - ▶ 5.7-6.4
  - ▶ Diabetes
    - ▶  $\geq 6.5$
- ▶ Blood glucose
  - ▶ Fasting glucose
    - ▶ Prediabetes: 100-125
    - ▶ Diabetes:  $>126$
  - ▶ Random glucose
    - ▶ Diabetes:  $>200$



**Table 3.1 – Components of the comprehensive diabetes medical evaluation at initial and follow-up visits**

		INITIAL VISIT	EVERY FOLLOW-UP VISIT	ANNUAL VISIT
<b>PHYSICAL EXAMINATION</b>	▪ Height, weight, and BMI; growth/pubertal development in children and adolescents	✓	✓	✓
	▪ Blood pressure determination	✓	✓	✓
	▪ Orthostatic blood pressure measures (when indicated)	✓		
	▪ Fundoscopic examination (refer to eye specialist)	✓		✓
	▪ Thyroid palpation	✓		✓
	▪ Skin examination (e.g., acanthosis nigricans, insulin injection or insertion sites, lipodystrophy)	✓	✓	✓
	▪ Comprehensive foot examination			
	• Visual inspection (e.g., skin integrity, callous formation, foot deformity or ulcer, toenails)	✓	✓	✓
	• Screen for PAD (pedal pulses; refer for ABI if diminished)	✓		✓
	• Determination of temperature, vibration or pinprick sensation, and 10-g monofilament exam	✓		✓
<b>LABORATORY EVALUATION</b>	▪ A1C, if the results are not available within the past 3 months	✓	✓	✓
	▪ If not performed/available within the past year			
	• Lipid profile, including total, LDL, and HDL cholesterol and triglycerides <sup>#</sup>	✓		✓ <sup>^</sup>
	• Liver function tests <sup>#</sup>	✓		✓
	• Spot urinary albumin-to-creatinine ratio	✓		✓
	• Serum creatinine and estimated glomerular filtration rate <sup>†</sup>	✓		✓
	• Thyroid-stimulating hormone in patients with type 1 diabetes <sup>#</sup>	✓		✓
	• Vitamin B12 if on metformin (when indicated)	✓		
• Serum potassium levels in patients on ACE inhibitors, ARBs, or diuretics <sup>†</sup>	✓		✓	

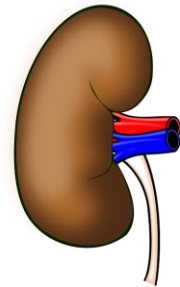
# Treatment

- ▶ Type 1 Diabetes
  - ▶ Lifestyle modification
  - ▶ Insulin
- ▶ Type 2 Diabetes
  - ▶ Lifestyle modification
  - ▶ Pills
  - ▶ Non-insulin injectables
  - ▶ Insulin



# Complications

- ▶ Hypoglycemia
- ▶ Diabetic Ketoacidosis and Hyperosmolar Hyperglycemic Syndrome (HHS)
- ▶ Cardiovascular disease
- ▶ Kidney disease
- ▶ Diabetic Neuropathy
- ▶ Diabetic Retinopathy
- ▶ Sexual dysfunction



# Prevention/Treatment

- ▶ Annual monitoring for the development of diabetes
- ▶ Achieve and maintaining weight loss of 5-7% of starting weight
- ▶ Moderate intensity physical activity to include cardio and strength training
- ▶ CDC-recognized lifestyle change program
- ▶ Screening for and treating modifiable cardiovascular disease risk factors
- ▶ Stress reduction
- ▶ Metformin therapy
- ▶ Mediterranean diet v. AHA diet

# “Healthy Eating Costs Too Much!”

- ▶ Dirty dozen/Clean 15
- ▶ Meal planning
  - ▶ Batch cooking
  - ▶ Instapot/crockpot
  - ▶ Recipe websites
- ▶ It's a family affair!
- ▶ Soda alternatives
  - ▶ Flavored mineral water
  - ▶ Fruit-infused water or water + 1 ounce juice
  - ▶ Unsweetened tea
  - ▶ Kombucha w/o added sugar



# Final Thoughts

- ▶ Diabetes does not have to be a death sentence...
  - ▶ ...but it will take some diligence to prevent and control!
- ▶ Control your blood sugar...
  - ▶ ...otherwise it will control you
- ▶ You cannot defeat your genetic makeup...
  - ▶ ...but you can defeat inherited harmful habits!
- ▶ Strive for generational health!

# DIABETES

What Your Doctor Wants You  
to Know but Can't Tell You in  
15 Minutes

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