

Myths of Weight Loss Surgery

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No Disclosures

Obesity Prevalence

- Use Body Mass Index
- $\text{BMI} = \text{weight kg} / \text{height m}^2$
- $\text{BMI} > 25$ is overweight
- $\text{BMI} > 30$ qualifies as obese
- Canada: 25% of population with $\text{BMI} > 30$
- USA: 34% with $\text{BMI} > 30$

Myth #1

USA is the heaviest country

- 1) Nauru (traditional fattening ceremonies)
- 2) Micronesia
- 3) Cook Islands (92% overweight)
- 4) Tonga (lots of Spam)
- 5) Niue 6) Samoa 7) Palau
- 8) USA

Where is Nauru ?



Nauru rejects 'fattest nation on earth' tag



Larger nation obesity rank

after United States of America (# 8)

- Mexico
- New Zealand
- Australia
- United Kingdom
- Canada (sixth heaviest large nation)
- Ireland, then Chile and Iceland

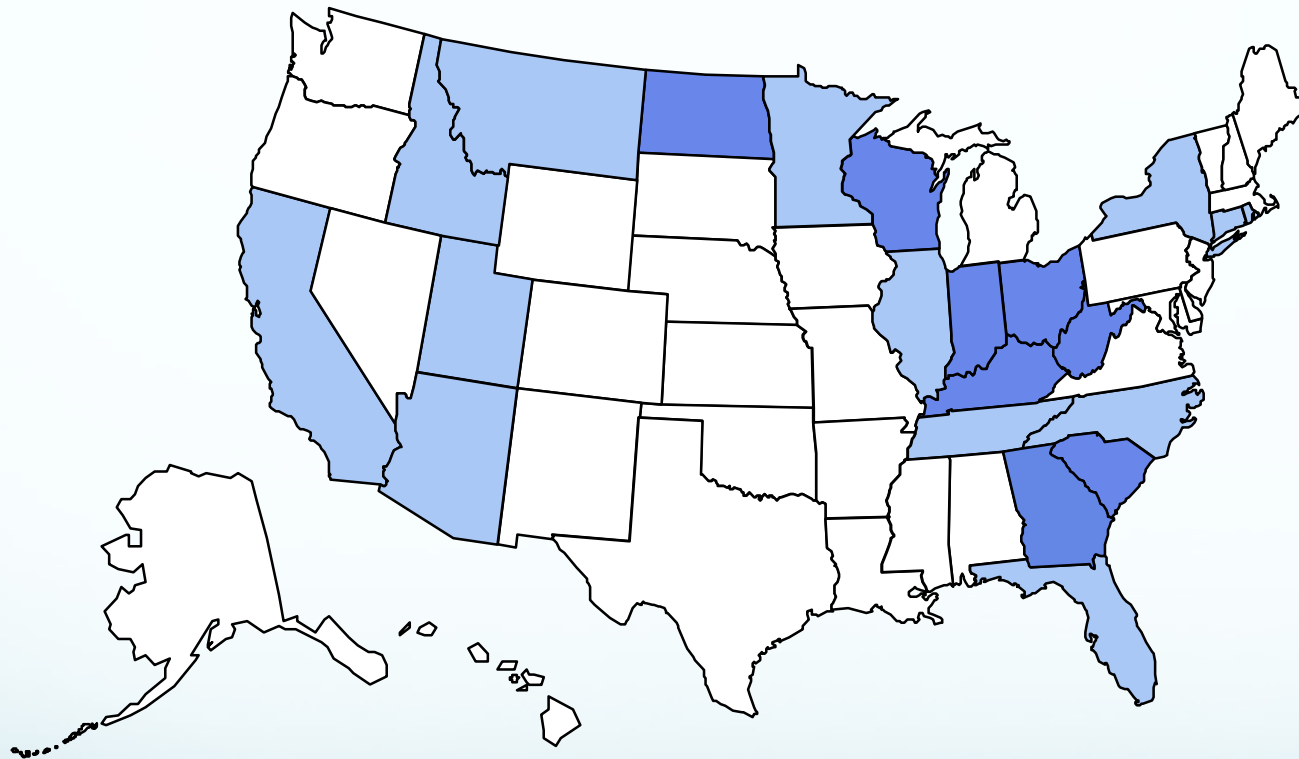
Myth #2

- The Bulk of Weight Loss Surgery is in the Midwest
- It did start here in 1960's
- U. of MN a true leader in research
- Is obesity greatest in the Midwest ?
 - Used to be so

Obesity Trends* Among U.S. Adults

BRFSS, 1985

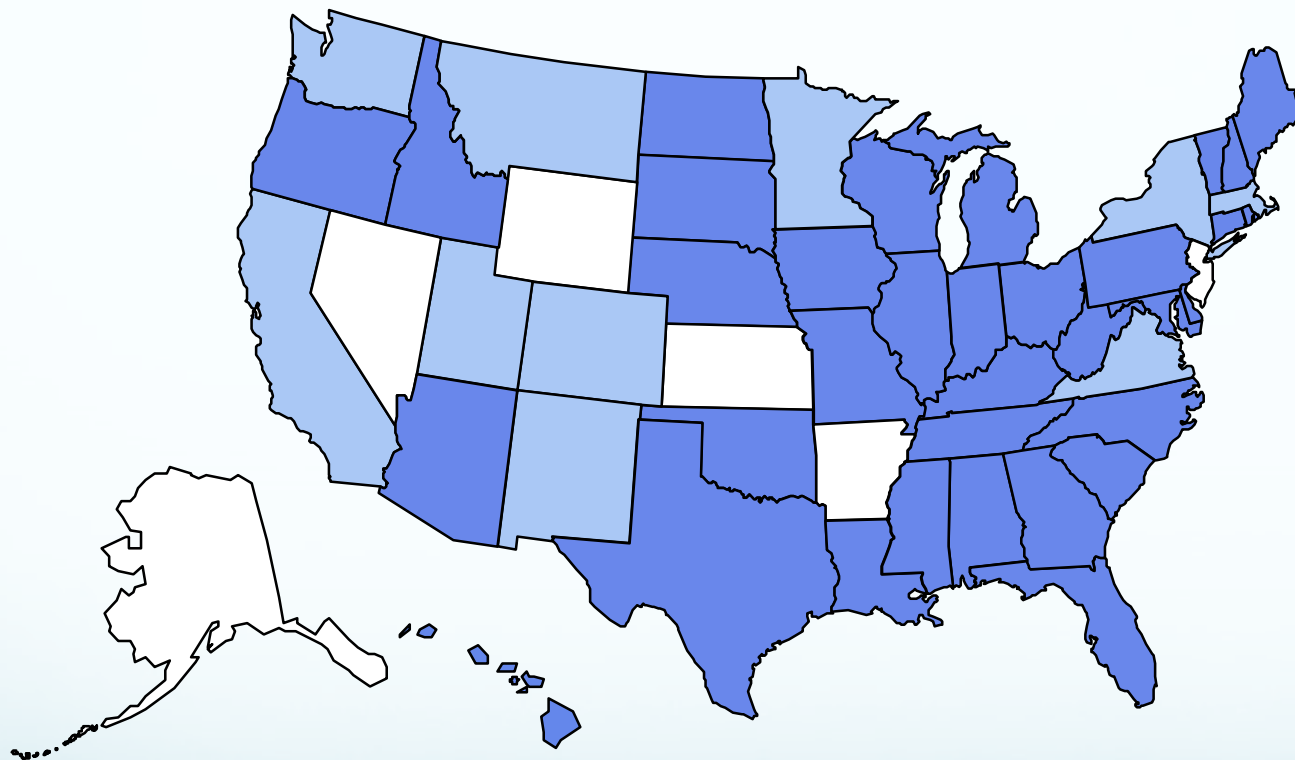
BRFSS, 1985
(*BMI ≥ 30 , or ~ 30 lbs. overweight for 5' 4" person)



Obesity Trends* Among U.S. Adults

BRFSS, 1990

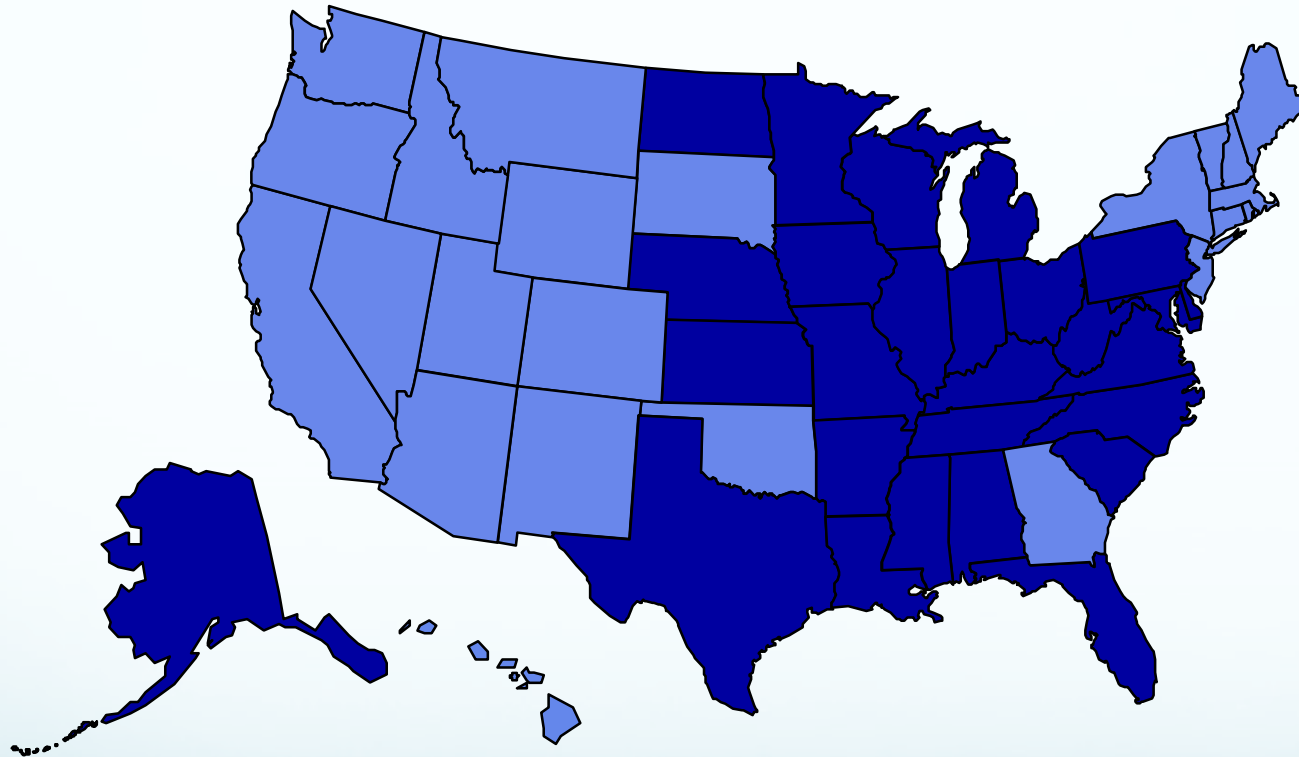
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Obesity Trends* Among U.S. Adults

BRFSS, 1995

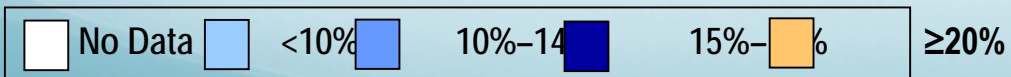
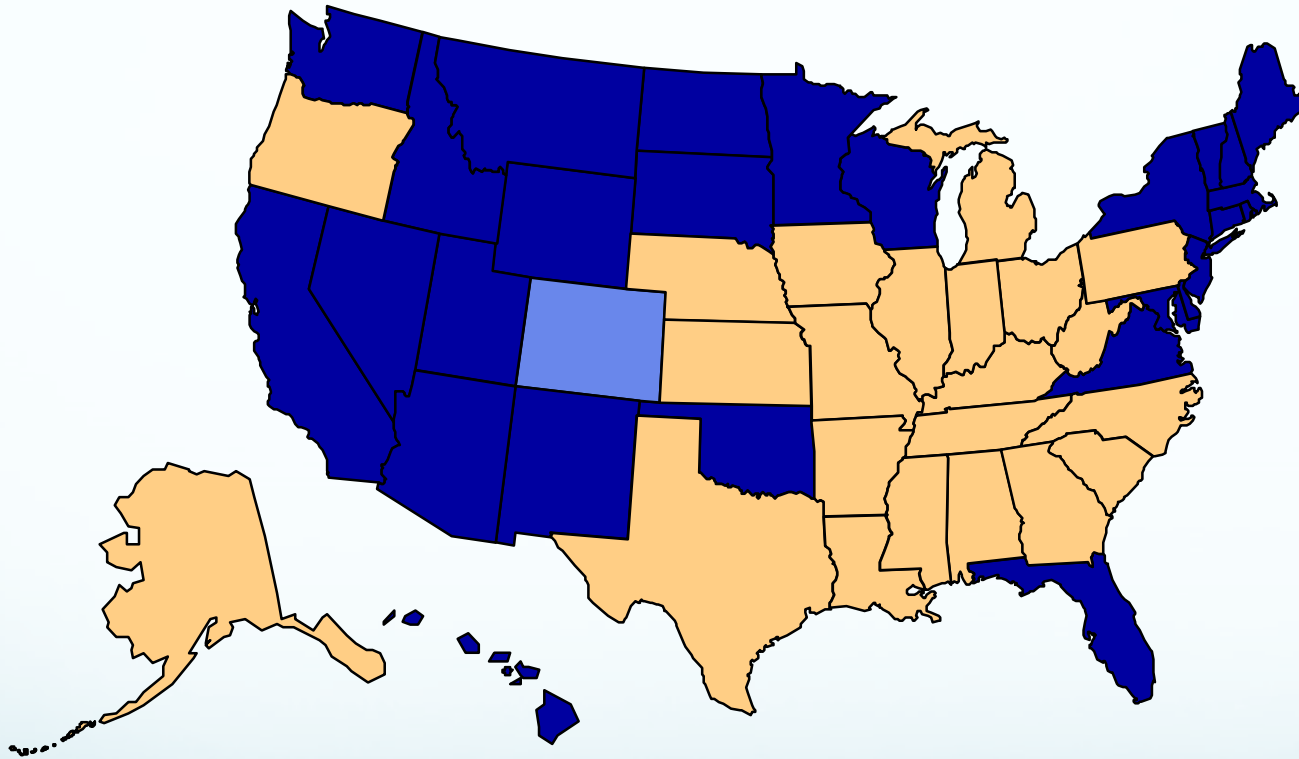
BRFSS, 1995
(*BMI ≥ 30 , or ~ 30 lbs. overweight for 5' 4" person)



Obesity Trends* Among U.S. Adults

BRFSS, 2000

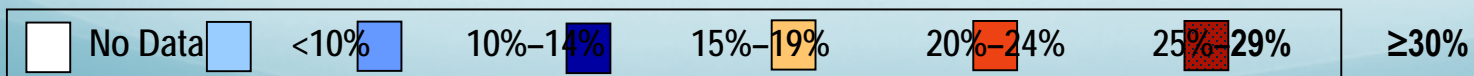
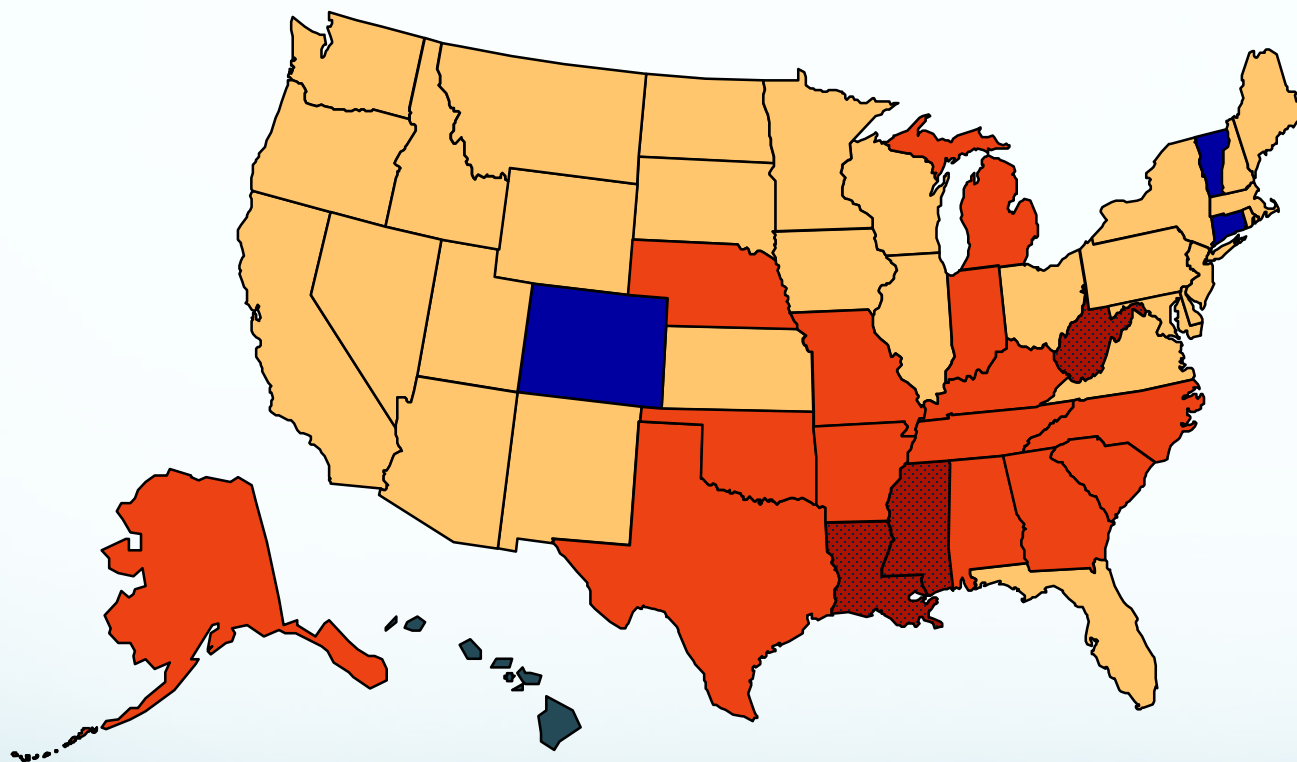
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Obesity Trends* Among U.S. Adults

BRFSS, 2005

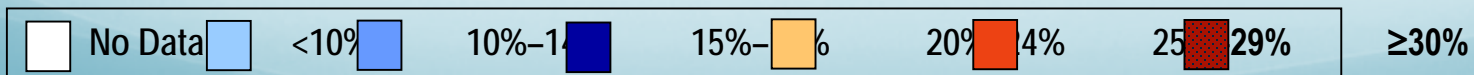
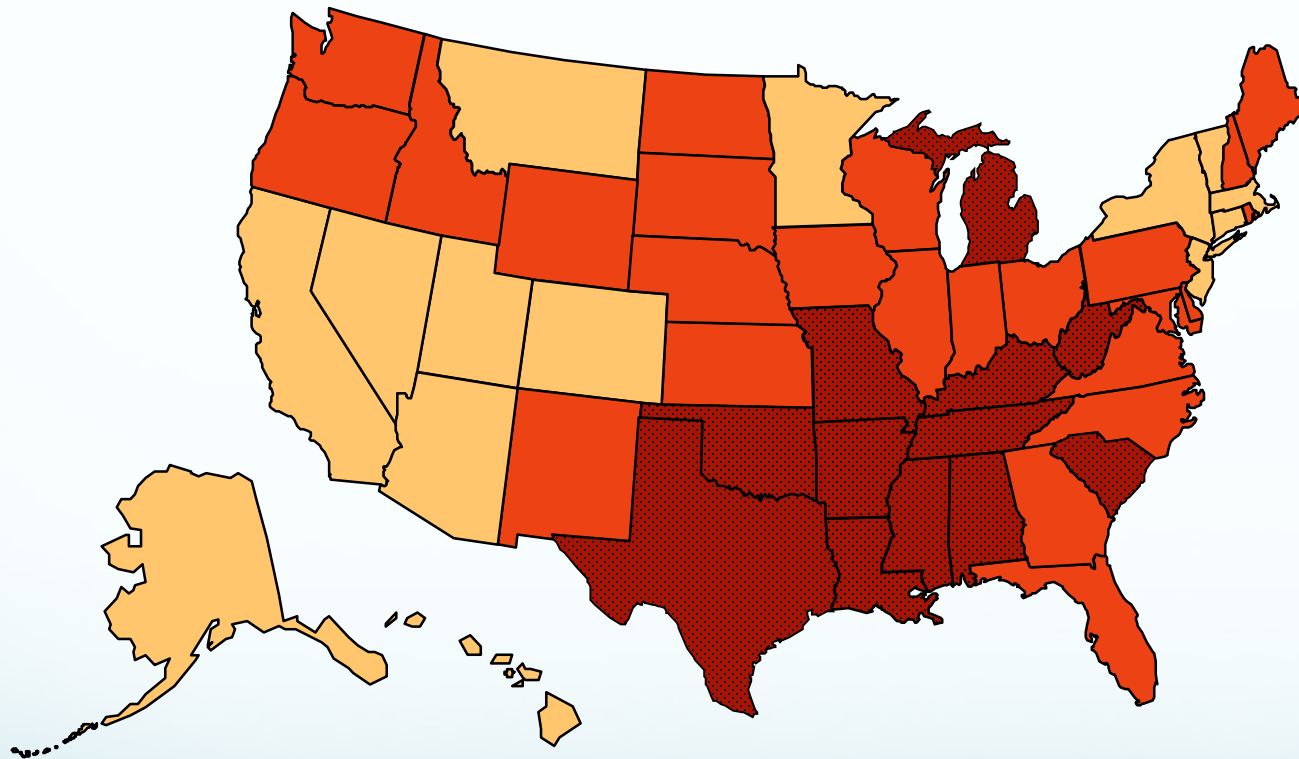
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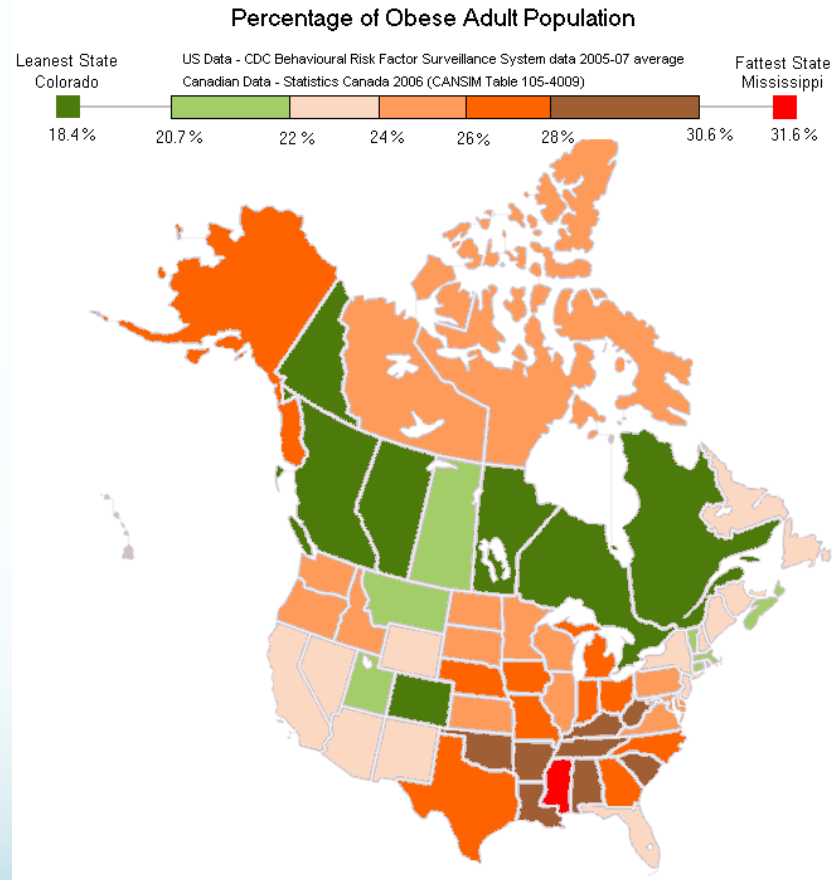
Obesity Trends* Among U.S. Adults

BRFSS, 2010

(*BMI ≥ 30 , or ~ 30 lbs. overweight for 5' 4" person)



Getting heavier



Obesity rank of Canadian provinces

- Thinnest: B.C. !!
 - Quebec
 - Ontario
 - Alberta
 - Manitoba
 - Yukon
 - (Colorado – US state with lowest rate)
 - Nova Scotia
 - Saskatchewan
 - PEI
 - Nova Scotia
 - Newfoundland

Why is obesity increasing?

- Too much good stuff on TV
- Restaurant / Food industry plot
- High Fructose Corn Syrup
- Refined highly processed foods
- Sedentary workplace
- Video games
- McDonalds introduced Supersize

Supersize me !

- “gimmie the big one”



Supersize Me

- 1972 “large” fries introduced by McDonalds
- 1993 after Jurassic Park promotion “Dino-size” became Supersize
- Inspired by movie theatre popcorn upsizing
- 2004 McDonalds phased out phrase
- Wendys “Biggie” Soda now a medium “Biggie” Fries now a medium

Supersize Sodas

The Biggest of the Big Gulps

The most outrageous soda sizes ever sold, by franchise.



Myth #3

Corn Syrup is the Devil

- High Fructose Corn Syrup use has increased
- Obesity rate has increased in parallel
- Weight Loss Surgery rate has increased
- Must be connected !!!
- Am. J. Clin. Nutrition 2004 Bray & Popkin
 - Said: high fructose corn syrup causes obesity

High Fructose Corn Syrup

- HFCS has 42-55% fructose
- Remainder 45-58% glucose
- Table sugar is 50% fructose – 50% glucose
- Honey is primarily fructose, glucose, <10% other sugars, 17% water

High fructose corn syrup

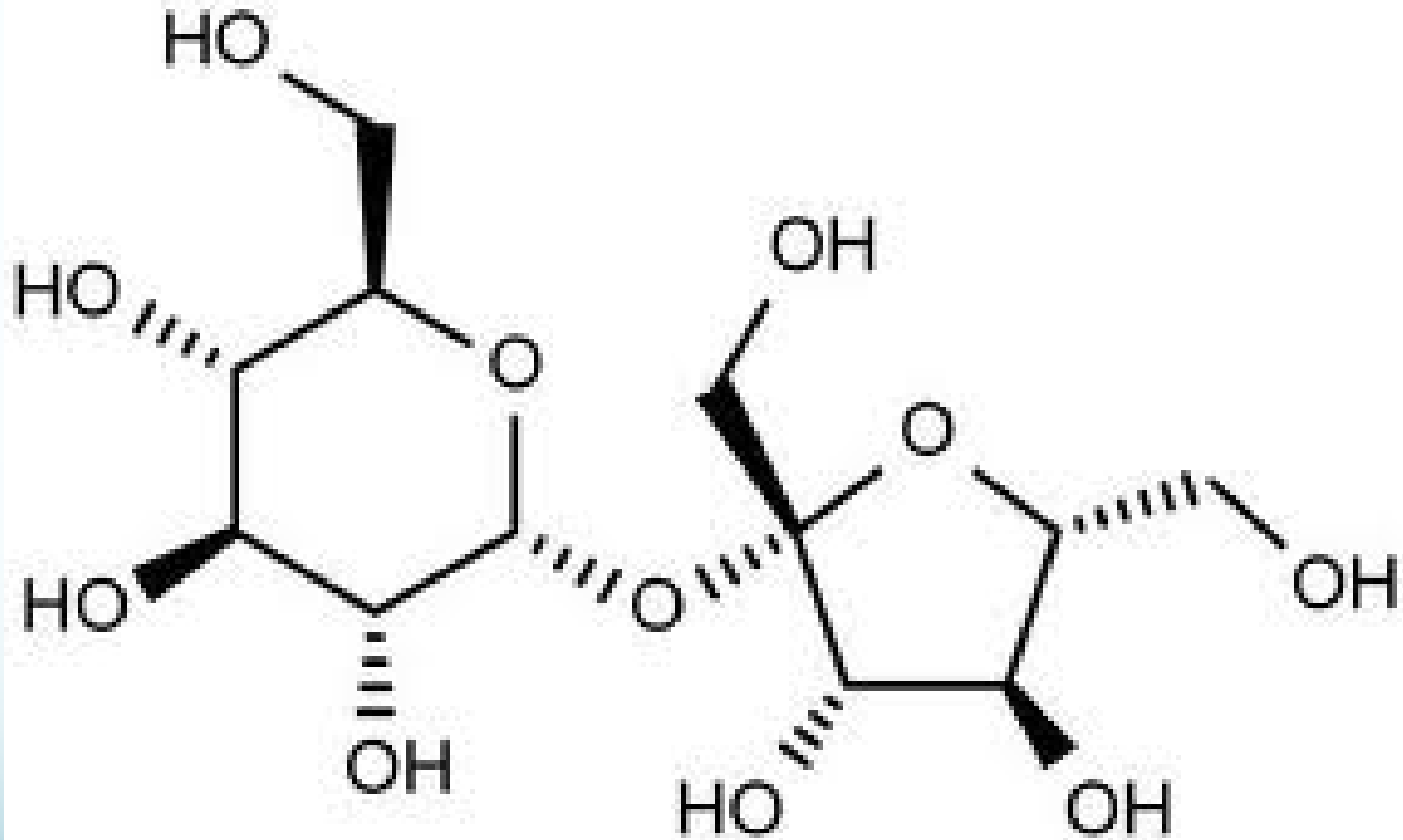
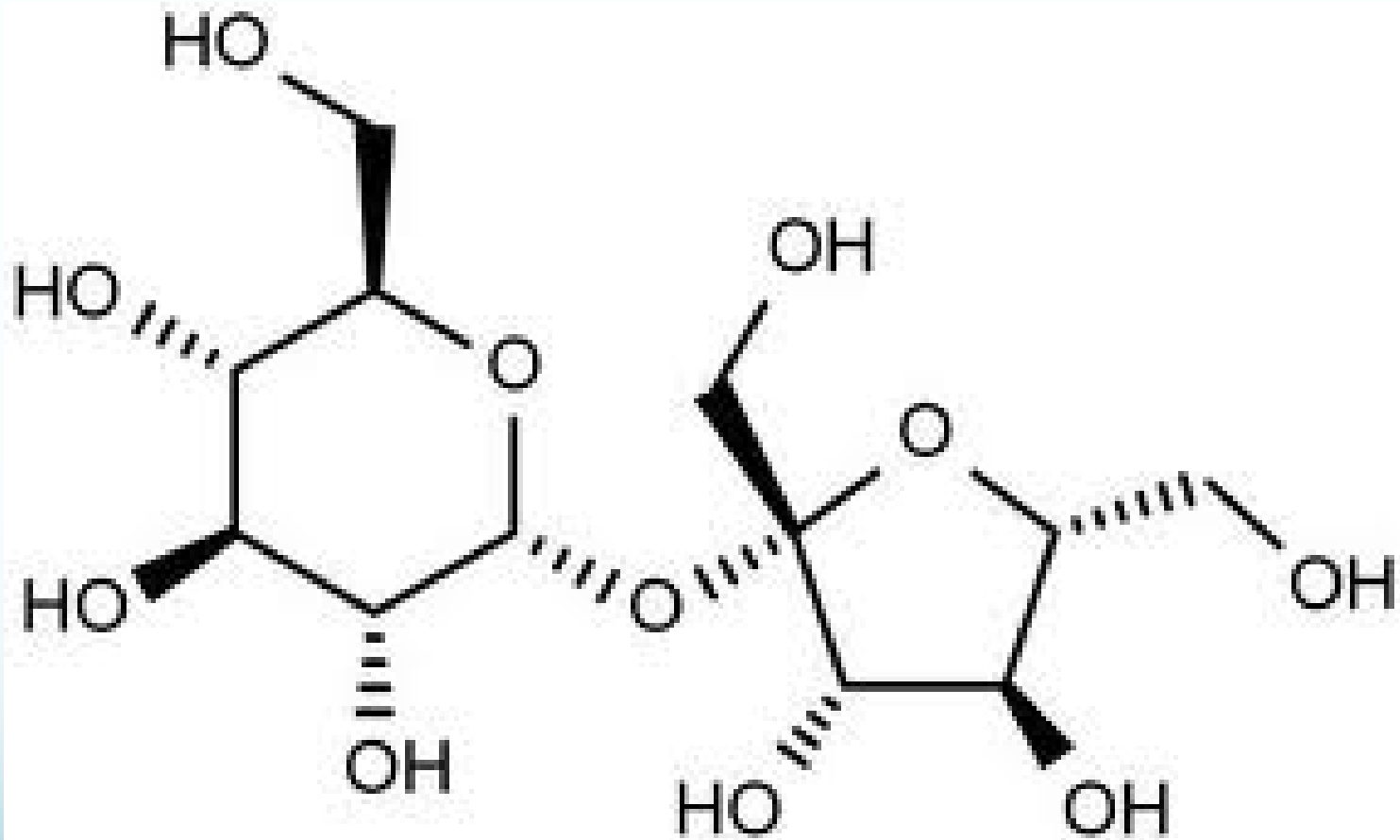


Table Sugar



Corn Syrup vs. Sugar

- Nutritionally identical
- Sweets are clearly fattening if taken in excess
- Multiple studies show no difference in fattening between different sugars
- Consensus by Am. Soc. Clin. Nutrition and AMA:
 - No difference between HFCS and table sugar (2008)

Myth #4 “Don’t do surgery, Just diet and exercise”

- “Weight can be reliably controlled through diet and exercise” ---not true for most obese
- Weight is due to calories in --- calories out
- Simple... but very complex
- BMI >40 only 2% keep off 100 lbs for 5 years
- BMI >30 80% can lose 10+ % of weight but only 4% keep it off

How to get obese

- Morbid obesity = 100 lbs overweight
- only 55 calories/day imbalance yields 5 lbs/year
that's 100 lbs/20 years !
- Mismatch of only 2%
- only 22 calories/day - 0.8% mismatch
90 extra lbs from age 16-61
- I burn 100% of my calories
- Obese man burned 99.2% of his calories

Fat mass

- Fat mass is primary storage depot for energy
- Need energy stores for illness, injury, activity
- Redundant systems to ensure sufficient reserves
- Body defends stable fat mass
- Energy storage “set point” is the key

Set Point Factors

- Genetics
- Developmental history
- Environment
- Medications
- Exercise or lack of it
- Sleep disruption, stress
- Palatability / quality of food

Fat storage set point

- Animal overfeeding / underfeeding studies
- Weight gain leads to increased metabolic rate/spontaneous physical activity
- Food restriction: conservation of energy expenditure and stimulation of hunger
- Multiple mechanisms: ghrelin, peptide YY, cholecystokinin, glucagon-like peptide 1, amylin...

Why diets don't work for high BMI people

- When you diet, your body tells you to eat more
- When willful actions contradict physiology: physiology wins
- Need to change the physiological set point

Exercise alone doesn't work either

- Hard for morbidly obese to exercise
 - Joint pain
 - Foot pain
 - Leg aches
 - Ridicule at health clubs
- 85% Portion control & food choices
- 15% Exercise
- BUT: exercise is key component of medical or surgical weight loss program

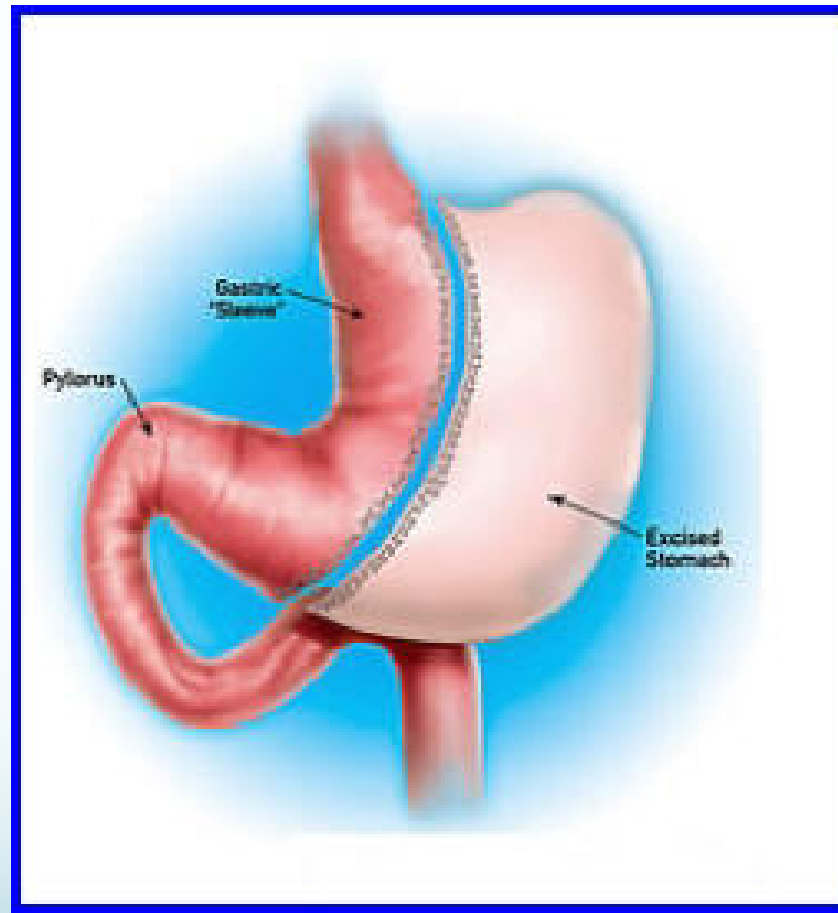
How to change the set point

- Healthier food
- Consistent portion control
- Regular exercise
- Stress reduction
- Improved sleep
- May need weight loss operation

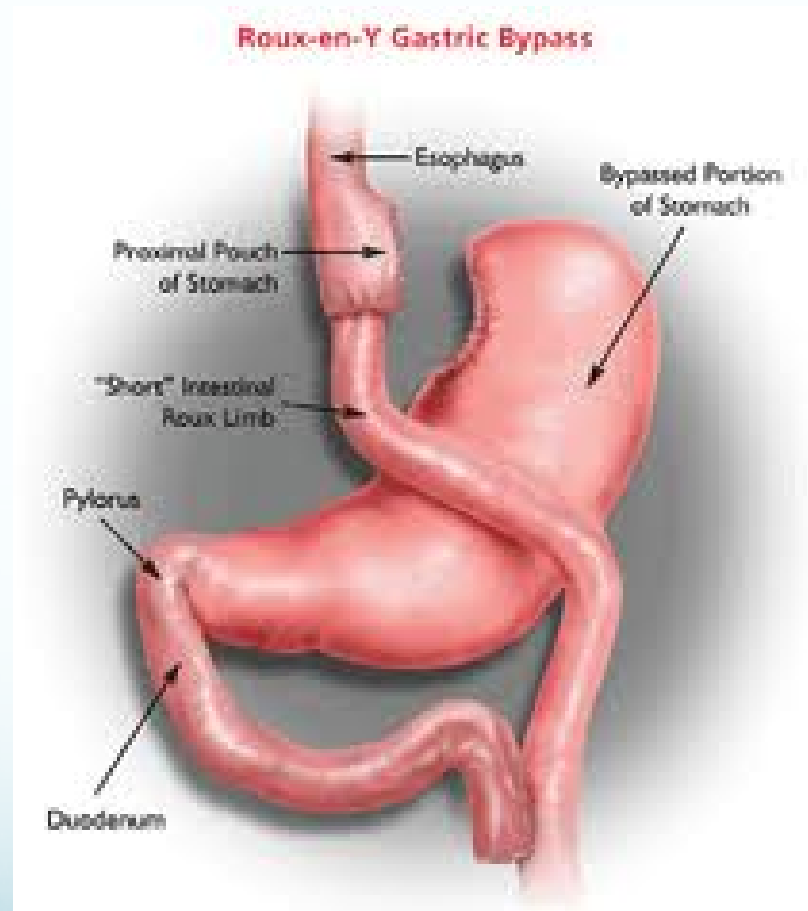
Myth #5 Weight Loss Operations are complex

- Gastric Sleeve >60% of current ops
- Gastric Bypass >30%
- Duodenal Switch 1%
- Gastric Banding (almost obsolete)
- Vertical Banded Gastroplasty (obsolete)

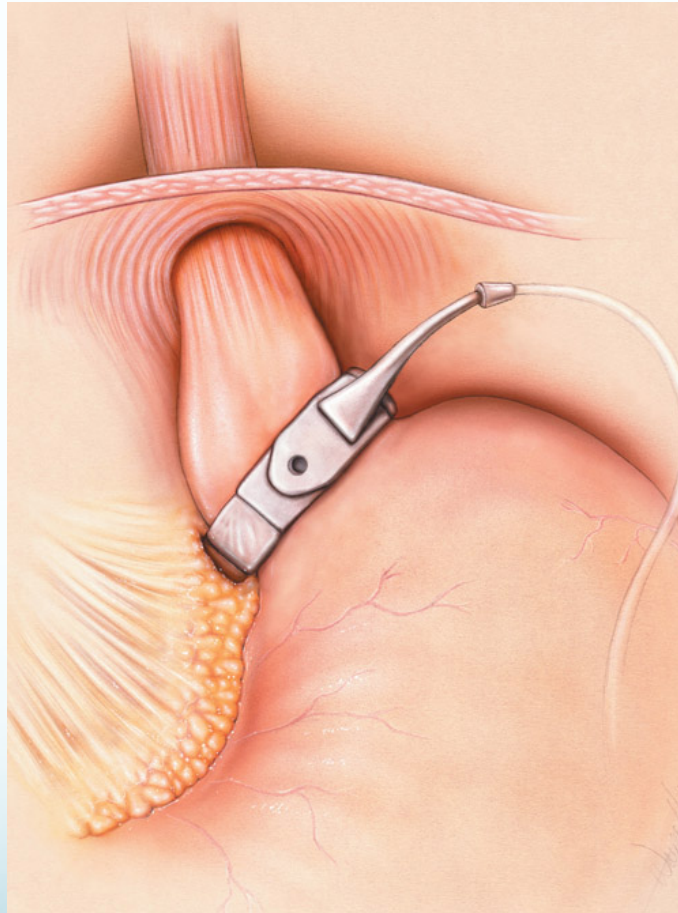
Gastric Sleeve



Gastric Bypass



Gastric Banding



Myth #6

Weight loss surgery is risky

- Canadian 2 year study: 500 pts. each
- Risk of weight loss operation 0.6%
- Risk of remaining obese 6.0%
- MI, DVT, CVA, DM, falls kill obese sooner
- Obese patient >1.3x annual health care costs

Weight Loss Surgery is not dangerous

- 30 day mortality for common operations:
 - 3% CABG
 - 1.4% Elective colon resection
 - 0.4% Total hip replacement
 - 0.2% Appendectomy - Cholecystectomy
 - 0.14% C-section

 - 0.11% Gastric Bypass
 - 0.08% Gastric Sleeve
 - 0.03% Gastric Banding (270,000 pts. '07-'10)

Surgeons must be certified to do this operation !

- Only certified operation
- Many insurers require certification of program and surgeon to reimburse
- Certification every 3 years, includes site visits random chart reviews, facility inspection
- All cases must be submitted to database
- Database results are open, available
- Standardization has decreased risks and complications

Myth #7 Obesity surgery works by restricting food

- Restriction? Jaw wiring does not lead to weight loss, hunger persists, patients bypass blockage
- Malabsorption? Diseases>isolated protein-calorie malabsorption increase hunger/food intake
- Very few patients overshoot and become underweight after gastric bypass
- Pregnant patients gain weight appropriately
- Bariatric operations on BMI<30: little weight loss

So, how does weight loss surgery really work?

- Drives defended set point to lower level
- Change in appetite drive
- MC4R gene
- Gut hormones
- Altered vagal function
- Gut bacterial microbiota change
- (we really do not know)

Myth #8

- Bariatric Surgery only saves lives by curing diabetes

Obesity and Cancer

Increased risks of cancer of

Prostate

Breast

Colon (in men)

Endometrium

Gallbladder and 9 others

in obese patients

Cancer deaths and obesity

- American Cancer Society says about cancer deaths:
 - 14% in men
 - 20% in women
 - Are related to obesity

In breast cancer: morbidly obese women have 3x death rate of normal weight women

Bariatric surgery reduces cancer risk

- Montreal (2008) followed patients from 1986-2002
 - 1005 had bariatric surgery – cancer risk 2.0%
 - 5746 matched morbidly obese – risk 8.4%
 - With breast cancer, risks were 1.2% vs. 6.3%
- Sweden (2009) followed patients 10.9 years avg.
 - Cancer risks: 5% after bariatric surgery, 8% without
 - Most significant in women
- Confirmed in 16,000 pt. study in Utah

Myth #9 Weight Loss Surgery Usually Fails

- With follow-up and compliance:
 - 85% keep most of weight off
- Downfalls: grazing, snacking, high-calorie liquids
- Need good follow up, vitamin level checks
- Primary care essential team member
- Don't be shy about asking for help

Summary

Weight Loss Surgery

- Losing weight is really hard
- Long term weight loss is what is important
- Operations are really metabolic procedures
- Diabetes improves before weight is lost
- May be replaced by a pill someday
- Need to reset the metabolic set point
- Clearly reduces cancer risk

Nauru

world's heaviest country

