How to Stop Prediabetes from Becoming Diabetes

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Boulder Community Health

BASIC CONCEPTS

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- PREDIABETES
  - Road to possibly getting diabetes
  - Reversible

- DIABETES
  - Chronic condition
  - Increased risk complications

DEFINITION

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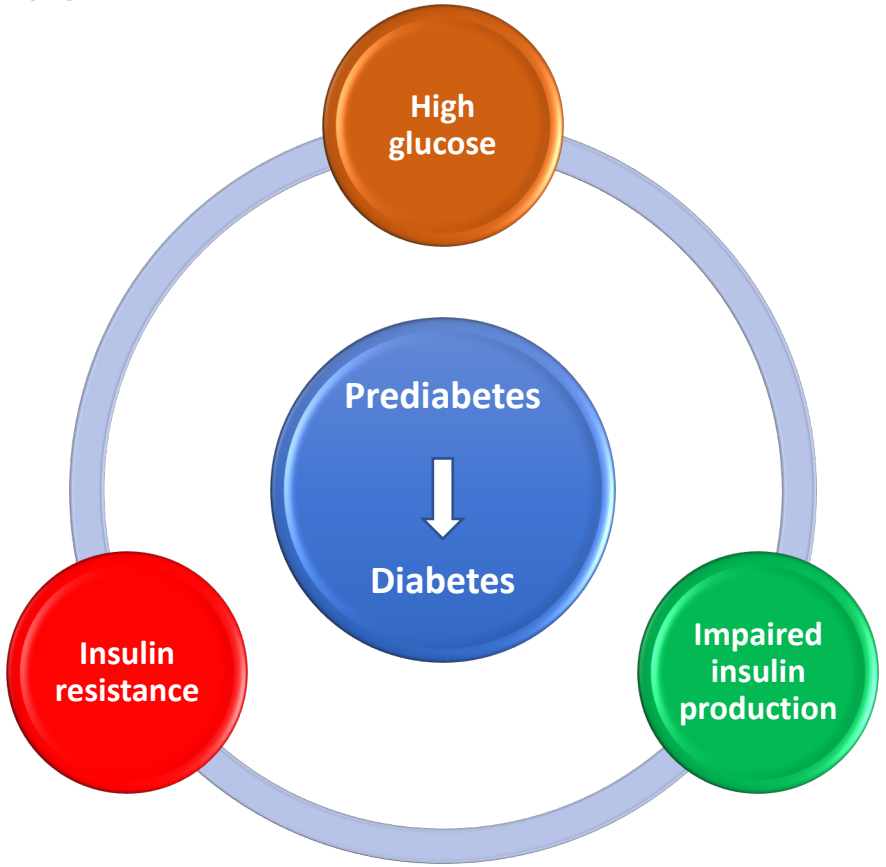
- PREDIABETES
  - Blood sugar levels higher than normal, but not high enough yet for a diabetes diagnosis.



LET THE NUMBERS SPEAK

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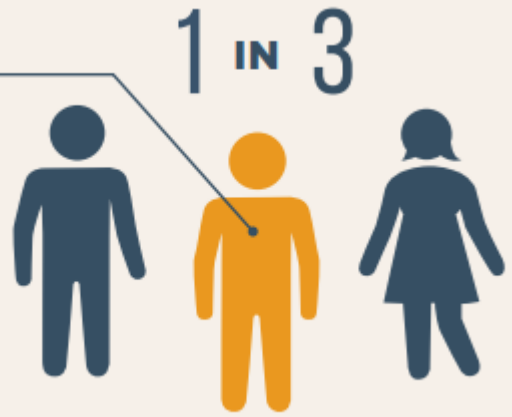
PREDIABETES

96 MILLION

96 million American adults — more than 1 in 3 — have prediabetes



MORE THAN 8 IN 10 adults with prediabetes don't know they have it

Every year 5%–10% will progress to Diabetes

LET THE NUMBERS SPEAK

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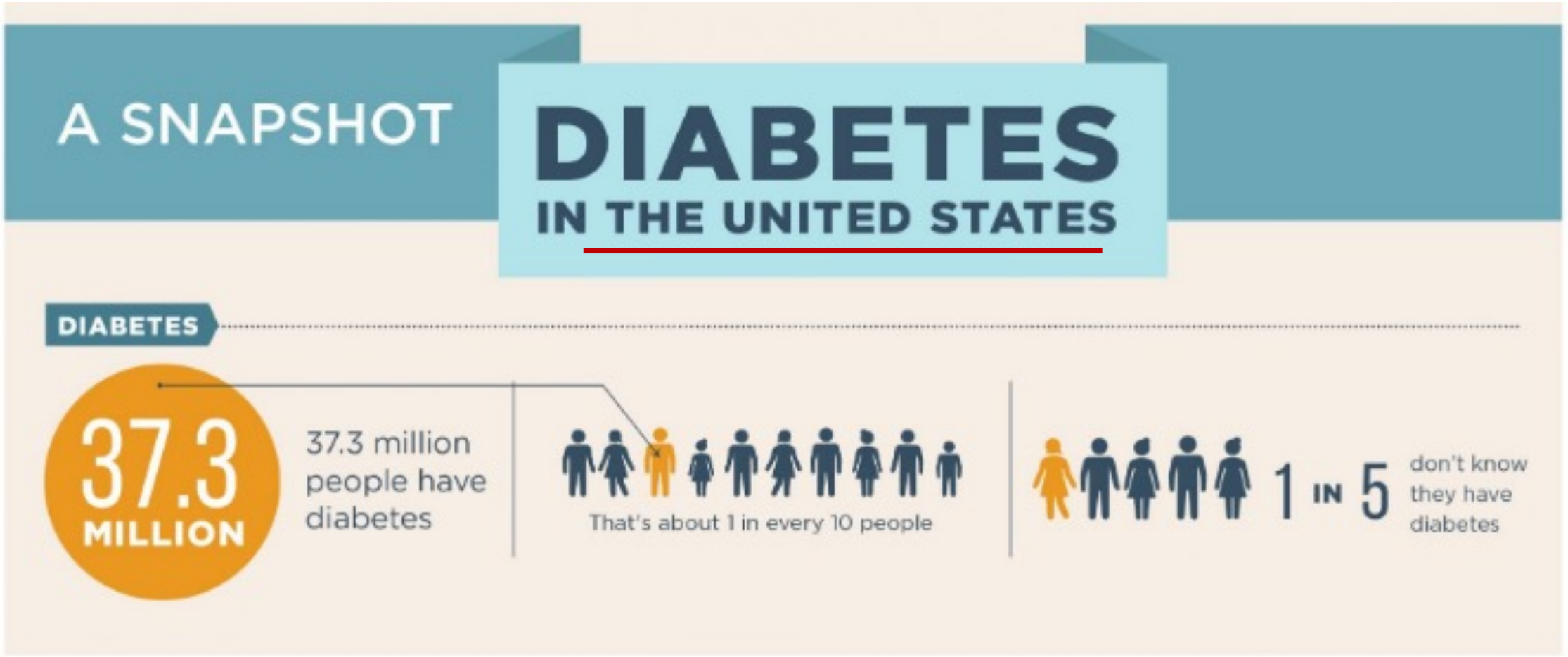

WHY DO WE HAVE TO SCREEN?

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USPSTF RECOMMENDATIONS

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Population	Recommendation
Asymptomatic adults aged 35 to 70 years who have overweight or obesity	The USPSTF recommends screening for prediabetes and type 2 diabetes in adults aged 35 to 70 years who have overweight or obesity. Clinicians should offer or refer patients with prediabetes to effective preventive interventions.

The ADA recommends testing for prediabetes for all adults age 45 or older and for adults of any age who are overweight and adults who have one or more additional risk factors for diabetes.

WHO IS AT HIGH RISK?

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- Overweight
- Obesity
- First degree relative with DM2
- High risk race/ethnicity
- Sedentary
- HTN, dyslipidemia, PCOS, CVS disease
- Gestational diabetes

HOW TO TEST

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- Fasting plasma glucose ★
- Hemoglobin A1C ★
- Oral glucose tolerance test
- If the FPG or A1C value is abnormal, the initial test should be repeated

FPG 100 to 125 mg/dL (5.6 to 6.9 mmol/L) – IFG
A1C 5.7 to 6.4% (39 to 46 mmol/mol)
2-hour post-load glucose on the 75 g OGTT 140 to 199 mg/dL (7.8 to 11.0 mmol/L) – IGT

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PREVENTING DIABETES

GOALS

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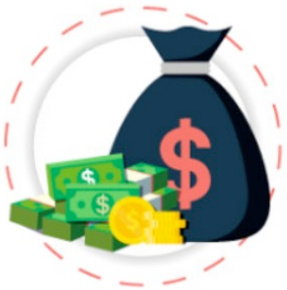
- Prevent or delay the onset of diabetes
- Preserve pancreas function
- Prevent DM complications
- Reduce cost of diabetes care

  - $1 out of every $4 in US health care costs is spent on caring for people with diabetes.
  - 61% of diabetes costs are for people 65 years or older, which is mainly paid by Medicare.
  - 48% to 64% of lifetime medical costs for a person with diabetes are for complications related to diabetes, such as heart disease and stroke.



$327 BILLION[‡(c)]

total annual cost of diabetes[15]

LIFESTYLE MODIFICATIONS

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- What evidence do we have that diet and exercise work?
- In 2002 a RCT with 3,200 showed that intensive lifestyle modifications (targeting a 7% weight loss and exercise of 150 min/week) was superior to standard lifestyle medications with placebo or metformin in decreasing the incidence of DM.

LIFESTYLE MODIFICATIONS

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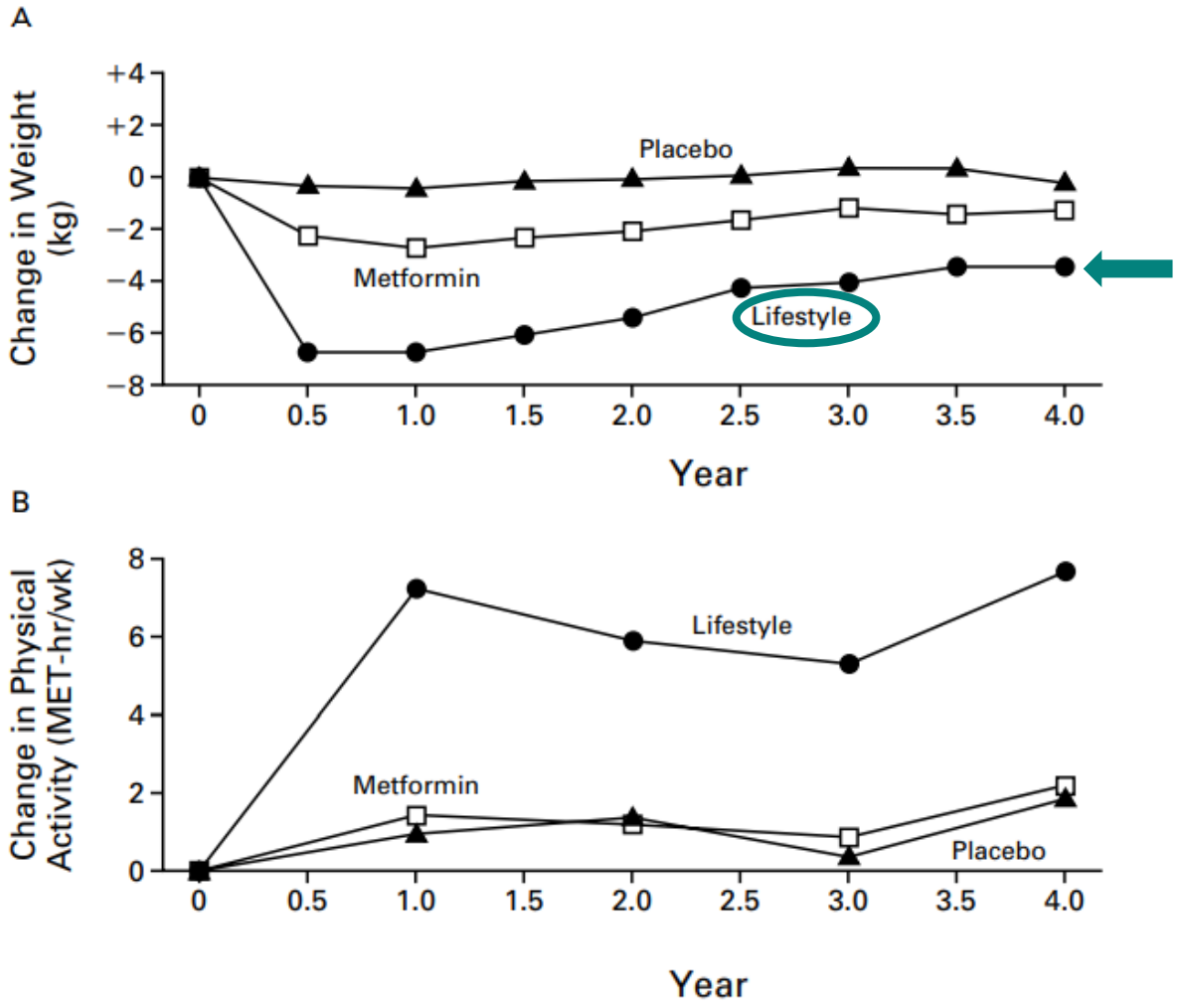

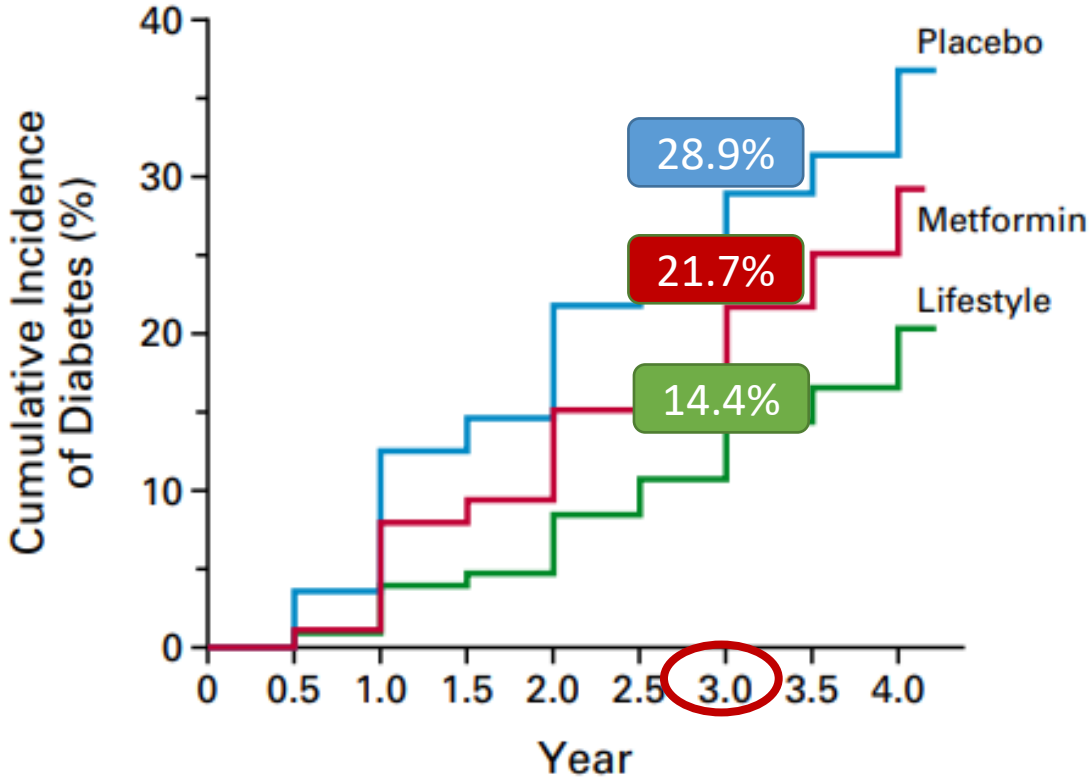

LIFESTYLE MODIFICATIONS

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- Summary:
  - Diabetes incidence reduction:
    - Lifestyle vs. placebo 58%
    - Metformin vs. placebo 31%
    - Lifestyle vs. Metformin 39%

CLINICAL CASE

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- JS 44-year-old male, BMI 31, seen for annual physical exam, very skeptical about this appointment (his wife scheduled it) his labs showed a Hb A1C of 6.1
- What else do we want to know?
  - Physical activity
    - He is very active at work, but he is not a gym person
  - Interest in talking about how food influences health

INTERVENTION PLAN

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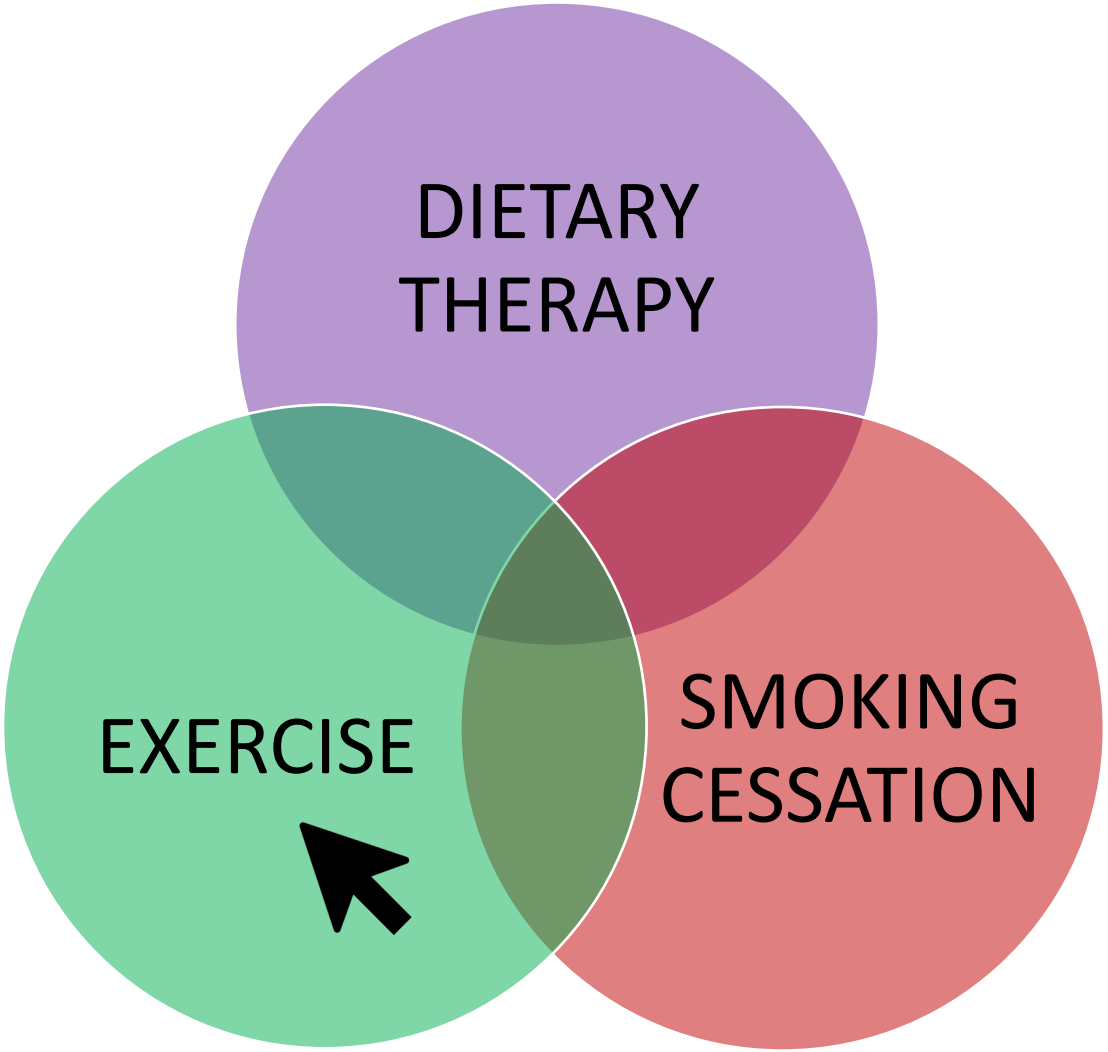

EXERCISE

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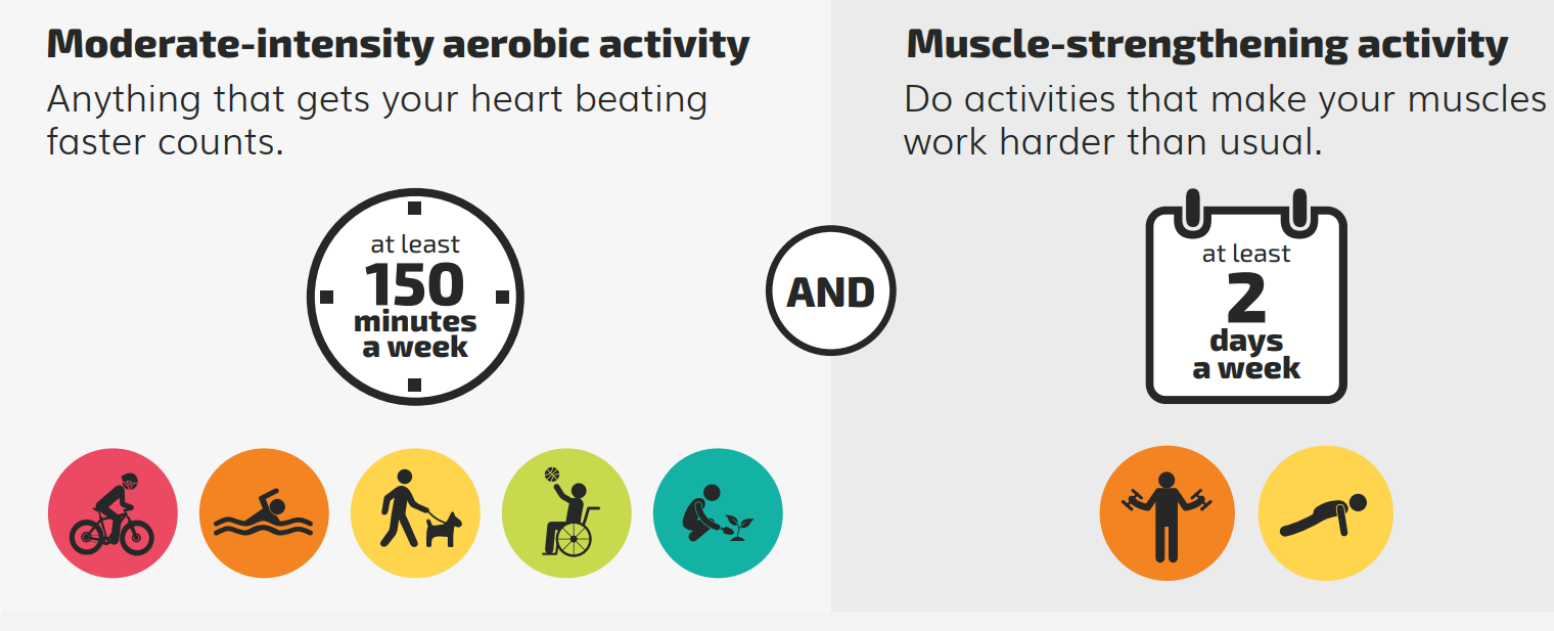

- Walking at 3.5 miles per hour
- Recreational swimming
- Bicycling slower than 10 miles per hour on level terrain
- Active forms of yoga (Vinyasa or power yoga)
- Ballroom or line dancing
- Water aerobics

EXERCISE

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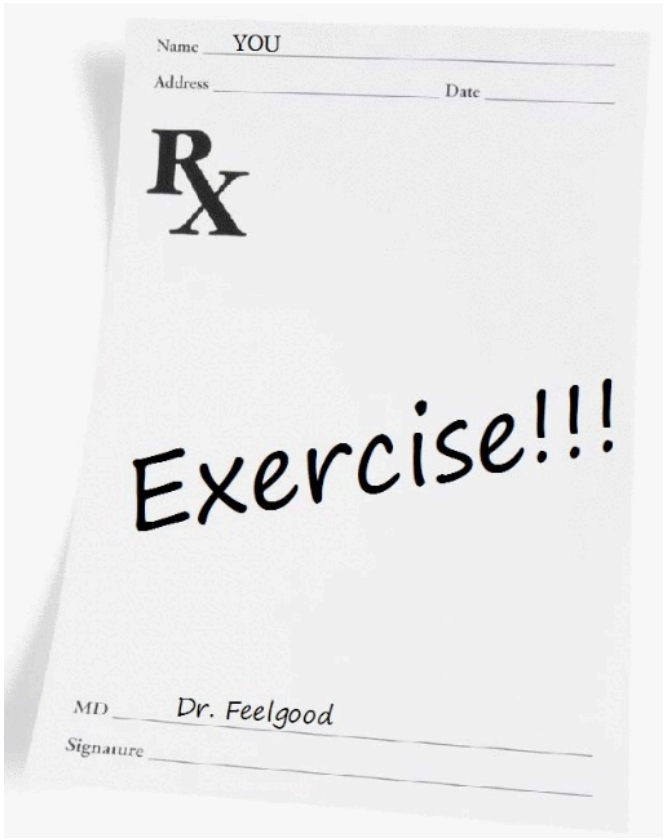

EXERCISE PRESCRIPTION & REFERRAL FORM

Your Prescription for Health
ExeRxcise is Medicine®
www.ExerciseisMedicine.org

PATIENT'S NAME: _____ DOB: _____ DATE: _____

HEALTH CARE PROVIDER'S NAME: _____ SIGNATURE: _____

PHYSICAL ACTIVITY RECOMMENDATIONS

Type of physical activity:	Aerobic	Strength
Number of days per week:		
Minutes per day:		
Total minutes per week*:		

***PHYSICAL ACTIVITY GUIDELINES**

Adults aged 18-64 with no chronic conditions: Minimum of 150 minutes of moderate physical activity a week (for example, 30 minutes per day, five days a week) ***and*** muscle-strengthening activities on two or more days a week (2008 Physical Activity Guidelines for Americans).

REFERRAL TO HEALTH & FITNESS PROFESSIONAL

Name: _____

Phone: _____

Address: _____

Web Site: _____

Follow-up Appointment Date: _____

INTERVENTION PLAN

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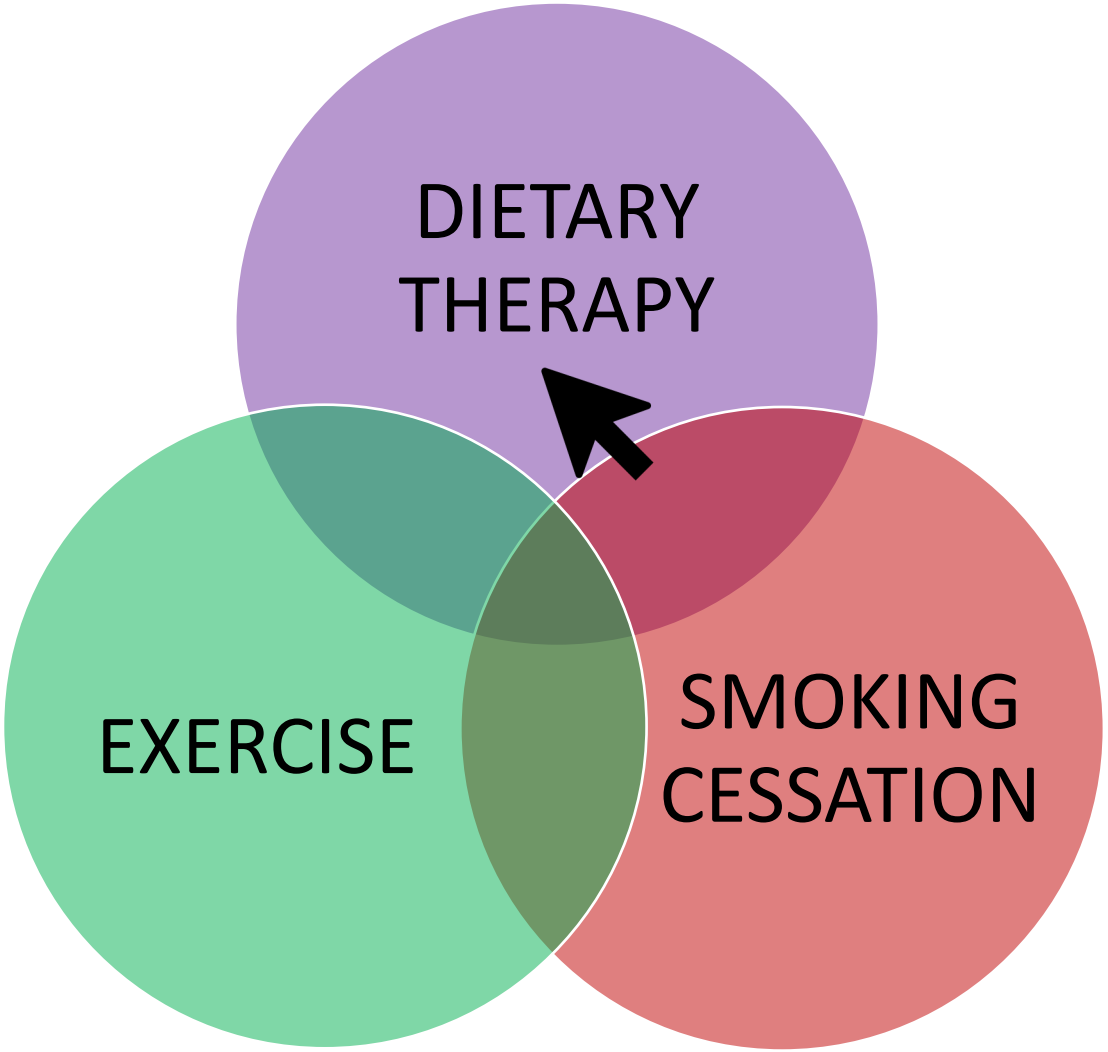

USEFUL TIPS

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- 24-hour food and **beverage** recall
  - In prediabetics, consumption of 1 SSB drink per day increases the risk of DM by 28%
- Name the foods the patient eats, and likes
  - http://thecurbsiders.com/wp-content/uploads/2022/10/Superfoods-5-9-2022.pdf
  - Start from the foods selected from the list!!!
- Emphasize adding healthy foods to the diet and crowding out less-healthy foods, **rather than focusing only on what someone should avoid**
- Goals that are appropriate, manageable and **sustainable**

USEFUL TIPS

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- Avoid using terms like carbs, protein, and fat "macros"
  - Confusion:
    - Carbs: lentils vs lollipop
  - Fact about macronutrients, it's not so much about quantity, it's about the source. Fats coming from healthier sources like nuts, seeds, avocados and olive oil are very different from fats found in bacon, butter.
  - No magic formula (physical activity, co-morbidities, food preference)

TALKING ABOUT FOODS: CVS, CANCER and DM RISK

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- Foods with consistent evidence of promoting health and linked to LOWER risk of chronic disease and cancer: SUPERFOODS!!!!
  - Vegetables
  - Whole fruits (not juices)
  - Legumes (beans, lentils, peas, chickpeas, tofu, edamame)
  - Whole grains (whole wheat products, brown rice, barley, oats, quinoa)
  - Nuts and seeds,
  - Fish (rich in omega-3 fatty acids)
  - Other sources of omega-3 include walnuts, chia, flaxseed

TALKING ABOUT FOODS

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- Foods linked to higher risk of chronic disease:
  - Processed meats (any meat that has been smoked, salted, fermented, or has added sodium: sausage, ham, bacon, pepperoni, cold cuts, deli meats)
  - Unprocessed red meat (beef, pork, lamb, etc.)
  - Added sugars (sugar-sweetened beverages, most commercial breakfast cereals, many breads, desserts)
  - Refined grains (white rice, white breads, rolls, crackers, and other foods made with processed grains; **note that "multigrain" does not mean whole grain – it usually means multiple refined grains**)
  - Ultraprocessed foods (most commercial snack foods, chips, crackers, etc.)

TALKING ABOUT FOODS

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- Foods with inconsistent evidence of benefit vs harm:
  - Dairy: wide variety of health effects with spectrum of foods (e.g., unsweetened yogurt is very different from butter).
  - High-fat dairy (e.g., whole milk, butter, cheese, ice cream, etc.) tends to raise LDL cholesterol due to its saturated fat content.
  - Poultry
  - Eggs

DIET

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- 7% weight loss goal
- There is no "one-size-fits-all" plan
- Medical Nutrition Therapy = treatment of a disease
  - A1c reduction 2.0 % at 3-6 months
- Goals:
  - Glycemic control
  - Weight
  - CVS risk

EATING PATTERNS

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- Totality of all foods and beverages consumed
  - Follow an eating plan
    - When?
    - What?
    - How much?
- 3 main patterns have been studied
  - Mediterranean
  - Low-carb
  - Low-fat

MEDITERRANEAN

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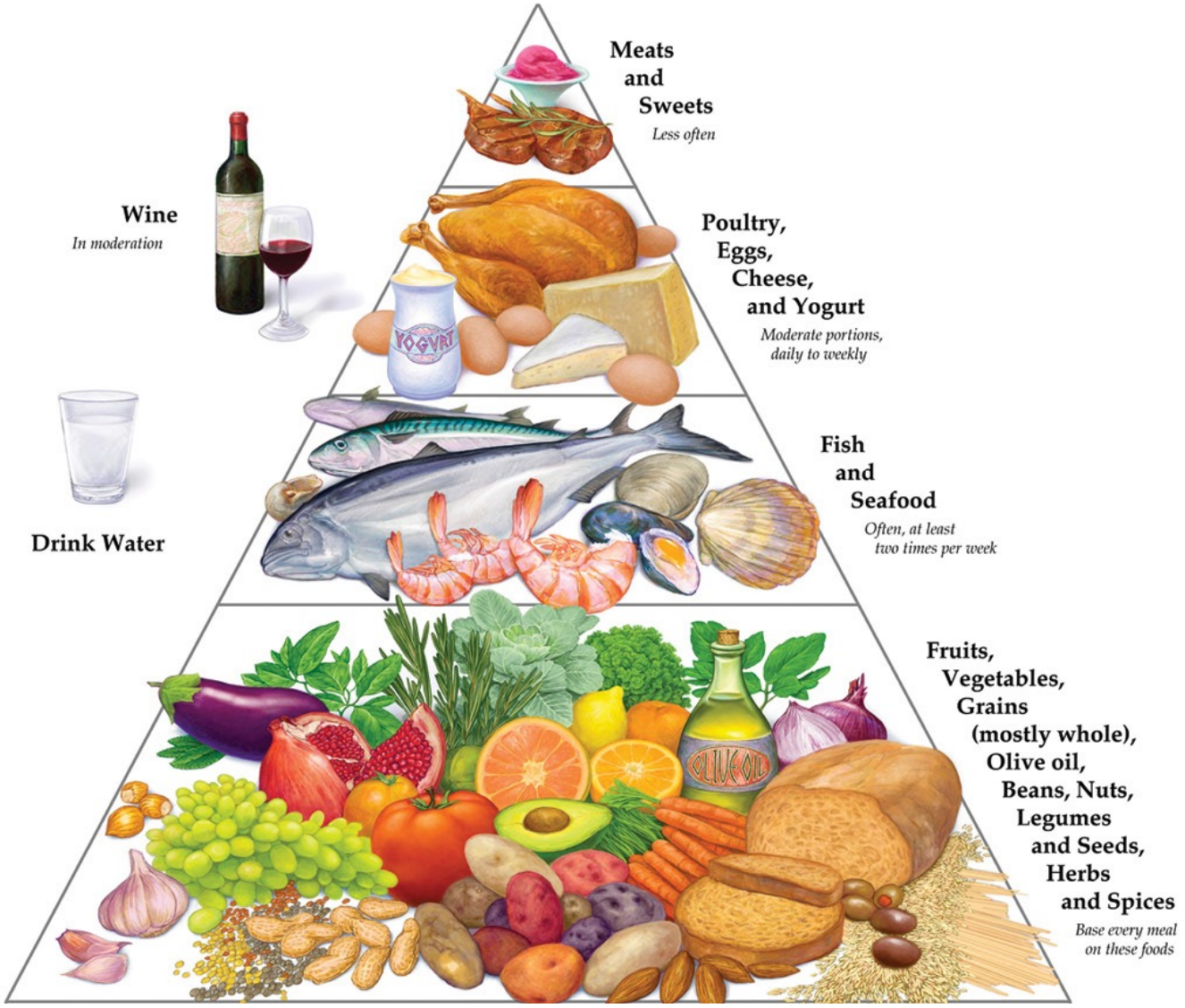

- Reduced risk of diabetes
- A1C reduction
- Lowered triglycerides
- Reduced risk of major cardiovascular events

INTERMITTENT FASTING

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- When vs what you eat?
- Multiple patterns studied 16/8, 20/4, alternate days vs non-fasting
- Promotes:
  - Weight loss
  - A1C changes are similar to a nonfasting plan low calorie

WHICH PATTERN SHOULD I PICK?

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- Evidence not robust to recommend a specific pattern
- Sustainable
- Quick reminder:
  - Superfoods!!!

WHOLE FOOD PLANT-BASED DIET

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MEDICATIONS

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- Obesity
- History of gestational diabetes
- <60 years
- Other risk factors (HbA1C >6%, hypertension, low HDL cholesterol, elevated triglycerides, or a family history)
- With no intervention diabetes incidence decreased by 31% (vs. 58% with lifestyle changes)

RESOURCES

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Diabetes Prevention Programs (DPP) – 12-month program

- Boulder County Area Agency on Aging (BCAAA)
  - Virtual group setting
  - $150/year
  - **Free for 60 years and older and live in Boulder County**
  - Contact Patti @ 303-441-4710

- YMCA
  - In person
  - **$429/year**
  - Includes annual membership to the YMCA
  - Scholarships available
  - Locations: Mapleton (Boulder) & Johnstown
  - Contact Mary @ 303-776-0370 x 5800

- Flatirons Family Pharmacy (Longmont) Diabetes Prevention Program (DPP)
  - On-line or in person
  - **FREE**
  - Contact Rodney@ 970-776-6850

RESOURCES

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- Boulder Nutrition and Exercise.
  - **Two free one-hour individual sessions for 60 years and older and live in Boulder County (BCAAA funded)**

- https://www.cdc.gov/diabetes/prevention/find-a-program.html

ALWAYS REMEMBER

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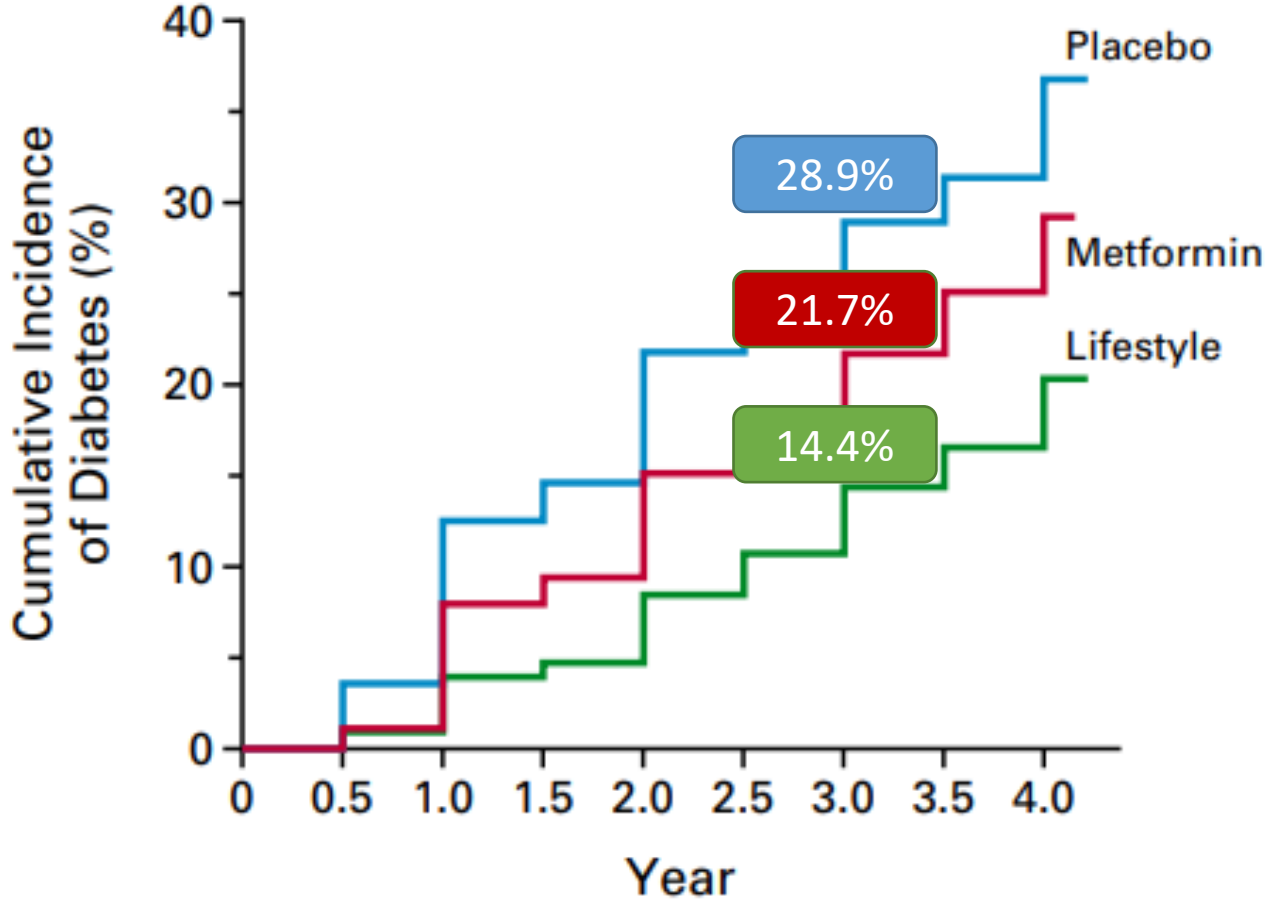

QUICK DAILY PLAN

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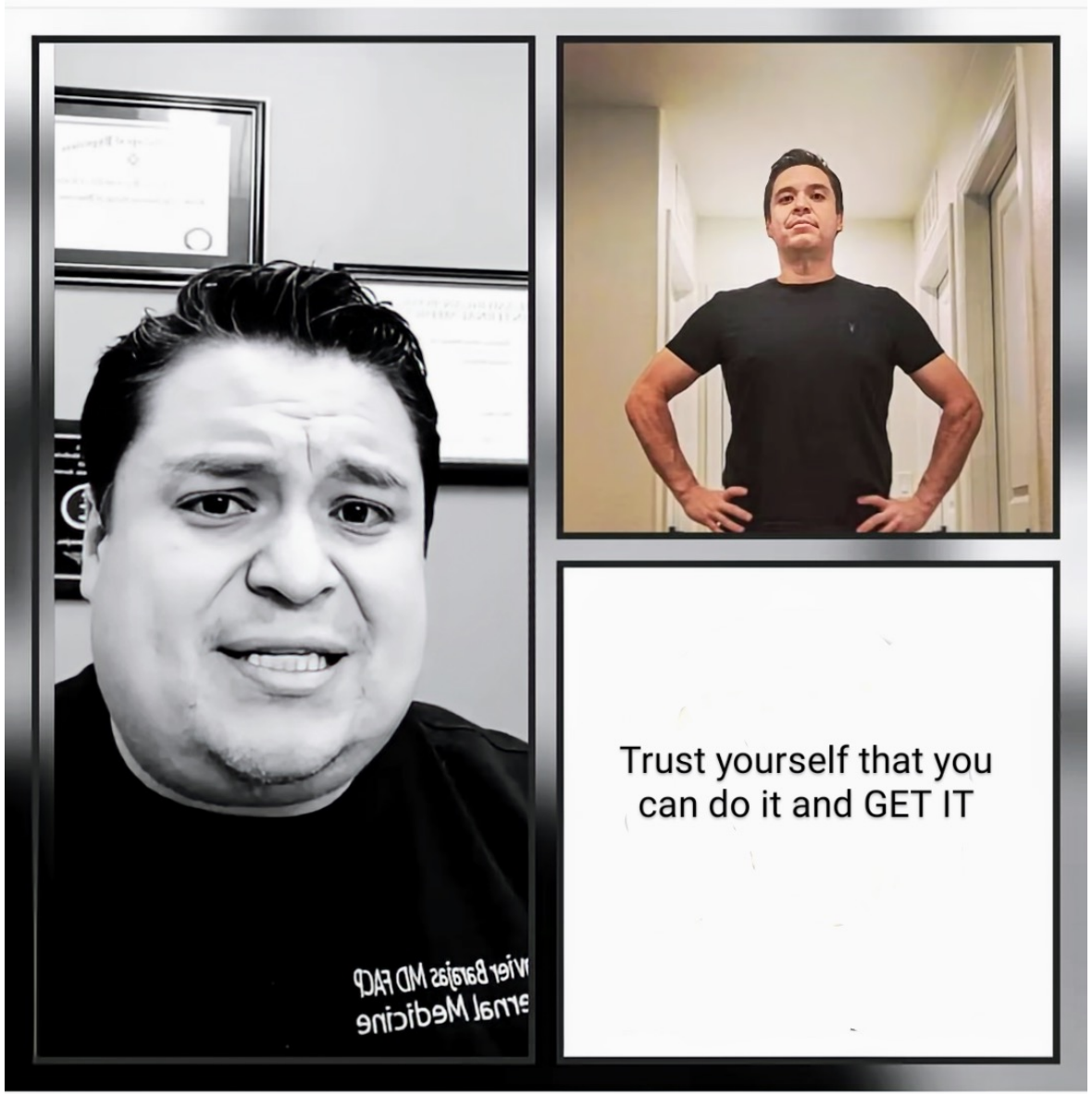
- Moderate intensity aerobic exercise 5 times a week for 30 minutes
- 7% weight loss goal
- Portion control!!!
- Avoid regular soft drinks and juice.
- Choose lower-calorie snacks
- Include at least one vegetable every day for dinner.
- Choose fruit for dessert.
- Eat fewer and smaller portion sizes of desserts and treats, such as ice cream, cake and cookies
- Roast, broil, grill, steam or bake instead of deep-frying or pan-frying.
- Avoid foods high in saturated fat, such as butter, lard and shortening.
- Use healthy oils, such as olive and avocado.


Trust yourself that you can do it and GET IT

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