“Ensuring a Brighter Future: A Fresh Look at Weighty Issues.”

- Barb Bancroft, RN, MSN, PNP
- www.barbbancroft.com
- Chicago IL
The scope of the problem... it’s global!

• Obesity now affects more human beings on this planet than hunger
• The world’s adult population weighs 287 million tons. Approximately 15 million tons is the result of excess weight. *(Knowledge News, Sep/Oct 2012)*
• 186 countries—the obesity rates have tripled in men, doubled in women since 1976—
• 2.6% of world’s population was obese 40 years ago; **8.9%** today
• By 2025, if this trend continues, 20% of the world will be obese
• Approximately 35% of adults in the U.S. are overweight or obese. 38% for women compared with 34 percent for men.
• *(M. Ezzati, Imperial College of London, April, 2016)*
The scope of the problem...

• The average American woman now weighs 166.2 pounds, about the same as the average American man weighed in the early 1960s.

• Over the same period, U.S. men have gained nearly 30 pounds, from 166.3 in the 1960s to 195.5 pounds for the average American male today.

• Americans spend $60 billion dollars a year trying to lose weight. The health benefits are significant if they succeed—a 5 to 10% reduction in weight can lower blood pressure, serum cholesterol, and serum glucose—all of which reduce the risk of cardiovascular disease— and DIABETES!
The scope of the problem...? Where do you live? TEXAS...the numbers..

- #10 – Texas 32.4% (adult)
- #51 – Colorado 21.3% (adults)
- 18-25 y.o. – 22.4%
- 16-44 – 31.7%
- 45 – 64 – 38.6%
- 65+ -- 29.7%
- White – 27.9%
- Black – 41.5%
- Latino – 36.9%
- Males – 28.5%
- Females – 30%
And, it’s NOT just adults—Let’s not forget the kids...

- Since 1980, obesity prevalence among children and adolescents has almost tripled; nationwide, 18% of kids between the ages of 2-18 are considered obese
- TEXAS numbers:
  - 2-4 year-olds 14.99% (WIC) 19/51 (state ranking)
  - 10-17 y.o. – 19.1% (10/51)
Kids and obesity

“Will this generation of kids be the first generation of Americans to have a shorter life expectancy than that of their parents because of obesity-related diseases and diabetes?” Dr. David Katz, Yale University
Even our pets are overweight... 52.5 percent of dogs and 58.3 percent of cats are hefty.
Is it in our genes? Ladies, the weight disadvantage begins early!

- The sperm carrying the $X$ chromosome weighs 23% more than the sperm carrying the $Y$ chromosome
And, it’s not just the X and the Y sperm...look at the *size* of the EGG vs. the SPERM...yikes.

- Who EVER said the the sperm was the aggressor and the egg was passive? 😊
Gender differences are annoying...if you’re a woman, that is...

- Male body composition – more lean muscle mass = faster metabolism and more calories burned; Men burn more calories just “sitting;” Word to the wise: **Don’t EVER bet a man that you can lose more weight than he can in a given time period.**

- Female body composition? More fat tissue—hips, thighs, and breasts; fat increases in size just “sitting” there—hahaha...not really, but it sure doesn’t burn more calories...

  "Women will never be equal with men until they can walk down the street fat and bald and still think they’re beautiful!"
Gender differences

• Case in point: A man and a woman who are both sedentary, both 55 years of age, both 5’8”, both 110 kg (242 pounds), and both have a BMI of 37

• HUH? What’s the BMI?
BMI (Body Mass Index) chart—height in inches matched with weight in pounds...5’8” 242 lbs – BMI of 37

“According to this chart, I’m just too damn short.”
Gender differences

• If the two of them sat in a room together for one day, the man would lose 300 more calories than the woman...

• Guys, I wouldn’t be too quick to brag about it...

• (Baugh M. Sports Nutrition: The Awful Truth, 2005)
A recent study has found that:

• Women who carry a little extra weight live a lot longer than men who mention it.
Interpreting the Body Mass Index

- Under 18.5 = underweight
- 18.5 – 24.9 = normal
- 25 – 29.9 = overweight
- 30 and over = obese
Age 36; 120 lbs; 5’5”; BMI 20

Age 40; 250 lbs., 5’6”; BMI 40.3
• When calorie intake exceeds expenditures, fat cells swell to as much as 6 times their minimum size and begin to multiply

• There are 40 billion fat cells in an “average” adult vs. 100 billion in an “average” obese adult

• What happens to fat cells with weight loss? Fat cells shrink, and become less metabolically active but you don’t lose many, if any, of them

• You can make new fat cells in your legs tho’....whaaat?
How much are we eating?....

• In 1970 the average American ate 1,497 pounds of food per year (4.1 pounds of food per day)

• 2017? 1996.3 pounds (4 pounds short of 1 ton) of food per year or 5.46 pounds of food per day...(net gain of **499.3** pounds of food consumed on a yearly basis compared to 1970)

• WHOA!!!
HOW THE HECK CAN EATING A 2 POUND BOX OF CHOCOLATES MAKE ME GAIN 5 POUNDS?
The good news? We’re eating more vegetables...

• 415 pounds of vegetables per person to be exact
THE BAD NEWS... almost 1/3 of the vegetables we’re eating are fries, chips, and ice burg lettuce (the “wedge”)—OUCH
—and washing them down with regular soda
When are kids exposed to their first order of French Fries?

• You want fries with that breast milk?
“Back in the day”...The “thrifty gene” theory...

• Human evolution—food supplies were unpredictable and finding enough to eat was hard work.

• It took lots of energy to hunt for food ...we had to store energy beyond our immediate needs—the “thrifty gene” theory—

• Conserving all calories we could as well as converting food to fat helped our ancestors survive when food was scarce...

• Mantra of yesteryear: “Eat today! There may be no tomorrow!”

• Made perfectly good sense 10,000 years ago!
Today’s mantra?

• “Eat today! There’s a helluva lot more where that came from this afternoon AND tomorrow!!”

• DO WE NEED THIS “thrifty” GENE TODAY? NOT in the U.S.A.

• Days of old? Hunting for wild game that was comprised of 4% saturated fat

• Today? Hunting through the grocery store for “wild game” (grass-fed aged angus) comprised of 34% fat
But WAIT!! Why bother going to the grocery store...it’s easier to “hunt” for the nearest drive thru...

THIS IS A DANGEROUS PART OF TOWN... SO ROLL UP THE WINDOWS, LOCK THE DOORS AND KEEP ON DRIVING...

I’M TRYING TO WATCH MY CHOLESTEROL.
You can talk about all the “thrifty” genes you want... basically it boils down to too many calories in, not enough calories expended...

- 3.5 metric TONS of fries consumed JUST in the U.S. each year;
- 29 pounds of fries per person per year—ouch.
- Size matters: 210 calories (1955)* vs. 610 calories today for the “regular” size

**PORTION CONTROL!!!!!**
- P.S. 230 calories in a small McDonald’s fries today)
And the portions just keep getting bigger and bigger...
And even bigger...Popcorn (portion) control...

• “But Barb, if you get the gigunda size you get FREE REFILLS...”
Bottom line?

- When the balance of energy intake and expenditure is upset—adding just an extra 100 calories /day = 10 pound weight gain per year
- And, that can add up...
- “You know Barb, I don’t know what the big deal is...I have only gained a pound per year since high school...”
- “Patty, you’ve been out of high school for 49 years...”
- “Oh, I guess when you put it that way...”
The type 2 diabetes epidemic has paralleled the weight gain issue in the U.S. and around the world—

• ~85%* of T2 diabetics are overweight or obese; the risk of diabetes is 93 times higher in obese women. (CDC, NIH, 2012) * (closer to 90% today)
A follow-up study found the same association in men. (CDC, NIH, 2012)
Type 2 diabetes in KIDS—as many as 50% of newly diagnosed diabetic kids are Type 2

- Adolescents account for 45% of the new cases of T2DM in the U.S.
- Adolescents and young adults who develop TYPE 2 DIABETES between the ages of 15 and 30 have worse complications than those who experience disease onset between ages 40 and 50
- Age of death? 15 years earlier than the over 40 age group (Al-Sayeed AH)
Let’s get back to French fries: Can certain foods pack on more pounds for all of us?

• Is it true that a calorie is just a calorie is just a calorie?
• OLD ANSWER? YES, of course... cut calories? Lose weight... and that still is TRUE...
• NEW ANSWER? Not exactly... potatoes have been found to pack on the pounds more than the same amount of calories in walnuts...
• What kind of potatoes? FRENCH FRIES
OMG...NOT AGAIN?? Seriousy?

- Seriously.
Digression: Addiction to fries

• French fries light up the same areas of the brain that nicotine, cocaine and heroin light up—boosting **dopamine**—the nucleus accumbens and the ventral tegmentum

• French fries are addicting...the earlier you start, the more addicting they are
Why isn’t anyone addicted to?
By the way, chips are the 2\textsuperscript{nd} biggest offender
Red meat is 3rd...
Soda #4

• 16 oz = 13.3 tsp (52 gm) sugar (the Coca Cola bottling company is the world’s largest consumer of sugar)

• In 1902 the average American drank 12 sodas per year; **(78 ounces)**

• Today? The average American drinks 53 gallons of soda per year **(6,784 ounces)**
Coke finally admits it has a FAT problem!
#5—mashed potatoes

• Shoot me now.
Are potatoes contributing to a Public Health Problem?

• Four or more servings a week of any type of potato increases the risk of hypertension vs. 1 serving of these foods a month (Nurses’ Heath Study; Health Professionals Follow-up Study; Diabetes Care 2015)

• *Greatest risk with fries... AGAIN*

• Another study... greater risk of T2DM with the most potato consumption (Nurses’ Health Study; Nurses’ Health Study II; Health Professionals Follow-up Study)— *once again, French fries were the major culprit* (Muraki I, Rimm EB, et al. Potato consumption and risk of T2DM: Result from Three Prospective Cohort Studies, Diabetes Care 2015; December)

• *STOP! You’re killing me...*
So when we gain all of this weight...where are we putting it? Location, location, location—are you an apple or a pear?
The PEAR, ladies...estrogen distributes fat to the hips and the thighs...why pray tell?

- Survival of the species... even if we’re “starving” we store fat in our hips and thighs to have enough energy to make milk and feed babies to propagate the species
- In the land o’ plenty, this doesn’t hold true...there’s plenty of food in 2017
- This weight is difficult to lose...almost impossible...your tombstone will say...
Here she lies, with her hips and thighs...

• There are only 2 sure-fired ways you can get rid of the fat in your hips and thighs...
Men rarely have big hips and thighs...and when they do...ewwwwewwww
THE APPLE: Testosterone and cortisol put weight around the abdomen...(combined w/ excess calories...haha!!)

- Known as visceral obesity (belly fat)—it’s insulin resistant and it’s metabolically active
- YOU HAVE GROWN A NEW ORGAN!! Whaaaaaat?
- Why do postmenopausal women gain weight around the middle?
- Dead ovaries? Estrogen and progesterone bite the dust...still have adrenal glands producing testosterone precursors with NO estrogen to balance it...
Why is visceral (belly fat) so serious?
Associated with significant health problems

• Systemic inflammation—increased numbers of macrophages migrate into abdominal fat (is excess fat in the abdomen FOREIGN??), increased release of inflammatory mediators (IL-6, TNF-alpha, hs-CRP, high insulin-like growth factor)

• Atherosclerosis and systemic inflammation—fatty plaque formation in all arteries – is there any artery that doesn't fill with fat?

• Inflammation triggers fatty plaque “rupture”...resulting in:

• Cardiovascular disease—increases risk of fatty plaque ”rupture” resulting in acute coronary syndromes
Why is visceral (belly fat) so serious? continued...

• Hypertension—the bad news: being overweight increases the risk of hypertension by 3-fold; the good news--for every 5 pounds of excess weight you lose, the systolic BP drops by 3 mm Hg; 29.5% of adults in Texas have HBP

• Alzheimer’s disease—the “Insulin Resistance” theory

• Type 2 Diabetes—visceral (belly fat) is insulin resistant; increases serum glucose and the risk of T2DM; 11.4% of adults in Texas have Type 2 diabetes

• Metabolic syndrome

• Cancer—excess body weight—especially visceral fat, is associated with an increased risk of certain cancers
Why is visceral (belly fat) so serious? continued...

• Non-alcoholic fatty liver disease (NAFLD)—”diabesity”
Visceral fat and cancer risk...inflammation, high circulating insulin-like growth factor

- Uterine -- +525%
- Kidney -- +375%
- Pancreatic -- +176%
- Breast (PMF) – 112%
- NHL -- +95%
- Ovarian -- +51%
- Colorectal -- +46%
- NEW STATS--10-15% of cancer deaths are attributed to obesity; extra body fat is associated with a poorer prognosis and more aggressive tumor growth
Other conditions linked to being overweight...Joint pain/osteoarthritis

• When you walk across level ground, the force on your knees is the equivalent of 1-1.5x your body weight. That means a 200-pound man will put 200-300 pounds of pressure on his knees with each step.

• Add an incline and the pressure is even greater

• The force on each knee is 2-3 x your body weight when you go up and down the stairs and 4-5 times your body weight when you squat to tie a shoelace or pick up an item dropped

• (Harvard Medical School, HEALTHbeat, Joint Pain Relief Workout, a Special Report from Harvard Medical School)
OBESITY and cognitive decline

• (October 2010—Surgery for Obesity and Related Diseases)—cognitive impairment on low end of normal function

• 12 weeks after bariatric surgery (50 pounds lighter)—scores were substantially better—within average range or above average

• Compared to non-surgical obese patients who performed worse on the second test
But Barb, how do I know if I’m overweight or obese? The mirror test...

• An easy way to tell is to take your clothes off and look in the mirror
• OUCH???
Or you can step on a scale

"Don't step on it...it makes you cry."
Measuring your waist size...

• Waist less than 40 inches in males and 35 inches in females...hmmm....doesn’t take into account your height
• Actually your waist should be ½ your height (ladies)
• OR...you can measure your hip/waist ratio
• OR...you can measure your BMI
• Let’s start with our waist size...
I find it easier to have a small glass of wine before I measure my hips and waist size...
Ladies...35 inches or less

• This is what we *should* look like
• Uh, huh.
Ladies...here we are at the bowling alley on Friday night...
Guys...what are you laughing at? Your waist size should be 40 inches or less

• This is what you *should* look like
Guys, you know you’re belly is too big when...

• You look down and you can barely see your weiner...
Where should I measure my waist circumference?

• Experts agree to disagree...
• This expert says: pick the narrowest part of your body below the waist and above the hips (other experts concur)
• Other experts say: just below the bottom rib
• And still others say: top o’ the hip bone with the tape measure crossing the navel...
• REGARDLESS of the expert...if your WAIST is bigger than your hips or if your waist is the same size as your hips, ladies...why bother measuring it? You KNOW it’s too big.
Waist-to-hip ratios—minimum waist-to-hip ratios associated with health risks

• Male: 0.9 – 1.0
• Female: 0.85
How can we get rid of that visceral belly fat?
WALKING...WALKING...WALKING...10,000 steps a day

• Ladies...the bad news...

• The good news?
  Exercise/walking also reduces insulin resistance, decreases inflammation

“What do you mean you’re out of breath?”
I haven’t switched it on yet!”
New thinking about obesity/metabolism

• Calories in? Calories out?
• 17th – century physician Santorio Sanctorius studied metabolism by using a specially constructed “weighing chair” to record his weight before and after eating, sleeping, working, sex and excreting
• Also weighed the food and drink he consumed and his waste products
• Discovered that for every 3.6 kilograms (7.9 lbs) of food consumed, he excreted only 1.4 kilograms (3.08 lbs) of waste
• He concluded that the rest of the weight was lost through skin as “insensible perspiration” 😊
Don’t we wish?

That's not sweat.
That's my fat melting.

your ecards
someecards.com
So, what are some of the Myths and Maybes about Metabolism?

• Skinny people have higher metabolism rates: MYTH
• Actually, the larger you are the more calories you need for metabolic function and to keep your body going
Metabolism myths and maybes

• Thin people digest less food...MYTH
• About 3% of the calories consumed are excreted in the fecal matter—this doesn’t change following over eating or under eating
• If you eat 10,000 calories you will excrete 300, if you eat 2,000 calories you will excrete 60.
• Claude Bouchard (Pennington Biomedical Research Center in Baton Rouge, LA)—compared people’s stools, found little difference in their energy content regardless of how predisposed they were to gain weight
Metabolism myths and maybes

• Middle-aged spread is inevitable—MAYBE
• Hormonal changes influence predisposition to weight gain
• Testosterone decline—reduces muscle mass, which in turn decreases overall metabolic rate
• Estrogen decline *boosts* appetite and decreases metabolism—not a good combination, RIIIIIGHT?
• Increased cortisol moves all that fat to the middle
• Want to reduce middle age spread? Increase activity, decrease calorie intake...and decrease stress *(why?* Because high stress levels are associated with increased cortisol!!)
Metabolism myths and maybes

• Sleep can make you thinner—MAYBE

• Sleep deprivation decreases your levels of leptin, the “I’m full hormone”; and, increases your levels of ghrelin, the “hunger hormone”; (Leptin levels in blood are normally higher between midnight and early morning, helping to suppress appetite during the night)

• Sleep deprivation also impairs the normal release of insulin resulting in insulin resistance—insulin resistance = higher levels of circulating insulin turn UP the “I’m hungry” hormone

• Normal insulin levels turn down ghrelin—the “I’m hungry” hormone
SO, go back to sleep...A novel way to reduce weight

• With only 4 hours sleep, leptin (the “I’m full” hormone) levels are 18% lower and ghrelin levels (“the I’m starving” hormone) are 28% higher

• Higher BMI’s are associated with less than 7.7 hours of sleep
HOW CAN I GET MORE SLEEP? Blue light blues = less sleep = bigger appetite

• Nearly everyone in a survey conducted by the National Sleep Foundation in 2011 used a television, computer, cell phone or other device within 1 hour of going to bed at least a few nights during the week.

• 89% of adults and 75% of kids have at least one electronic device in their bedroom, with a significant number answering texts and sending texts after initially falling asleep (Jabr)
Blue light blues = less sleep = bigger appetite

• It all started in 1992 in Japan with the discovery of LED lights
• The removal of incandescent light bulbs replaced with LED (high-brightness blue lights) to “last longer” and are more energy efficient. Interacting for just 2 hours with a computer screen before bedtime is enough to prevent the typical nighttime rise in melatonin—
• E-readers vs. paperback book readers prior to bedtime—e-readers were more alert, took longer to fall asleep and slept less deeply than those who read a paperback book
• Red screens, amber tinted glasses to read at night
So then, how many calories do you burn while sleeping?

• 0.4 to 0.5 calories per pound per hour
• 100 lb (45 kg) person burns 40-50 calories per hour sleeping
• 150 lb (68 kg) – 60-75 calories per hour sleeping
• 200 lb (91 kg) – 80 – 100 calories per hour sleeping
• DO YOUR OWN MATH
When you GET UP, GET MOVING...

• Regular exercise to boosts serotonin during the day.
• Higher serotonin? Reduces sugar, starch and alcohol cravings...
• When serotonin levels are low, the body craves carbs from sugars, starches and alcohol...
• When serotonin is low? Insulin is released to boost serotonin, and insulin stores the carbs as fat.
Metabolism Myths and Maybes--Sleepin’ cold...

• Keep turning down the thermostat to lose weight—MAYBE
• Thermostat at 75°F (24°C) versus 66°F (19°C)?
• How may this be helpful in burning calories? You burn more calories trying to keep the core temperature to a stable 98.6°F (37°C)
• Thermostat at 66°F (19°C)? Burn an extra 100 calories over 3 nights (8 hours of sleep per night)—doesn’t sound like much? 12,166 calories burned per year EXTRA...3.5 pound weight loss per year

• (Celi F. National Institute of Diabetes and Digestive and Kidney Disease)
Myths (or not) about metabolism

• Volunteers exposed to 15° - 17° C (59°-62° F) a day for 10 days while wearing only shorts and T-shirts showed increases in brown fat;
• Brown fat burns fatty acids to generate heat;
• Lots of brown fat in babies;
• Not as much in adults—unless they’re slender adults...obese people can not convert their white fat to brown fat as well as slim people
Can a pill replace the treadmill?

• In other words, can a pill turn white fat into brown fat

• One of the tyrosine kinase inhibitors (tofacitinib/Xeljanz) has been shown to turn white fat into brown fat

• It’s already FDA-approved for rheumatoid arthritis—however, it hasn’t been studied for weight loss yet

• (Cowan C. Harvard University, Harvard Stem Cell Institute, March/April 2015)
Metabolism myths and maybes

• If you lose weight slowly you are more likely to keep it off...MYTH...

• Crash dieters and those who lose weight more slowly ultimately regain the same amount
Metabolism myths and maybes

• Exercise on an empty stomach to burn more fat—MAYBE

• Eating before working out gives you more glucose which equates to more energy to make you work harder

• However, if you work out in a fasting state, you will probably burn fat faster—although you might not be able to maintain the same level of intensity

• Combine both strategies

• But don’t PIG OUT after you exercise!
Metabolism myths and maybes

• You continue to burn calories after exercising—TRUE
• After exercising your metabolism is elevated as your body recovers and repairs itself.
• This “after burn” lasts for between 3 and 23.9 hours depending on the duration and the intensity of the exercise
• The effect tends to last longer after resistance training (weights) than endurance exercise (walking/jogging/running), but the difference is small and tails off with time
Metabolism myths and maybes

• Nutritional supplements can boost metabolic rate: MAYBE

• Some evidence that caffeine, creatine, beetroot juice and fish oil can boost your athletic performance, but it’s likely a tiny boost

• Hey! Tiny is better than zippo!

(Michael Ormsbee, FSU, Tallahassee, New Scientist, November 15, 2014)
Metabolism myths and maybes

• Eating more frequently boosts your metabolism: MYTH
• Eating temporarily boosts metabolism, but it also affects your response to insulin
• In a recent study, men were fed the same diet, either as 3 meals or 14 snacks. Those who ate less frequently had higher metabolic rates, were less hungry, and had better control of blood glucose
Metabolism myths and maybes

• Some foods are actively slimming. MAYBE.
• Caffeine* and green tea don’t increase the rate at which you burn fat while exercising, but they may reduce your perception of pain and exertion—allowing you to exercise longer (caffeine may increase metabolism a tiny bit)
• Capsaicin (hot peppers)—may increase energy expenditure by boosting the activity of brown fat
• Grapefruit seems to improve the body’s response to insulin—“MAYO CLINIC GRAPEFRUIT DIET” (there is NO such thing, but...)
• Fiber suppresses appetite
Metabolism myths and maybes

• You have to “feel the burn” to get results: MYTH

• Running 6 km per hour burns exactly the same number of calories as walking at 6 km/hr

• What really matters is endurance...example: a 73 kg person (160.6 lbs) burns 74 calories per 1 km running at 11 km/h (6.6 mph) and 52 calories per km walking at half that speed (3.2 mph).

• By walking 2 km they will actually burn 30 more calories than if they had just run 1 km.
Metabolism myths and maybes

• The bacteria in your gut (microbiome) may influence weight gain and loss. **MAYBE**

• When obese mice had their gut bacteria transplanted to thin mice, the thin mice gained weight; the reverse was true—thin mice microbiomes reduced weight in obese mice

• The amount of nutrients you extract from food may depend on the type of bacteria in your bowel

• Bacteriodetes vs. firmacutes

• Fecal transplants for *C. diff* and weight gain—some anecdotal reports

• Harvard and MIT graduate students have set up a donor bank for fecal material for transplants... “*Now, that’s some...*”
Metabolism myths and maybes

• Eat fat to burn fat. MYTH

• Little differences in metabolism whether you eat a low carb, high fat diet—like the Atkin’s diet—or a low fat, high carb diet.

• Protein *may* make the difference tho’. People eating a high protein, reduced carb diet burned between 60 and 120 *extra* calories per day, possibly because the protein requires more energy to digest than refined carbs

• Protein also boosts the feeling of fullness
Is there a “best” weight loss diet? WhatEVER works for you is “best”...but these usually don’t work...

• (Dean) Ornish diet—vegetarian-based; less than 10% total calories are fat calories...who stays on the Ornish diet? Dean Ornish...
• Zone—low carbohydrate (Carb/Protein/Fat ratio—40/30/30)
• Atkins—very low carbohydrate; minimal fat restriction; lots of animal protein—gain it back fast when you stop it...side effects—no carbs? Depressed; ketosis = halitosis; no fiber = constipated
• Weight Watchers—moderate energy deficit; PORTION CONTROL
Andy Rooney...

• “The biggest seller is cookbooks, and the second is diet books...how not to eat what you have just learned to cook.” --
The Old Country Buffet diet...mmmm. NOT.

“I’m going to have the buffet. Do you have another one for my husband?”
This is as good as any...The Cardiologist’s diet...

- *If it tastes good...SPIT IT OUT!*
Doctor’s advice...

I want you to quit smoking & lose forty pounds. Then I want you to come back & tell me how the heck you did it.
Is overeating akin to “addiction?”

• Do people that overeat turn on the same areas in the brain that other ‘addicts’ turn on when they smoke, drink, snort cocaine, etc.?

• A diet high in triglycerides (one high in fatty, fried or highly refined foods) may interfere with the action of leptin (“I’m full) and insulin (decreases hunger signal) on the brain, leading to an erroneous signal that you are starving.

• The same receptors in the brain that are responsible for a marijuana high, also boost appetite—hence, why marijuana smokers get the munchies (Girl Scout in Colorado—sold 117 boxes in 2 hours—set up shop outside a marijuana dispensary--brilliant)

• If it is an addiction in some people, how should we treat it?

• Overeaters anonymous
The physiology...the hypothalamus, the stomach, the duodenum, fat cells—it’s complicated!

• The hypothalamus—the head hauncho with 2 centers...MORE SIGNALS
• Satiety center...I’m full (serotonin)—ventromedial nucleus—It takes about 20 minutes for the ventromedial nucleus to register the “I’m full” signal...you can do one heckuva lot of calorie damage in 20 minutes at the OLD COUNTRY BUFFETT... eating slowly and not eating at buffet restaurants would be prudent
• Appetite center...I’m hungry (norepinephrine)—arcuate nucleus (and don’t forget ghrelin, from the stomach...I’m hungry signal, too)
• Certain drugs boost serotonin in the satiety center – phenteramine (PhenFen--old appetitie suppressing drug, taken off the market)
• Other drugs boost norepinephrine in the appetite center—Prednisone, for example; mirtazepine (Remeron), other anti-depressants that boost norepinephrine
Specific receptors

• 5-HT2C (serotonin) receptors – boosting the 5-HT2C (serotonin) receptors in the hypothalamus results in weight loss—locaserin (Belviq) is an example

• the atypical anti-psychotics clozapine/Clozaril and olanzapine/Zyprexa --are the biggest offenders — block the 5-HT2C receptors and are responsible for weight gain...

• 50% of patients on either of these drugs gain 22 pounds in the first year; 50% of those gain 30 pounds)
Circadian rhythms and eating patterns

• Mice generally eat at night
• When mice have their eating patterns disrupted—i.e., eating during the day they were more likely to gain weight and acquire fatty livers...
• Implications for humans? Shift work and night time eating...increased risk of obesity, Type 2 diabetes, and cardiovascular disease
• For the rest of us?
“Social” jet lag...

• Even if we don’t work shifts...
• We are likely to experience similar effects of jet lag when our work schedule demands that we get going at times our body doesn’t want to.
• Waking up at 6 a.m. during the work week and sleeping in to 9-10 a.m. on weekends, requires a resynchronization effort equivalent to travelling across three or four time zones
• Positive association between the magnitude of social jet lag and BMI
• Triples the odds of being overweight
Early bird, eat worms, lose more weight...

- *clock* genes and obesity
- Dieters with healthy circadian clocks tend to lose more weight
- One-third of us, who have a certain variant of the *clock* gene, have more trouble losing weight
- People who habitually eat their main meal before 3 p.m. lose about 25% more of their body weight (deLange)
Eat like a KING at breakfast

• Eat like a PRINCE at lunch
• Eat like a PAUPER at dinner

• And? Lose weight...
More physiology--incretins

- HUH? Mid 1990s the hormone incretin was found—researching for a weight loss drug
- Incretins are responsible for approx. 60%* of the post-meal insulin secretion, but the action of the incretins is impaired in diabetics (*73% of the post-meal insulin secretion in people w/o T2DM vs. 36% w/ T2DM)
- Meanwhile, back at the Gila Monster—research on satiety and weight loss
- Gila Monsters only eat two times a year
Led to the development of a class of drugs called the GLP-1 agonists (mimetics) (Medical Letter April 2011)—these are injectable drugs

• The first one was exenatide (Byetta)—from the “bite” of a Gila monster...also called “lizard spit”...ahhahahaha...

• 2nd generation—liraglutide (aka Victoza)—it has now been approved for weight loss (aka Saxenda)

• 3rd generation—exenatide ER (Bydureon)

• Dulaglutide (Trulicity)

• Albiglutide (Tanzeum)
Helpful hints for burning calories and losing weight...you can start tomorrow morning!!

• Weight loss is 85% **portion control** and 15% exercise

• Step away from the buffet
HINT: #1

• REMEMBER: It takes 20 minutes for the hypothalamus to register that you have consumed enough food and that you are satiated

• Eat slowly...chew each bite 20 times (well, that’s hard to do with scrambled eggs) but be more MINDFUL of not snarfing down your food
HINT #2: Drink water!

• 2 GLASSES of water before you eat! (this works!)
• Increases metabolism...burns more calories
• If you feel hungry, DRINK a glass of water and wait 20 minutes...if you’re still hungry, eat something...
• Drink a glass of water before you walk in the a.m.—burn 50 more calories...
HINT #3: SMALL PLATES and CUPS

• Smaller plates, smaller cups, smaller boobs, smaller butts.
• Eat only ½ of what’s on the plate (save the rest for the next meal)
• Fill half the plate with vegetables and/or salad
• Leaving just 10% behind at each meal, every single day—about 89,950 calories per year, or the amount in 300 candy bars—is enough to lead to a 10-pound weight loss over a year’s time...
HINT #4--Don’t mirror your eating companions...

• When dining with others, you have a tendency to “mirror” what they do.
• If your dinner companion is eating, you’ll eat too. If you’re finished and they pick up a roll or a French fry, you will most likely do the exact same thing.
• You’re not aware of it...but it’s hard-wired as part of our socialization process and the need to “fit in”...
• Be MINDFUL of this “mirroring” effect...push away
HINT #5—weight-bearing exercise to boost muscle mass...(don’t get carried away)

• If you believe that strength training is a macho, brawny activity, think again. Lifting light weights won't bulk up your muscles, but it will keep them strong. "If you don't use muscles, they will lose their strength over time," Dr. Lee says.

• Muscle also helps burn calories. The more muscle you have, the more calories you burn, so it's easier to maintain your weight.
HINT #6 More on foods that can help jump start weight loss

• Green tea – the polyphenols
• Almonds—contain PEA (phenylethylamine), helps to rev up metabolism
• Garbanzo beans (chick peas)—L-phenylalanine, functions as a natural anti-depressant, improves memory and mood, boosts metabolism
• Tofu (one of the top 5 most DIS-liked foods in the U.S.)—increases metabolism if you can choke it down
• Brown rice—high in chromium, a mineral that helps to metabolize protein, carbs, and fats; increases tissue sensitivity to insulin
HINT #6 -- MOVE IT!

• Cars—why walk 2 blocks when you can drive? People who live in suburbs are heavier than people who live in cities.

• Why wash the car yourself when it’s only $3.00 more with a fill-up to drive it through the automated wash?

• Walk up a flight of stairs? Are you CRAZY? Take the elevator and annoy everyone going to the 29th floor as you get off on the 2nd floor.

• Computers—surfin’ the internet takes hours; computer games can be played with people all over the world—for hours at a time.
Get up...stand up...

Heavy sitters showed a 90% increased risk of developing diabetes than those who sat less.
How about a few more comparisons—calories expended for a 150-pound person

- Email a colleague (1 minute)—2 calories
- Walk over to the office (1 minute)—4 calories
- Ride elevator (2 minutes)—3 calories
- Take stairs (2 minutes)—19 calories
- Order take-out—1 calorie
- Cook the meal—70 calories
- Load the dishwasher—23 calories
- Wash the dishes—80 calories
- Mow lawn (riding)—88 calories
- Mow lawn (power)—193 calories
- Mow lawn (push)—WHAT?? Is there such a machine?
Do a little dance?
Make a little love?

- Kissing your honey every a.m. burns 6-12 calories depending on the intensity of the kiss
- Been married 30 years?
Burning calories...

- A wild ride in the hay burns 125 to 300 calories depending on how wild that ride happens to be!
- New partner or “same old same old”...??
Bottom line...

- Passionate kiss three times a day
  +
- Mad, passionate love twice a week
  =
- 32,000 calories per year, the equivalent of a 9-pound weight loss
OR...

• You can bang your head against the steps for one hour to burn 150 calories...

• This is a suggested alternative when a wild ride in the hay isn’t an option.
Burn more calories than you take in...

• Stand up when talking on the phone...burn an extra 15 calories
• Chewing gum...burn an extra 11 calories
• Tighten your rear-end when walking through a doorframe...15 extra calories per squeeze
• FIDGET
HINT #6—Drugs can jump start weight loss...comparisons

• Liraglutide (Saxenda)...the injectable drug for weight loss; start with 0.6 mg per day to 3 mg = **10 pound greater loss than placebo**; recommended for patients with or without diabetes if BMI is greater than or equal to 30 or a BMI of 27 with a weight-related conditions (such as hypertension)—if you’re a diabetic, you’ll need to decrease a sulfonylurea dose by 50% if continued while on liraglutide, should not be used with insulin—symptomatic hypoglycemia; category X for pregnancy; not approved in kids; not tested in breast milk (Whitten)
  • Lorcaserin (Belviq) = **7 lb. weight loss**
  • Bupropion/naltrexone ER (Contrave) = **9 lb. weight loss**
  • Qsymia (phenteramine/topiramate ER) = **20 lb. weight loss**
  • (Prescriber’s Letter, February 2015)
HINT #7 -- Surgical procedures that help weight loss

• Gastric banding
• Gastric bypass
• Gastric sleeves

• You need to be ready to make a commitment to a new lifestyle!
• Diabetes may “disappear” within 30 days...takes longer for weight loss (gastric by-pass)
• The Maestro Rechargeable System is a pacemaker-like implant that sends electrical pulses to the vagus nerve. The vagus is involved in signaling the brain about whether the stomach is full or empty.

• The system is programmed to deliver a pulse -- 5 minutes on and 5 minutes off -- to the vagus nerve during your waking hours, and it's supposed to turn off during the hours you sleep.

• BMI of at least 40, and for those with a BMI of at least 35 who have an obesity-related condition, such as hypertension or high cholesterol.
Don’t give up! Know that there’s light at the end of that proverbial overweight tunnel!
PEOPLE DO LOSE WEIGHT and THEY KEEP IT OFF!! Weight Control Registry

• Average participant in the study has lost at least 70 pounds and kept it off for 6 years...what’s their secret? 7 general RULES...

• 1) low-calorie diet—generally low in fat and high in good carbs
• 2) consistent diet day-to-day
• 3) eating breakfast (remember—eat like a KING at breakfast)
• 4) physically active—every day
• 5) limited TV time (10 hours per week/ 1/3 that of the average American
• 6) don’t let a small weight gain get bigger...modify diet or pick up the pace
And number 7?

Weigh yourself frequently...at least three or four times a week, and some weighed themselves daily...
Don’t beat yourself up...just kill the scale...
Thank you...

• “If you want to lose 170 pounds right away, get rid of your husband.”----George Burns
• RELATED ARTICLES

• New Obesity Guidelines Emphasize Individualized Treatment

• H. pylori Infection Linked to Metabolic Syndrome

• Canagliflozin/Phentermine Combo Evaluated in Weight Loss Study
Bibliography

• Lambert C. Growing fat to get slim. *New Scientist*. 18 April 2015
Sedentary lifestyle...tends to be the rule, rather than the exception to the rule

- Lifestyle (Lack of physical activity and sedentary lifestyle)
- As mentioned:
- Move it, move it, move it
• The food eaten by Americans on a yearly basis can include approximately 273.2 pounds of fruit, 73.6 pounds of poultry, 110 pounds of red meat and The American diet also includes a yearly consumption of 85.5 pounds of fats and oils. Other foods and beverages consumed include 53 gallons of soda, 23 pounds of pizza and 29 pounds of French fries.

• The average American consumes 2,700 calories per day.
I give up. How many women with PMS does it take to screw in a light bulb, funny boy?
P.S. Don’t use your treadmill for a coat rack just yet...

• The single MOST important thing you can do to keep your brain and body healthy is to exercise...

• A protein called cathepsin B, produced and secreted by muscle during exercise, is required for exercise-induced memory improvement and brain cell production in mice, the scientists reported in *Cell Metabolism* today (June 23, 2016). They also showed that levels of cathepsin B are positively correlated with fitness and memory in humans.
Gender disparity...

- In 2007-2008, the prevalence of obesity was 32.2 percent among adult men and 35.5 percent among adult women.
- Regardless of race, women have a higher risk of obesity and overweight than men.
- The relationship between obesity and income is different in men and women. Among men, income makes little difference in the risk of being overweight or obese.
- Among women, those with higher incomes (over $75,000 a year) are less likely to be overweight or obese than women in lower income brackets. Borders, T. F., et al. (2006) Gender-Specific Disparities in Obesity. *Journal of Community Health*. 31: 57-68.
Global obesity rates continue to climb

Despite massive public health campaigns, the rise in worldwide obesity rates continues to hurtle along like a freight train on greased tracks.

In 2014, more than 640 million men and women were obese (measured as a body mass index of 30 or higher). That’s up from 105 million in 1975, researchers estimate in the April 2 Lancet. The researchers analyzed four decades of height and weight data for more than 19 million adults, and then calculated global rates based on population data. On average, people worldwide are gaining about 1.5 kilograms per decade — roughly the weight of a half-gallon of ice cream.

But the road isn’t entirely rocky. During the same time period, average life expectancy also jumped: from less than 59 years to more than 71 years, George Davey Smith points out in a comment accompanying the new study. Smith, an epidemiologist at the University of Bristol in England, boils the data down to a single, seemingly paradoxical sentence: “The world is at once fatter and healthier.” — Meghan Rosen

SOURCE: NCD-RISC/LANCET 2016
Mabel was questioning the laws of thermodynamics...

HOW THE HECK CAN EATING A 2 POUND BOX OF CHOCOLATES MAKE ME GAIN 5 POUNDS?
It doesn’t take long to consume a huge amount of calories...

• We can consume 3500 calories in a 15-minute feeding frenzy—you barely even chew your food...

• This doesn’t give our satiety center in the hypothalamus enough time time to figure out if that’s enough food