

BILL CHAMP'S KETOGENIC DIET



13 OCT 2013



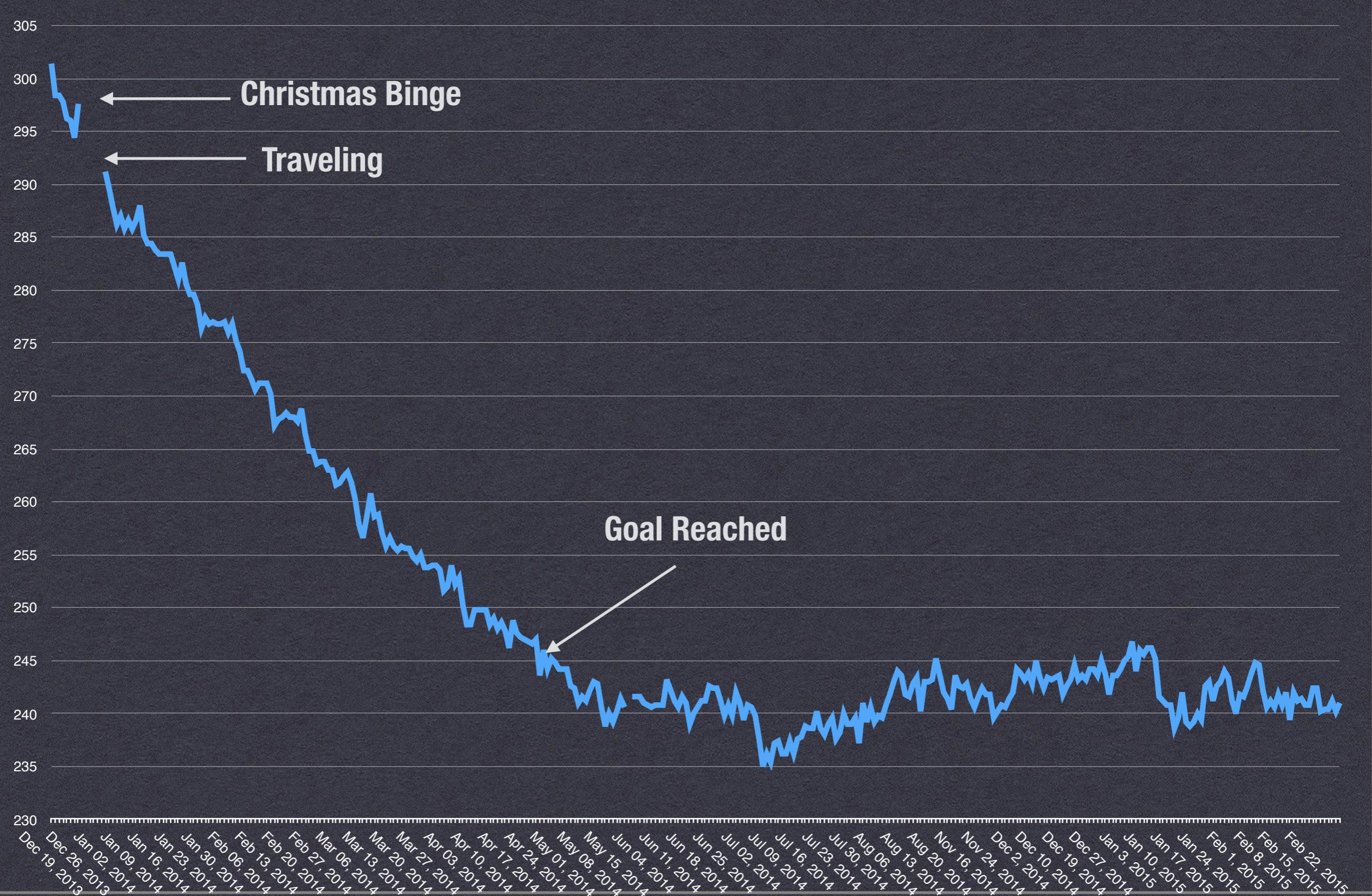
26 NOV 2013

The Results

- * 328.8 pounds on 26 NOV 2013
- * 226.4 pounds on 30 DEC 2016
- * 102.4 pound loss

More Results

- * Sum of chest, arm, waist, hips, thigh
- * 196.5 inches on 04 DEC 2013
- * 174.5 inches on 20 FEB 2014.
- * 22 inches lost



DAILY WEIGHT

MORNING, ON EMPTY

19 DEC 2013 ~ 28 FEB 2015

Week	Pounds Lost
1	12.4
2	7.2
3	9.2
4	3.2
5	1.6
6	2.8
7	6.6
8	0.6
8 week total	43.6

THE WEIGHT CAME OFF FAST
THIS WAS GREAT MOTIVATION

Inches Lost

04 DEC 2013 ~ 26 JUN 2014

- * Chest: 7.5
- * Arm: 3.5
- * Waist: 10
- * Hips: 7.5
- * Thigh: 5.5
- * Total: 34

The Method

- * A ketogenic diet
- * What is Ketosis?
- * How to maintain a ketogenic diet

My Ketogenic (LCHF) Diet

- * Low carb, high fat
- * Goal: 30g carbs or less
- * Goal: 100 – 150g protein
- * Goal: 1700 - 2000 calories
- * Eat real food
- * Prefer fresh, basic food to processed food



Controlling Carbs

- * No added sugar (or honey, corn syrup, etc.)
- * No flour, no grains
- * No pasta
- * No rice
- * No fruit
- * No alcohol (beer, wine, spirits)

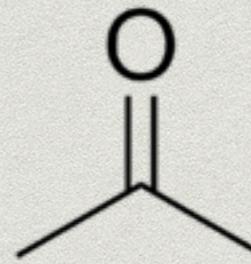
Use fat to satisfy

- * Bacon
- * Heavy Whipping Cream
- * Olive oil, coconut oil
- * Cheese
- * Avocados
- * Butter
- * Low carb nuts like macadamias and pecans

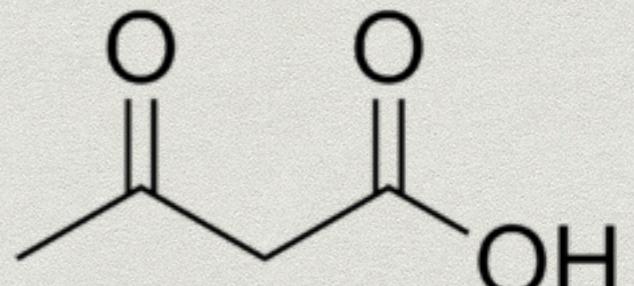
What is ketosis?

- * The state of elevated ketone bodies in the blood
- * Our bodies prefer to burn glucose
- * Will burn ketones if glucose or glycogen is not available

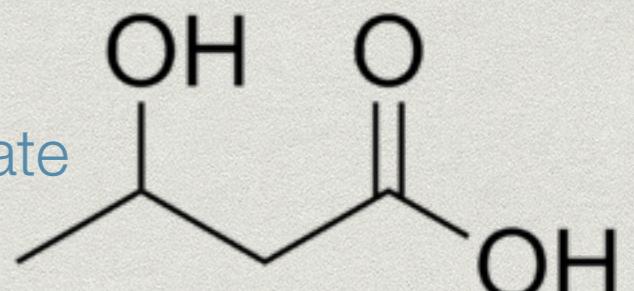
Acetone



Acetoacetate



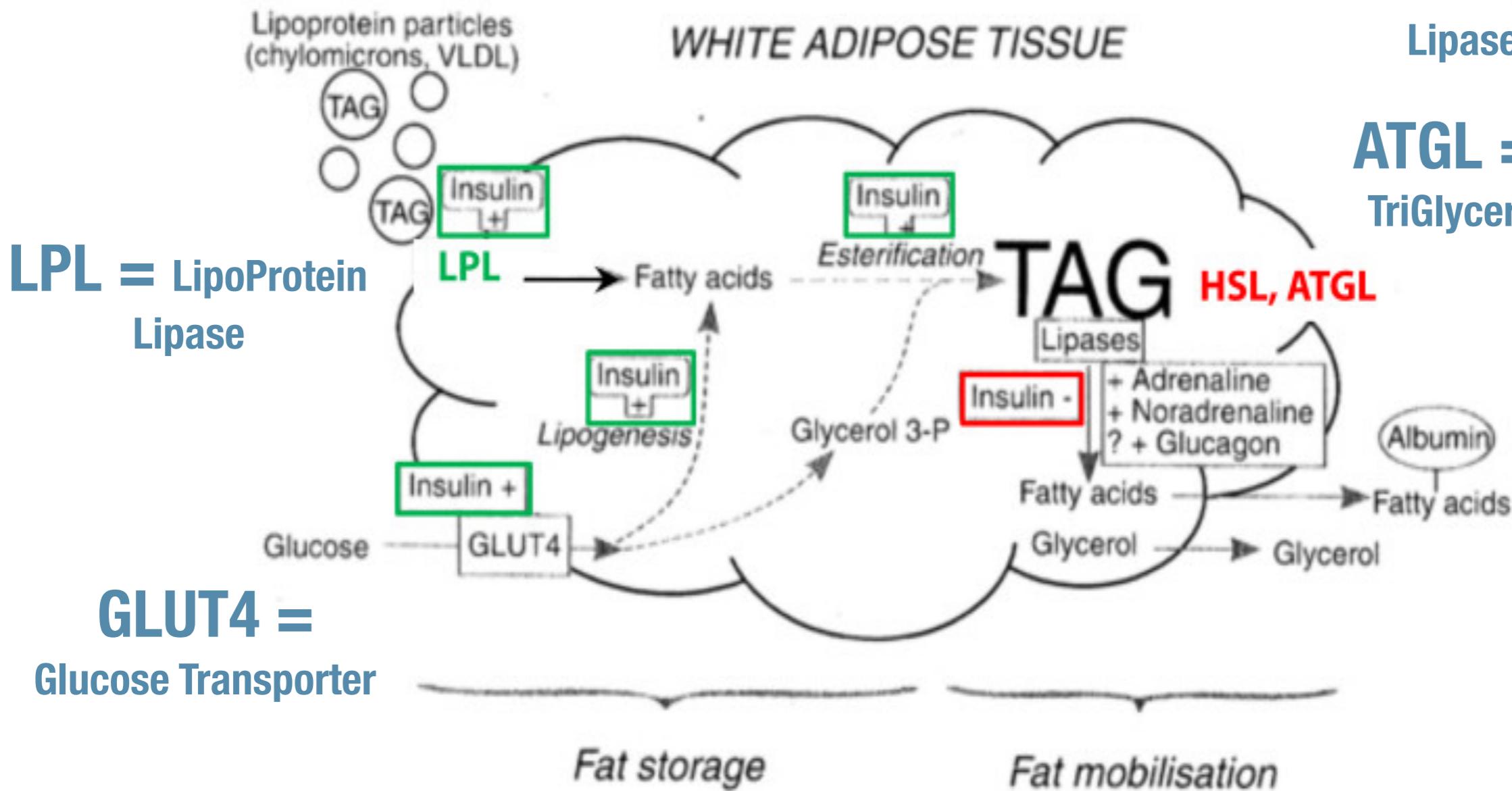
β -hydroxybutyrate



Ketogenic Diet

- * Deny your body glucose by limiting carbs
- * This lowers insulin
- * Low insulin allows fatty acids to leave fat cells
- * Liver turns fatty acids to ketones
- * Now your body burns ketones instead of glucose

TAG = TriAcylGlycerol



HSL = Hormone-Sensitive Lipase

ATGL = Adipose TriGlyceride Lipase

LPL = LipoProtein Lipase

GLUT4 = Glucose Transporter

Source: Metabolic Regulation: A Human Perspective, 3rd Edition; Keith N. Frayn, February 2010, Wiley-Blackwell.

FAT STORAGE & MOBILIZATION

HOW FAT MOVES INTO AND OUT OF A FAT CELL

Insulin

- * Discovered in 1921 and synthesized in 1922
- * Lack of insulin results in diabetes (type 1)
- * Diabetics cannot digest sugar and cannot accumulate fat
- * 14 year old Leonard Thompson was first patient cured by insulin in 1922

Insulin is your Enemy

- * Insulin promotes fat accumulation
- * Ketogenic diet lowers insulin
- * Ketogenic diet is your friend

Ketone Adaptation

- * Our bodies seem to prefer carbs
- * Your body will resist moving from carbs to ketones
- * As you deny your body carbs, it complains with hunger.

But wait...

- * Can't I just lower my calories and lose weight?
- * Isn't it all about the calories?
- * Isn't it all about energy in and energy out?
- * Yes, but...
- * not all calories have the same effect

Two Different Models

- * Carbohydrate-Insulin Model (CIM)
- * Energy Imbalance Model
 - * aka Calories In, Calories Out (CICO)

CICO

- * Energy imbalance – too many in, too few out
- * Food's effect is only in its digestible calorie content
- * First law of thermodynamics
- * It's about the calories, stupid
- * Eat less, move more

Other Imbalance Models

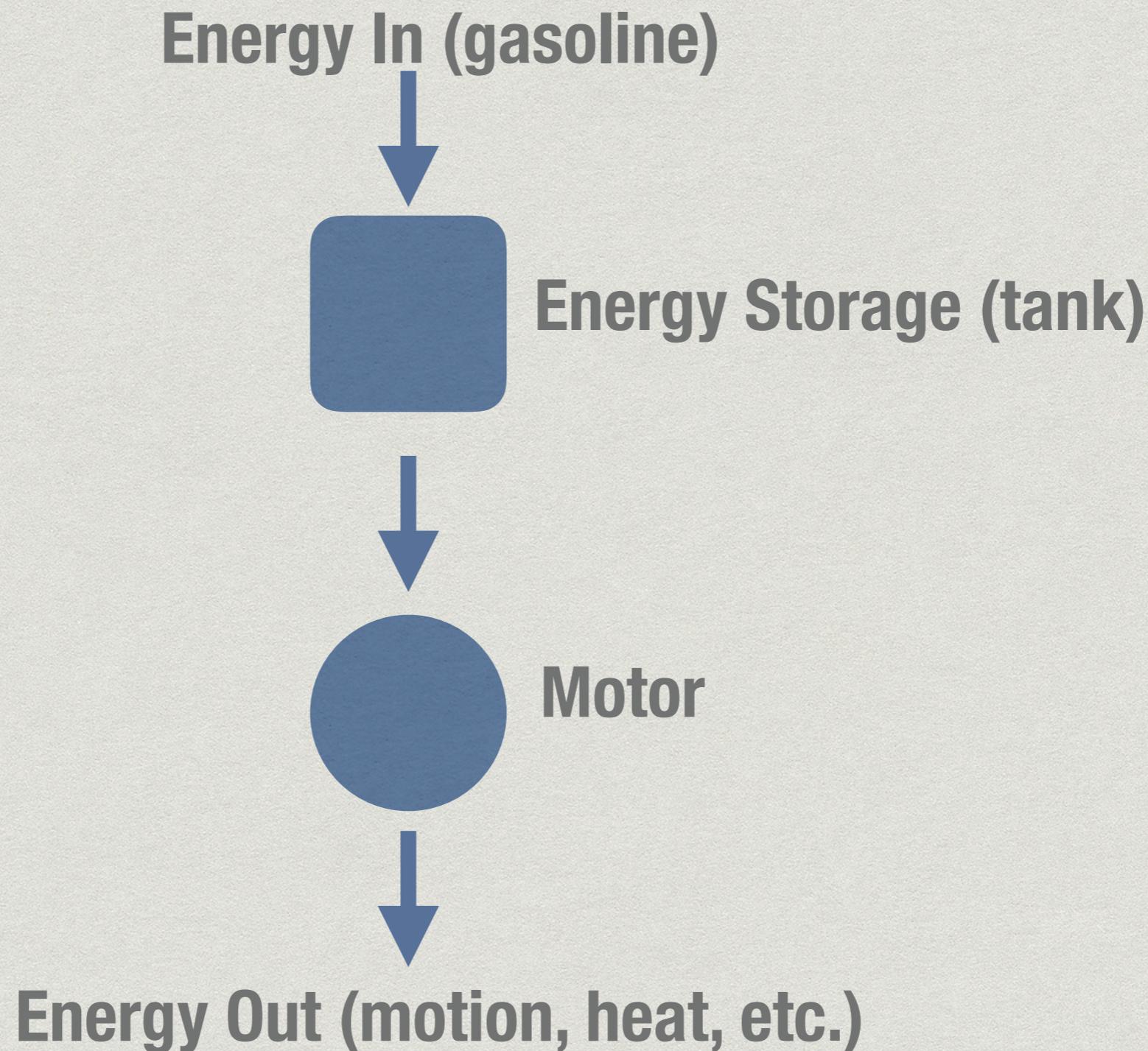
- * Why is Warren Buffett so rich?
 - * More money coming in than going out
- * Why is the atmosphere heating?
 - * More energy into the atmosphere than out.
- * These are descriptive, not explanatory

The Car Model

- * Cars take energy in and spew energy out
- * If they take in a lot of fuel and burn very little, the tank will always be full.
- * The car model says our bodies are like cars.

Car Model

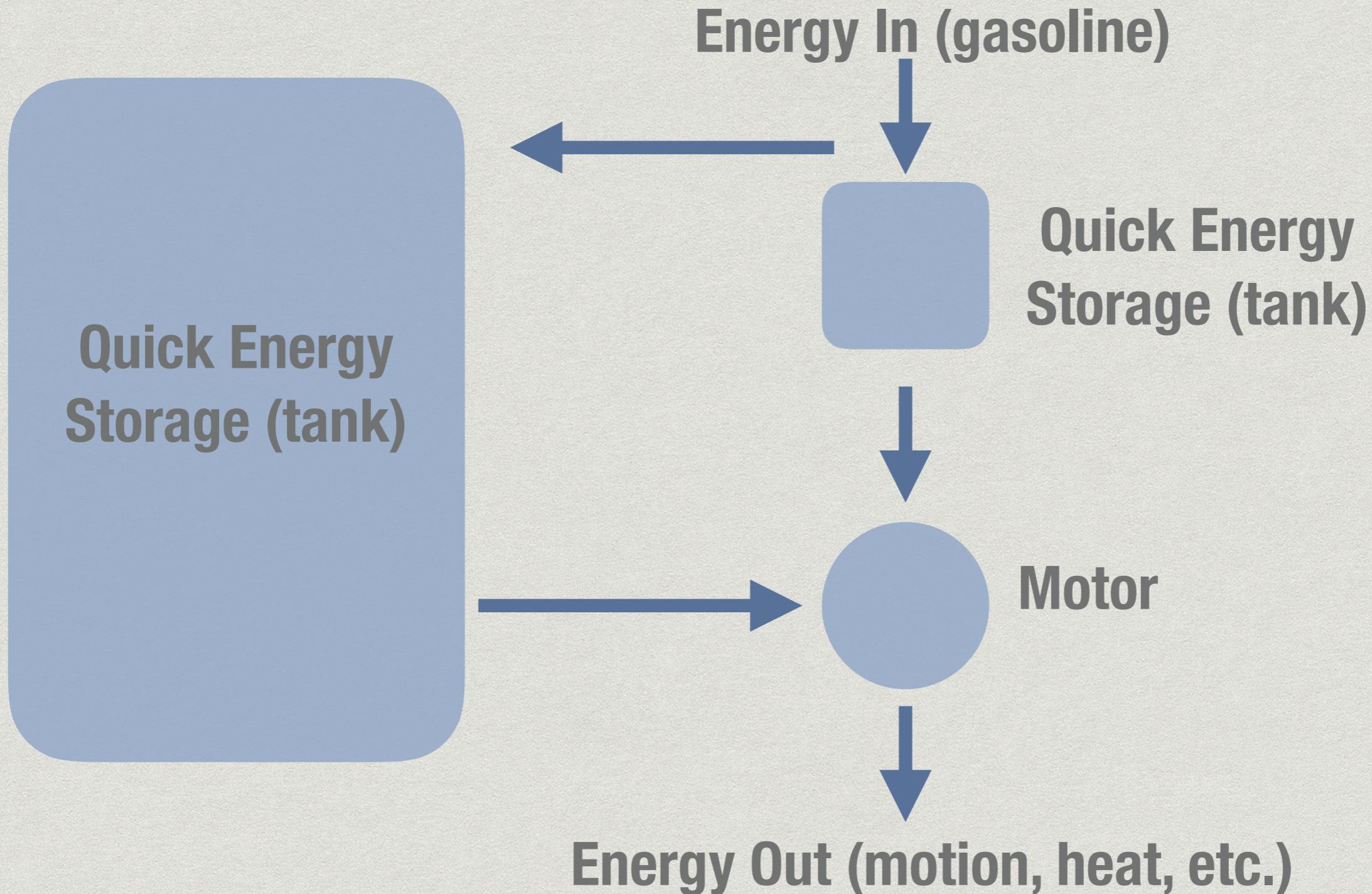
Single Compartment



The Right Car Model

- * Imagine a hybrid car with two tanks.
- * A large tank of slow burning fuel.
- * A small tank of high octane, fast burning fuel.
- * When you fuel up with more fast fuel than the car can burn, it converts and stores the fuel in the big tank.

Two Compartment Model

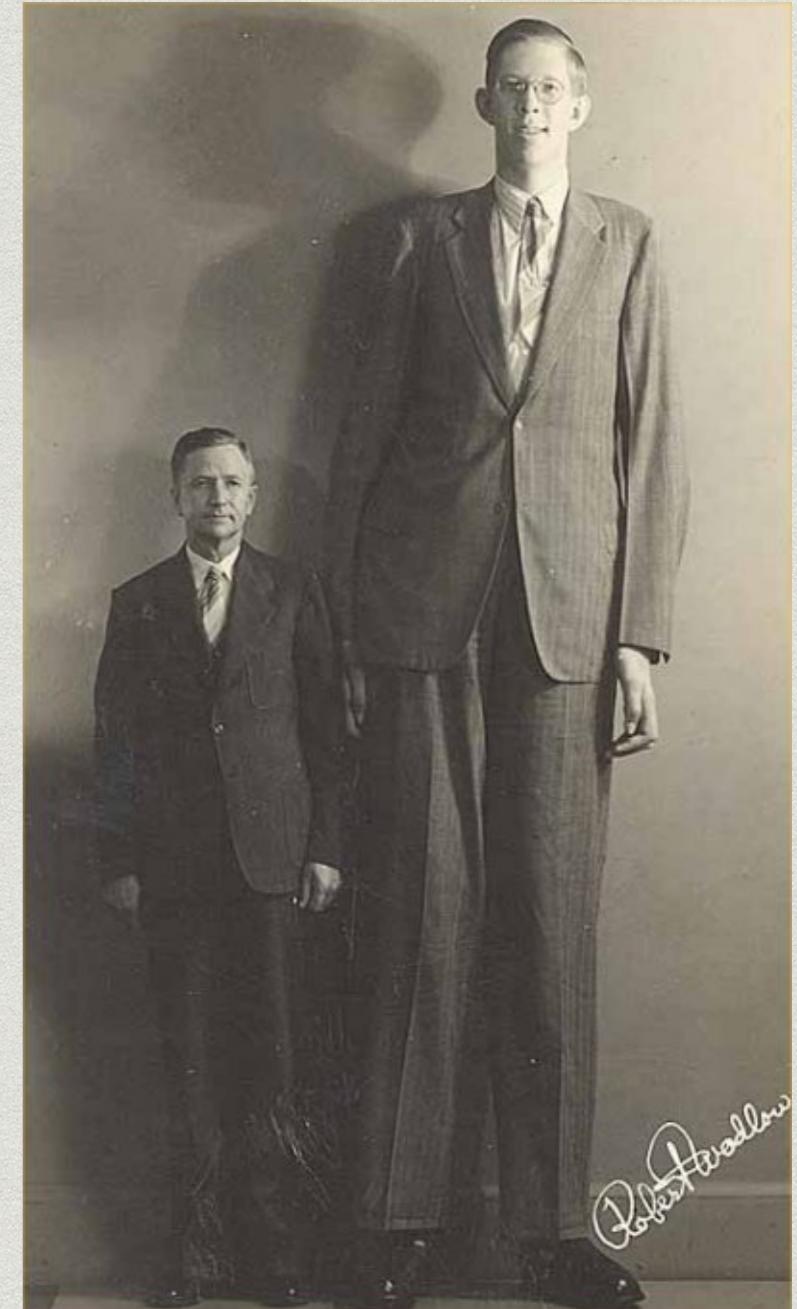


Bodies are not Cars

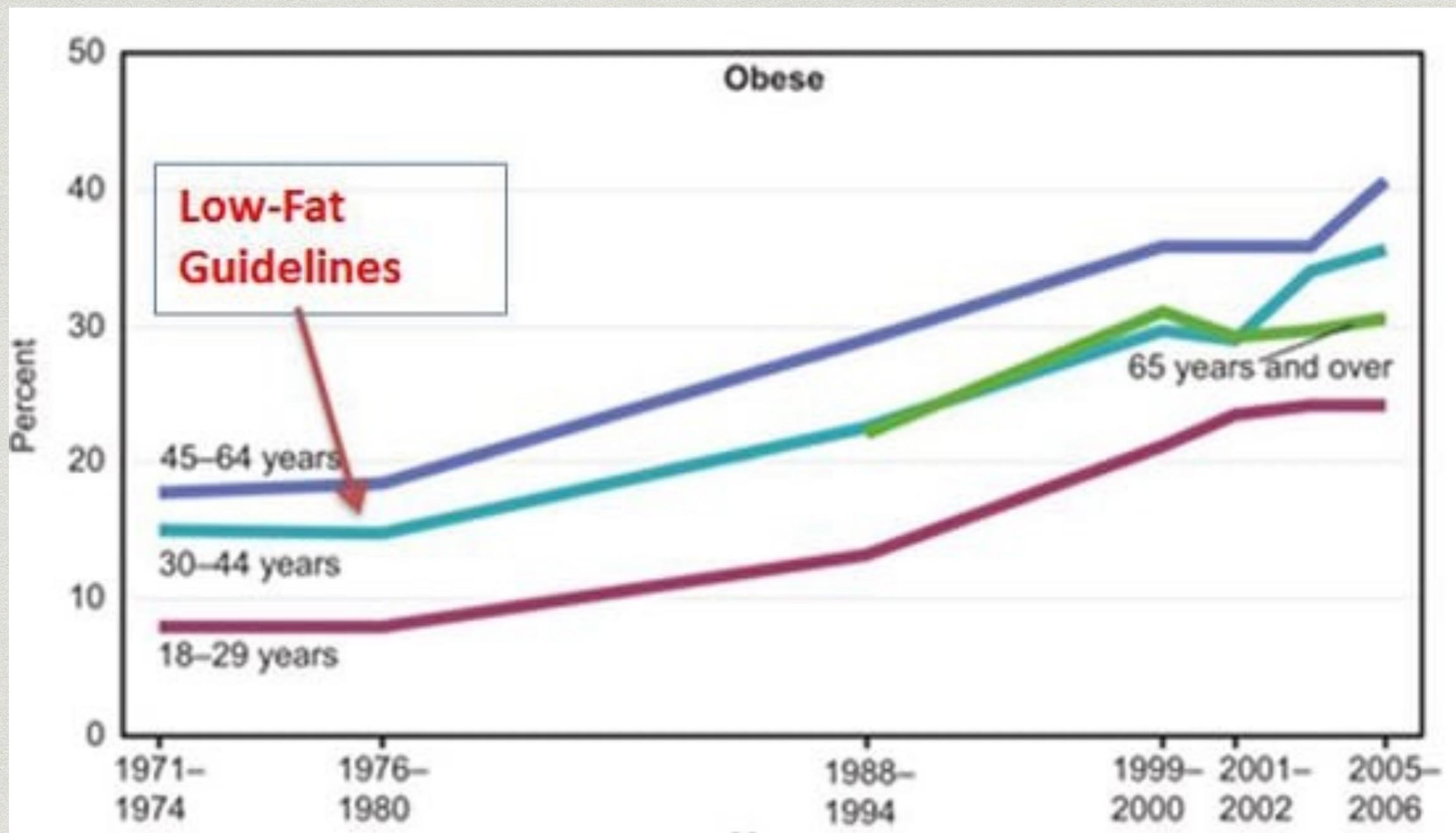
- * Insulin controls how much is stored
- * And therefore how much is left over to burn

Robert Wadlow

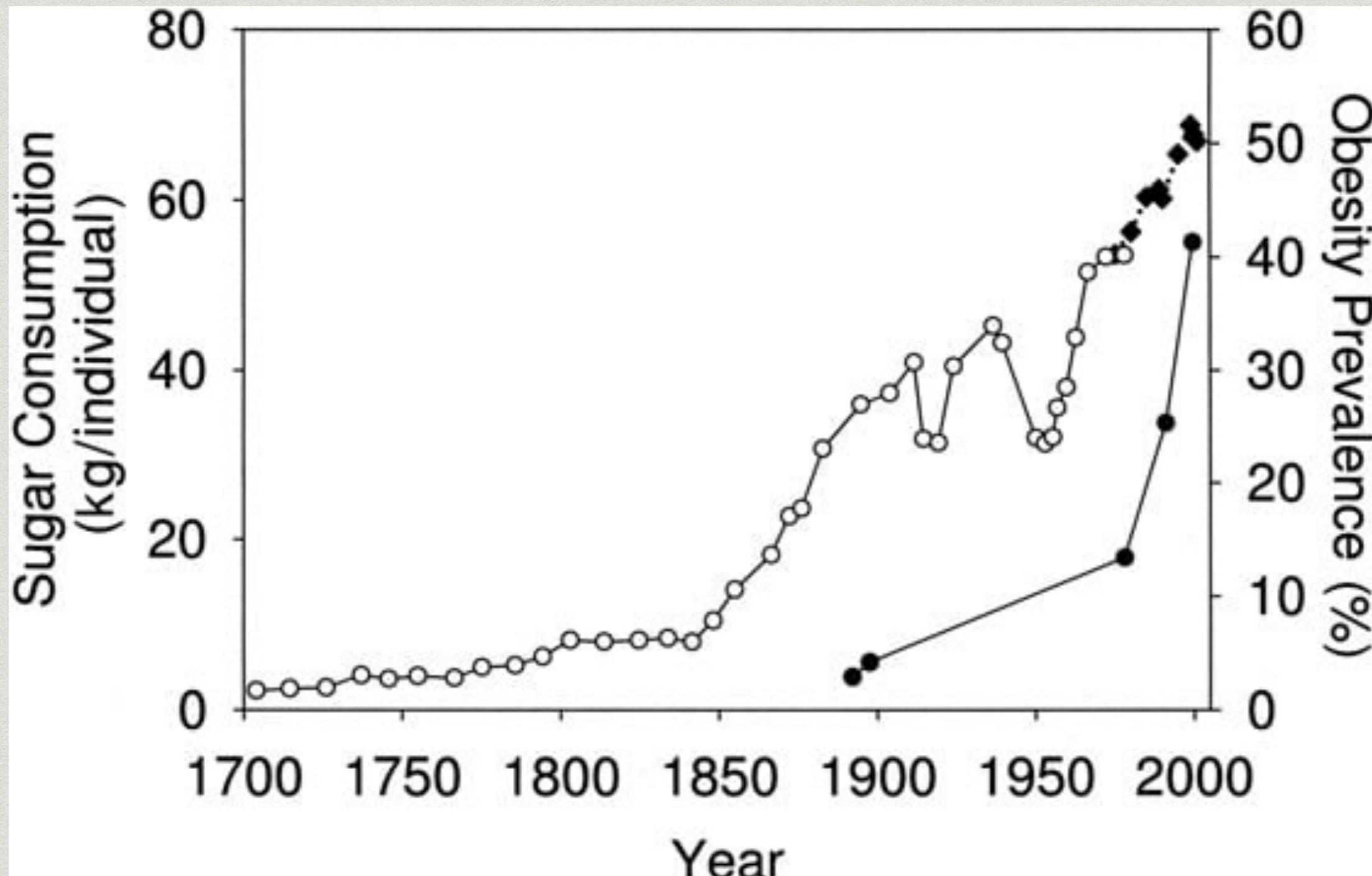
- * Hyperplasia of Pituitary gland
- * High levels of HGH
- * 8 feet 11.1 inches at 22
- * Could he have limited his growth by eating less?
- * Yes, but he'd be very hungry and sick



Dietary Trends

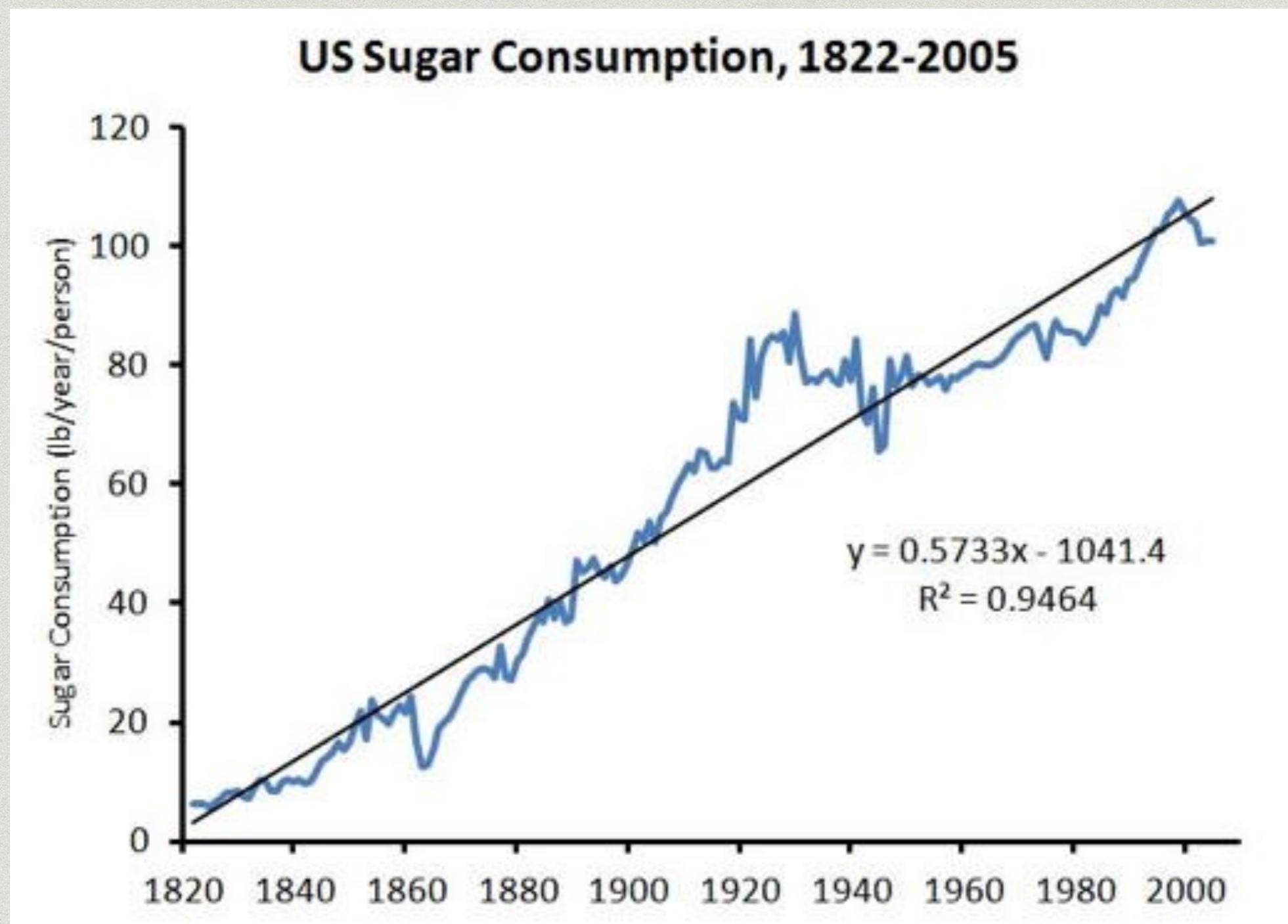


Dietary Trends



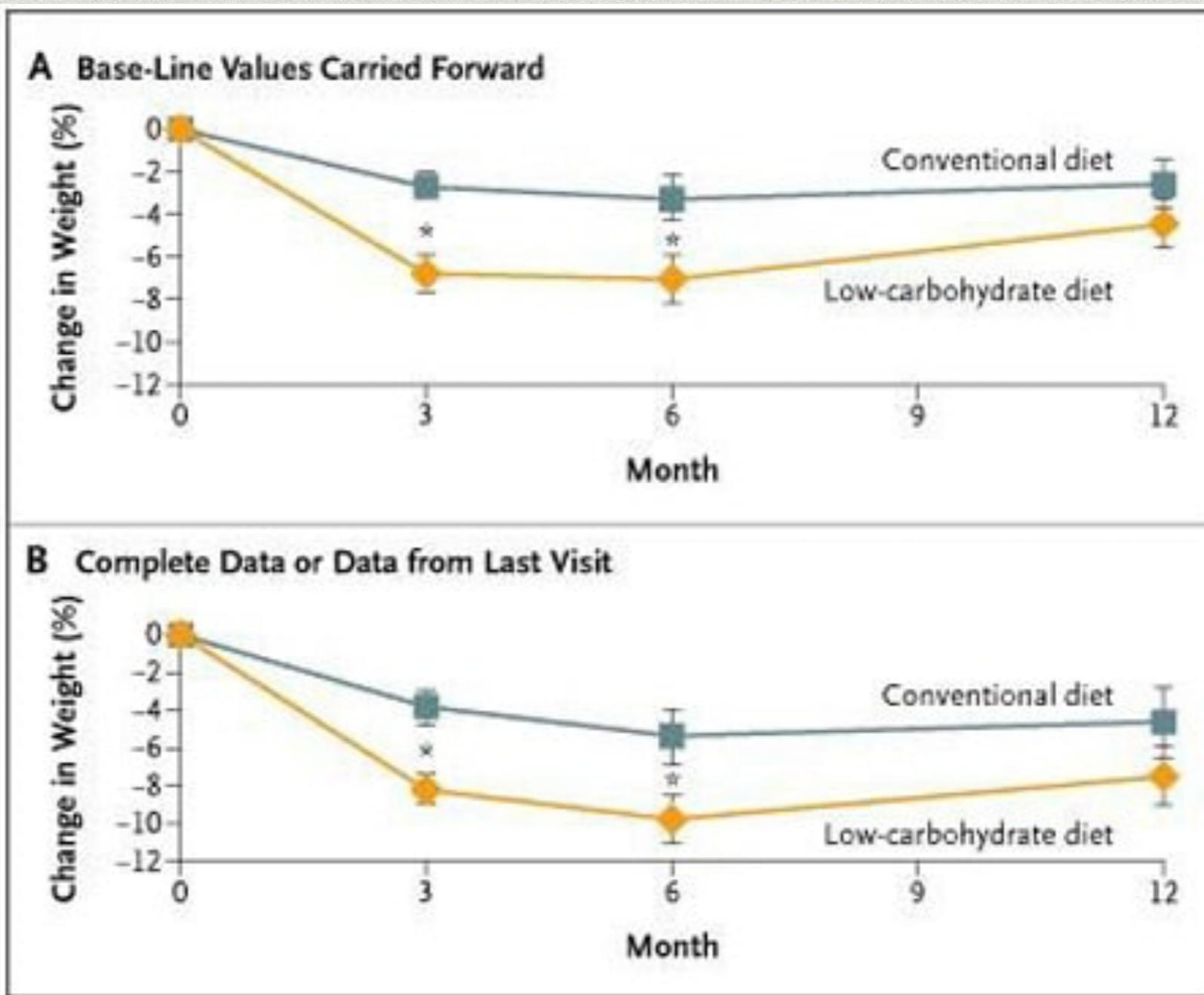
U.S., U.K

Dietary Trends



LCHF is more effective

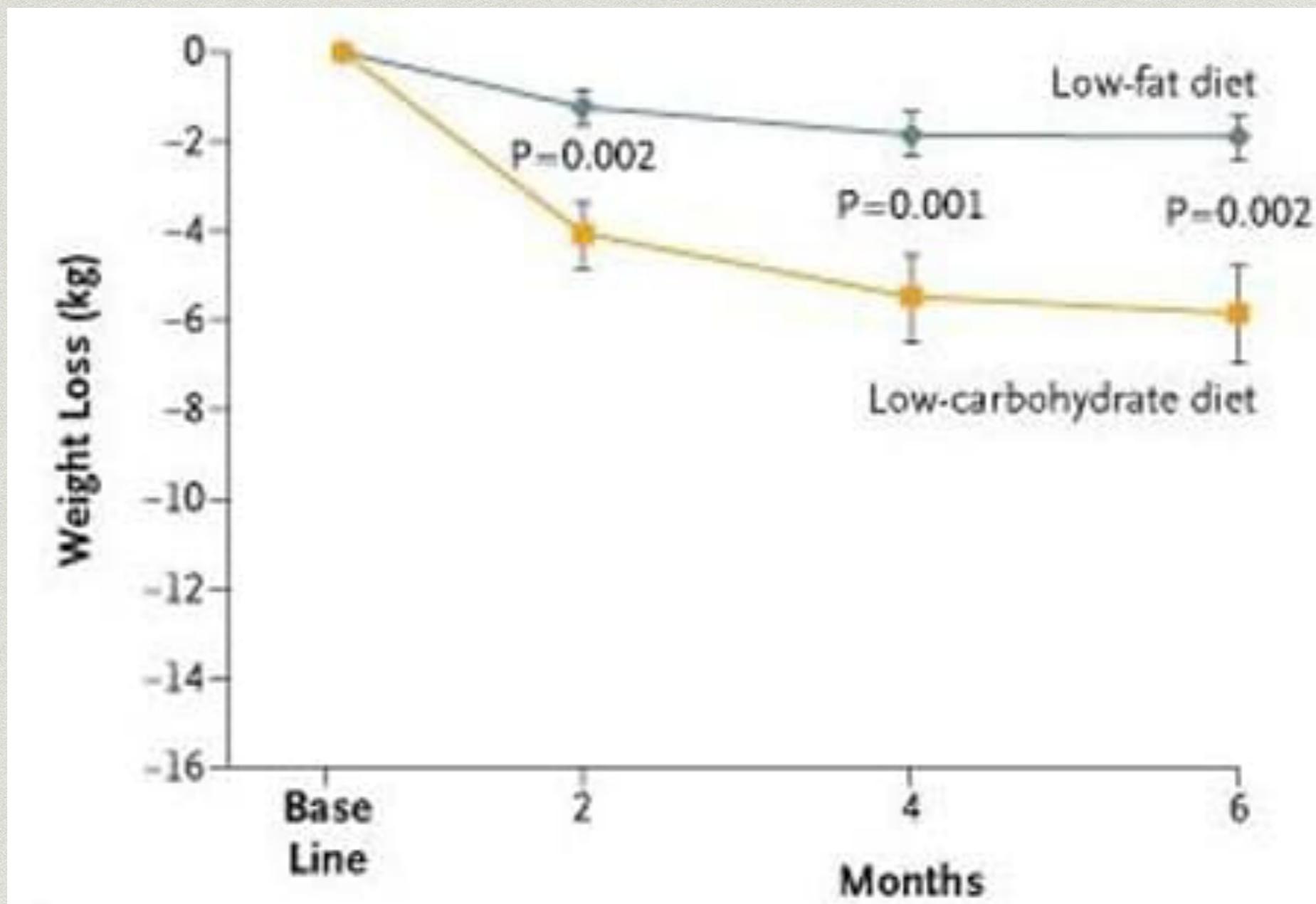
A look at 23 RCTs



n=63

LCHF is more effective

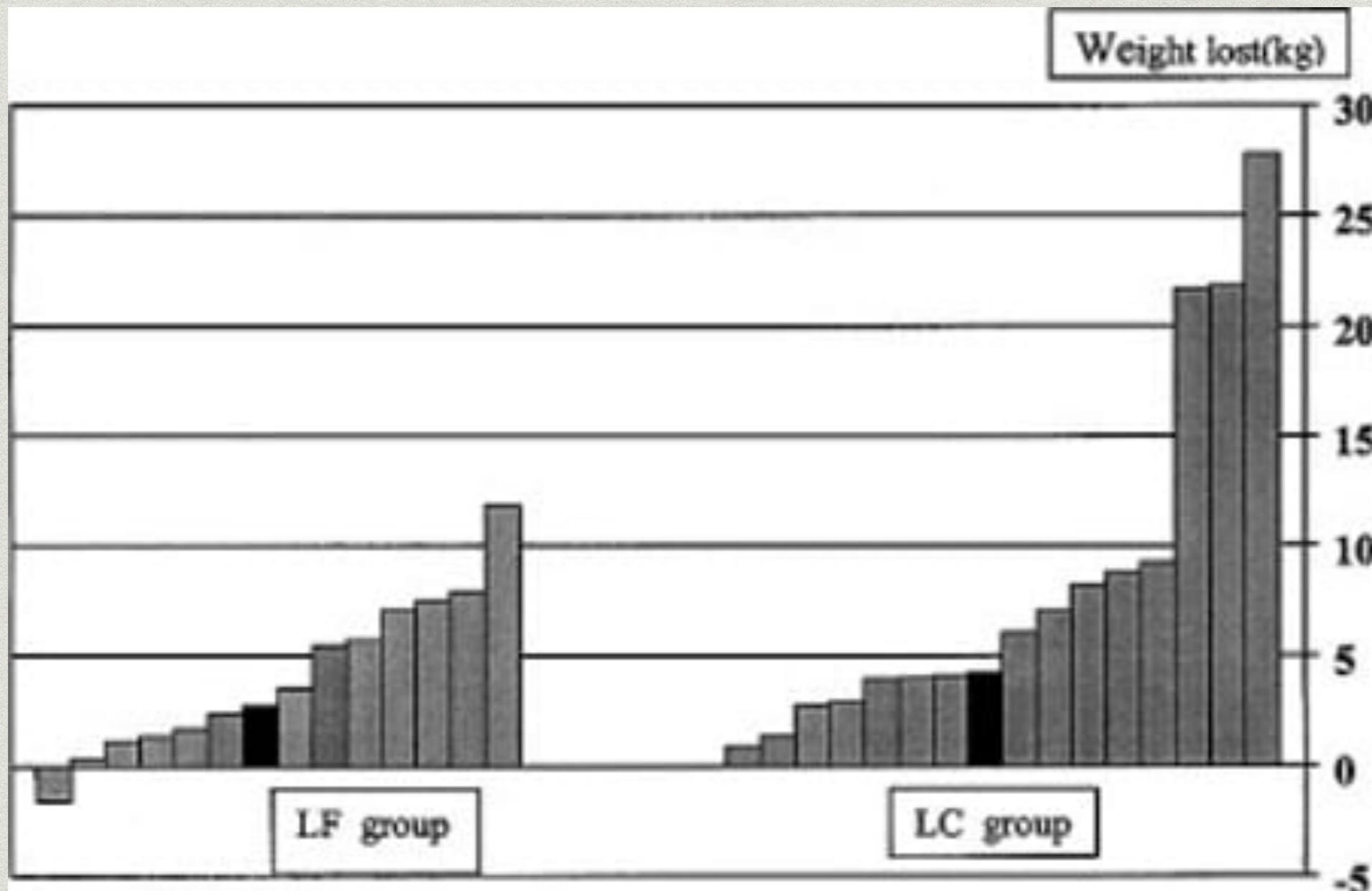
A look at 23 RCTs



n=132

LCHF is more effective

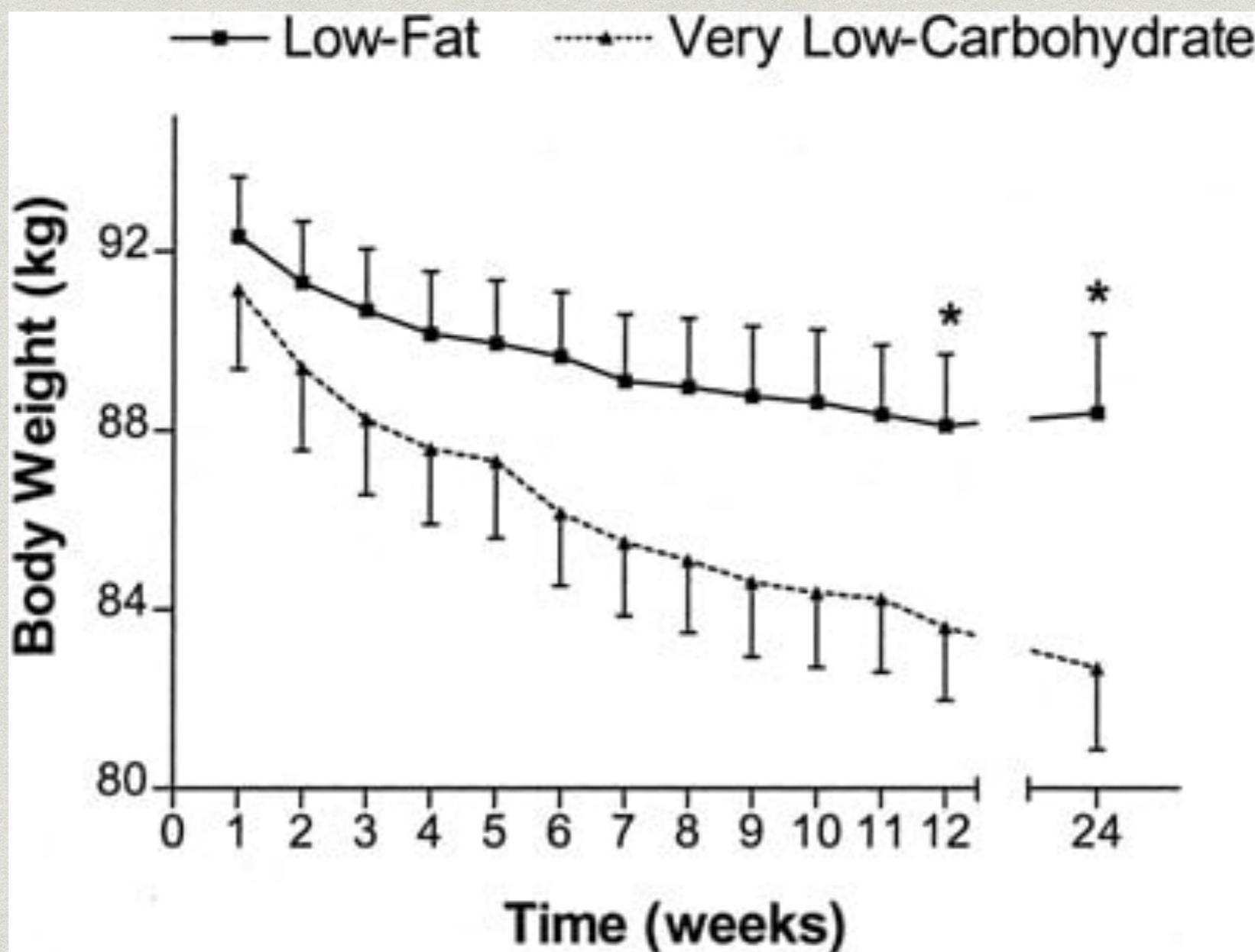
A look at 23 RCTs



n=30

LCHF is more effective

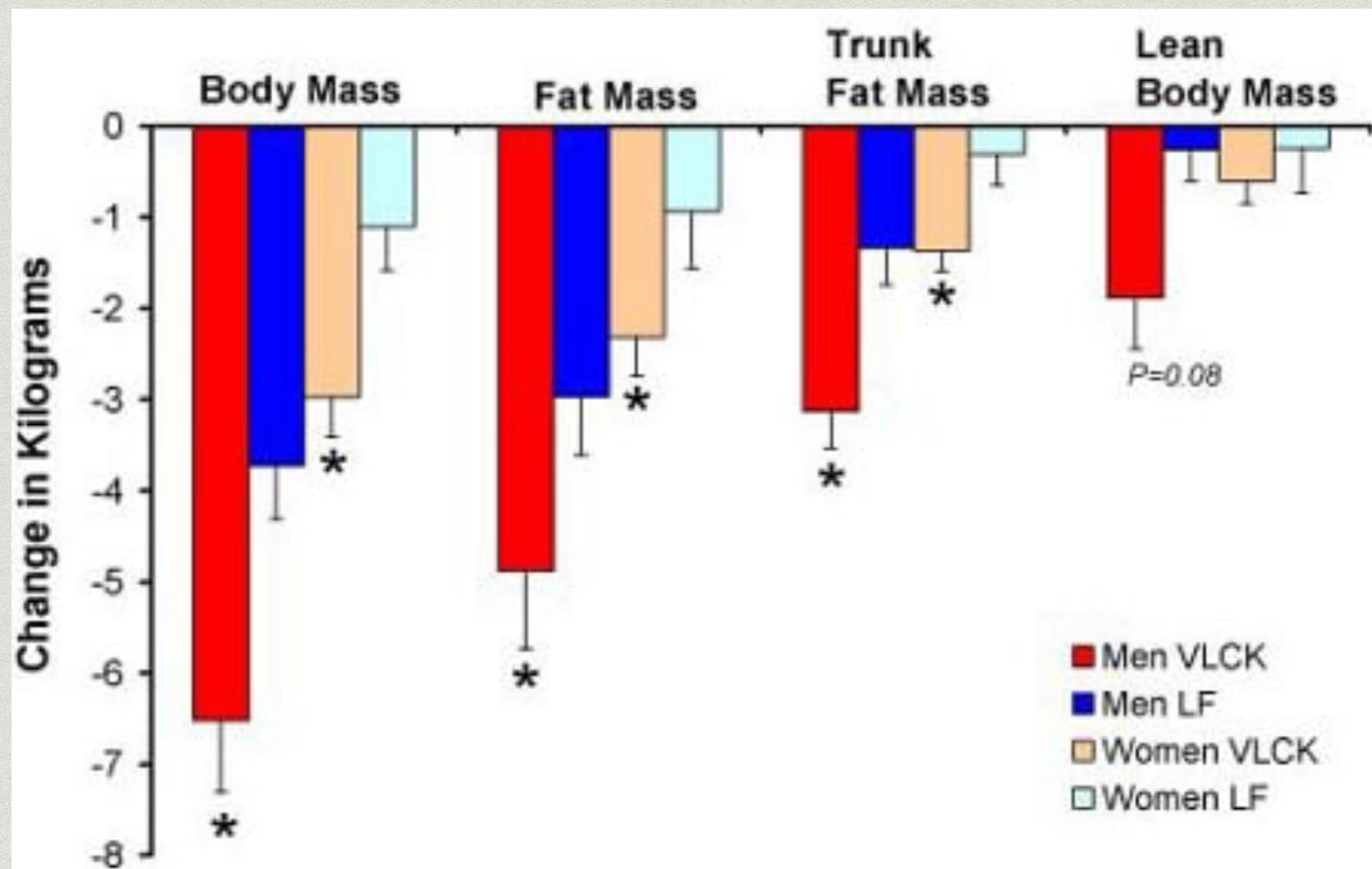
A look at 23 RCTs



n=53 healthy, but obese females

LCHF is more effective

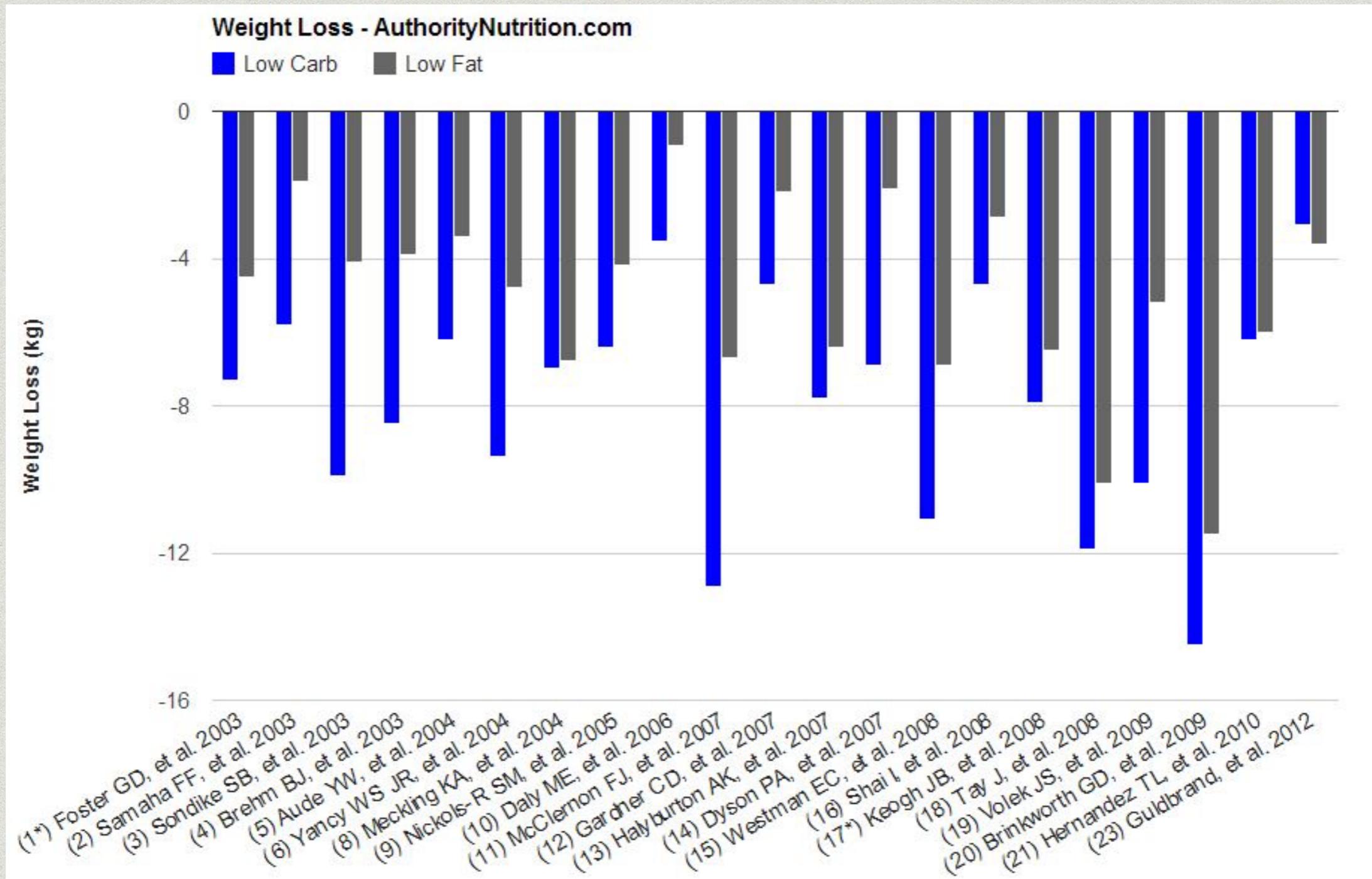
A look at 23 RCTs



n=28 overweight/obese

LCHF is more effective

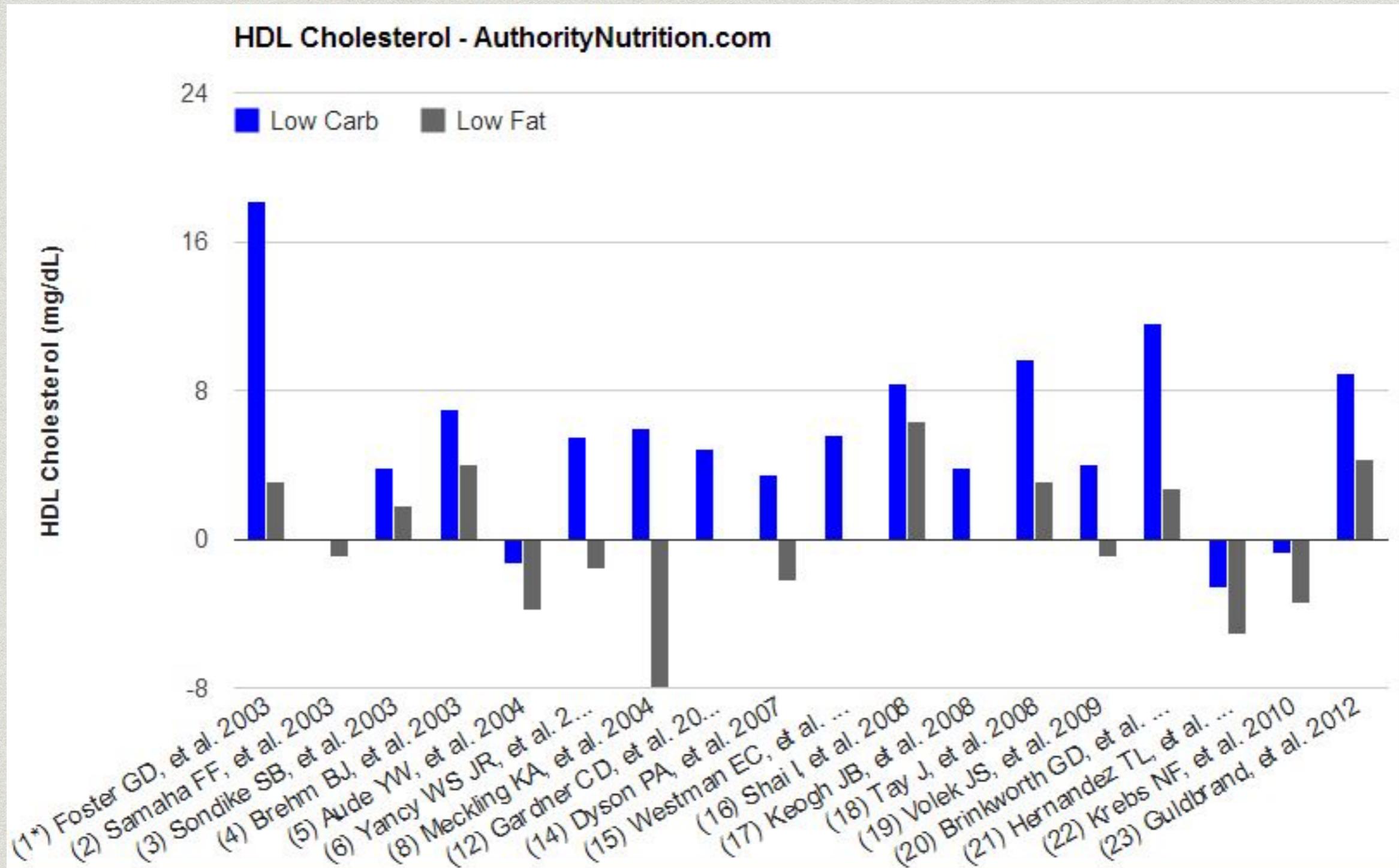
Summary of 23 RCTs



Source - <https://authoritynutrition.com/23-studies-on-low-carb-and-low-fat-diets/>

LCHF is more effective

Summary of 23 RCTs



Source - <https://authoritynutrition.com/23-studies-on-low-carb-and-low-fat-diets/>

Low Carb and Diabetes

- * In 1797 John Rollo reported using low carb to treat diabetics
- * Low carb keto diet was the standard treatment for diabetes until insulin was widely available in 1922.
- * Currently an over reliance on insulin, metformin instead of carb control, IMHO.

Low Carb and Diabetes

- * 2008 study of Type 2 diabetics showed LC keto diet improved A1c, fasting glucose, fasting insulin, and weight loss.
- * Diabetes medications were reduced or eliminated.
- * <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2633336/>

Keto and Epilepsy

- * Ketogenic diet used for 80 years to control epilepsy
 - * 1/3 of patients are completely cured.
 - * 1/3 of patients experience reduced seizures
 - * 1/3 of patients are unaffected.

Keto and Epilepsy



- * Remember this movie?
- * Jim Abrahams was one of the writers and directors.
- * In 1993 his 11 month old son Charlie started having epileptic seizures.
- * After 5 years on a keto diet he was cured. Never had another seizure and now eats whatever he wants.
- * See charliefoundation.org

Keto and other neurological defects

- * A ketogenic diet can provide symptomatic and disease-modifying activity in a broad range of neurodegenerative disorders including Alzheimer's disease and Parkinson's disease, and may also be protective in traumatic brain injury and stroke
- * Survey of recent research: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2367001/>

Keto and Cancer

- * Research is preliminary
- * High glucose levels have been shown to accelerate cancer cell proliferation in vitro, while glucose deprivation has led to apoptosis.
- * This might be because of high insulin levels
- * Remember, insulin is a growth hormone and cancer is uncontrolled growth

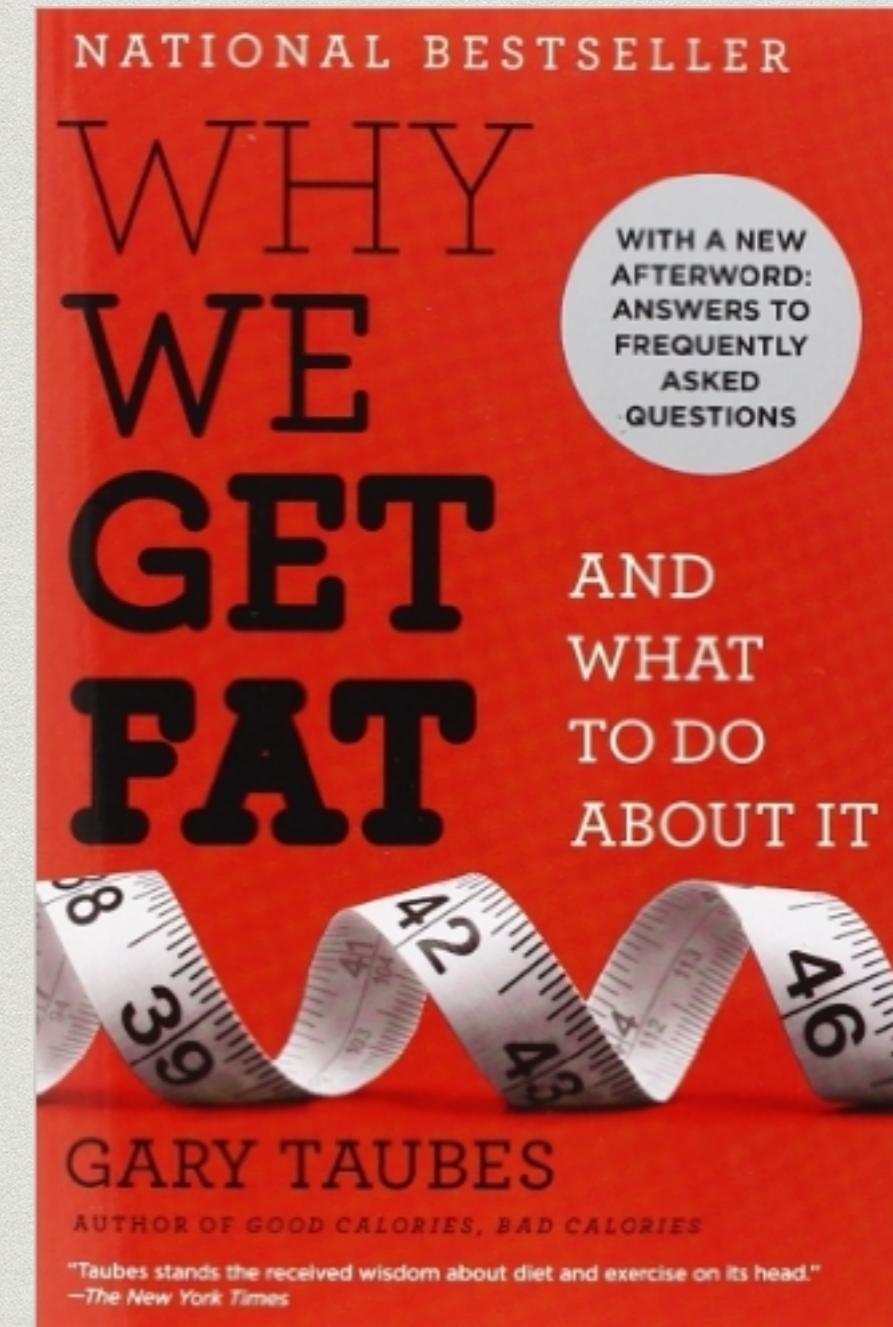
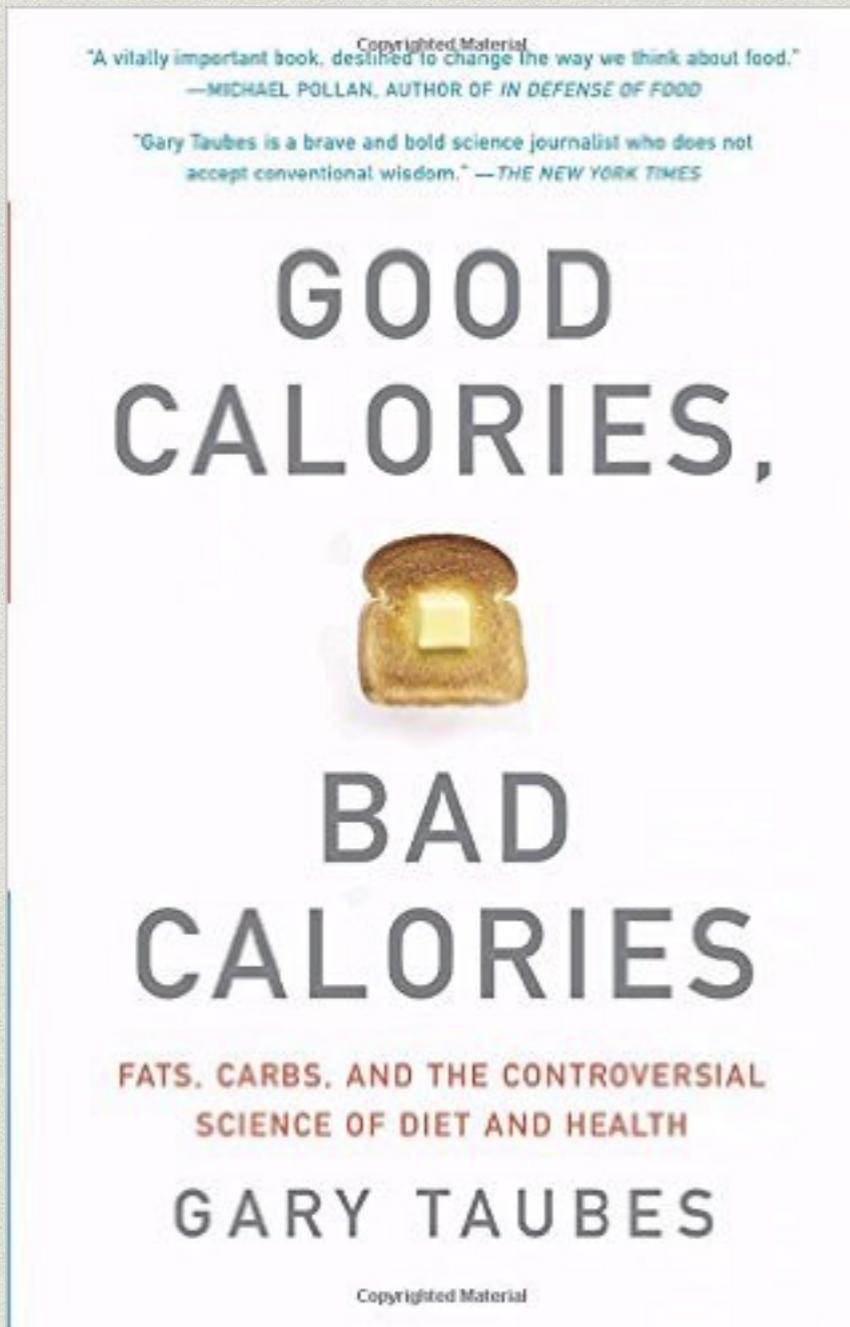
Keto and Cancer

- * Warburg Effect
- * Most cancer cells predominantly produce energy by a high rate of glycolysis followed by lactic acid fermentation in the cytosol
- * Normal cells demonstrate a comparatively low rate of glycolysis followed by oxidation of pyruvate in mitochondria

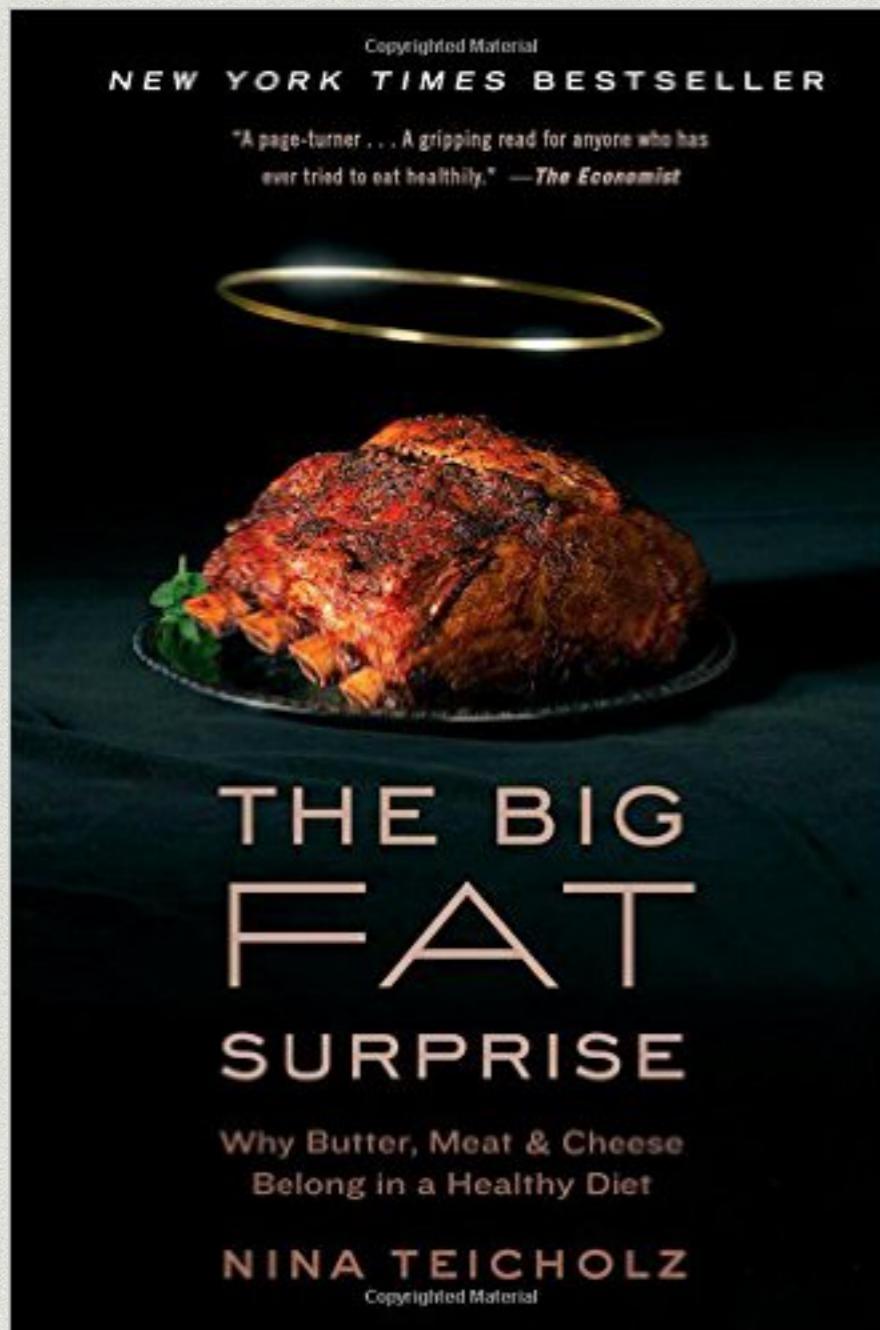
Keto and Cancer

- * Interesting research at Keto Pet Sanctuary near Georgetown, Texas
- * Cancer dogs treated with keto diet as well as conventional oncology techniques
- * Success has been high
- * Human trials have begun

Resources — Books

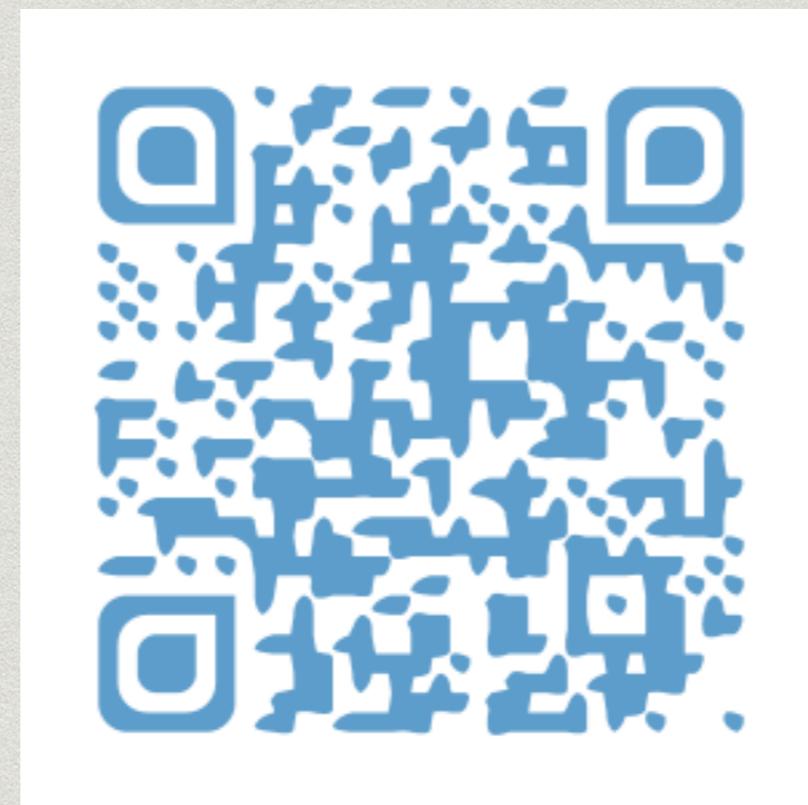


Resources — Books



Resources - Sites

- * This slide deck in KeyNote format — [http://
misc.mychamp.com/QSKeto/Quantitative%20Self.key.zip](http://misc.mychamp.com/QSKeto/Quantitative%20Self.key.zip)



Resources - Sites

- * This slide deck as PDF – <http://misc.mychamp.com/QSKeto/Quantitative%20Self.pdf>



Resources - Sites

- * Easy LCHF site – <http://dietdoctor.com>