Let's talk about ~~obesity~~ weight

09/28/2022

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**Personal pronouns:** he/him/they/them

Commercial disclosures:

- I have no commercial disclosures

Statement of personal beliefs about obesity:

- I believe people with larger bodies are inherently of good health, happy, productive and able humans.

- I believe the terms obesity and BMI originate in eugenics and have inherent bias.

- I believe most obesity cases in the world are a consequence of a dominant culture supported by economics focused of acquiring wealth which also inappropriately affects black, indigenous and people of color (BIPOC).

- As a practitioner, I also believe that weight loss in many cases can improve other comorbid conditions.

This presentation is intended to support you on your individual journey to self-improvement.

If you wish to learn more about the above statement, I recommend the below reads:
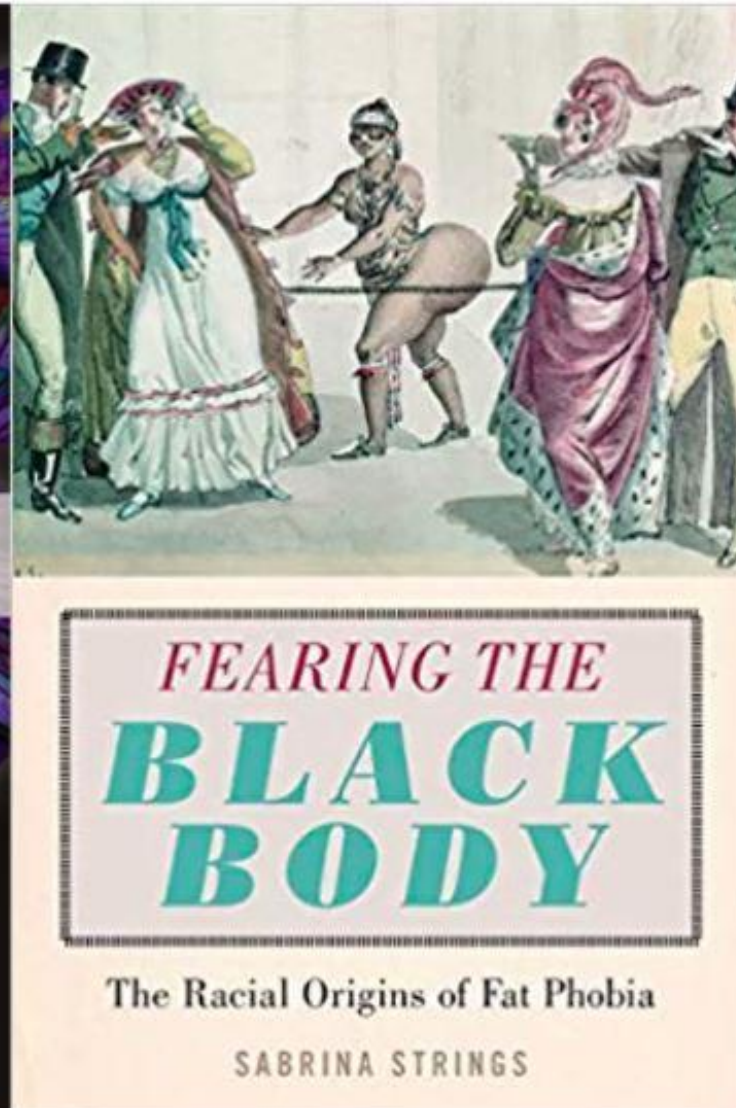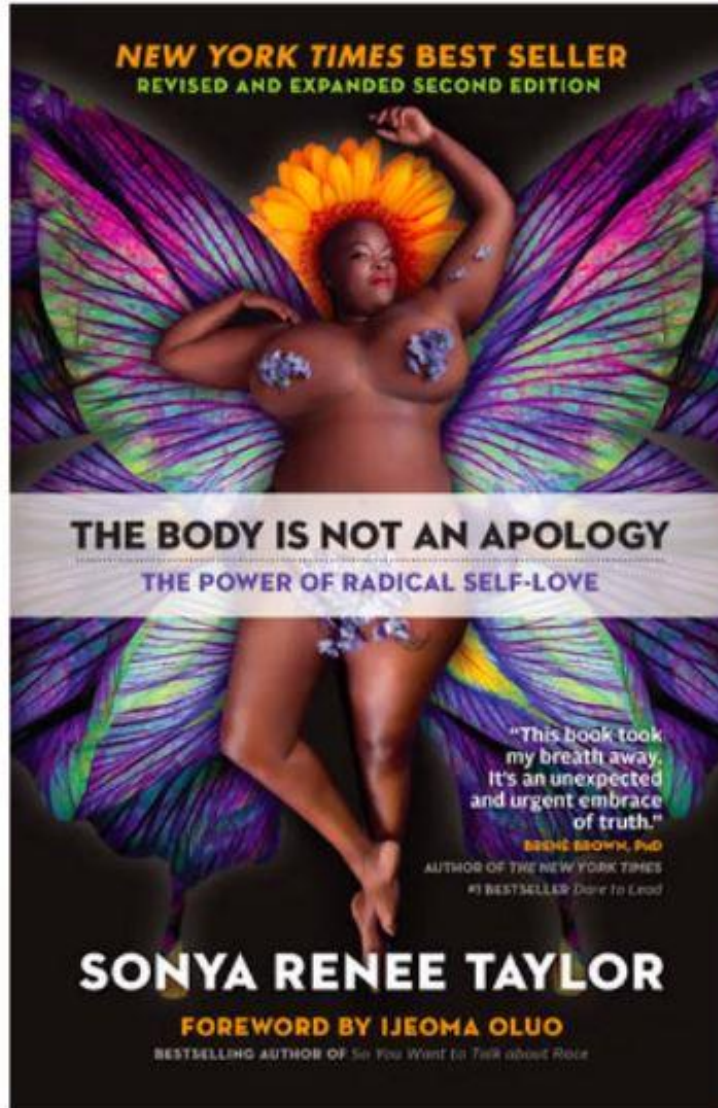
A Patient Story:

- As a nurse practitioner student I had a patient, whom I followed for about 1 year.
- She had a poorly controlled T2DM & HTN & was on 8+ rx meds.
- We clicked and rather than talking about the usual, I started asking about her daily habits (because it was her physical, for which we have more time).
- I found out that she drank a lot of caffeinated sodas (2 bottles a day Mountain Dew) and/or energy drinks (Rock start) because she was working night shifts & she needed to stay alert. She also liked black coffee and black flavored teas.

  → **Long story short:** I challenged her to replace sodas and energy drinks with coffee/teas AND change NOTHING else in her life for 3 months and that the next time I saw her she would have lost at least 10-15 lbs, and we can take her off of at least 1-3 of her medications. She was in disbelief. **"No, that's impossible."**
- *But I told her if you haven't lost 10-15 lbs by then, you can slap me twice as hard you want!*

- 1 bottle (500 ml) Mountain dew calories has 240 calories; and Rock star has 270 calories per can.
- 240+ 240+270 = 750 cal as day x 30 days = 22,500 EXCESS calories in 1 month x 3 months
- 67,500 calories / 3500 cal to lose 1 lbs = 19.2 lbs in 3 months.

My Story in 2022:

- The pandemic was rough.
- My life had become more sedentary.
- I ate > "bad" foods more often.
- I poured a bit > wine into my glass more frequently.
- I'm entering my late 30's
- overall, I had some central obesity.
- In January, I had my physical and at that time I had my "freak-out" moment.
- I was 194 lbs, and I am 5 ft 11 in = BMI =27.1 = overweight!
  → Long story short: I needed a change

I created a 4 step plan

- **Step 1: change my relationship with food**

- **Step 2: reduce calories and improve diet**

- **Step 3: increase my activity level.**

- **Step 4: keep up with it.**

BMI calculator (NIH)

STANDARD | **METRIC**

Your Height: 5 (feet) 11 (inches)

Your Weight: 194 (pounds)

Compute BMI

Your BMI: 27.1

BMI Categories:
Underweight = <18.5
Normal weight = 18.5–24.9
Overweight = 25–29.9
Obesity = BMI of 30 or greater

What Next? Take Action Towards Better Health:

Maintain a Healthy Weight

- Maintaining a healthy weight is important for your heart health.

- Learn more about overweight and obesity

Increase Physical Activity

- Moving more can lower your risk factors for heart disease.

Eat a Heart-Healthy Diet

FYI: I am using BMI as an example as most health care providers in the U.S. and health systems do.

Alternatives to BMI include:
- Tape measure and waist circumference to calculate relative fat mass (RFM)
- Calipers
- weight scales
- Dual-energy X-ray absorptiometry (DEXA)

⏸ PAUSE & do you!

Please use your phone

Search: NIH BMI calculator

calculate your own BMI

What BMI category are you in?

Obesity Definition & prevalence

- **Definition-** According to the Obesity Medicine Association "Chronic relapsing multi-factorial neurobehavioral disease where an increase in body fat promotes adipose tissue dysfunction and abnormal fat mass physical forces resulting in adverse metabolic, biochemical and psychosocial health consequences."
  - https://obesitymedicine.org/   *1. Hales CM, et al. NCHS Data Bref. October 2017; No.288*

- **Prevalence**: almost 40% of American adults have it (almost 100 million); yet ONLY 55% of people reported receiving a formal diagnosis. (Kaplan L, et al., 2016)
    - 12.7% Non-Hispanic Asian adults (**lowest)
    - 46.8% Non-Hispanic Black adults
    - 37.9% Non-Hispanic White adults
    - 47% Hispanic adults (**highest)

Today….

- 108 million Americans with hypertension
- 78 million adults in the United States qualify for a statin

- 108 million Americans living with obesity yet…it is often not treated in the same way

Adult obesity facts. Centers for Disease Control and Prevention. Accessed March 1, 2021. https://www.cdc.gov/obesity/data/adult.html.
US Census Bureau. QuickFacts: United States. Accessed March 1, 2021. https://www.census.gov/quickfacts/fact/table/US#viewtop.

Obesity if Multifactorial

- Genetic
- Environmental
- Immune
- Endocrine
- Medical
- Neurobehavioral

Obesity Medicine, 2021
https://obesitymedicine.org/obesity-algorithm/ accessed 08-24-2021

Obesity is associated with 60 comorbidities, most of which are improved or reduced with weight loss

Words Matter

- In a 2003 study, people with obesity were asked to rate eleven terms, using a 5-point scale, with 1 being very desirable to hear from a health professional and 5 being very undesirable to hear. Word were introduced with the phrase:

- "Good morning. I want to talk with you about your…"

- Obesity was undesirable
- Weight, excess weight, and BMI – neutral to sedirable.
- The term "Weight" was most-desirable, hence I updated the presentation.

- weight
- heaviness
- obesity
- BMI
- excess weight
- fatness
- excess fat
- large size
- unhealthy body weight
- weight problem
- unhealthy BMI

1. Wadden TA, et al. *Obes Res*. 2003; 11: 1140-1146.

Obesio-genic Environment

- **Definition – "**the sum of influences that the surroundings, opportunities, or conditions of life have on promoting obesity in individuals and populations"
  - *My experience – at age 17 when I first arrived in the U.S.; I ate more beef in 1 month than I had consumed in my entire life in Bulgaria. In the 1st year of living in the U.S. I gained 17 lbs.*

- ***Factors:***
  - *Cheap, tasty & highly processed VS. Scarcity of affordable, fresh, healthy options.*
    - *Cookie anyone? Or Mac and Cheese?*
  - ***Food desserts:*** *neighborhoods that don't have supermarkets or other outlet for fresh produce but have many corner stores with mainly sugary-sweetened beverages, snacks and candy.*
  - ***The built environment:*** *transport, sidewalks, neighborhood safety*

Lake A, et al. *J R Soc Promot Health*. 2006;126:262-267.
Roof K, et al. *J Environ Health*. 2008;71:24-27.

My story in my new home:

2004 through 2009 I lived in Virginia MN.

I rented a room in a house which was 3 miles away from the Virginia Campus.

Then, I started the nursing program which was taught in the Eveleth campus.

I had no transport options. I had no car. There was no bus. This was before Uber/Lift.

I couldn't walk in the winter, and there were no sidewalks (Just HWY 53).

The closest food source was holiday gas station.

The closes affordable store for me at the time (Walmart) was in Hibbing (25 miles away).

The most affordable option for me was the college food shelf.

Medications that promote weight gain:

- **Corticosteroids-** like prednisone

- **Antihistamines** – like Benadryl, Allegra, Zyrtec, Claritin
  - Why? These drugs can interfere with the "I'm full" signal coming from the rest of our bodies and lead to overeating.

- **Beta Blockers** - the average weight gain is about 2.6 pounds (1.2 kilograms). Weight gain is more likely with older beta blockers, such as atenolol (Tenormin) and metoprolol (Lopressor, Toprol-XL).

- **Diabetes** meds such as insulin, Glucotrol (glipizide), thiazolidinediones (-glitazones)

- **Psychiatric medications-** TCAs (amitriptyline) ; SSRIs -paroxetine (Paxil), sertraline (Zoloft) fluoxetine (Prozac); atypical antipsychotics,   lithium

- **Antiseizure medications** – valproic acid, carbamazepine, gabapentin

- **Injectable contraceptives** (Depo-Provera) and hormone releasing IUDs

- https://www.obesity.org/information-for-patients/
- file:///C:/Users/bj1818em/Downloads/TOS-OBESITY-PATIENT-AD-SERIES-DRUG-INDUCED-WEIGHT-GAIN.pdf

Hormonal regulation:

Fat storage and appetite are regulated by complex interaction of hormones produces in the CNS, gut, pancreas and adipose tissue.

- **Ghrelin** – stomach- stimulates appetite - levels increase with weight loss.

- **Glucagon-like peptide-1** (GLP-1) – small intestine –delays gastric emptying which improves gastric emptying's, → improved glycemic control and satiety (feeling full).

- **Peptide YY & Cholecystokinin** – small intestine –increases satiety – levels are low with obesity

- **Insulin** – pancreas – high levels promote fat storage, stimulate hunger, induce inflammation.

- **Amylin-** pancreas - increases satiety

Ebrahimi-Mamaeghani M, et al. *Vasc Health Risk Manag.* 2015; 11:55-70.

Continued Hormonal regulation:

Adipose tissue – this is metabolically active endocrine organ

- **Leptin** - produced by white adipose tissue
  - Higher levels of adipose tissue increase its production
  - Suppresses appetite, regulates energy expenditure
  - People with obesity have high levels but are hyposensitive (much like insulin resistance)

- **Adiponectin –**
  - Decreases insulin resistance
  - Has protective actions in initiation and progression of atherosclerosis and CVD.

Pathogenic adipose tissue secretes substances such as free fatty acids and cytokines (inflammatory hormones) that promote insulin secretion, insulin resistance, dyslipidemia, type 2 diabetes, and wide spread inflammation.

Ebrahimi-Mamaeghani M, et al. *Vasc Health Risk Manag*. 2015; 11:55-70.

Co-existing Conditions:

Conditions that include or contribute to obesity:

- **Insulin Resistance**
  - Induces weight gain and worsens with weight
  - Can lead to T2DM, HTN, dyslipidemia, heart disease, stroke and cancer.
- **Depression**
  - the interaction between depression and obesity is bidirectional. 1
- **Obstructive Sleep Apnea (OSA)**
  - Recent studies suggest that OSA may itself contribute to weight gain. 2

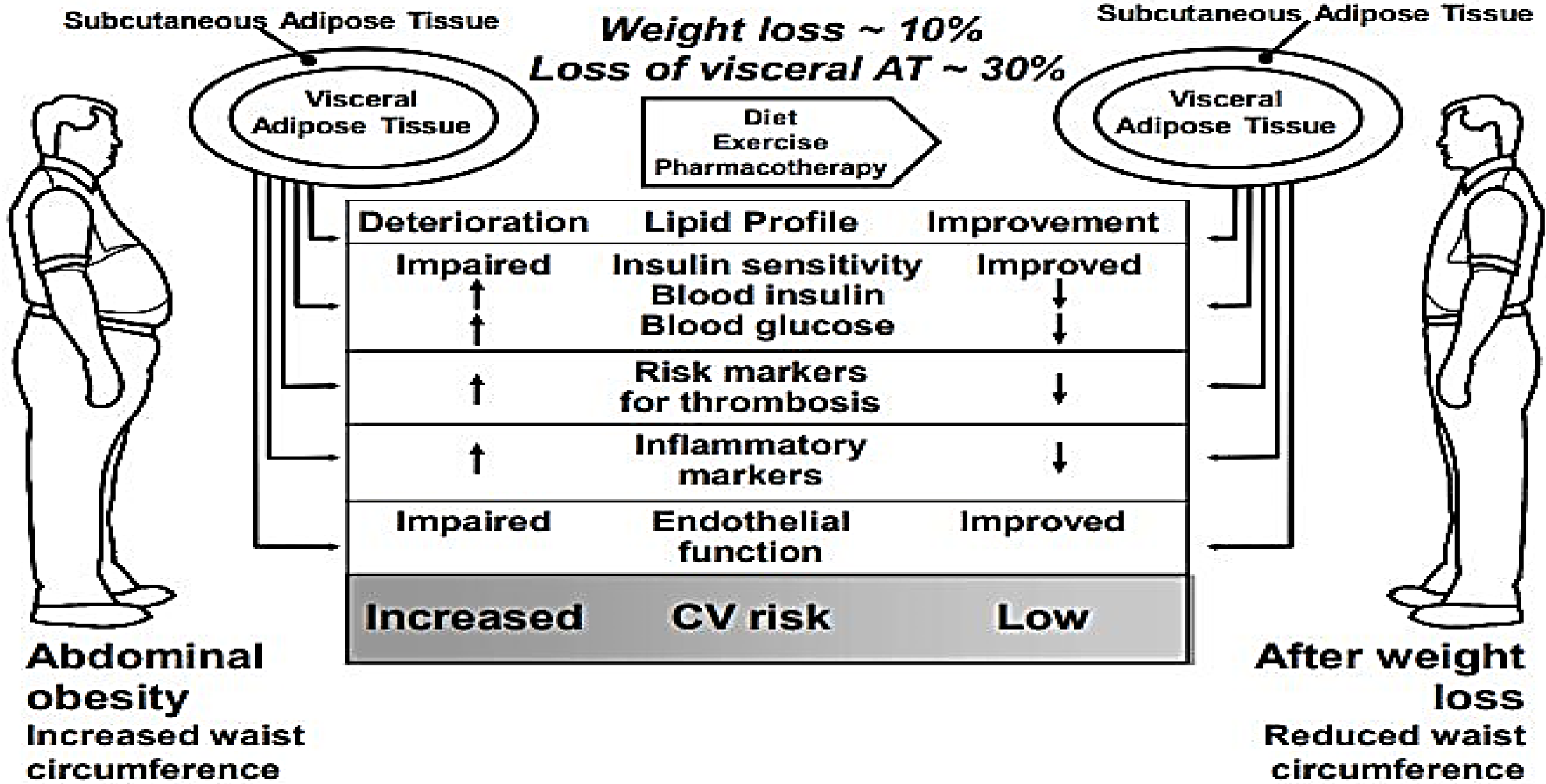1. Rajan TM, et al. *J Postgrad Med*. 2017; 63:182-190.
2. Ong CW, et al. *Sleep Med Rev*. 2013; 2: 123-131.

Hedonic Input:

Hedonic= pleasure response

- Hedonic input is a physiologic response involving the brain's reward centers.

- **Hedonic hunger is the desire to east for pleasure rather than to maintain energy homeostasis.**

  - Can be triggered by smelling, seeing or thinking about highly palatable foods.

  - Ongoing research is investigating how dysregulation of the brain's reward center may trigger hedonic eating.

    - *(** I think this is related to how long we eat)*

- *My weakness regarding this is driving after work around 530 pm & driving by Central entrance (McDonalds, Burger King) and I can smell the fries.*

  - *So, I started keeping a snack in the care (currently it is sunflower seeds), this way I am not tempted to stop but to keep driving by.*

Ziauddeen H, et al. *Adv Nutr.* 2015; 6:474-486.

Adipose Tissue: Subcutaneous vs. Visceral

Subcutaneous Adipose Tissue

Subcutaneous Adipose Tissue

Weight loss ~ 10%
Loss of visceral AT ~ 30%

Visceral Adipose Tissue

Visceral Adipose Tissue

Diet
Exercise
Pharmacotherapy

Deterioration	Lipid Profile	Improvement
Impaired ↑ ↑	Insulin sensitivity Blood insulin Blood glucose	Improved ↓ ↓
↑	Risk markers for thrombosis	↓
↑	Inflammatory markers	↓
Impaired	Endothelial function	Improved
Increased	**CV risk**	**Low**

Abdominal obesity
Increased waist circumference

After weight loss
Reduced waist circumference

Adapted from Després J, et al. *BMJ*. 2001;322:716-720.

Again, 10% of weight loss decreases visceral adiposity by 30%!!!

Say whaaat?

⏸ PAUSE & do you!

If you have an abnormal weight...?

What is 10% of your weight in pounds

Mine in January was 19.4 lbs

Basics

- **It is about caloric reduction = 3500 cal less = 1 lbs of weight loss**

- **Inactivity is the new Tobacco**

- !!! The average American consumes dinner in 15 min

Did you Know?

- When men lose 2.25 kg or 5 lbs
  = 50% of cardiovascular risk reduction

- When women lose 2.25 kg or 5 lbs
  = 40% of cardiovascular risk reduction

So, what can we do about the WEIGHT? FYI: I will focus on discussing these three:

1. Dietary changes
2. Activity level
3. Trying some new behavioral skills

The Modalities of Obesity Treatment

Diet Therapy

Physical Activity

Behavioral Modification

Pharmaco-therapy

Surgery
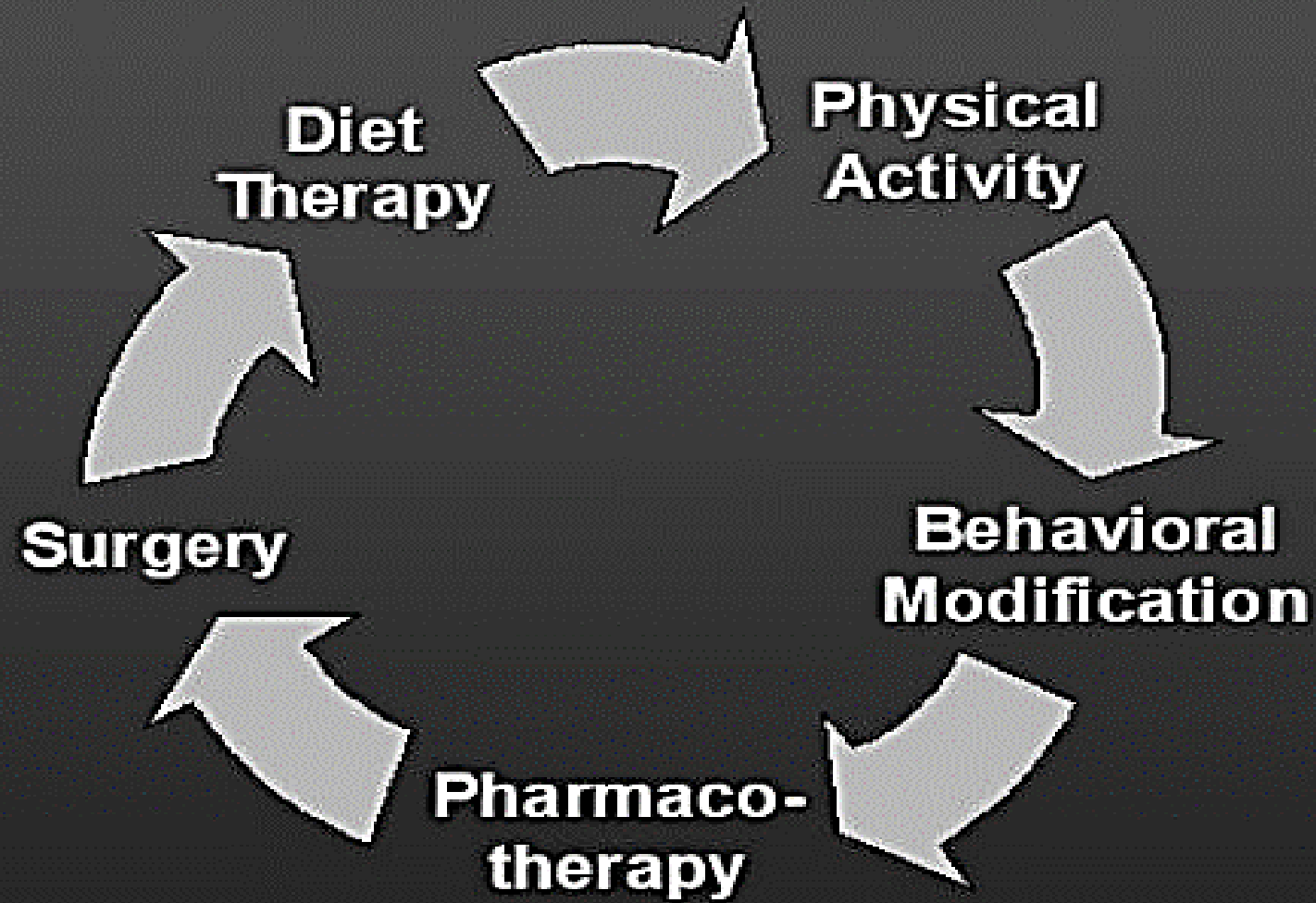
My Story in 2022:

Jan `22 = 194 lbs
BMI =27.1
overweight!
10% = 19.4 lbs

Sep `22 = 178 lbs
BMI =24.8
normal weight 😀
Lost 16 lbs in 9
months
1.7 lbs a month

My Personal 3 step plan

- **Step 1: reduce calories and improve diet**
  - Increase salad intake and eat as much as I want
  - Eat legumes 1 week;
  - Eat oatmeal not toast
  - Eat fish 1 week;
  - Make a vegetarian meal once a week
  - Change milk from whole to 2%
  - Make veggie juices
  - Pack fruit to work and eat as much of it as I want
  - Be cognizant of calories
- **Step 2: increase my activity level.**
  - Go to yoga 1-2 x a week
  - Walk 30 min at least 2-4 x week
  - Park far away; Take the stairs; move in the classroom
- **Step 3: "is it worth the calories?"**

     "Am I eating because I am upset?"

Diet

Are there any parents in the room?

What To Do With Children

- **Prevention Plus**
  - Children between the 85th - 94th percentiles BMI
  - Encourage 5 servings of fruits and vegetables/day
  - 2 hours or less of screen time
  - 1 hour or more of physical activity
  - 0 sugared drinks
  - Also discuss the importance of family meal time, limiting eating out, consuming a healthy breakfast, and preparing own foods

The New American Plate

- 2/3 or more of plate – vegetables, fruits, whole grains and / or beans
- 1/3 of plate – animal proteins

Provider approved tips: (Nik tip)

- *Habit: Consume lots of water before you eat*
- *Habit: Use a smaller plate, a smaller fork*
- *Hedonic input: If you want fast food get a small size*
- *On the go: Yes, on replacement Meal Bars, shakes.*
- *Cultural: Slow down your eating (spend at least 20-30 min)*
- *Shop the periphery of the store, not the middle.*
- *Organizers: Caloric intake tracking: do it! It keeps you aware!*
- *Goal setters: Walk, walk, walk: 10 here, 10 there… they add up. Goal with 30 min, 5 times a week.*
- *Intermittent fasting 10 hours between last and first meal.*

Joke:
What is the difference between a guitar and a large cheese pizza?

A pizza can feed a family of four!

Have any of you attempted a dieting?

Dieting: Which is Best?

Randomized trial comparing dietary interventions:

- Atkins — Very low carb, high fat
- Zone — Moderate carb, moderate fat
- Weight Watchers — High carb, moderate fat
- Ornish — High carb, very low fat

<u>Study Question:</u> How well do these very different popular diets work under realistic clinical conditions over a one-year period?

<u>Answer:</u> All diets had similar effect: 20-25% of subjects sustained modest weight loss beyond 1 year *What an individual will adhere to*, not macronutrient combination, is the key

Do you think you have a good understanding of Portion Sizes?

1 oz of meat?

3 oz of meat?

8 oz. meat?

3 oz. fish

1 oz of cheese?

Medium potato?

2 tbs peanut butter?

1 cup pasta?

3 oz bagel?

Understanding Portion Sizes

1 oz. meat:	matchbox
3 oz. meat:	deck of cards or bar soap
8 oz. meat:	thin paperback book
3 oz. fish:	checkbook
1 oz. cheese:	4 dice
Medium potato:	computer mouse
2 tbs. peanut butter:	ping pong ball
1 cup pasta:	tennis ball
3 oz bagel:	hockey puck

What fries with that burger?

French fries

- Large 6 oz   540 calories

  vs.

- Small 2.5 oz   210 calories

<u>330 calorie difference:</u>
2x per month = 660 calories
x 12 months = 7920 calories
÷ 3500 calories per lb
= 2.2 lbs per year

Substitutions

16 oz. cup of coffee with 2 oz. of:

- Light cream   120 calories

    vs.

- 2% milk   30 calories

<u>90 calorie difference:</u>

1x/day for 1 month = 2,700 calories

x 12 months = 32,400 calories

÷ 3500 calories per lb

= 9.2 lbs per year

~~Exercise~~

Activity level

Exercise feels like a chore
Activity level is about forming new habits and creating a daily routine that suits you.

We Have Become Sedentary

- A child who spends more than 3 hours per day on any sedentary activity is 50% more likely to develop obesity than children who watch < 2 hours per day[1]

- Children, ages 8 to 18, spend more time (44.5 hours per week) in front of a computer, a television, and video games than any other activity in their lives except for sleeping[2]

[1]**Tremblay, M.S.**, Willms, J.D. (2003). Is the Canadian childhood obesity epidemic related to physical inactivity? International Journal of Obesity and Related Metabolic Disorders 27, 1100-1105

[2]Kaiser Family Foundation, 2005 http://www.mediafamily.org/facts/facts_tvandobchild.shtml accessed January 1, 2007

- Amount of Exercise Needed:
  - 30 minutes daily on most days of the week per surgeon general

A Focus on Walking

- Walking is easy and beneficial, and as effective as structured exercise program[1] (no gym needed!)

- Compared to vigorous activity, walking (moderate intensity) provides similar health benefits[2]

- Short bouts (10 minutes) add up and are beneficial[3]

1. JAMA.1999;281(4):327-334
2. N Engl J Med 2002; 347 (10):716-725, Sept 2002
3. Jakicic Int J Obesity 1995, 19,893:901

How to Measure Moderate Intensity

Borg Scale

Easiest way to translate "moderate" intensity

Moderate

Vigorous

6

7   Very, Very Light

8

9   Very Light

10

11   Fairly Light

12

13   Somewhat Hard

14

15   Hard

16

17   Very Hard

18

19   Very, Very Hard

20

*Exercise alone is **NOT** a weight loss plan.*

Wendy Wright, NPACE presenter- "you cannot outrun your calories"

But it is the key to maintenance (200-min a week).

Provider approved tips: (Nik tip)

- Habit: Park away. This will increase your walking.
- Habit: If you have a grocery store near by – walk there for the "quick run"
  - Better yet take the kids with.
- Good for mental health: Pick a fun activity; something that brings you joy.
- If you have a pet, play with your pet.
- Habit: Take the stairs.
- Good for mental health: Explore nature.
- A meander is still movement (a slow walk without clear direction)

I've decided to NOT talk about medications for weight loss as this is a conversation best done with your primary care provider.

Do you want this presentation?

- *Phentarmine* = induces satiety (short term use ONLY, approx. no more than 4 months)
  - Schedule IV, 15 mg (no more than 30) with lunch so it can last through lunch. $25 to $30, 1:1,000,000 = valvular heart disease
  - Can be added with Topiramate ER
  - Do not abruptly stop or seizure
- *Orlistat* (Alli) = indefinite use… also available generic…peripheral pancreatic lipase inhibitor… GI(greasy-oily-stool) , 120 mg, before each meal. Relatively, low fat. Have them take MVI (at bedtime)
- *Liraglutide* (Victosa) – 62% of patients lost at least 5%.
  - Once a day sub Q injection
  - GLP1 is also in thyroid- may increase risk of medullary thyroid carcinoma
- *Off-label use* (Not approved for this indication)
  - Metformin 1500-2000 mg
  - Topamax
  - Plenity- non-systemic hydrogel- capsule, fills up the stomach, it induces satiety, excreted in the feces.

Questions?

Evaluations?

Thank you!