Diabetes Prevention

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Introduction

- My background
  - MS Simmons College, Nutrition and Health Promotion
  - RD Candidate, 2017 (Sodexo)
  - USAT triathlon coach
  - 10+ years in the senior living industry
- What's my motivation to be here?
- What's your motivation to be here?

Diabetes Statistics

- In 2007:
  - 1 in 4 US adults had pre-diabetes
  - 23 million US adults had diabetes
  - 95% of people with diabetes had Type 2 Diabetes

Definition of pre-diabetes

- Fasting plasma glucose- 100-125mg/dL

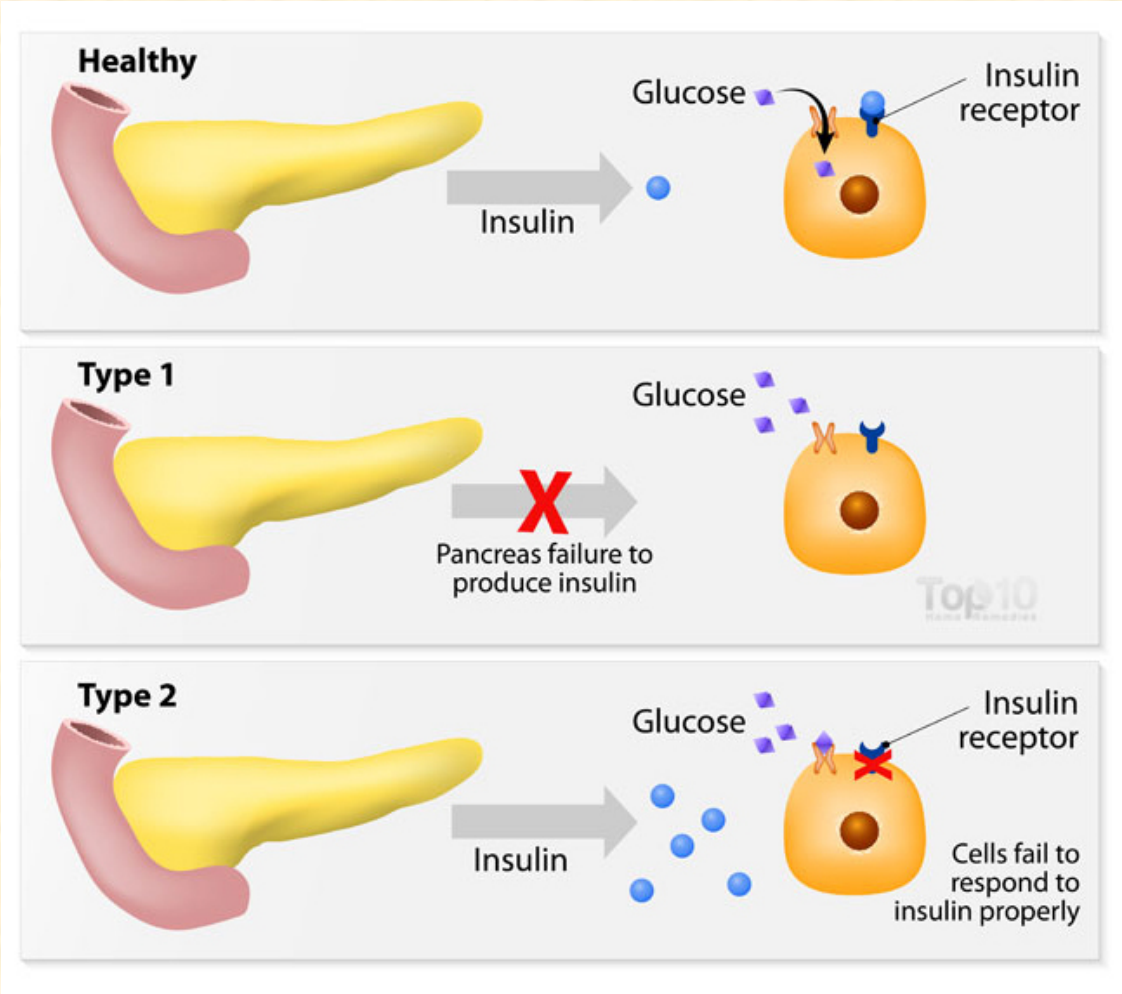
OR

- Hgb A1C- 5.7-6.4%

OR

- 2-hour plasma glucose- 140-199mg/dL (measured 2 hours after an oral glucose tolerance test with administration of 75 grams of glucose)

How Diabetes Works



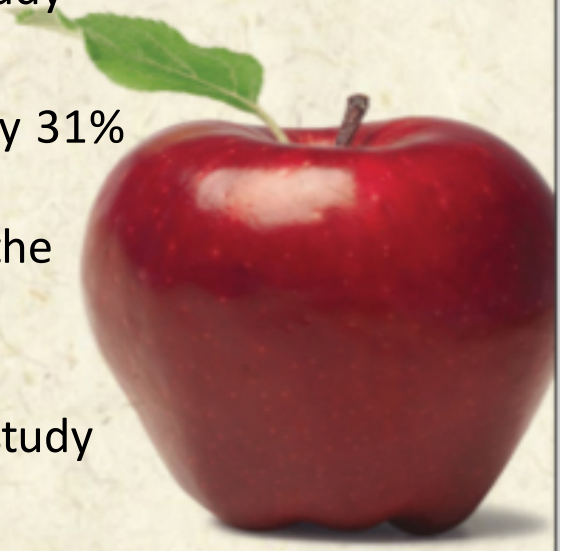
“Genetics hold the gun, lifestyle pulls the trigger.”

The Diabetes Prevention Project

- 3 groups (all participants were overweight and had pre-diabetes)
  - **Lifestyle group**– received intensive counseling in diet, physical activity and behavior modification, exercised 150 minutes per week or more, aimed to lose 7% of their body weight (eating less calories and fat).
  - **Medication group-** took 850mg of Metformin 2x/day
  - **Placebo group**- took placebo pills rather than Metformin

Results: The Diabetes Prevention Project

- Lifestyle group
  - Reduced participants' risk of developing diabetes by 58%
  - Participants 60+ in this group reduced their risk by 71%
  - 5% of the lifestyle group developed diabetes during the study
- Medication group
  - Overall reduced participants' risk of developing diabetes by 31%
  - Was least effective in participants 45+
  - 7.8% of the medication group developed diabetes during the study
- Placebo group
  - 11% of the placebo group developed diabetes during the study

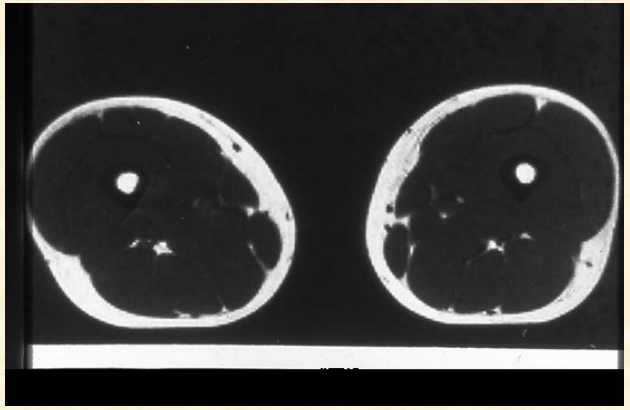


Prevention Tips

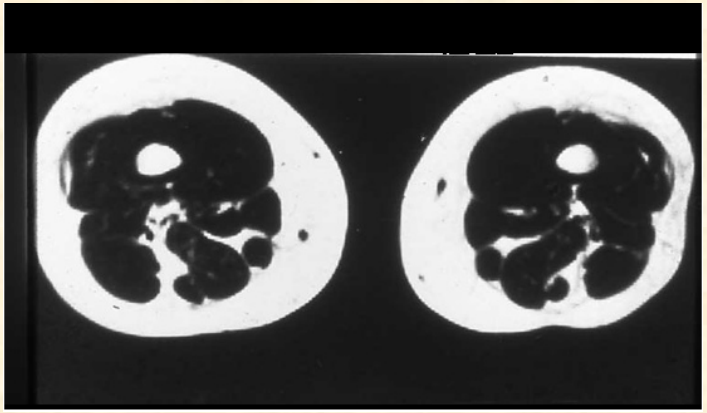
Physical Activity

- Get 150 minutes of physical activity per week (30 minutes, 5x/week)
- Do exercise that improves balance
- For additional health benefits
  - Include strength training 2x/wk
  - Get 300 minutes of physical activity per week
  - Include stretching
- Talk to your doctor before beginning a program
- If you are limited by chronic conditions talk to your doctor

Aging and Muscle Loss (Sarcopenia)



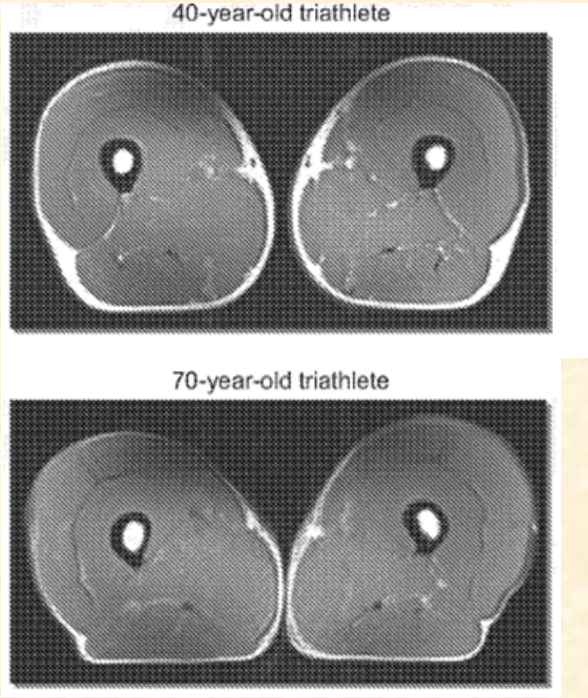
21 year old Female (BMI = 24.3 kg/m^2)

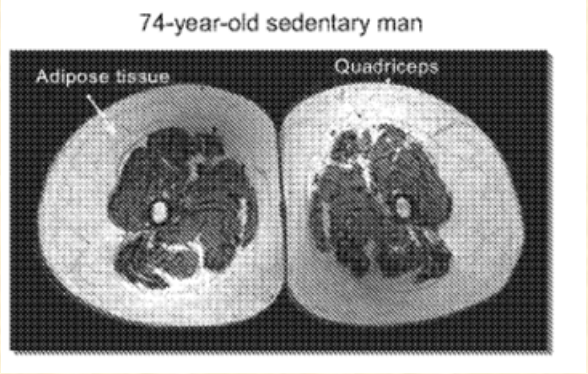


73 year old Female (BMI = 24.5 kg/m^2)

From Evans, W. & Rosenberg, I. (1991) Biomarkers. Simon & Schuster, New York, NY. MRI scan.

How Does Exercise Impact Muscle Loss?





Wroblewski, et al; 2011

Additional Benefits of Physical Activity

- Disease prevention- muscle reduces the signs and symptoms of numerous diseases and chronic conditions including arthritis, diabetes, osteoporosis, obesity, back pain and depression
- Muscle decreases the likelihood of falling (prevents injuries)
- Muscle allows you to do activities of daily living longer
- Muscle burns more calories than fat

Physical Activity Ideas

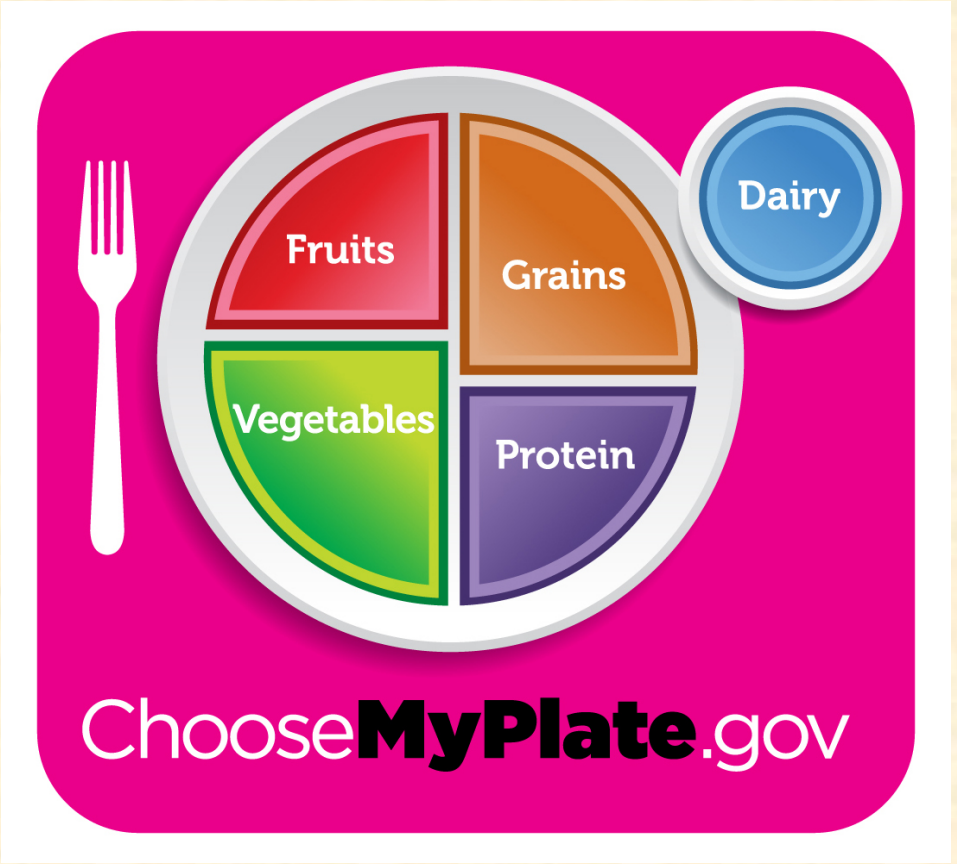
- Strength and balance (at the senior center)
  - Pilates
  - Yoga
  - Balance class
  - Qigong
  - Weight training (talk to a physical therapist)
- Cardiovascular-focused activity
  - Walking (walk well class)
  - Gardening
  - Water aerobics (ARC)
  - Bicycling
  - Hiking
  - Swimming

Tips for Being Active

- Set aside a block of time every day to be active
- Park your car away from the store and walk
- If you take public transportation, get off a stop early to walk more
- Take the stairs rather than the elevator
- Cut TV time in half or be active while you watch TV
- Start your exercise program slowly to avoid soreness
- Wear a good pair of shoes
- Go to classes

Diet

- Eat regular, balanced meals (no meal skipping)
- 1/2 your plate should be fruit/vegetables
- Choose whole grains
- Go lean with protein
- Choose healthy fats
- Beware of hidden calories



Diet: Tips for avoiding hidden calories/fat

- Bake, broil or grill meat instead of frying
- Remove skin from meats
- Use cooking spray or no more than 1 tsp. oil
- Drain fat after cooking meat
- Buy and use low fat milk (Skim, 1%, 2%)
- Steam, microwave or boil vegetables in a small amount of water or stir-fry

Diet: Eating Healthy Away from Home

- Restaurant
  - Plan ahead
  - Ask questions
  - Choose foods carefully
    - Low-fat words: baked, roasted, steamed, stir-fried, poached, boiled, broiled, grilled
    - High-fat words: au gratin, breaded, buttered or buttery, cheese sauce, fried, gravy, escalloped, hollandaise, parmesan, pastry, creamed, creamy, in cream sauce, rich, sautéed, scalloped, southern style
- Buffet or barbeque
  - Choose 1 indulgence
  - Eat vegetables first and skip dessert
- Getting lunch at a grocery store
  - Add items from the produce section

Weight Loss

- How do you know if you need to lose weight?
- Talk to your doctor
- BMI
  - <18.5= underweight
  - 18.5-24.9= healthy weight
  - 25-29.9= overweight
  - >30= obese
- Limitations to BMI
  - May overestimate body fat in athletes or people with a muscular build
  - May underestimate body fat in older persons who have lost muscle

Weight Loss

- Participants in the DPP saw huge benefits from loss of 7% of total body weight
- If you need to lose weight, 7% is a good initial goal
- See a Registered Dietitian (free at the senior center)
  - RDs are trained extensively in nutrition
  - Take all pre-med prerequisites
  - Do extensive coursework in nutrition, specifically
  - Do at least 1200 clinical hours
  - Generally have advanced degrees in Nutrition

Reduce Stress & Get Enough Sleep

- Get 8 or more hours of sleep per night
- Reduce stress
  - Determine any stress you can eliminate from your life and get rid of it
  - Don't worry about stress you cannot control
  - Practice meditation
    - http://marc.ucla.edu/body.cfm?id=22
  - Get enough physical activity
  - Practice yoga, Tai-Chi or Qigong
  - Make time for a relaxing activity each day

Who Should be Tested for Diabetes?

- Adults without symptoms who are overweight or obese and have one or more of the following risk factors for diabetes:
  - ✓ Being physically inactive.
  - ✓ Having a parent, brother or sister with diabetes.
  - ✓ Having a family background that is African American, Alaska Native, American Indian, Asian American, Hispanic/Latino or Pacific Islander.
  - ✓ Giving birth to a baby weighing more than 9 pounds or being diagnosed with Gestational Diabetes Mellitus.
  - ✓ Having high blood pressure– 140/90 mmHg or above– or being treated for high blood pressure.
  - ✓ Having HDL or "good," cholesterol below 35mg/dL, or a triglyceride level above 250mg/dL
  - ✓ Having Polycystic Ovarian Syndrome (PCOS)
  - ✓ Having impaired fasting glucose (IFG) or impaired glucose tolerance (IGT) on a previous lab test.
  - ✓ Having other conditions associated with insulin resistance, such as severe obesity, or a condition called acanthosis nigricans, characterized by dark velvety rash around the armpit or neck
  - ✓ Having a history of cardiovascular disease
- If test results are normal test every three years or according to doctor recommendation

Summary

- Talk to your doctor about his/her recommendation for screening for pre-diabetes if you are concerned
- Lifestyle can greatly reduce your chances of developing diabetes
  - Eat a healthy diet
  - Get enough physical activity
  - Lose weight if you are overweight or obese

Q+A

Thank you!