



Disclosures



- THE WESTERN MULTI-STATE DIVISION IS ACCREDITED AS A PROVIDER OF CONTINUING NURSING EDUCATION BY THE AMERICAN NURSES CREDENTIALING CENTER'S COMMISSION ON ACCREDITATION
- PARTICIPANTS MUST COMPLETE THE PRE-TEST, ATTEND THE ENTIRE LIVE EVENT AND COMPLETE THE POST-TEST WITH 80% OR GREATER TO EARN ONE CONTACT HOUR.
- NO CONFLICTS OF INTEREST – CONTENT IS NOT RELEVANT TO A COMMERCIAL INTEREST
- NO COMMERCIAL SUPPORT

Pharmacological Treatment of Obesity



MIRIAM PADILLA, M.D., C.D.E.
JORDAN VALLEY MEDICAL CENTER



Conflict of Interest



- I have not conflict of interest to declare
- I am board certified in Endocrinologist and in Internal Medicine
- I am a Certified Diabetes Educator
- I work Through Physicians Group of Utah at Jordan Valley Medical Center





Definition of Obesity

BMI = Weight (kg) / Height (m²)

Asians:

Overweight = BMI 23-27.4

Obesity = BMI \geq 27.5

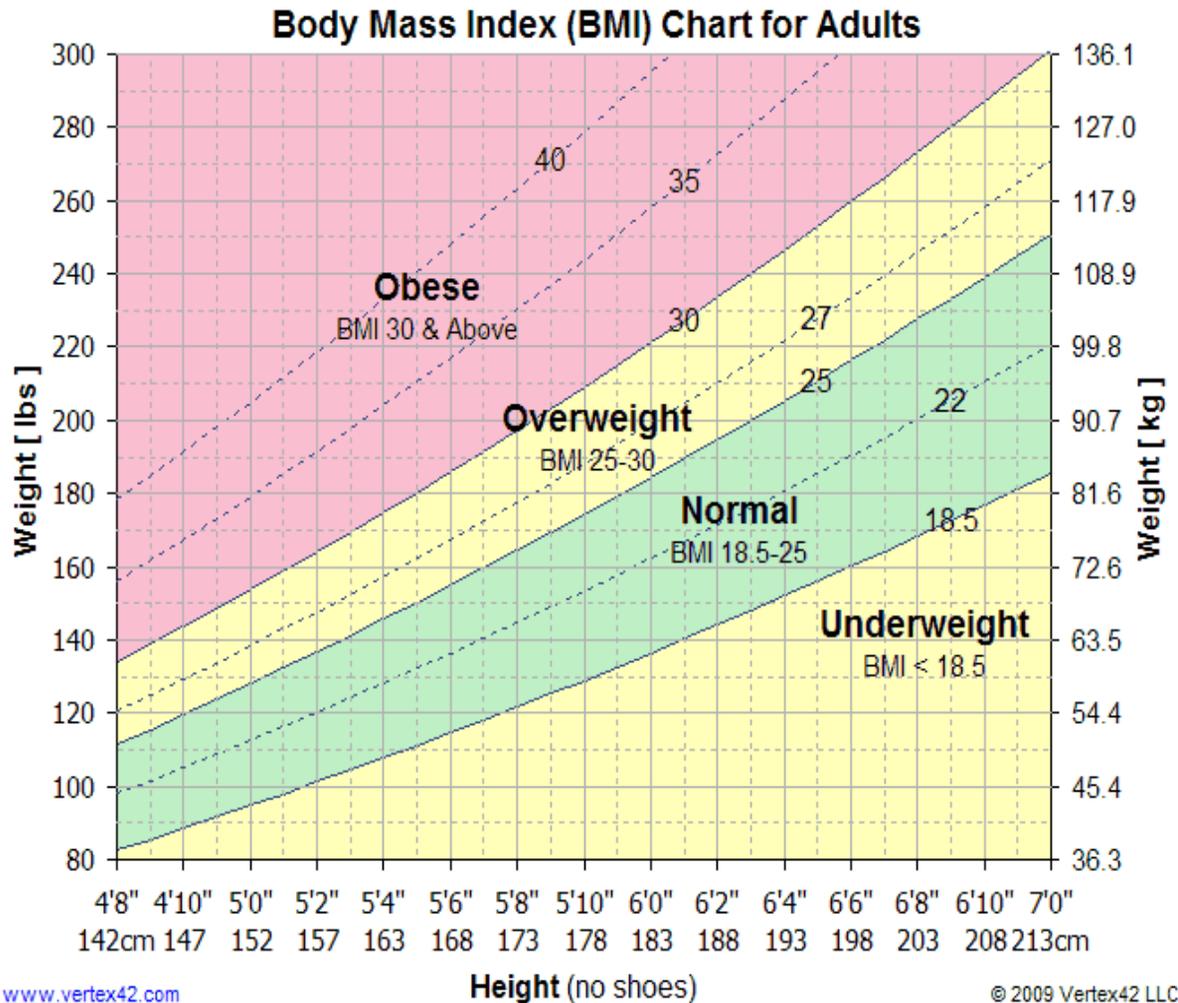
Morbid Obesity = BMI \geq 37.5

Non -Asians:

Overweight = BMI 25-29.9

Obesity = BMI \geq 30

Morbid Obesity = BMI \geq 40

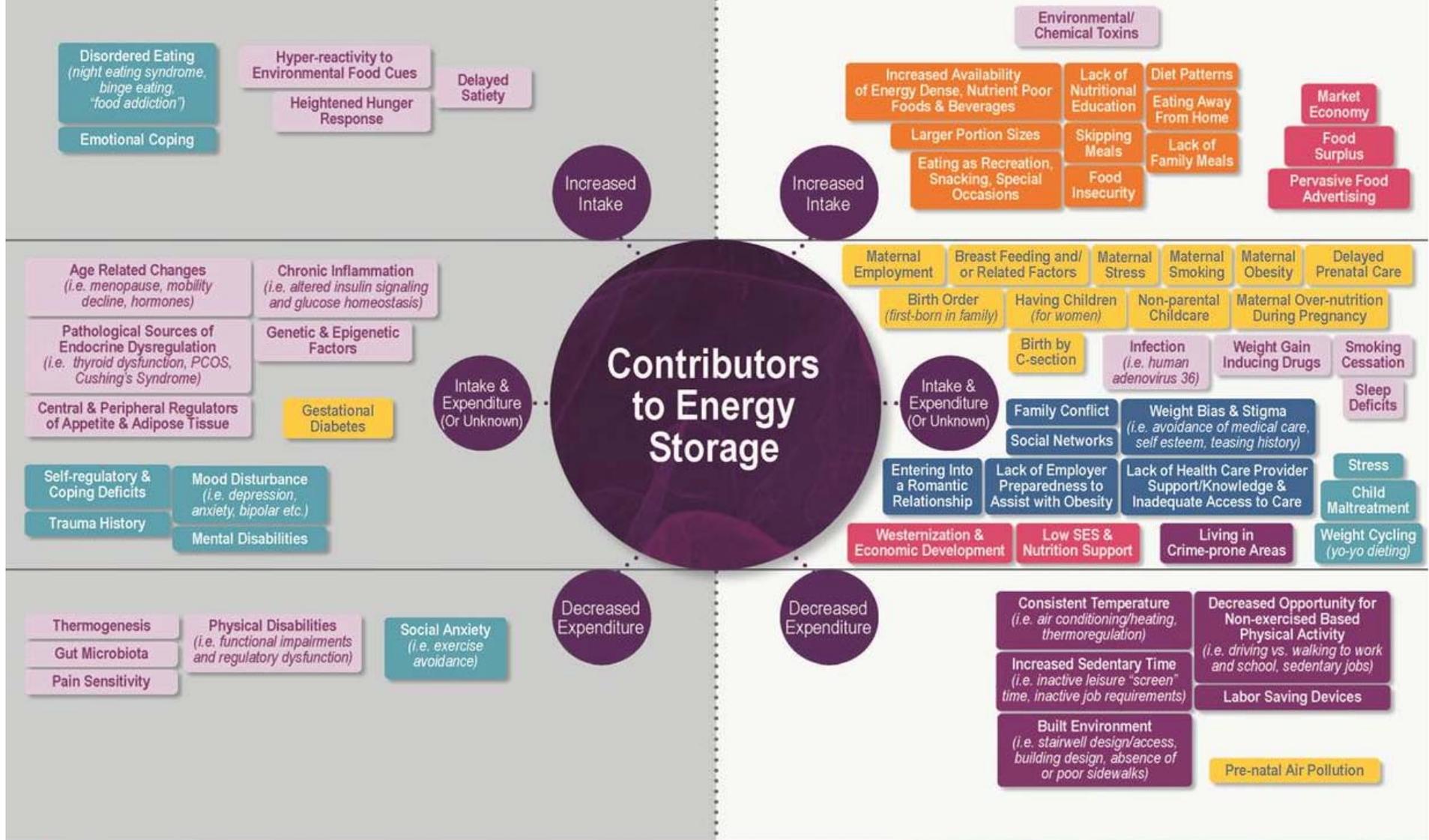


POTENTIAL CONTRIBUTORS TO OBESITY

2015

Inside the Person

Outside the Person



Medical Complications of Obesity

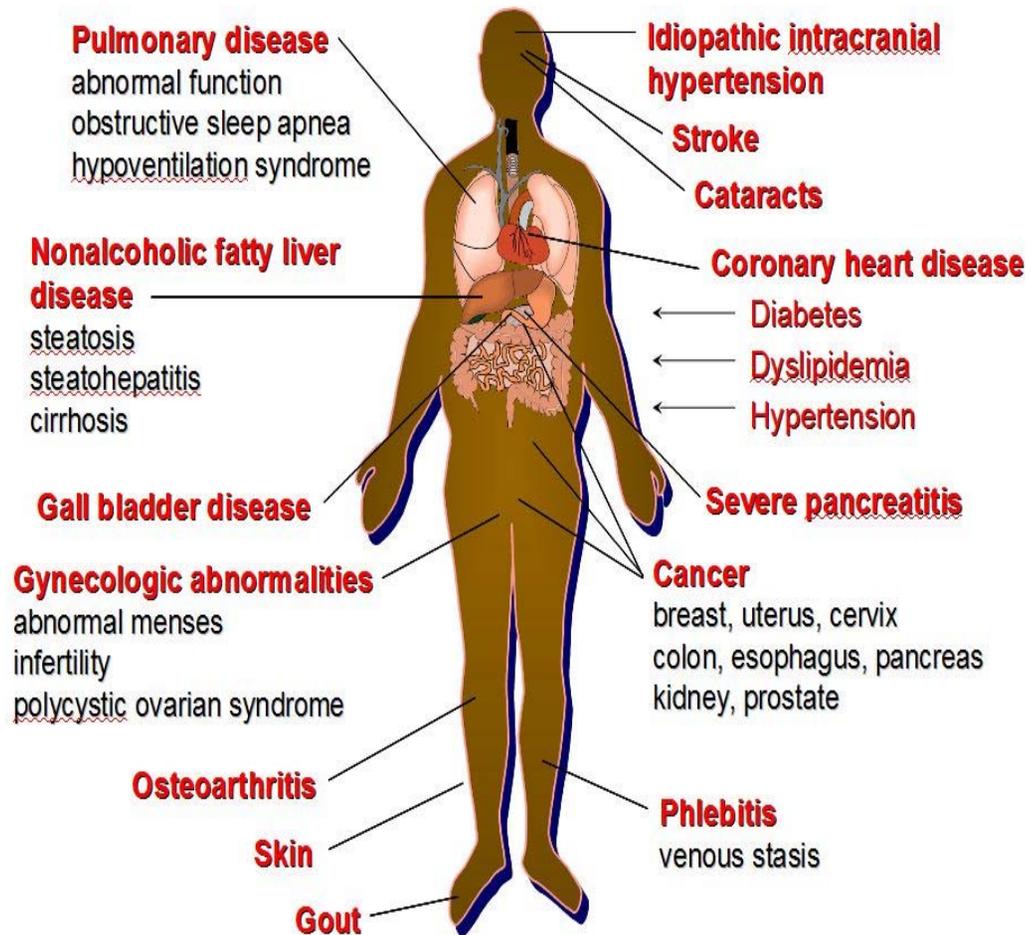
Patients with a BMI 30-35 have decreased life expectancy by 2-4 yrs

Patients with a BMI >40 have decreased life expectancy by 8 yrs

BMI ≥ 35 is equivalent to 70% risk of developing DM2

10% of US healthcare costs are spent treating complications of obesity

Medical Complications of Obesity



Obesity: a Ticking Time Bomb

Health Consequences of Obesity

People who are obese are...
more likely to be
25% DEPRESSED

30% of people suffering
DEMENTIA are obese

Obese children are
200%
more likely to develop
**MULTIPLE
SCLEROSIS**

People who are obese are...
more likely
to have
104% HEART FAILURE

33%
more likely
to develop
ASTHMA

People who are
obese are over
150%
more likely to have
**HIGH
BLOOD
PRESSURE**

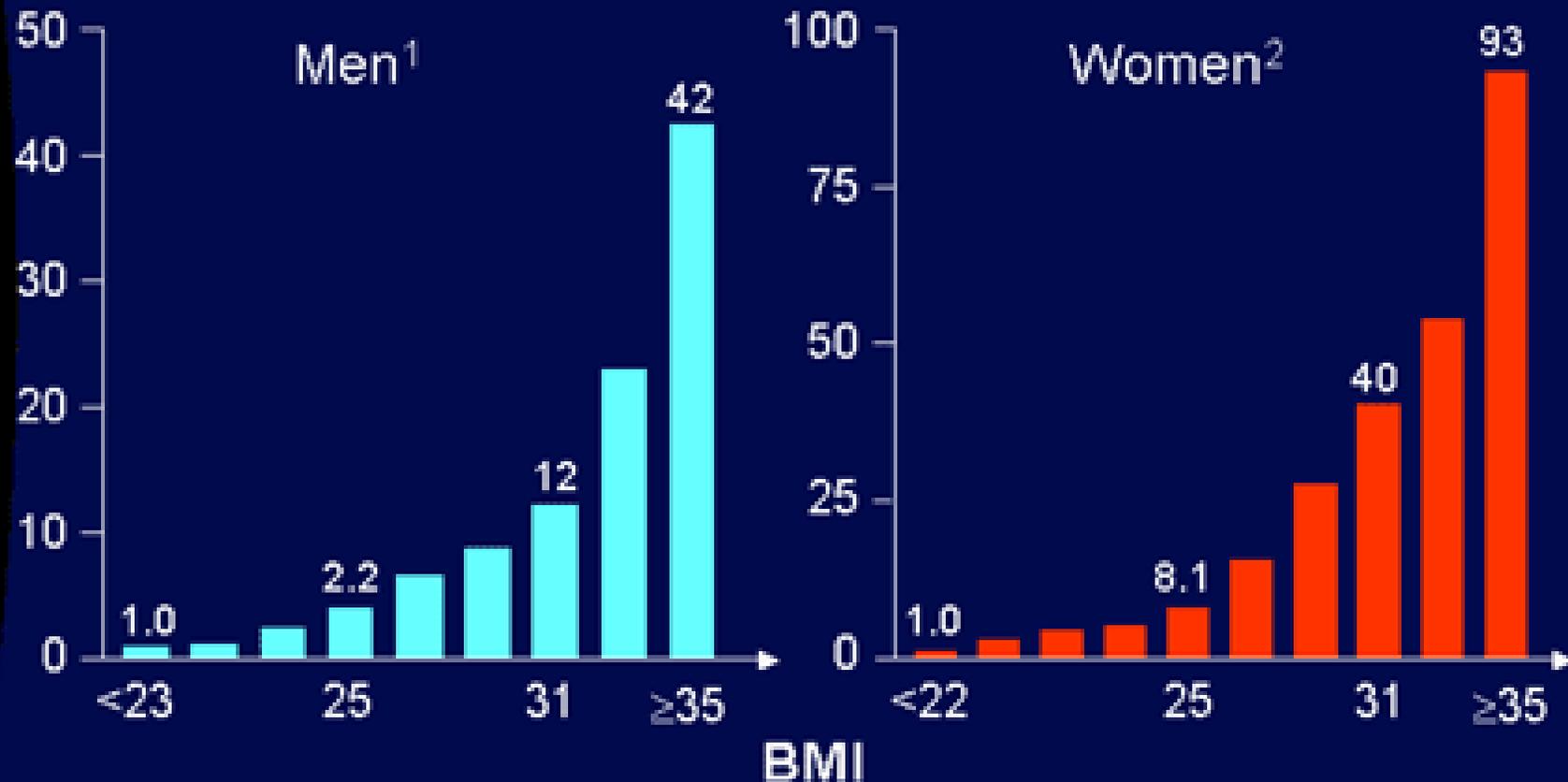
Over
50% of adults
living with
DIABETES are obese

Nearly
10% of all
CANCER
is caused by obesity

healtheo360™

Obesity is the Primary Risk Factor for Type 2 Diabetes

Age-adjusted relative risk of type 2 diabetes



¹Chan JM et al. *Diabetes Care* 1994;17:961-969; ²Colditz G et al. *Ann Intern Med* 1995;122:481-486.



Benefits of Weight Loss

Weight loss of 5-10% of initial body weight can:

- improve glucose control
- reduce blood pressure
- improve cholesterol levels

Each average 1-kg (2.2-pound) weight loss is associated with a 3-4 month survival increase

Health benefits of a 10kg weight loss for those who are obese

Mortality	20-25% fall in total mortality 30-40% fall in diabetes deaths 40-50% fall in obesity related cancer deaths
Blood pressure	Fall of 10 mmHg systolic pressure Fall of 20 mmHg diastolic pressure
Lipids	Fall by 10% in total cholesterol Fall by 15% in "bad" cholesterol Fall by 30% in triglycerides Increase by 8% in "good" cholesterol
Angina	Reduced symptoms by 91% 33% increase in exercise tolerance
Diabetes	Fall of 30-50% in fasting blood glucose Reduces risk of developing diabetes by more than 50%

HEALTHY EATING PLATE

Use healthy oils (like olive and canola oil) for cooking, on salad, and at the table. Limit butter. Avoid trans fat.



The more veggies – and the greater the variety – the better. Potatoes and French fries don't count.

Eat plenty of fruits of all colors.



STAY ACTIVE!

© Harvard University



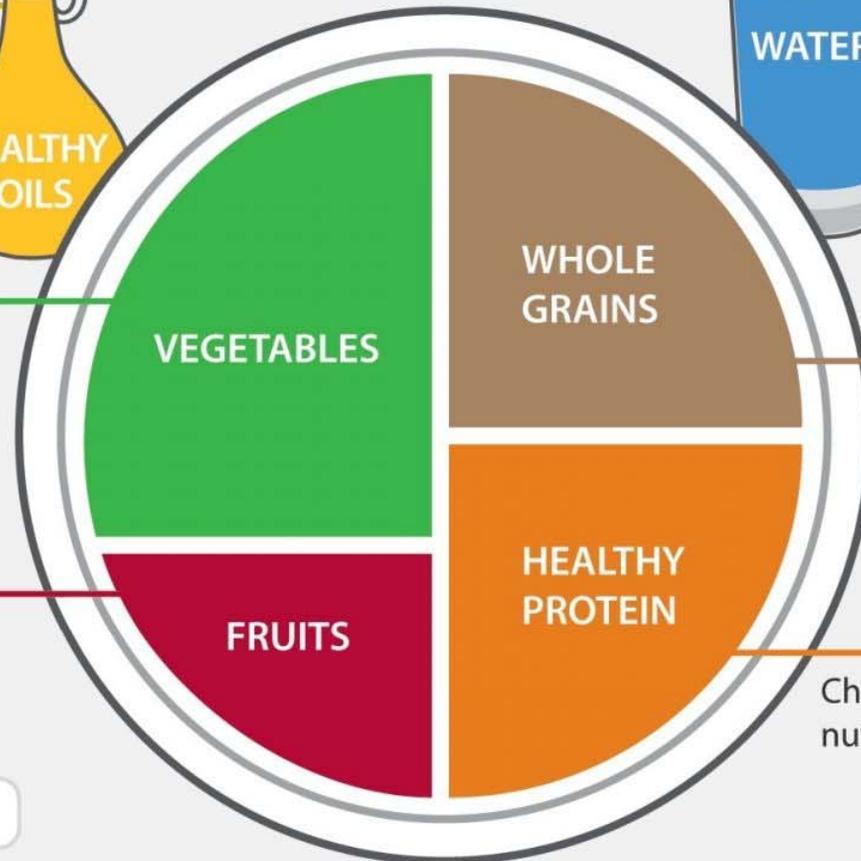
Harvard T.H. Chan School of Public Health
The Nutrition Source
www.hsph.harvard.edu/nutritionsource



Drink water, tea, or coffee (with little or no sugar). Limit milk/dairy (1-2 servings/day) and juice (1 small glass/day). Avoid sugary drinks.

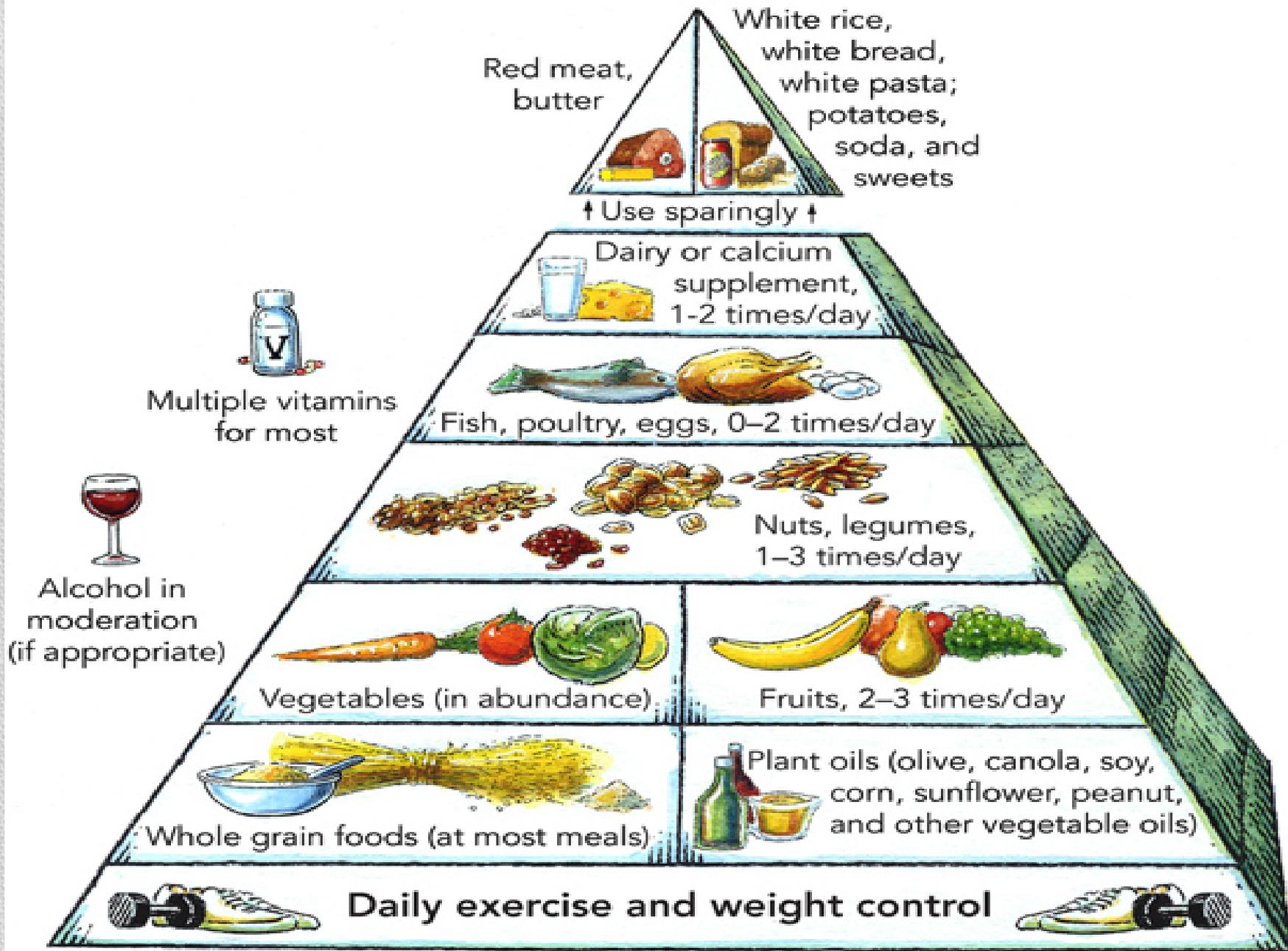
Eat a variety of whole grains (like whole-wheat bread, whole-grain pasta, and brown rice). Limit refined grains (like white rice and white bread).

Choose fish, poultry, beans, and nuts; limit red meat and cheese; avoid bacon, cold cuts, and other processed meats.



Harvard Medical School
Harvard Health Publications
www.health.harvard.edu





EAT THIS, NOT THAT

Small changes in what you eat can help you control your blood sugar, lose weight, and feel better.

Below is a list of foods many of us eat. The "Eat this..." foods have less sugar, salt, bad fats, or cholesterol. Choosing more "Eat this..." foods when you shop and when you eat can help you control your diabetes.



Instead of this	Eat this
Eggs	→ Egg whites
White bread	→ Wheat, whole-grain or multigrain bread
Whole milk, 2% milk	→ Fat-free milk, 1% milk
Butter, margarine, lard	→ Vegetable, canola, or olive oil; spray oils
Cheese	→ Low-fat or skim cheese
Flour (or fried) tortillas	→ Corn or whole-wheat tortillas
Refried beans	→ Whole beans, natural beans
Canned fruit in heavy/light syrup	→ Fresh, frozen, or canned fruit in its own juice
Canned vegetables	→ Fresh or frozen vegetables with no sauce
Cookies, cake, chips, ice cream	→ Fresh fruit, graham or animal crackers, angel food or sponge cake with fruit, low-fat yogurt
Fast food (hamburgers, fries)	→ Salads at fast-food restaurants are often healthy, good-tasting choices
Soda and other drinks with sugar	→ Water, diet soda, seltzer
Processed meats (hot dogs, Spam, bologna, salami)	→ Low-salt turkey, grilled chicken, low-fat (lean) meat, homemade tuna salad

Read food labels when you shop. Look for foods low in sugar, salt, saturated fat (the bad fat), and cholesterol. And, always remember to watch your portion sizes when you eat.



Eating is a habit, and changing habits takes time. Start by changing one or two foods. Then change another food every week or so. Eating new foods and trying new ways of cooking can be fun. Enjoy!

THE ACTIVITY PYRAMID

EACH WEEK, TRY TO INCREASE YOUR PHYSICAL ACTIVITY USING THIS GUIDE. HERE'S HOW TO START...

IF YOU ARE INACTIVE

(Rarely do activity)

Increase daily activities at the base of the Activity Pyramid by

- taking the stairs instead of the elevator
- hiding the TV remote control
- making extra trips around the house or yard
- stretching while standing in line
- walking whenever you can

CUT DOWN ON

WATCHING TV
COMPUTER GAMES

SITTING FOR MORE THAN 30 MINUTES AT A TIME



IF YOU ARE SPORADIC

(Active some of the time, but not regularly)

Become consistent with activity by increasing activity in the middle of the pyramid by

- finding activities you enjoy
- planning activities in your day
- setting realistic goals

2-3 TIMES A WEEK

LEISURE ACTIVITIES

GOLF
BOWLING
SOFTBALL
YARDWORK



FLEXIBILITY AND STRENGTH

STRETCHING/YOGA
PUSH-UPS/CURL-UPS
WEIGHT LIFTING



IF YOU ARE CONSISTENT

(Active most of the time, or at least four days each week)

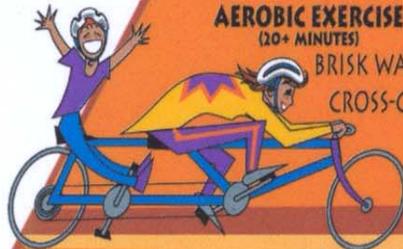
Choose activities from the whole pyramid by

- changing your routine if you start to get bored
- exploring new activities

3-5 TIMES A WEEK

AEROBIC EXERCISE (20+ MINUTES)

BRISK WALKING
CROSS-COUNTRY SKIING
BICYCLING
SWIMMING



RECREATIONAL (30+ MINUTES)

SOCCER HIKING
BASKETBALL TENNIS
MARTIAL ARTS DANCING

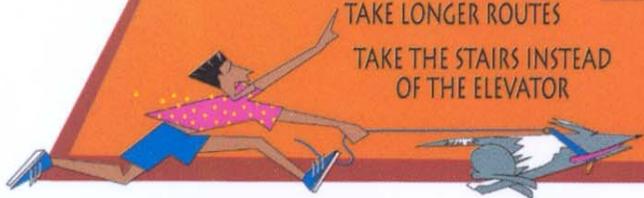


**ABOVE ALL...
HAVE FUN
AND
GOOD LUCK!**

EVERYDAY

(AS MUCH AS POSSIBLE)

WALK THE DOG
TAKE LONGER ROUTES
TAKE THE STAIRS INSTEAD OF THE ELEVATOR



**BE CREATIVE
IN FINDING A
VARIETY OF WAYS
TO STAY ACTIVE**

WALK TO THE STORE OR THE MAILBOX
WORK IN YOUR GARDEN
PARK YOUR CAR FARTHER AWAY
MAKE EXTRA STEPS IN YOUR DAY





Indications to Treat Obesity

Indications for weight loss medication:

BMI \geq 30 or

BMI \geq 27 with obesity related comorbidities (DM, HTN, HLD, OSA, NASH, GERD, Asthma, urinary incontinence, debilitating arthritis, pseudotumor cerebrii)

Indications for bariatric surgery:

BMI \geq 40 with no comorbidities or

BMI 35-39.9 with one or more obesity related comorbidity (DM, HTN, HLD, OSA, NASH, GERD, Asthma, urinary incontinence, debilitating arthritis, pseudotumor cerebrii)

65% of American Adults Recommended for Weight-Loss Treatment*

Per 2013 Guideline for the Management of Overweight and Obesity in Adults



140 million
could be considered for behavioral weight-loss treatment



Of those,
116 million
could be considered for adjunctive pharmacotherapy along with behavioral treatment

Of those,
32 million
could be considered for bariatric surgery

*Stevens J. The 2013 Guideline for the Management of Overweight and Obesity in Adults Recommends Weight Loss Treatment for Up to 140 Million Americans. Poster abstract presentation at: The Obesity Society Annual Meeting at ObesityWeek™ 2014; November 2-7, 2014; Boston, MA. www.obesityweek.com.

Jensen MD, Ryan DH, Donato KA, Apovian CM, Ard JD, Comuzzie AG, Hu FB, Hubbard VS, Jakicic JM, Kushner RF, Loria CM, Millen BE, Nonas CA, Pi-Sunyer FX, Stevens J, Stevens VJ, Wadden TA, Wolfe BM, Yanovski SZ. *Guidelines (2013) for managing overweight and obesity in adults. Obesity* 2014;22(S2):S1-S410.



FDA Approved Medications for Obesity

Diethylpropion

Liraglutide

Lorcaserin

Naltrexone/Bupropion

Orlistat or Alli

Phentermine

Phentermine/Topiramate

Table. Mechanisms of Action of FDA-Approved Medications for Obesity

Agent	Mechanism of Action	Notes
Diethylpropion	Norepinephrine-releasing agent	Approved for short-term use (3 months)
Liraglutide (Saxenda)	GLP-1 receptor agonist	
Lorcaserin (Belviq)	5HT _{2c} receptor agonist	Recommended for patients with cardiovascular disease
Naltrexone/bupropion (Contrave)	Opioid antagonist/dopamine and norepinephrine reuptake inhibitor	
Orlistat, prescription (120 mg, Xenical) and over-the-counter (60 mg, Alli)	Pancreatic and gastric lipase inhibitor	Recommended for patients with cardiovascular disease
Phentermine	Norepinephrine-releasing agent	Approved for short-term use (3 months); Not recommended in patients with uncontrolled hypertension or heart disease
Phentermine/topiramate (Qsymia)	Norepinephrine-releasing agent/GABA receptor modulation agent	

GABA, γ -aminobutyric acid; GLP-1, glucagon-like peptide-1

Diethylpropion



- FDA approved for short term use
 - usually considered <12 weeks
- **Action:** Reduces appetite by increasing activation of adrenergic and dopaminergic receptors
- **Benefits:** 9 small studies ranging from 6-52 weeks found that pts using diethylpropion 75mg/day had a mean additional weight loss relative to placebo of 3kg (6.2lbs) with a mean total weight loss of 6.5kg (14.3lbs)
- **Side Effects:** increase in HR, less decrease in BP as would be expected by the amount of weight loss, no long term data on cardiovascular effects
- **Contraindications:** Arrhythmia, Severe Hypertension, Hyperthyroidism
- **Dosing:** 25mg orally three times a day before meals

Effects of Dopamine on Satiety

-Dopamine is released in response to a food reward

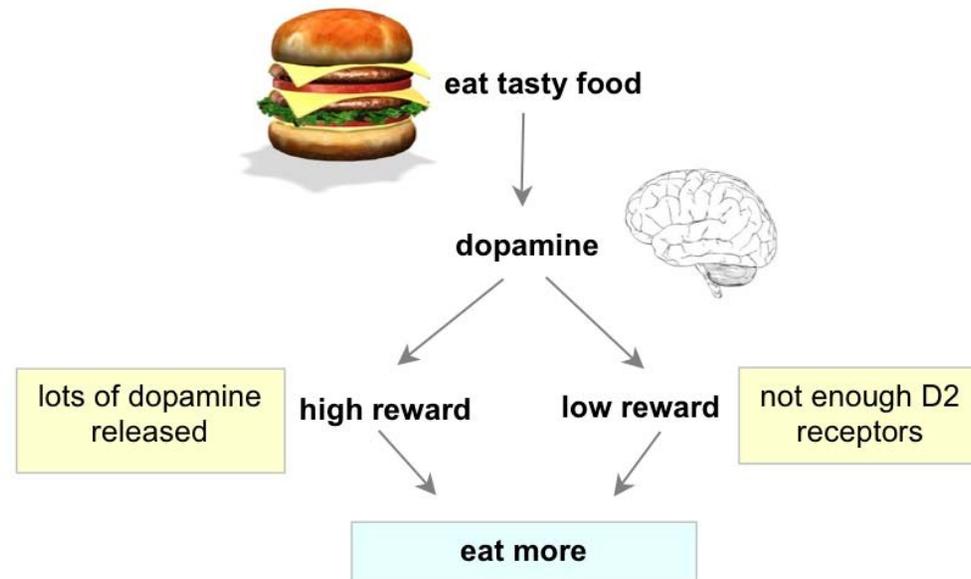
-over time, the brain will become accustomed to the stimuli of upcoming food, for example the smell of food, and expect that there will be an upcoming dopamine release

-exposure to food cues elicits Dopamine increases that are associated with the desire to eat the food, even if the person is full

-decreases in dopamine receptors have been linked to compulsive food intake in obese rodents

-It is thought that obese individuals have increased sensitivity of the reward circuitry to conditioned stimuli (viewing high-calorie food) that predict reward, but a decreased sensitivity to the rewarding effects of actual food consumption in dopaminergic pathways

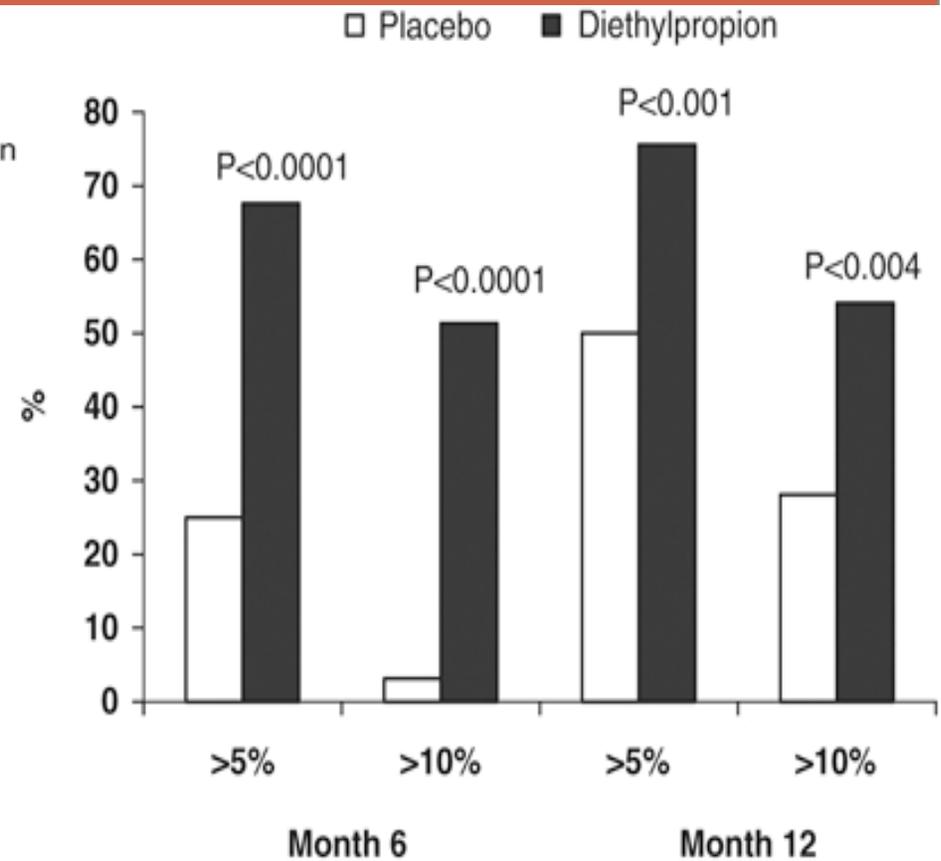
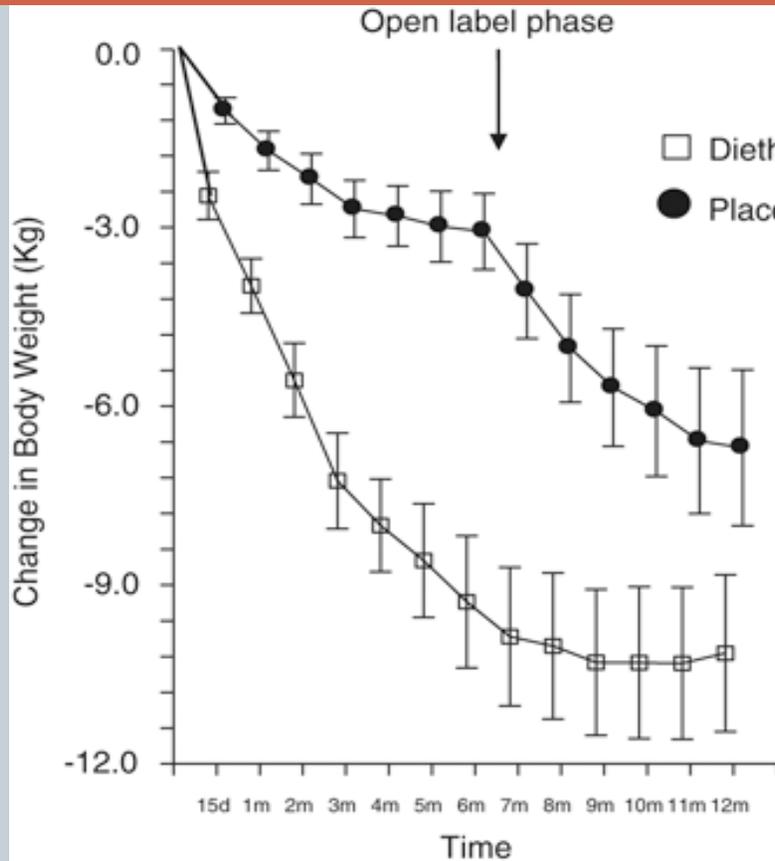
-there is a mismatch between the expected reward and a delivery that does not fulfill this expectation, this will promote compulsive eating as an attempt to achieve the expected level of reward



Weight Loss Benefits of Diethylpropion

Change from baseline for body weight over 1 year. After 6 months, all participants received diethylpropion (open-label phase).

Number of patients achieving weight loss of 5 and 10% according to the group assignment at months 6 and 12. Placebo switched to diethylpropion on open-label phase (months 7–12).



Phentermine

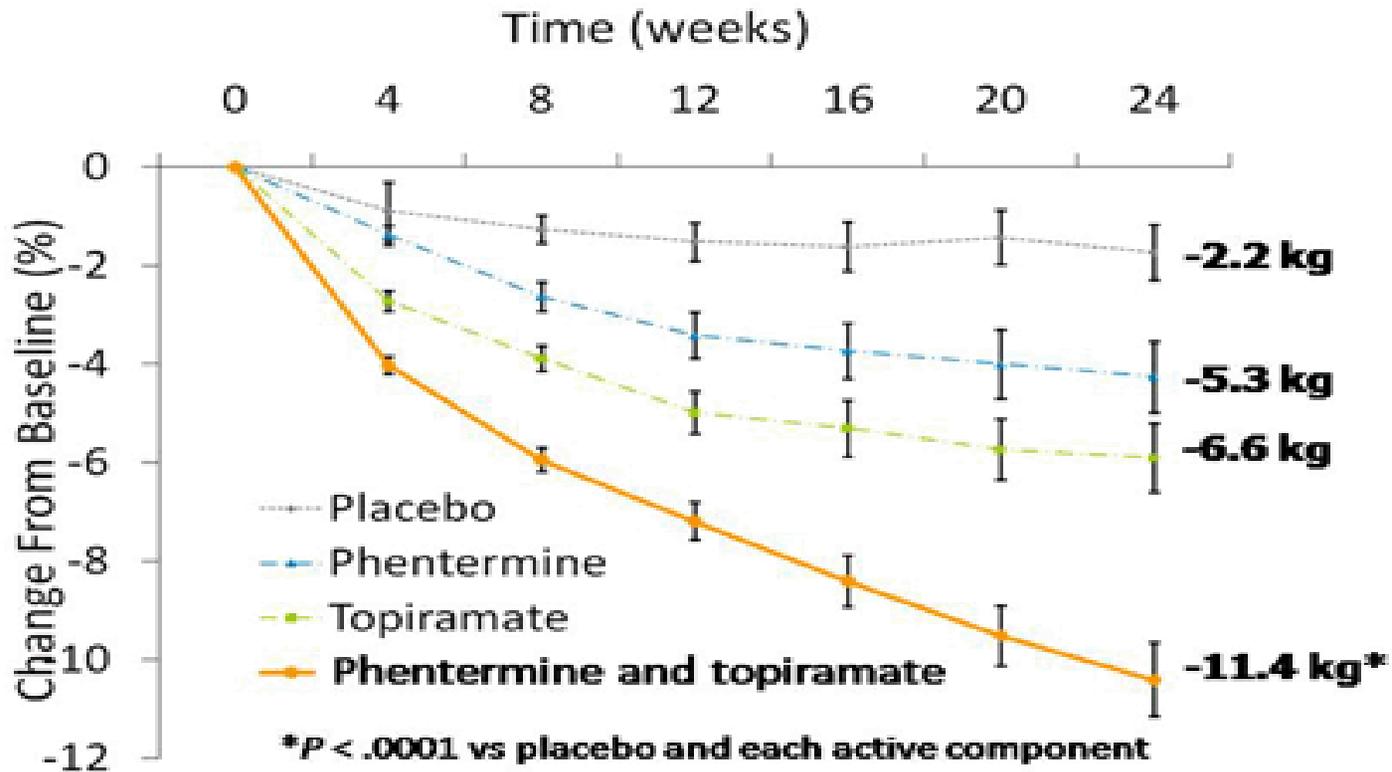


- FDA approval for short term use
 - however it is frequently prescribed off-label for longer periods
- **Action:** reduce appetite by increasing activation of adrenergic and dopaminergic receptors
- **Benefits:** pts using 15-30mg/day had a mean additional weight loss relative to placebo of 3.6kg, with mean total weight loss of 6.3kg (13.86 lbs)
- **Side Effects:** although it has a long hx of use there are few controlled trials of phentermine monotherapy for 6 months or more, transient symptoms of CNS stimulation such as insomnia, irritability, anxiety, elevations in pulse
- **Contraindications:** uncontrolled hypertension, breastfeeding, hyperthyroidism, agitation
- **Dosing:**
 - 15mg po q AM to 37.5mg po q AM
 - this is the most widely Rx obesity medication in the US (estimated 6.2 million users in US between 2008-2011)

Benefits of Phentermine on Weight Loss



Topiramate and Phentermine (ITT)



Source: Vivus. <http://ir.vivus.com/releasedetail.cfm?ReleaseID=407933>

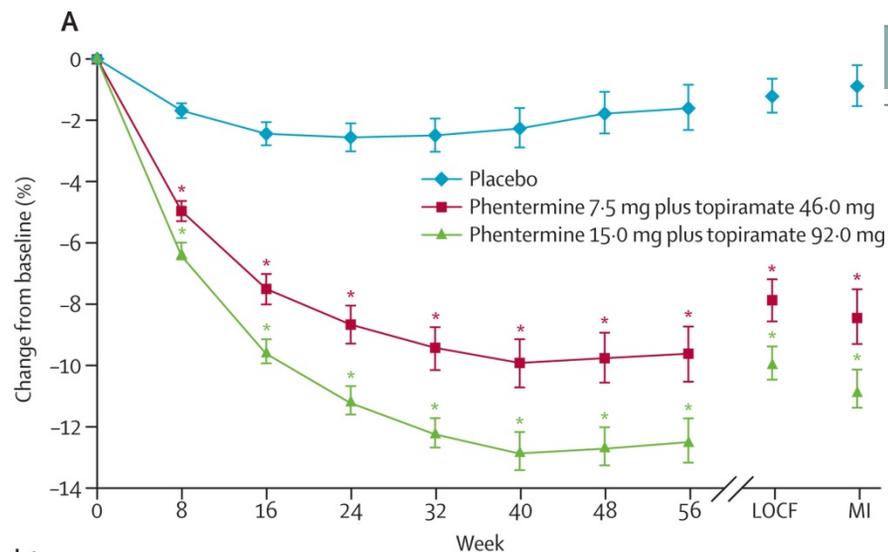
Medscape CME

Phentermine/Topiramate (Qsymia)

- **Action:**
 - reduce appetite by increasing activation of adrenergic and dopaminergic receptors
 - prolongs satiety
 - makes soda and beer taste flat by decreasing CO₂ so pts will drink less soda and beer
- **Benefit:**
 - weight loss of 10-15%
 - decreases risk of Diabetes by 80%
 - approved for long term use
- **Side effects:** constipation, insomnia, anxiety, no change in BP, cleft palate in fetus, paresthesias, Small increase in resting heart rate occurs especially at higher doses, with increases of more than 10bpm, concern for long term CVD events
- **Contraindications:** patient with MI, CVA or increased basal HR , pregnancy (must do a pregnancy test in the office and ensure patient is on birth control method) , may increase eye pressure so might not want to use it in pts with glaucoma
- **Dosing:**
 - 3.75mg phentermine/23mg topiramate (starting dose)
 - 7.5mg phentermine/46mg topiramate (recommended dose)
 - 11.25mg phentermine/69mg topiramate (titration dose)
 - 15mg phentermine/92mg topiramate (top dose)

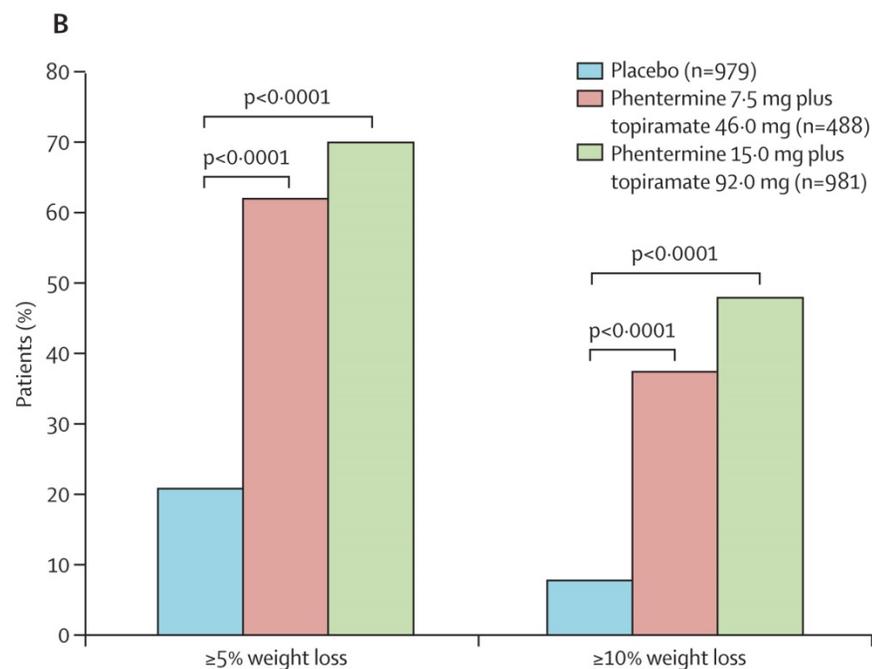


Weight Loss Benefits of Phentermine/Topiramate



Study completers

	0	8	16	24	32	40	48	56	LOCF	MI
Placebo	979	851	744	670	623	589	573	557	979	994
Phentermine 7.5 mg plus topiramate 46.0 mg	488	437	403	387	369	356	350	338	488	498
Phentermine 15.0 mg plus topiramate 92.0 mg	981	843	775	747	712	686	660	625	981	995



Naltrexone/Bupropriion (Contrave)



- **Actions:**

- Naltrexone is an opioid antagonist
- Bupropriion acts as a reuptake inhibitor of dopamine and norepinephrine
- together they help to suppresses appetite, cravings, and emotional eating, increased sensation of fullness

- **Benefits:**

- Weight loss of 5-8%
- no increase in CV events
- will decrease waist circumference
- will decrease Triglycerides, will increase HDL
- will decrease blood sugars

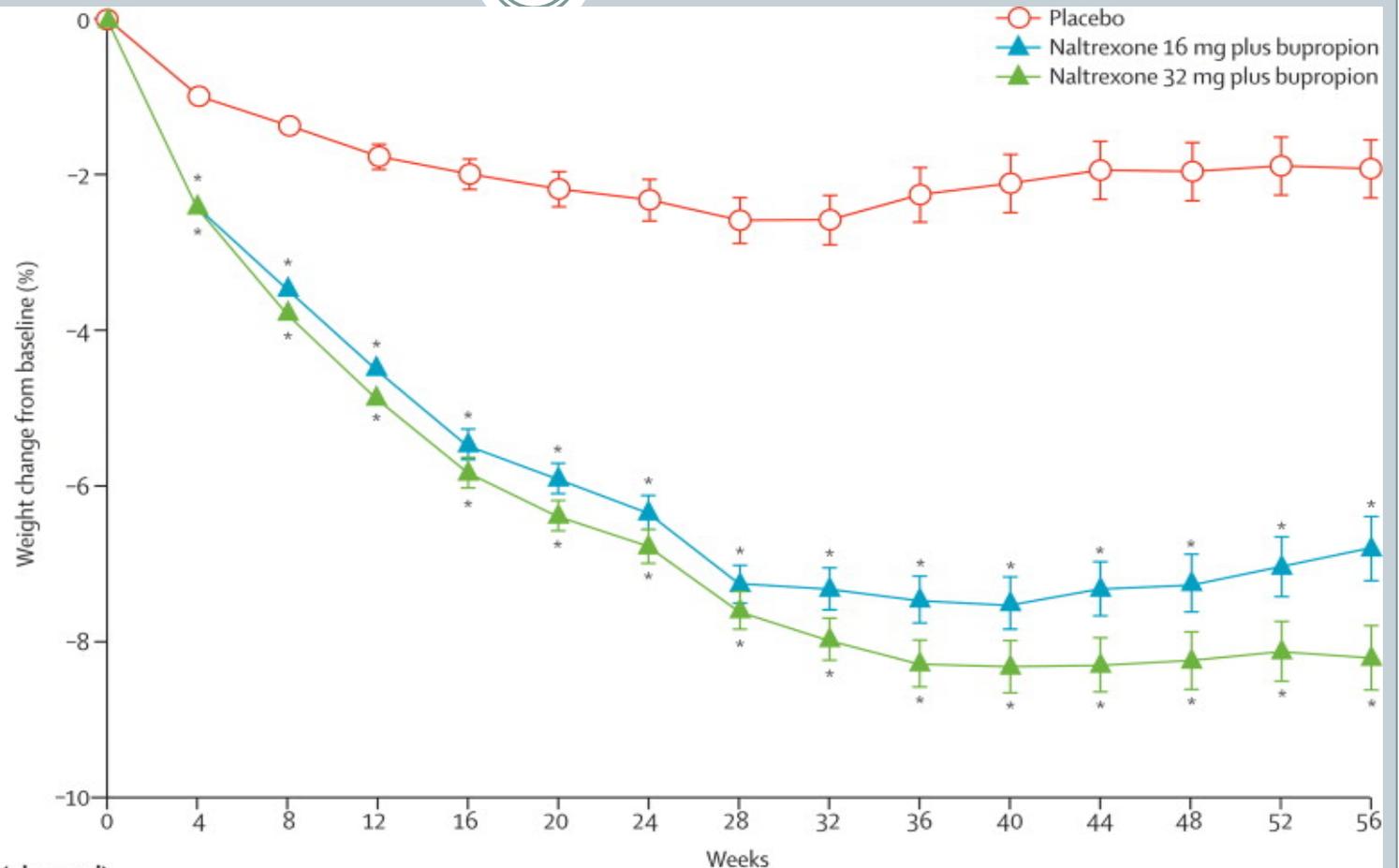


- **Side effects:** Nausea, vomiting, headache, constipation, dizziness, will increase HR, will increase Blood pressure by 1-2mm Hg more in first 3 months

- **Contraindications:** pregnancy, contraindicated in uncontrolled HTN, lowers seizure threshold so should not be used in history of seizures or alcoholism, should not be used on pts that need opioids for pain

- **Dosing:** 1 tablet (90mg/8mg) initially week 1; increase by 1 tablet/day each subsequent week until daily maintenance dose of 2 tablets twice daily (360 mg bupropriion/32 mg naltrexone) is achieved at the start of week 4 , increase dose slowly to prevent nausea

Weight Loss Benefits of Contrave



Number of participants by visit (observed)

	0	4	8	12	16	20	24	28	32	36	40	44	48	52	56
Placebo	507	463	420	394	365	353	327	318	308	302	296	291	289	277	
Naltrexone 16 mg plus bupropion	467	410	373	351	346	341	311	311	302	297	300	284	283	273	
Naltrexone 32 mg plus bupropion	467	411	391	372	365	361	343	327	321	316	311	305	298	284	

Lorcaserin (Belviq)

- approved by FDA in 2012, approved for long term use
- **Action:** selective serotonin 2C receptor agonist, increases satiety, it tells liver to decrease glucose production, appetite suppressant
- **Benefit:**
 - Weight loss of 3- 5% in 3 months
 - safest drug to use in pregnancy
 - safest to use in CVD pts
 - will decrease cholesterol, decreases LDL, decreases Triglycerides,
 - decreases Heart rate
 - decreases waist circumference
 - very good to use in pts with fatty liver disease,
 - fasting blood sugar will decrease by 30mg/dL, decreases HgA1C by 1%,
 - no evidence for valvulopathy
 -
- **Side Effects:** mild headaches, dizziness, nausea
- **Contraindications:** may need to decrease insulin or sulfonylureas by $\frac{1}{2}$ because of risk of hypoglycemia, can increase serotonin and SSRI levels , should not use on pts that use serotonin related drugs, example: Citalopram (Celexa), Escitalopram (Lexapro), Fluoxetine (Prozac), Paroxetine (Paxil, Pexeva), Sertraline (Zoloft)
- **Dosing:** 10mg bid



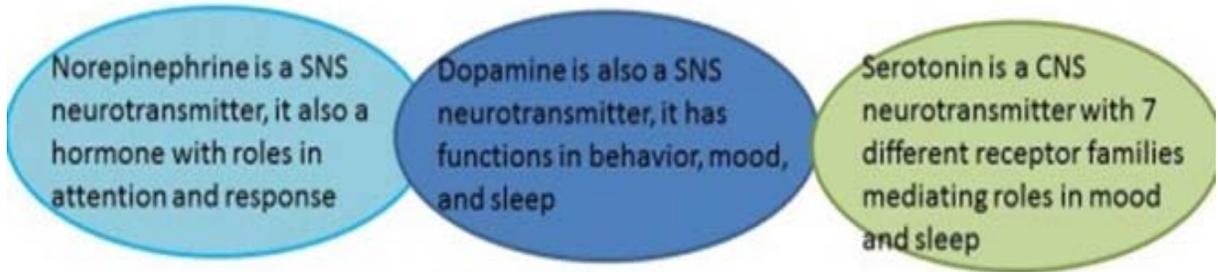


Serotonin Effects on Satiety

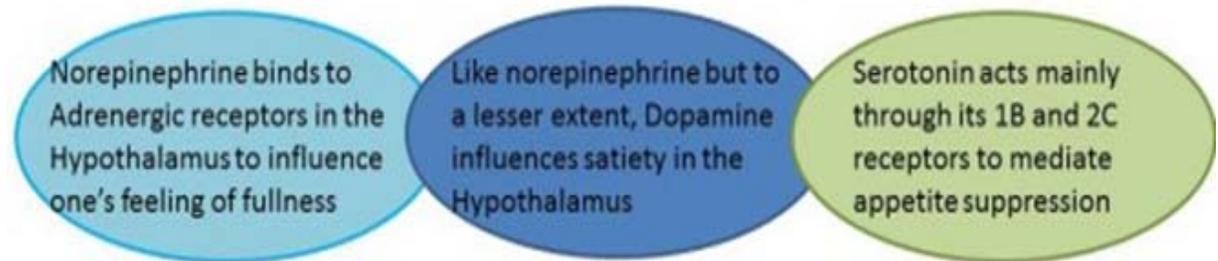
Serotonin is involved in sensing satiation during meal and in post-meal satiety

Serotonin receptors inhibit neuropeptide Y (NPY) which is a potent stimulator of hunger and food intake

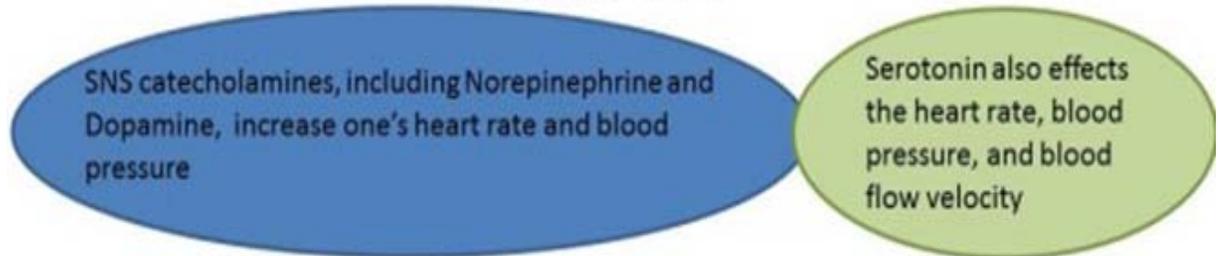
General Description



Role in Satiety

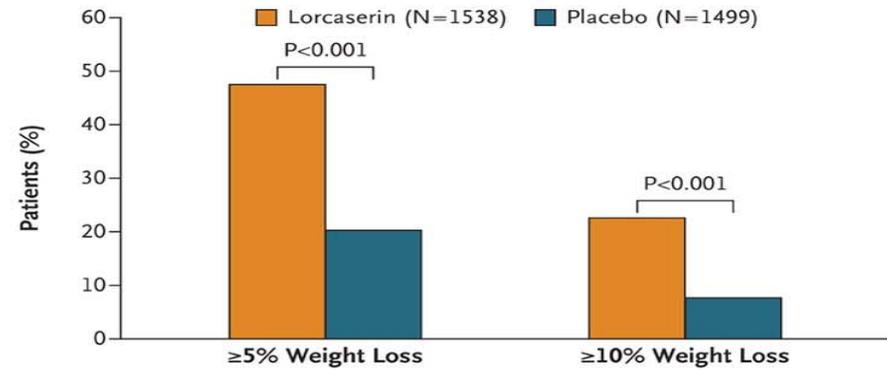


Cardiovascular Effects

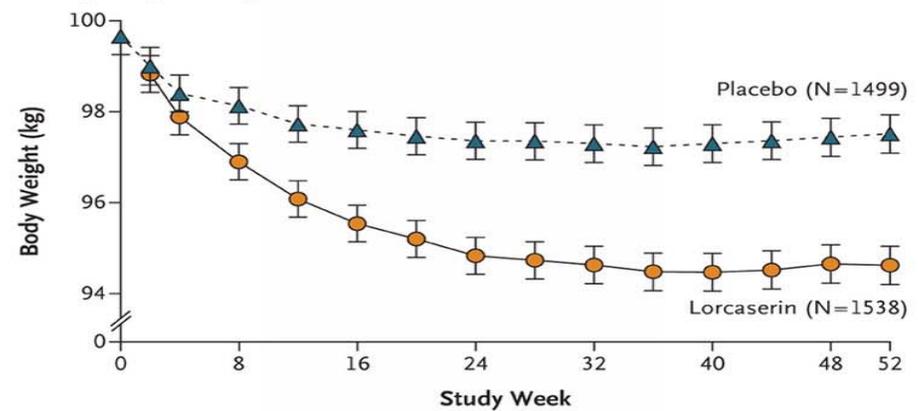


Benefits of Weight Loss with Lorcaserin

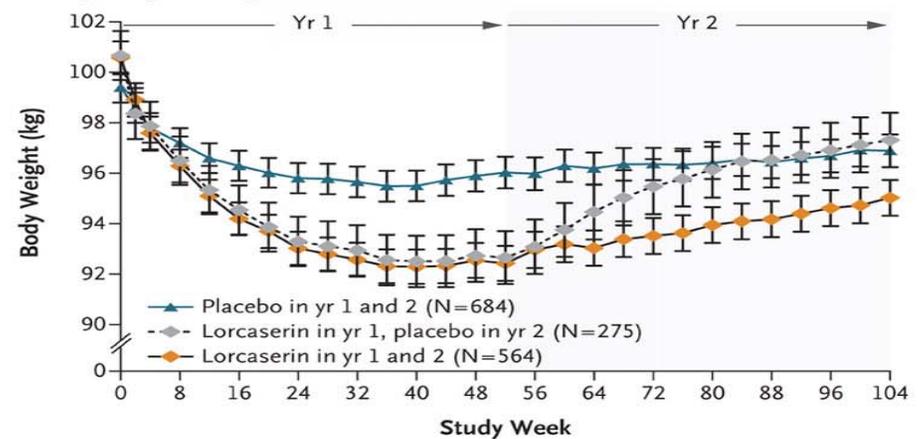
A Weight Loss at 1 Yr



B Body Weight during Yr 1



C Body Weight during Yr 1 and 2



Liraglutide (Saxenda)



- FDA approved Dec 2014
- **Action:** GLP-1 agonist, suppresses appetite, delays gastric emptying
- **Benefits:**
 - Weight loss of 7-9% from initial weight
 - additional weight loss over placebo of 3.5-5.8kg (7.7-12.2 lbs) over 6-12 months
 - after 2 yrs, 50% of all prediabetics using this medication normalize their prediabetes
 - approved for long term use
- **Side effects:** nausea, vomiting, constipation, diarrhea, concern for pancreatitis and pancreatic cancer
- **Contraindications:** pregnancy or medullary thyroid cancer or history of pancreatitis
- **Dosing:** increase dose weekly to goal of 3mg/day SC



GLP-1 Actions

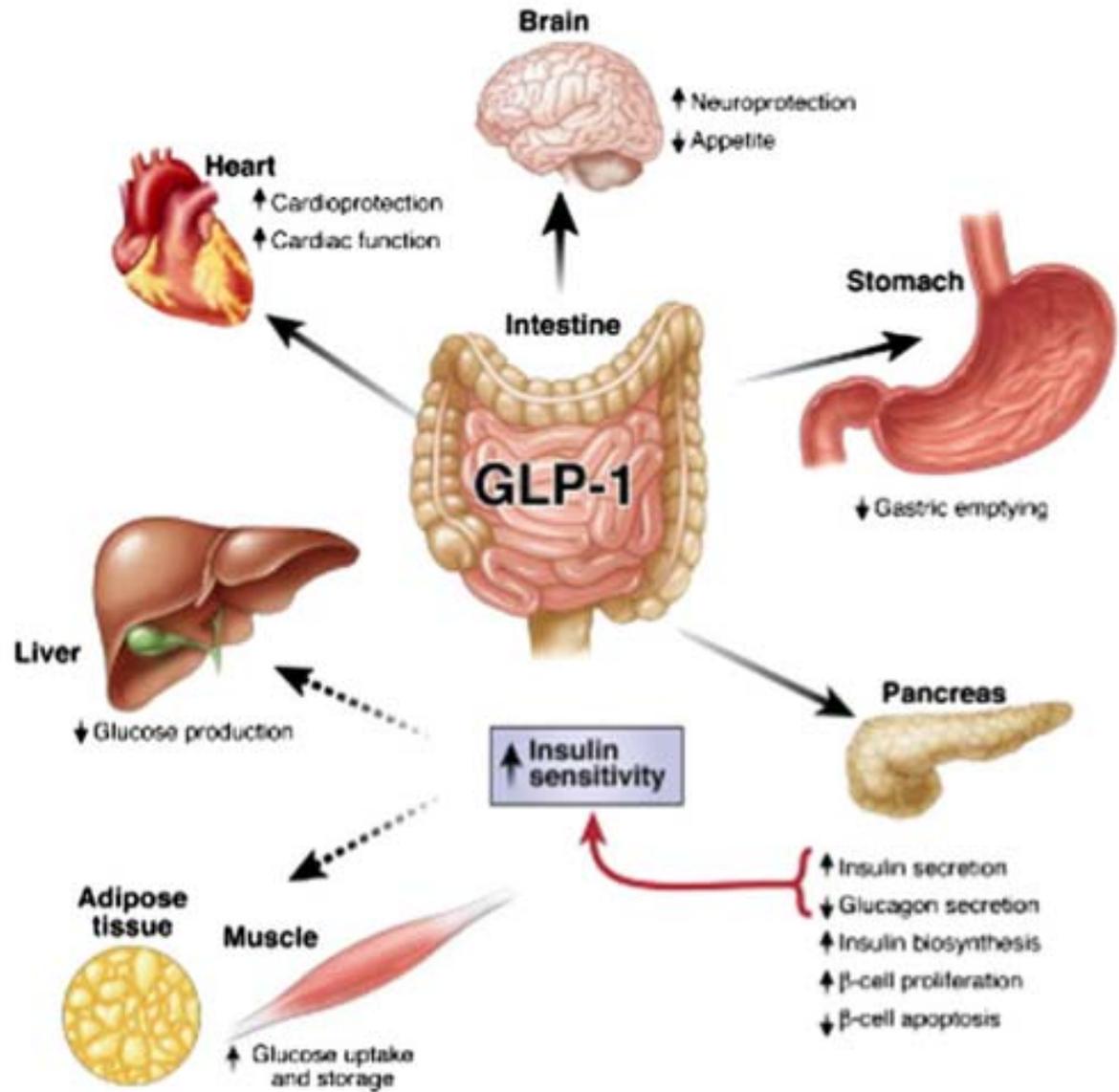
Decrease appetite

Decrease gastric emptying so you feel full longer

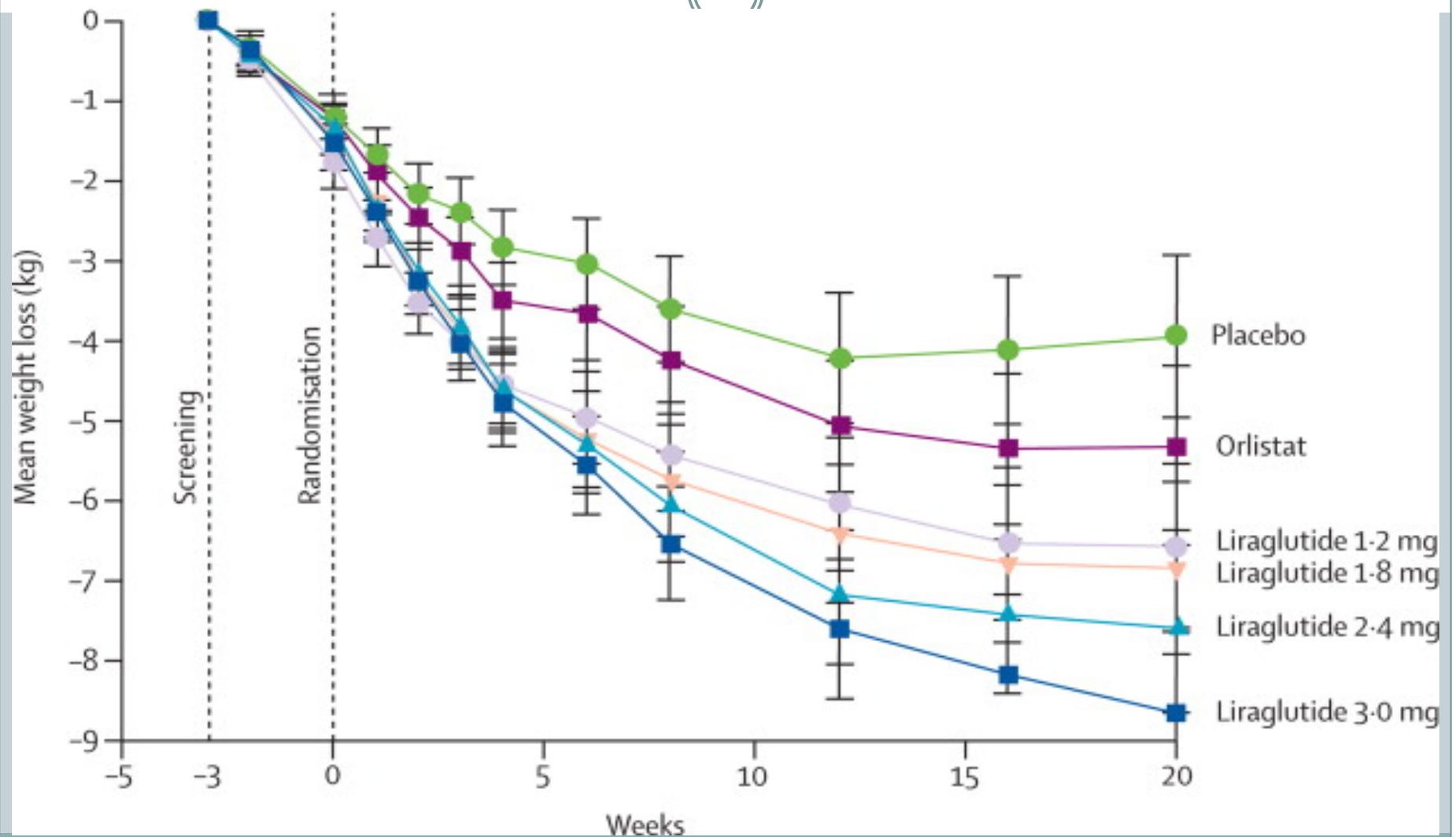
Decrease liver glucose production

Increase Insulin secretion

Increase insulin sensitivity



Weight Loss Benefits of Liraglutide



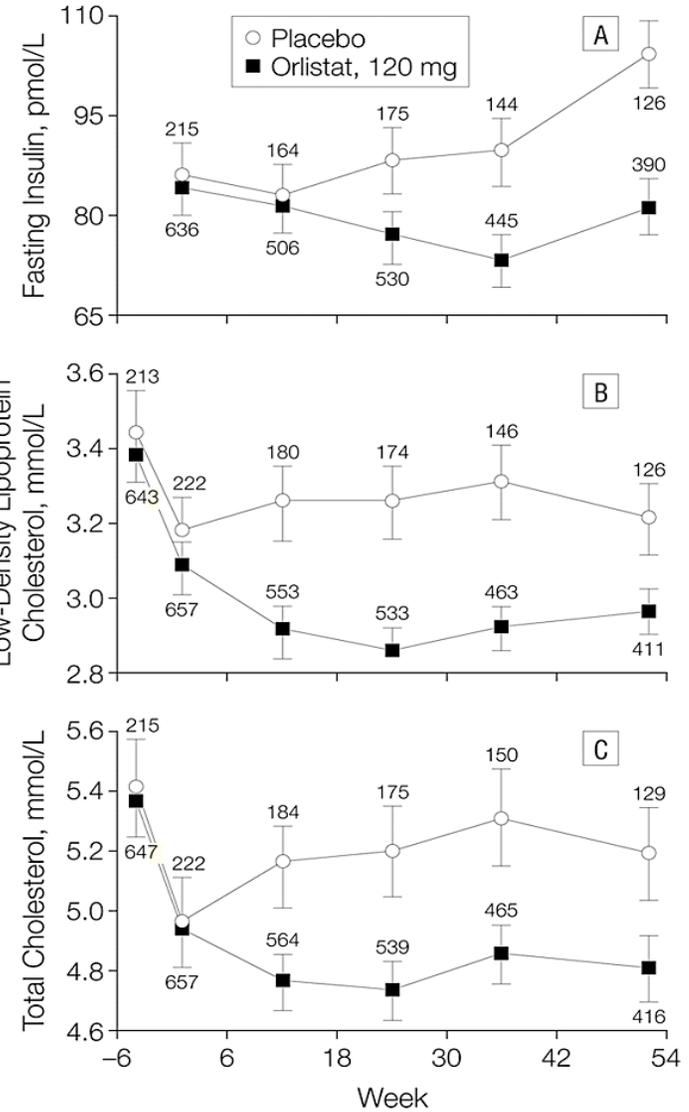
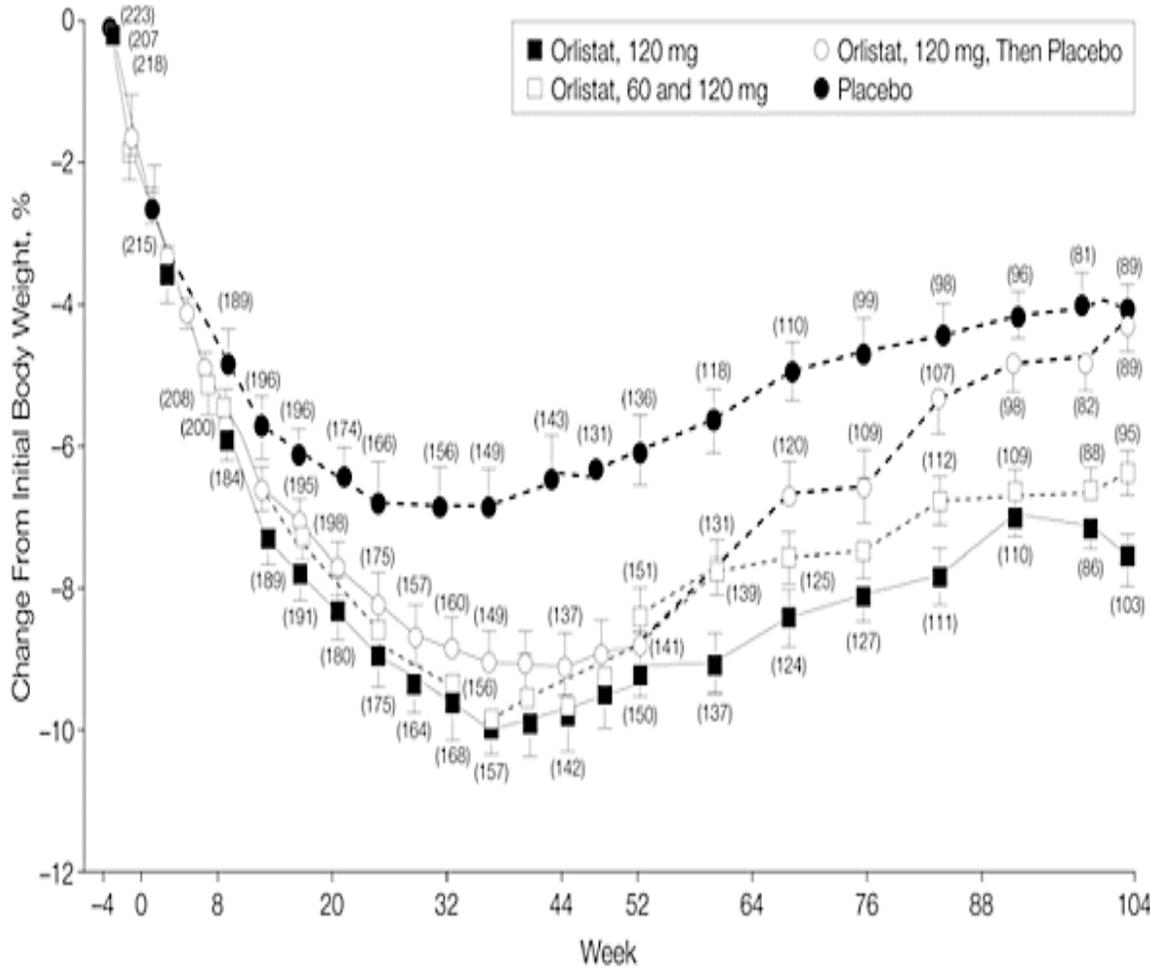
Orlistat (Xenical or Alli)



- FDA approved for use in adults and adolescents age 12-16 y.o. and for indefinite treatment of obesity
- **Action:** Gastrointestinal lipase inhibitor which when taken three times a day during or up to 1 hr after meals, leads to the excretion of approximately 30% of ingested fat
- **Benefits:**
 - weight loss of 3-4%
 - decreased risk of developing diabetes from 9% in placebo to 6% in Orlistat treated patients
 - Decrease in total cholesterol
 - Decrease in LDL cholesterol
 - Decrease in fasting glucose
 - Decrease in systolic and diastolic blood pressures after 1 yr of tx
- **Side effects:** decrease in fat soluble vitamins (Vitamins A, D, E, and K), gas, diarrhea, abdominal pain, stool incontinence
- **Contraindications:** Pregnancy, Chronic malabsorption syndromes, cholestasis
- **Dosing: Xenical** 120mg tid with meals, **Alli** 60mg po tid



Weight Loss Benefits of Orlistat



Review of FDA approved Medications for Obesity

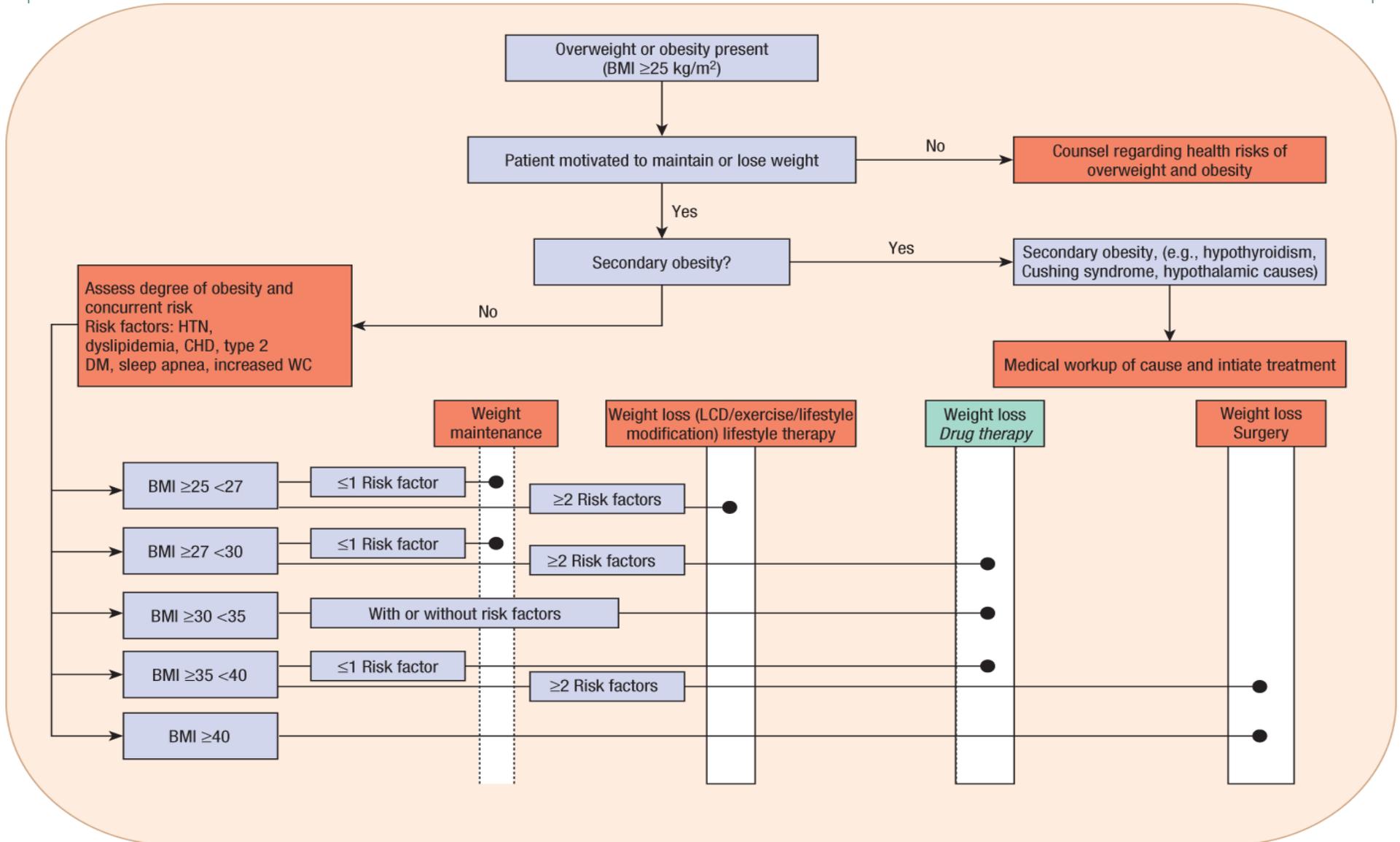


Drugs	Status	Mechanism	Dosing	Response evaluation	Warnings	Contraindications	Side-effects
Orlistat	FDA & EMA approved	pancreatic, gastric lipase inhibitor	120 mg tid 60 mg tid (OTC)	2.9–3.4% 1 year	hepatitis, liver failure (rare), concomitant multivitamin advised	pregnancy, breast feeding, chronic malabsorption syndrome, cholestasis	decreased absorption of fat soluble vitamins, steatorrhea, faecal urgency
Lorcaserin	FDA approved	5HT _{2c} R agonist	10 bid	3.6% 1 year stop if <5% weight loss at 12 weeks	serotonin syndrome, cognitive impairment, depression, valvulopathy hypoglycaemia, priapism	pregnancy, breast feeding, use with caution: MAOIs, SSRIs, SNRIs	headache, nausea dry mouth, dizziness fatigue, constipation
Phentermine/ topiramate	FDA approved	NE release (P) GABA modulation (T)	starting dose: 3.75/23 qd recommended dose: 7.5/46 qd *high dose: 15/92 qd	6.6% (recommended dose) 1 year 8.6% (high dose) 1 year stop if <5% weight loss at 12 weeks	fetal toxicity, acute myopia, cognitive dysfunction, metabolic acidosis, hypoglycaemia	pregnancy, breast feeding, glaucoma, hyperthyroidism, use with caution: MAOIs	insomnia, dry mouth constipation, paresthesia, dizziness, dysgeusia
Bupropione/ naltrexone	FDA & EMA approved	DA/NE reuptake inhibitor(B) opioid antagonist (N)	8/90 mg tb 2 tb bid	4.8% 1 year stop if <5% weight loss at 12 weeks	fetal toxicity, increased seizure risk, glaucoma, hepatotoxicity	uncontrolled hypertension, seizure, anorexia nervosa / bulimia, drug or alcohol withdrawal, use with caution: MAO inhibitors	nausea, constipation, headache, vomiting, dizziness
Liraglutide	FDA & EMA approved	GLP-1 agonist	3 mg sc	5.8 kg 1 year stop if <4% weight loss at 14 wks	acute pancreatitis, acute gall bladder disease	medullary thyroid cancer history, MEN type 2 history	nausea, vomiting, pancreatitis

FDA = Food & Drug Administration; EMA= European Medicinal Agency; OTC = over the counter; 5HT_{2c}-R = 5 hydroxytryptamine 2c receptor; MAOI = monoamine oxidase inhibitor; SSRI = selective serotonin reuptake inhibitor; SNRI = serotonin norepinephrine reuptake inhibitor; NE = norepinephrine; GABA = gamma amino butyric acid; DA = dopamine; GLP-1 = glucagon-like peptide-1; MEN = multiple endocrine neoplasia.

*Careful observation.

Conclusion



Would you like help managing your Diabetes?



If so, make an appointment at our new Diabetes Clinic located at:

Medical Arts Plaza

3590 West 9000 South Suite 240

West Jordan, UT 84088

Call 801-508-3140

Ways the Diabetes Clinic can help you achieve better health:

- **Medical treatment for Diabetes**
- **Insulin pump management**
- **Nutrition Classes and Information**
- **Medical treatment of Obesity, High Blood Pressure, and High Cholesterol for those who have Diabetes**
- **Referrals to other specialties important in Diabetes care including Ophthalmology, Podiatry, Dentistry, Bariatric Surgery, Nephrology, and more**

Staffed by Endocrinologist Dr. Miriam Padilla, MD, CDE, who is board certified in Internal Medicine and a Certified Diabetes Educator

Open to any non-pregnant adult with Diabetes

We accept multiple forms of Insurance

Open Monday through Friday

Se Habla Español



Bibliography



- Susan Z. Yanovski, M.D.¹ and Jack A. Yanovski, M.D., PhD. Long-term Drug Treatment for Obesity: A Systematic and Clinical Review. *JAMA*. 2014 Jan 1; 311(1): 74–86.
- Ken Fujioka, MD; Caroline M. Apovian, MD; James O. Hill, PhD. The Evolution of Obesity Therapies: New Applications for Existing Drugs. Medscape CME Released: 06/17/2010
- Ogden CL, Carroll MD, McDowell MA, Flegal KM. Obesity among adults in the United States— no change since 2003–2004. NCHS data brief no 1. Hyattsville, MD: National Center for Health Statistics. 2007
- <http://www.cdc.gov/obesity/data/index.html>
- Katherine M. Flegal; Barry I. Graubard; David F. Williamson; Mitchell H. Gail. Excess Deaths Associated With Underweight, Overweight, and Obesity *JAMA*, April 20, 2005; 293: 1861 - 1867.
- Potential Contributors to Obesity – Source: The Obesity Society Infographic Task Force, November 2015
- <http://www.cdc.gov/obesity/data/prevalence-maps.html>
- C Cercato, V A Roizenblatt, C C Leança, A Segall, A P Lopes Filho, M C Mancini¹ and A Halpern. A randomized double-blind placebo-controlled study of the long-term efficacy and safety of diethylpropion in the treatment of obese subjects. *International Journal of Obesity* (2009) 33, 857–865; doi:10.1038/ijo.2009.124; published online 30 June 2009.
- <http://medvin2u.net/how-to-get-away-from-obesity/>
- Steven R. Smith, M.D., Neil J. Weissman, M.D., Christen M. Anderson, M.D., Ph.D., Matilde Sanchez, Ph.D., Emil Chuang, M.D., Scott Stubbe, M.B.A., Harold Bays, M.D., William R. Shanahan, M.D., and the Behavioral Modification and Lorcaserin for Overweight and Obesity Management (BLOOM) Study Group. Multicenter, Placebo-Controlled Trial of Lorcaserin for Weight Management. *N Engl J Med* 2010; 363:245-256 July 15, 2010 DOI: 10.1056/NEJMoa0909809
- J. Michael Gonzalez-Campoy. Pharmacological Management of Obesity: Agents and Mechanisms of Action Summary of the Endocrine Society's Guideline on the Pharmacological Management of Obesity.
- Louis J. Aronne. Treating Obesity: A New Target for Prevention of Coronary Heart Disease . *Prog Cardiovasc Nurs*. 2001;16(3)
- American Diabetes Association “Standards of Medical Care in Diabetes- 2015. *Diabetes Care Journal of Clinical and Applied Research and Education*. Jan 2015, Vol 38.
- Nora D. Volkow, Gene-Jack Wang, and Ruben D. Baler. Reward, dopamine and the control of food intake: implications for obesity. *Trends Cogn Sci*. 2011 Jan; 15(1): 37–46.
- Davidson MH, Hauptman J, DiGirolamo M, et al. Weight Control and Risk Factor Reduction in Obese Subjects Treated for 2 Years With Orlistat: A Randomized Controlled Trial. *JAMA*. 1999;281(3):235-242. doi:10.1001/jama.281.3.235.
- Effects of liraglutide in the treatment of obesity: a randomised, double-blind, placebo-controlled study. Astrup, Arne et al. *The Lancet* , Volume 374 , Issue 9701 , 1606 - 1616
- Miriam Padilla, Anne Peters. “ Diabetes and Cardiovascular Disease Risk Factors as Influenced by Race and Ethnic Background”. *Current Cardiovascular Risk Report*. 9:6. Feb 2015.
- Effect of naltrexone plus bupropion on weight loss in overweight and obese adults (COR-I): a multicentre, randomised, double-blind, placebo-controlled, phase 3 trial Greenway, Frank L et al. *The Lancet* , Volume 376 , Issue 9741 , 595 - 605
- Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults, The Evidence Report NIH Publications. NO. 98-4083. Sept 1998.