An anatomical illustration of a human torso, showing the muscles and internal organs. The illustration is rendered in a glowing, orange-red color against a dark background. The muscles are shown in a detailed, layered manner, with some areas appearing more prominent than others. The overall effect is that of a high-tech, scientific visualization of the human body.

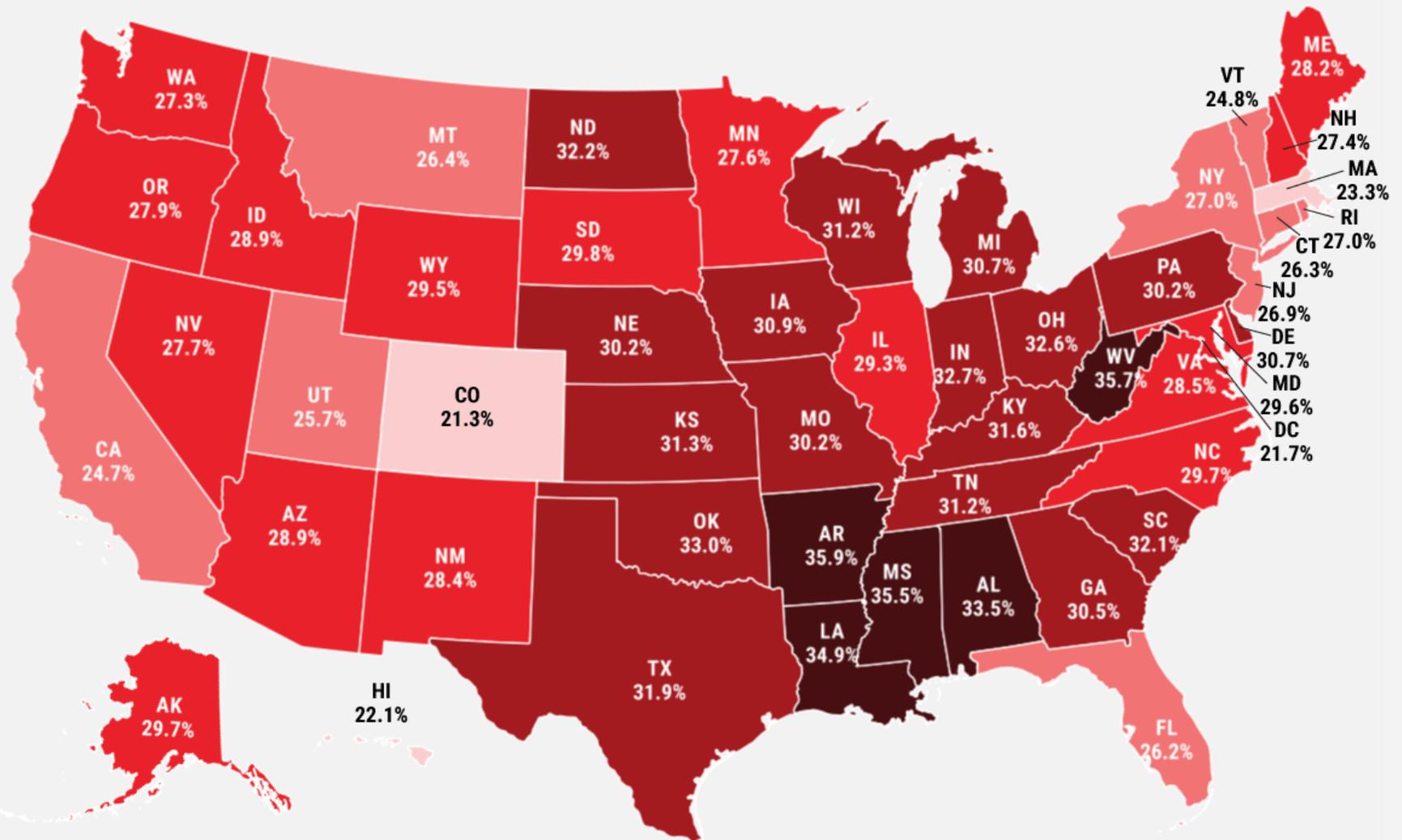
# How To Fix Your Metabolism And Become A Fat Burning Machine!

Dr Greg Dennis, DO

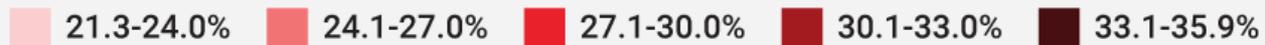
# ABOUT ME

- Greg Dennis, D.O.
- Family Medicine Physician
- Certified in Age Management Medicine
- Practicing in Mustang/Yukon for 15 Years
- Host of Fit RX Podcast
- Level 1 CrossFit Coach

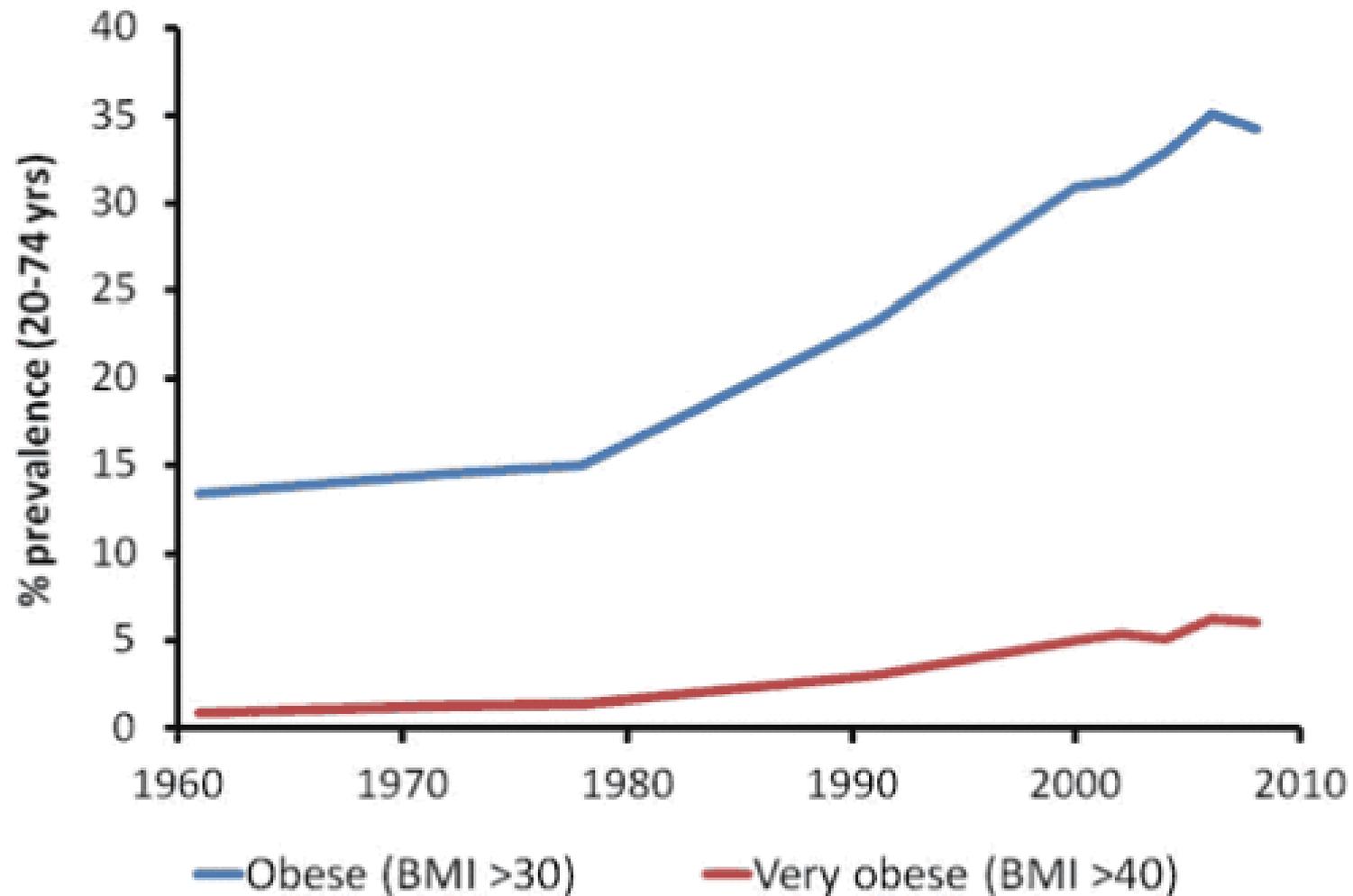
# ADULT OBESITY RATES



KEY



# Obesity in the US, 1961-2009



# wELCOME TO FAT AMERICA

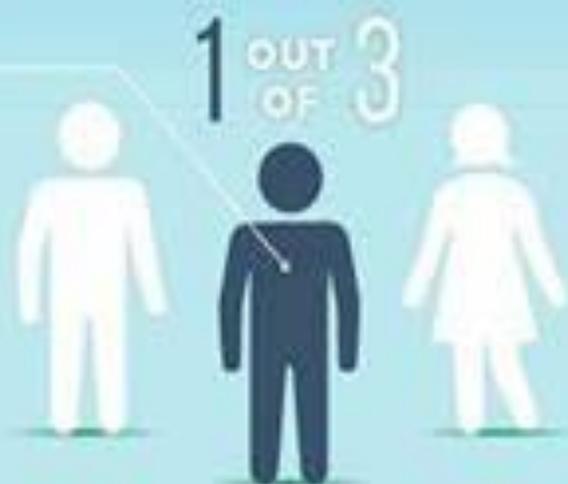


# PREDIABETES

COULD IT  
BE YOU?

84.1  
MILLION

84.1 million  
American adults —  
more than  
1 out of 3 — have  
prediabetes



9 OUT OF 10

people with prediabetes  
don't know they have it

# Original USDA Food Guide Pyramid

fats, oils, and sweets,  
use sparingly

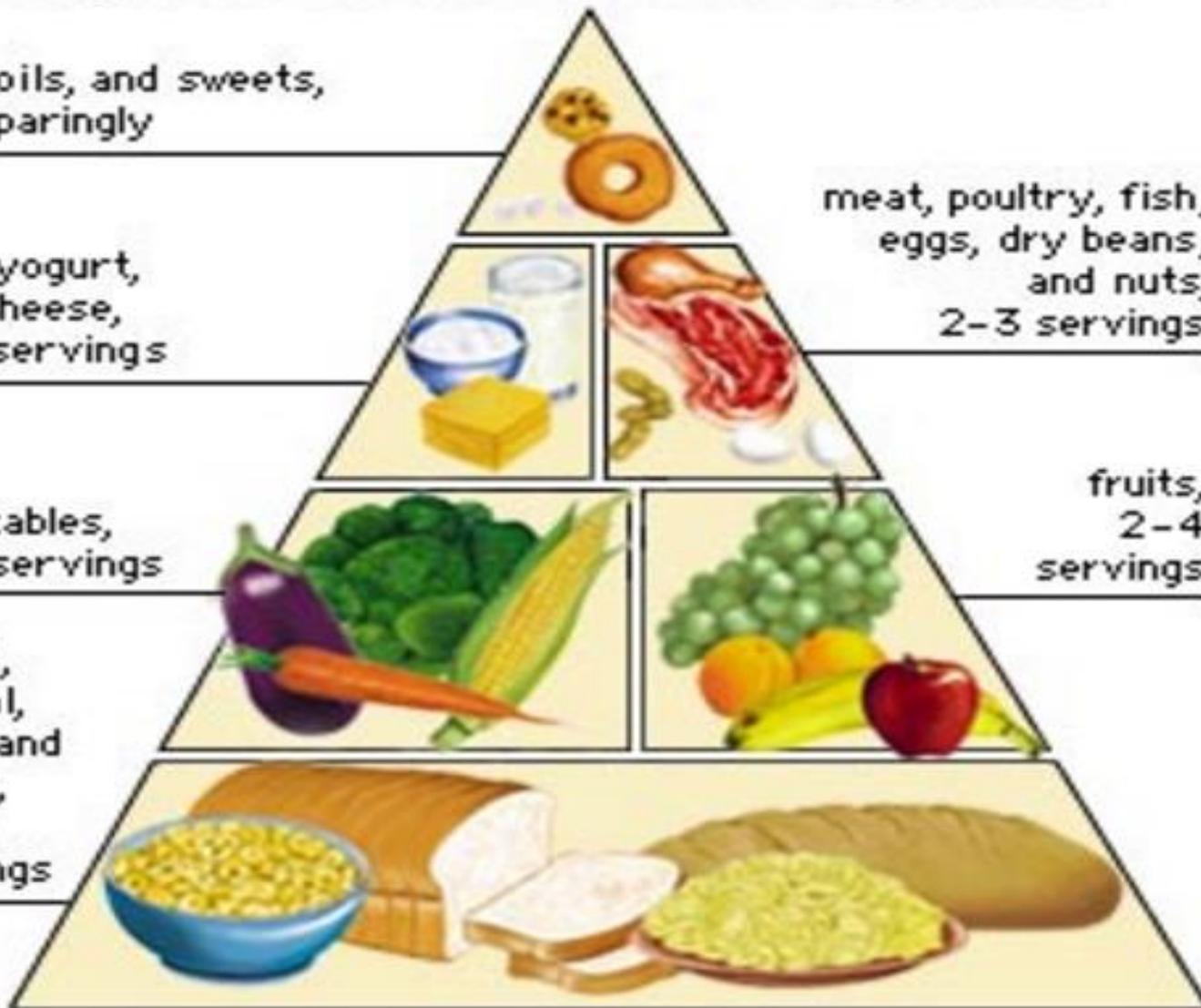
milk, yogurt,  
and cheese,  
2-3 servings

vegetables,  
3-5 servings

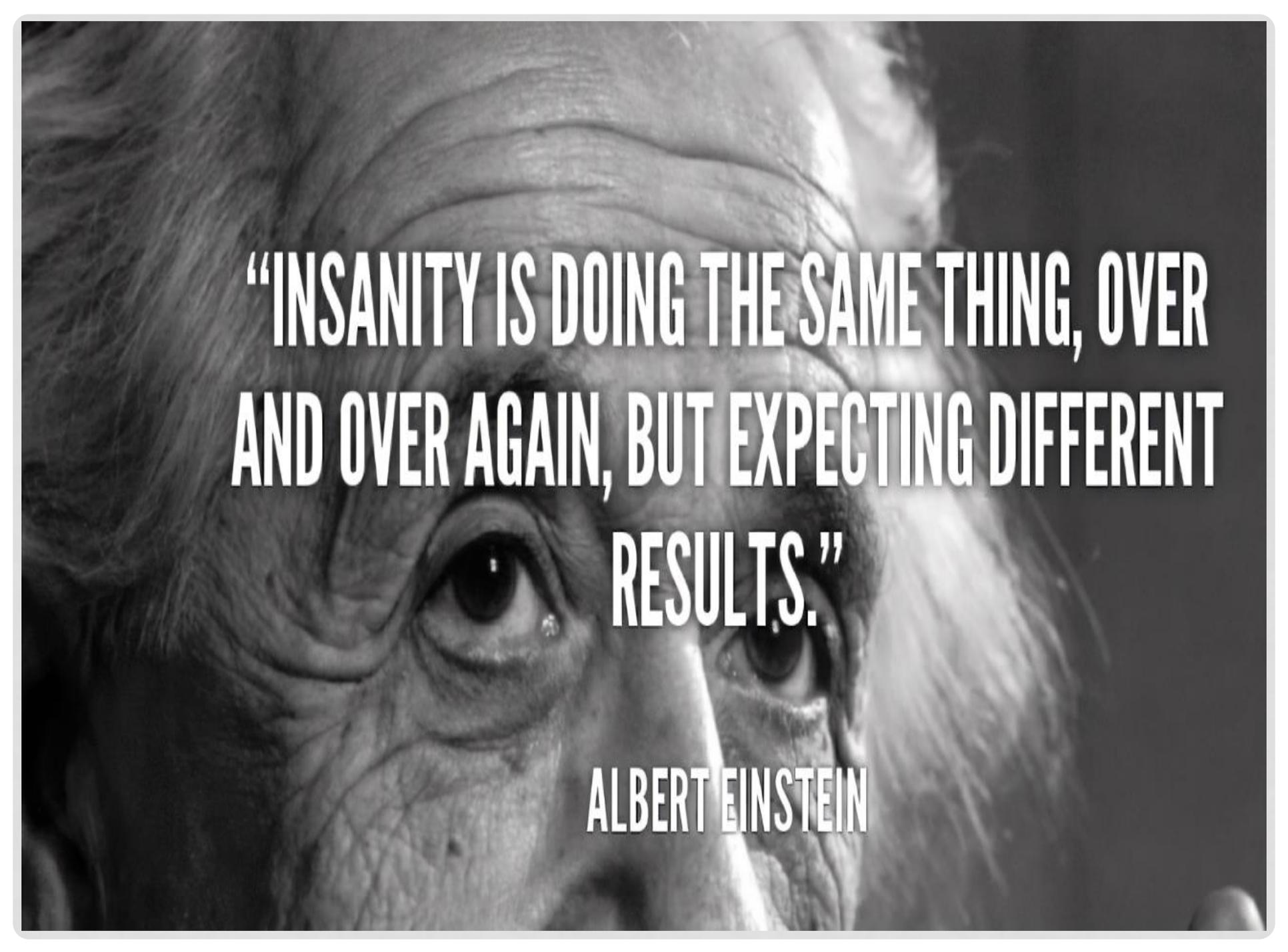
bread,  
cereal,  
rice, and  
pasta,  
6-11  
servings

meat, poultry, fish,  
eggs, dry beans,  
and nuts,  
2-3 servings

fruits,  
2-4  
servings



Source: U.S. Department of Agriculture

A black and white close-up photograph of Albert Einstein's face, showing his characteristic wild hair and deep wrinkles. The image is used as a background for a quote. The quote is written in a bold, white, sans-serif font, centered over the upper and middle portions of his face. The text reads: "INSANITY IS DOING THE SAME THING, OVER AND OVER AGAIN, BUT EXPECTING DIFFERENT RESULTS."

**"INSANITY IS DOING THE SAME THING, OVER  
AND OVER AGAIN, BUT EXPECTING DIFFERENT  
RESULTS."**

**ALBERT EINSTEIN**

# MYTHS

- Calories in vs Calories out
- You need to exercise more
- Eat low fat
- Eat 3 meals a day and 2 snacks
- Breakfast is the most important meal
- Doesn't matter what you eat as long as you exercise enough

# TRUTHS

1. Obesity is a hormone problem
  - Insulin
  - Cortisol
2. Low calorie diets don't work and may make things worse
3. You cannot out exercise a bad diet
4. You can change your metabolic health

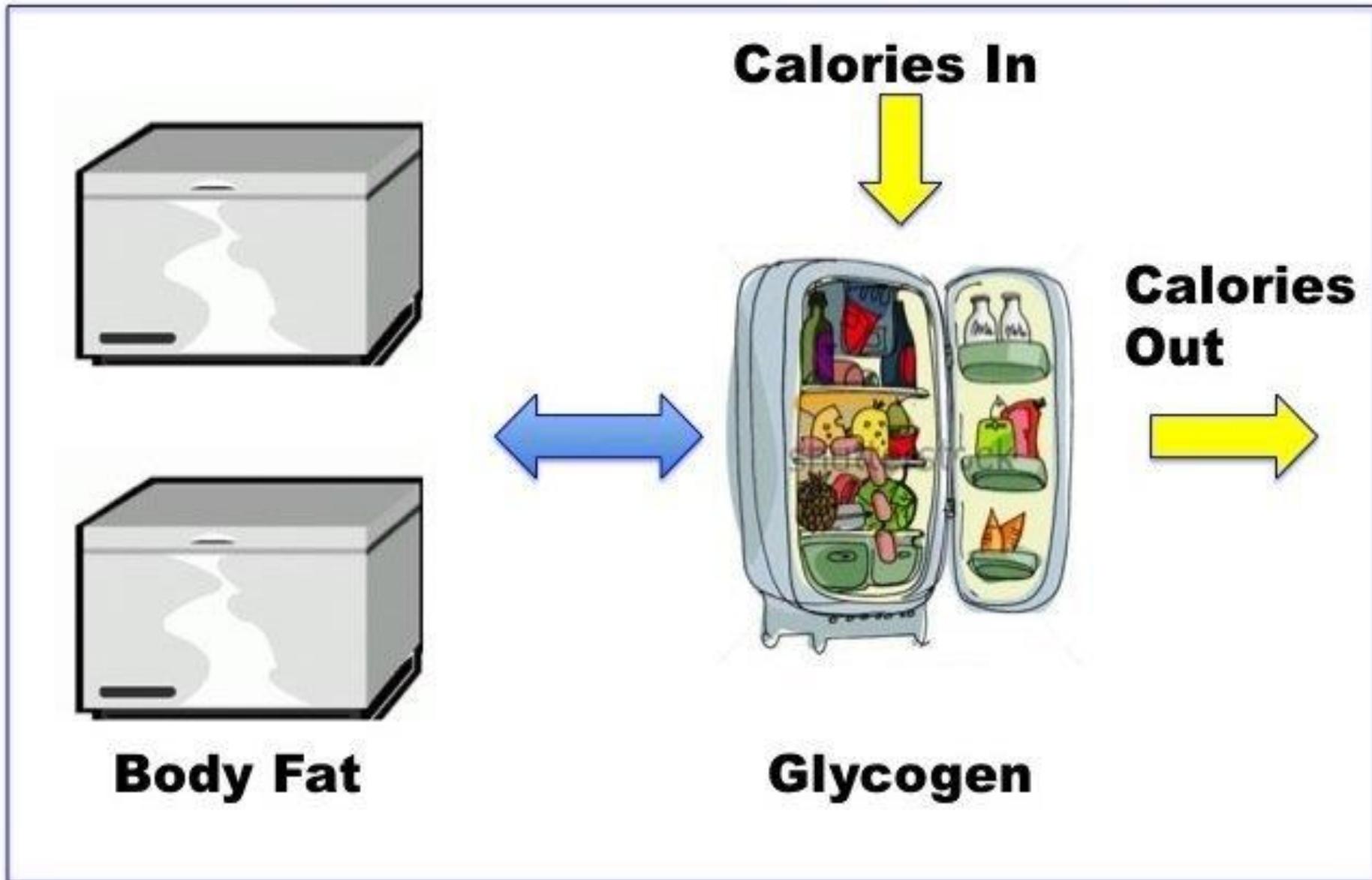
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	4.4	14.4 ^	R
	80	367	
	OKC LAB	OKC LAB	
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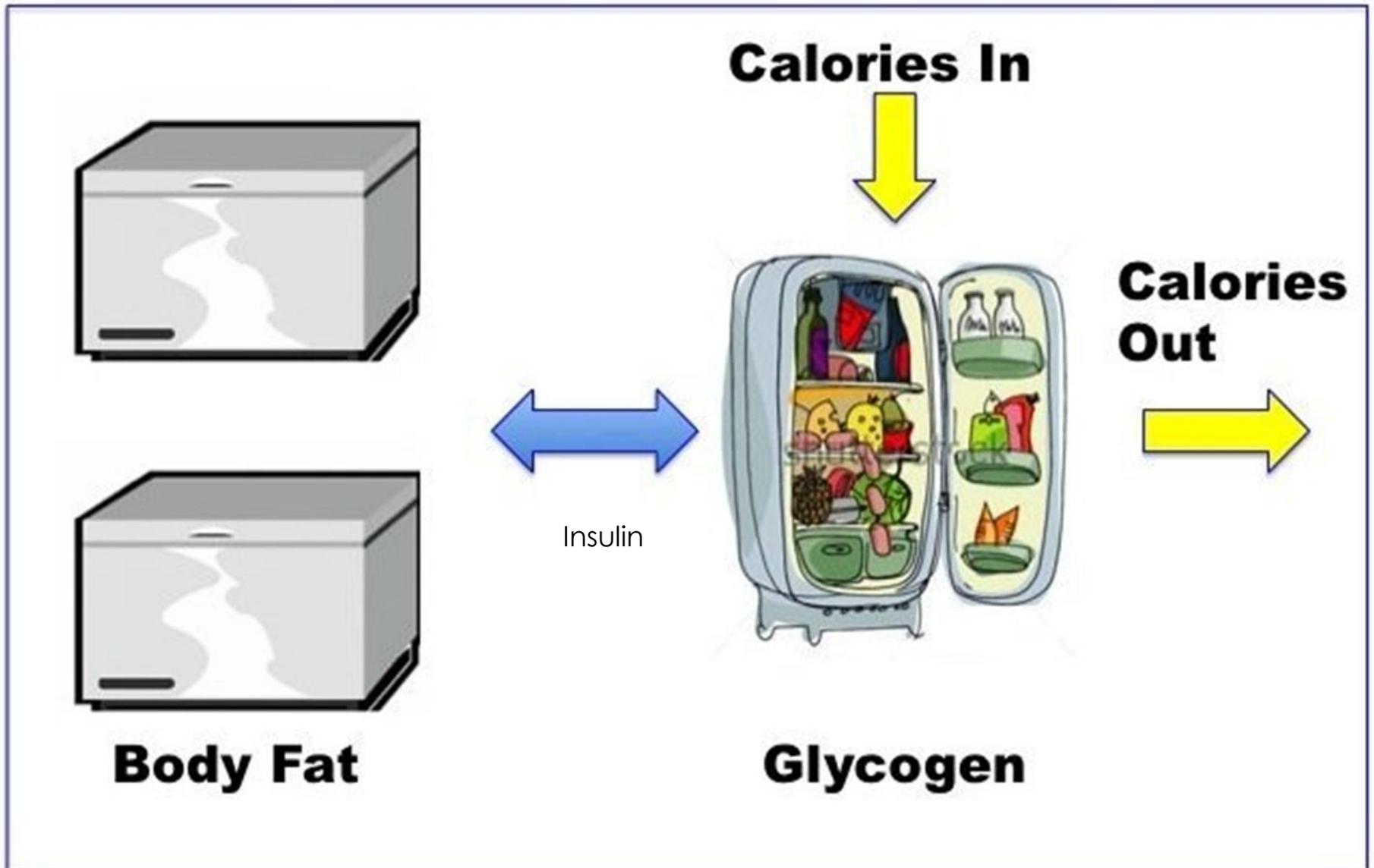
LATER

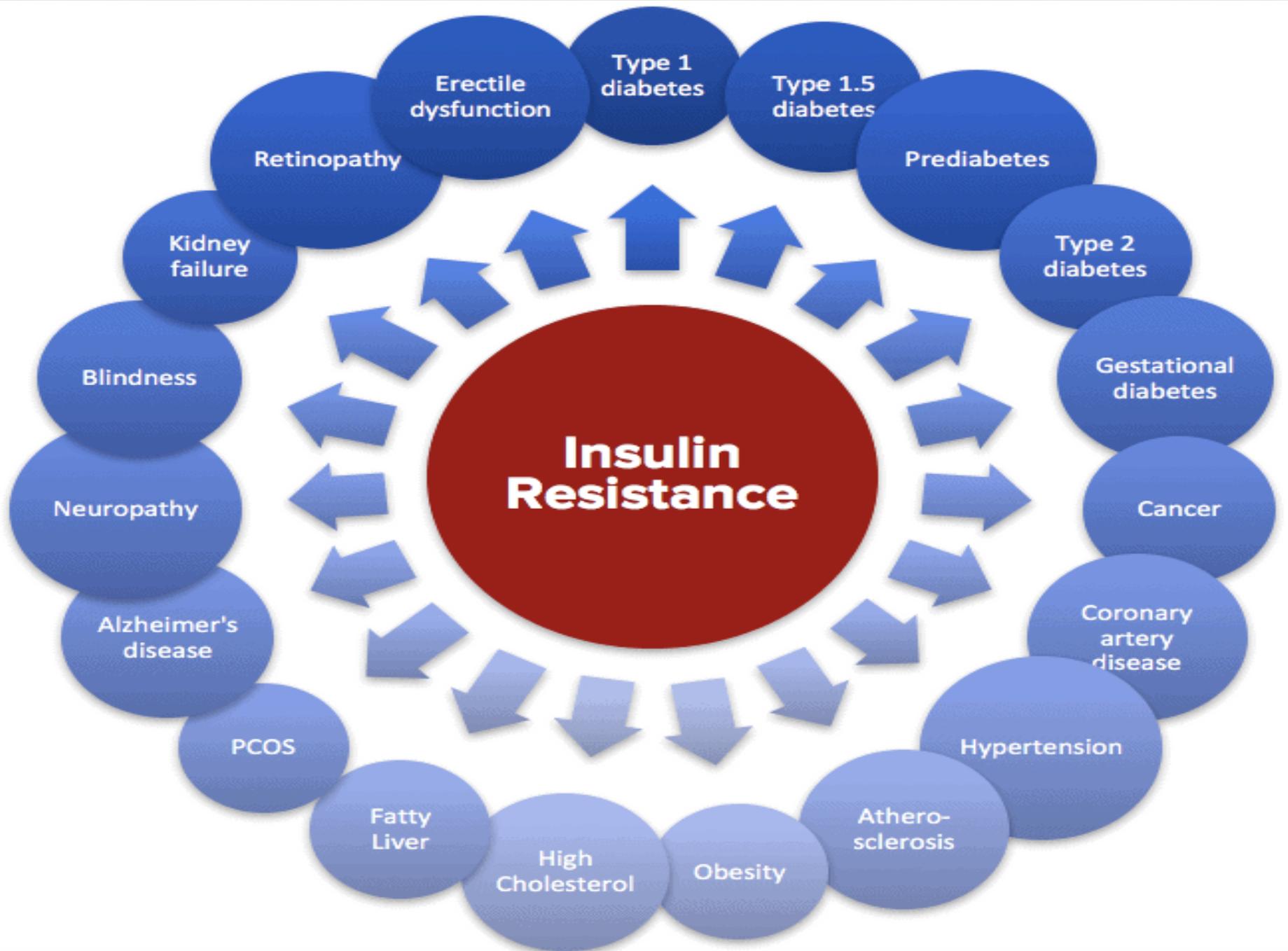
7 Last Resulted: 09/05/19 17:59

# Two Compartment Model



# Two Compartment Model



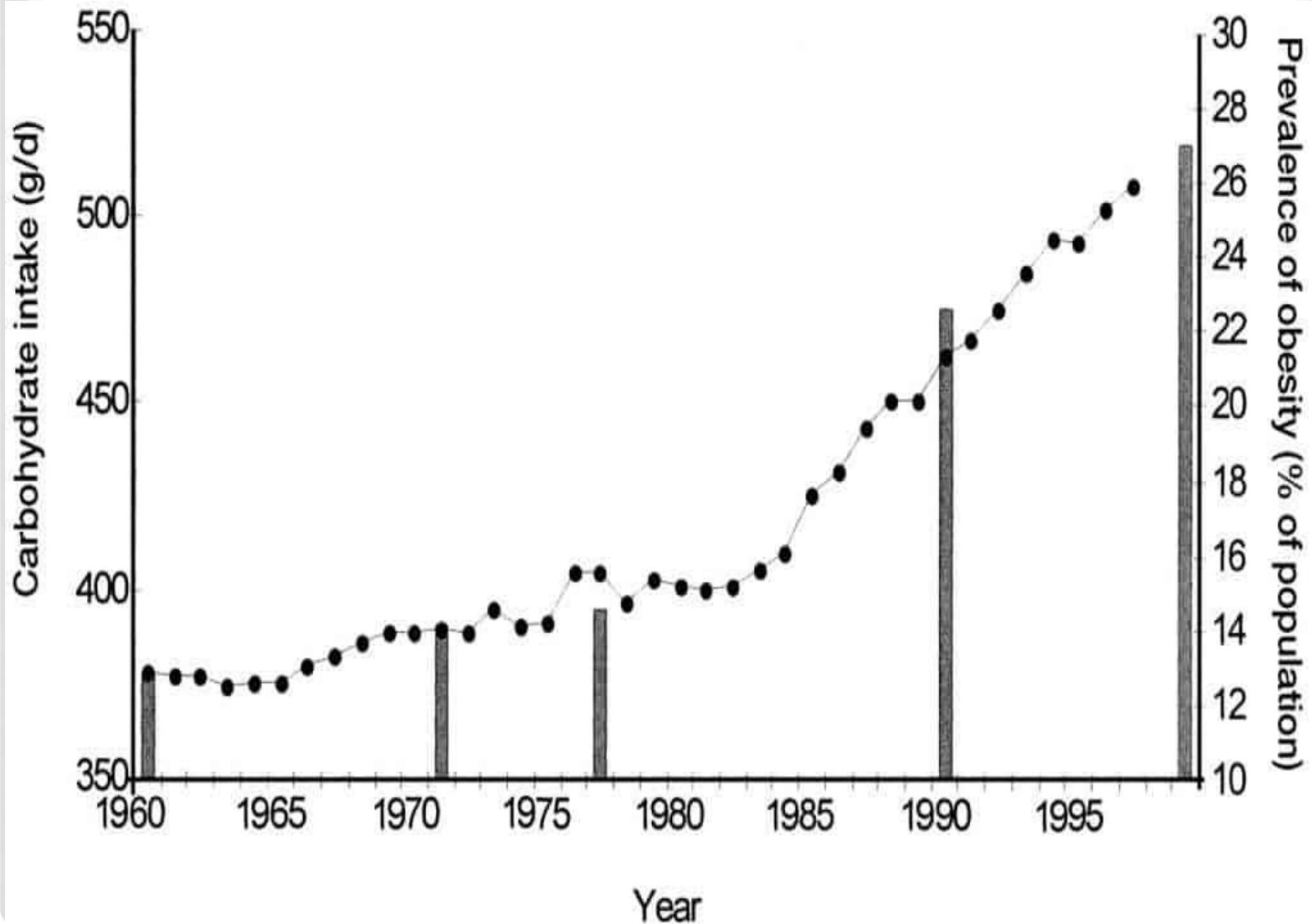


# HOW TO FIX YOUR METABOLISM AND BECOME A FAT BURNING MACHINE?



# 1. DECREASE CARBOHYDRATES

- Glycemic variability refers to the blood glucose variations during the day
- If GV gets out of control, the body does one of two things: transfers sugar into muscles, or stores as body fat



# DECREASE CARBOHYDRATES



# DECREASE CARBOHYDRATES



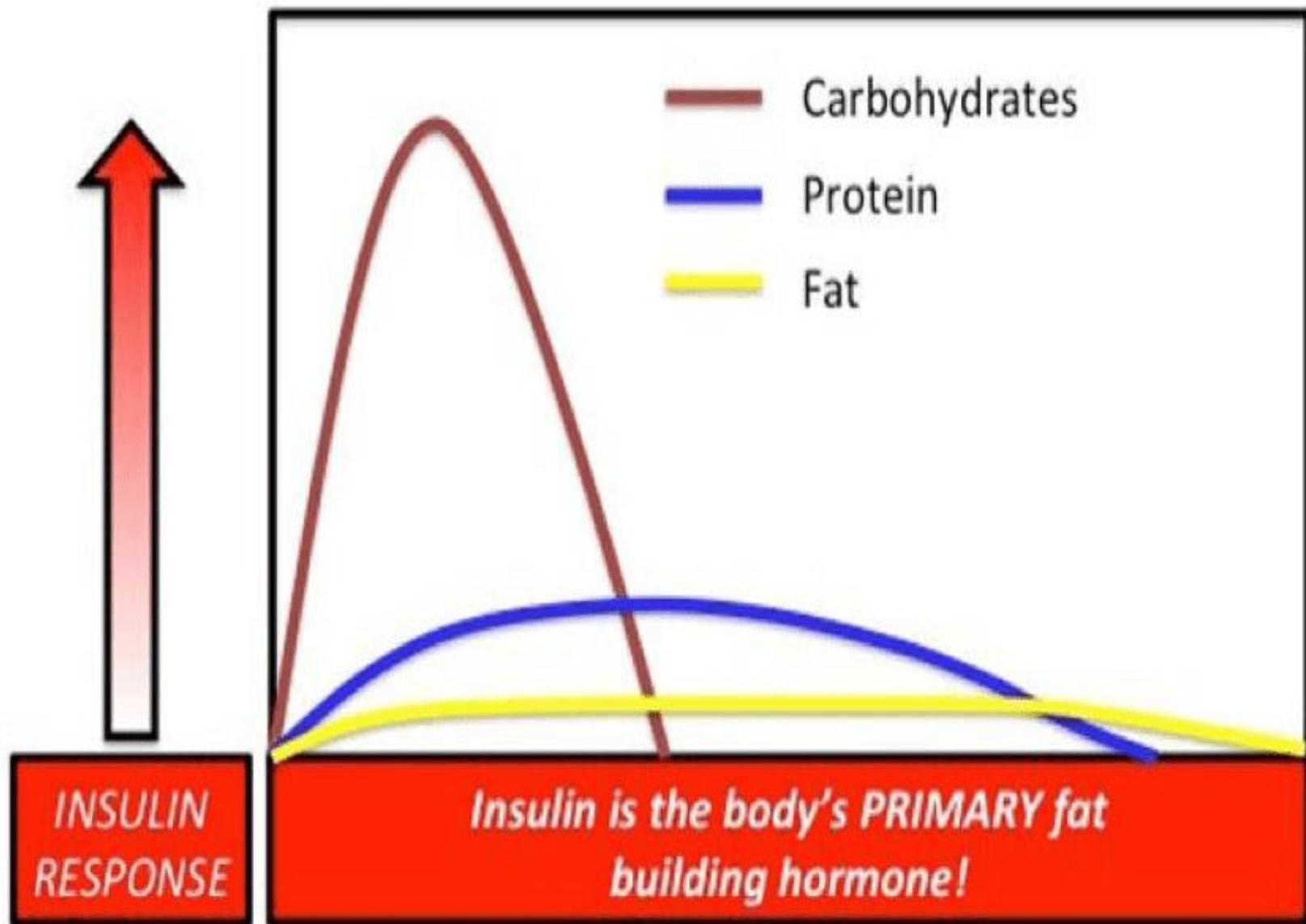
**What  
do YOU  
eat?**



## 2. EAT MORE FAT!



# Insulin Response to Protein, Fat & Carbs



# EAT MORE FAT

To beat fat, you've got to eat fat!

To burn fat, you've got to control your insulin

To control your insulin, you've got to change your fuel

# EAT MORE FAT

- Dr. Walter Willett of the Harvard School of Public Health and considered one of the world's foremost experts in nutrition wrote in a review article in 2002:
  - *“Diets high in fat do not account for the high prevalence of excess body fat in western countries: reductions in the percentage of energy from fat will have no important benefits and could further exacerbate this problem. The emphasis on total fat reduction has been a serious distraction in efforts to control obesity and improve health in general.”*

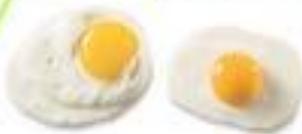
# EAT MORE FAT

- Women's Health Initiative Dietary Modification Trial
  - Nearly 50,000 women were assigned a low-fat diet, calorie restricted diet over 7 years. It produced no weight loss, no cardiovascular benefits, no reduction in stroke, no reduction in cancer.



# Yes

- Meat
- Green Leafy Veggies
- Eggs & Dairy
- Cheese
- Oils (Coconut, Olive, Lard, etc.)
- Nuts & Seeds
- Avocados
- Cauliflower
- Berries
- Some Non Green Veggies
- Heavy Whipping Cream
- Diet Soda
- Tea/Coffee (Unsweetened)
- **Water (Very Important)**



# No

- Bread
- Pasta
- Rice
- Starches (Potatoes, etc.)
- Sugar
- High Fructose Corn Syrup
- Corn
- Wheat
- Flour
- Legumes
- Beans
- Fruit (Except some berries)
- Soda
- Milk (including Skim)



*Note: For better results, make sure to get plenty of magnesium through either food or supplements and also potassium from Lite Salt or food. This will prevent muscle cramps and other common symptoms.*

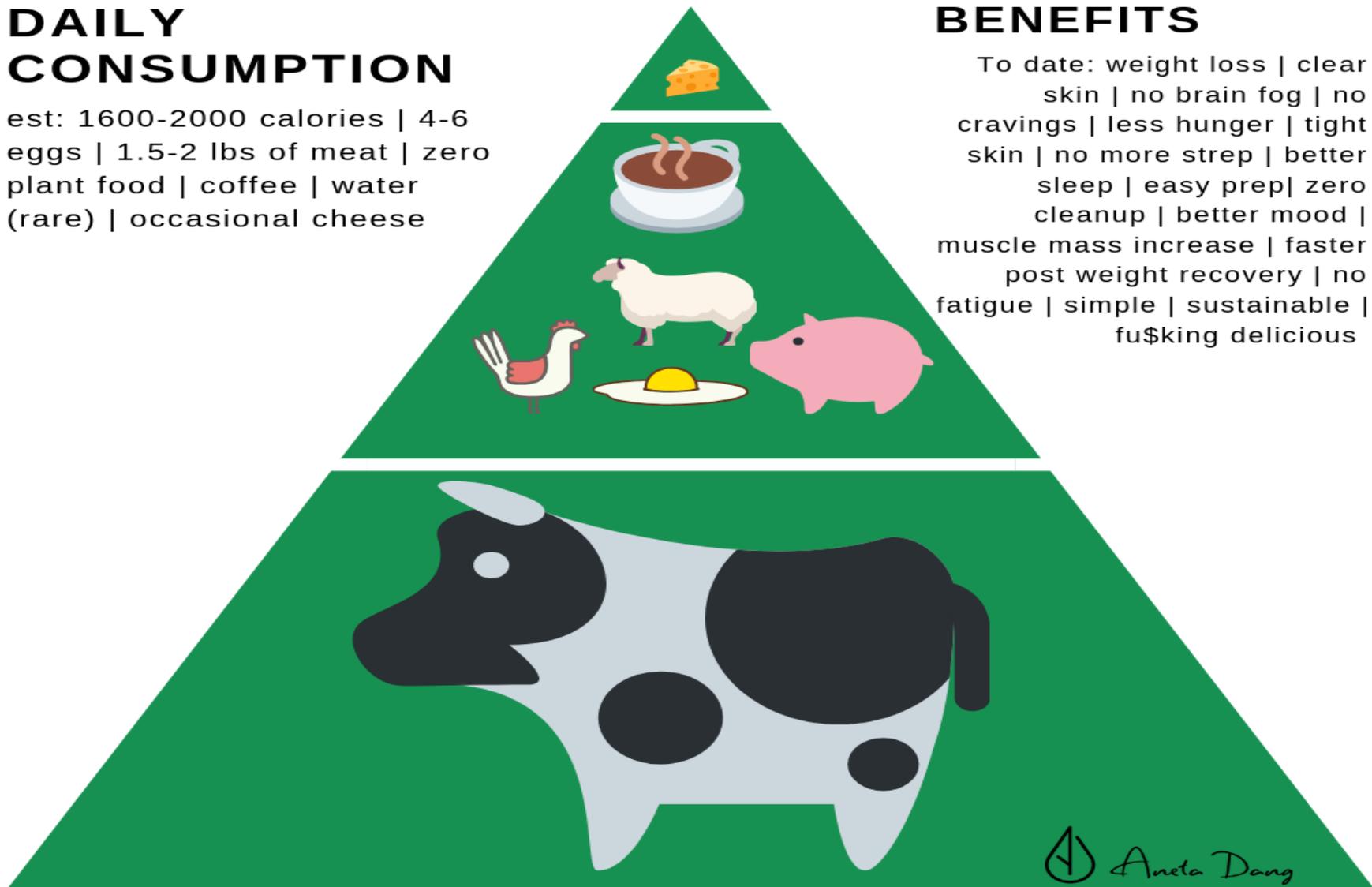
# MY FOOD PYRAMID

## DAILY CONSUMPTION

est: 1600-2000 calories | 4-6 eggs | 1.5-2 lbs of meat | zero plant food | coffee | water (rare) | occasional cheese

## BENEFITS

To date: weight loss | clear skin | no brain fog | no cravings | less hunger | tight skin | no more strep | better sleep | easy prep | zero cleanup | better mood | muscle mass increase | faster post weight recovery | no fatigue | simple | sustainable | fu\$king delicious

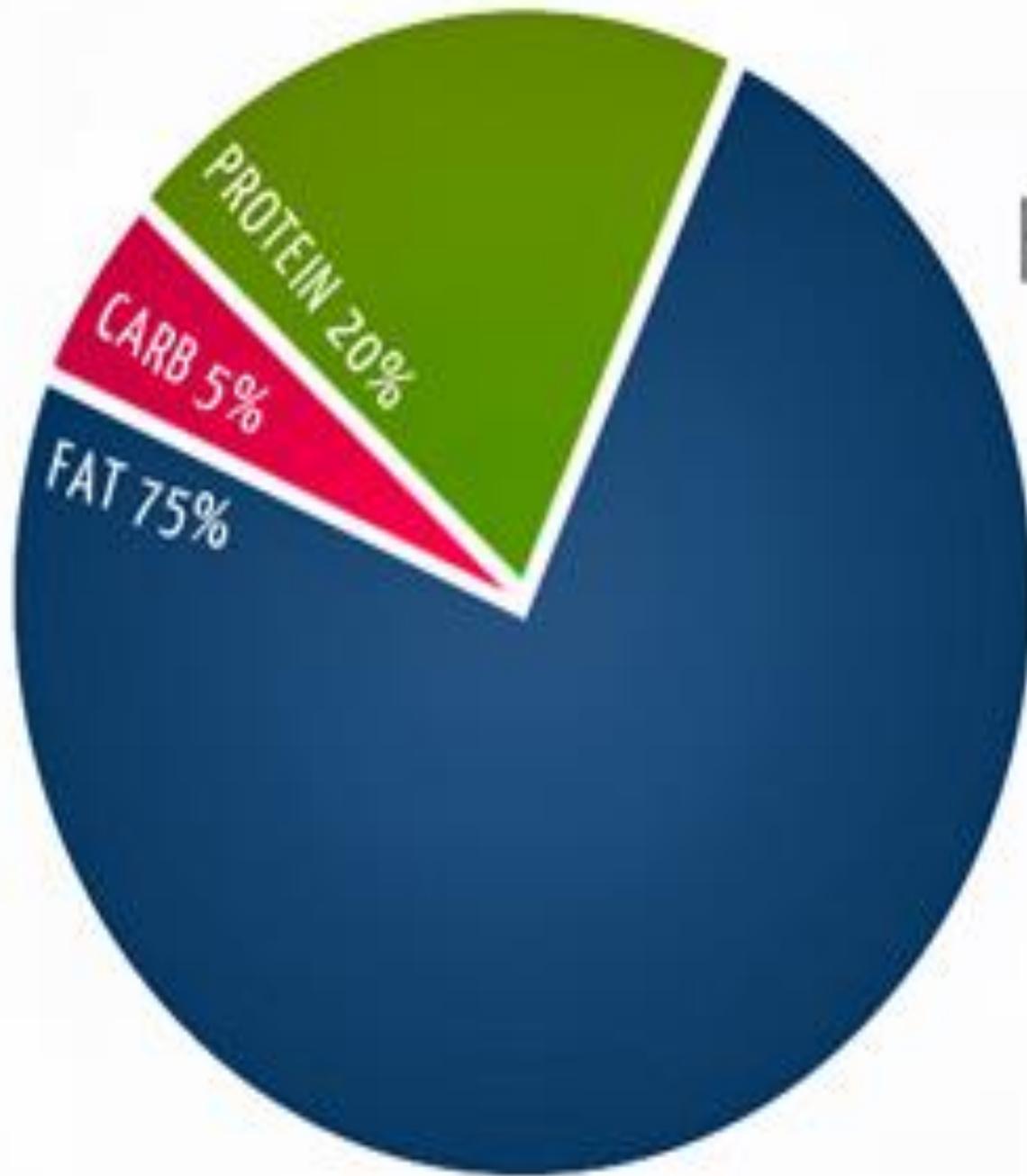


 Aneta Dang

A top-down view of various keto diet ingredients arranged on a white wooden surface. The ingredients include a jar of almond butter with almonds on top, a pile of almonds, a cast-iron skillet with cooking bacon, two brown eggs, a piece of raw red meat on a wooden cutting board, a halved avocado, a jar of yellow oil, a wedge of Swiss cheese, fresh basil leaves, raspberries, and blackberries. The text "KETO DIET" is centered in the middle of the image.

# KETO DIET

# KETOGENIC DIET



- PROTEIN
- FAT
- CARBS

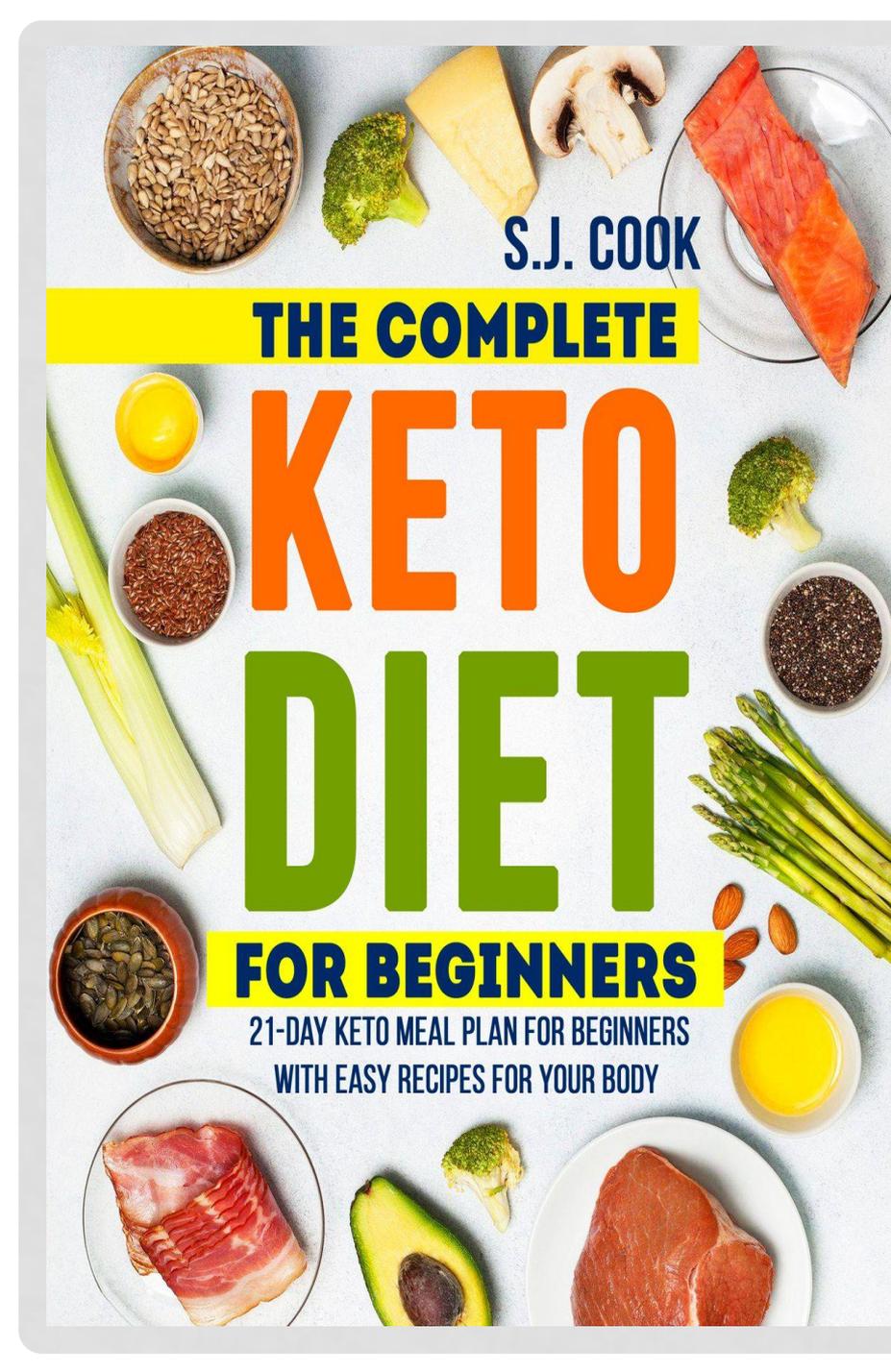
# “KETOSIS”

- **A metabolic state where the body is preferentially burning fat**
- Has phases
- Body adaptation
  - Flexible metabolism
- Can be halted by:
  - too many carbohydrates or too much protein
  - alcohol
- Can be “deepened” with:
  - Intermittent fasting
  - Exercise

# 9 Proven Benefits of a Ketogenic Diet

- ✓ Reduced Inflammation
- ✓ Improved Fat Burning
- ✓ Mental Clarity and Sharpness
- ✓ Abundant Energy
- ✓ Clear Skin
- ✓ Reduced Cravings
- ✓ Mitochondrial Biogenesis
- ✓ Anti-Aging Effects
- ✓ Reduced Risk of Chronic Disease





S.J. COOK

THE COMPLETE

KETO

DIET

FOR BEGINNERS

21-DAY KETO MEAL PLAN FOR BEGINNERS

WITH EASY RECIPES FOR YOUR BODY

WITH 80+ DELICIOUS AGE-DEFYING KETOGENIC RECIPES

# KETO FOR LIFE



RESET YOUR  
BIOLOGICAL CLOCK  
IN 21 DAYS  
AND OPTIMIZE  
YOUR DIET FOR  
LONGEVITY

MARK SISSON WITH  
BRAD KEARNS

AUTHOR OF THE NEW YORK TIMES BESTSELLER THE KETO RESET DIET

"Ketotarian presents a user-friendly, actionable plan so that everyone can embrace and implement this exciting and leading-edge science."

—DAVID PERLMUTTER, MD, *New York Times* bestselling author  
of *Grain Brain* and *The Grain Brain Whole Life Plan*

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# keto·tarian

The (Mostly) Plant-Based Plan to Burn Fat, Boost Your Energy,  
Crush Your Cravings, and Calm Inflammation

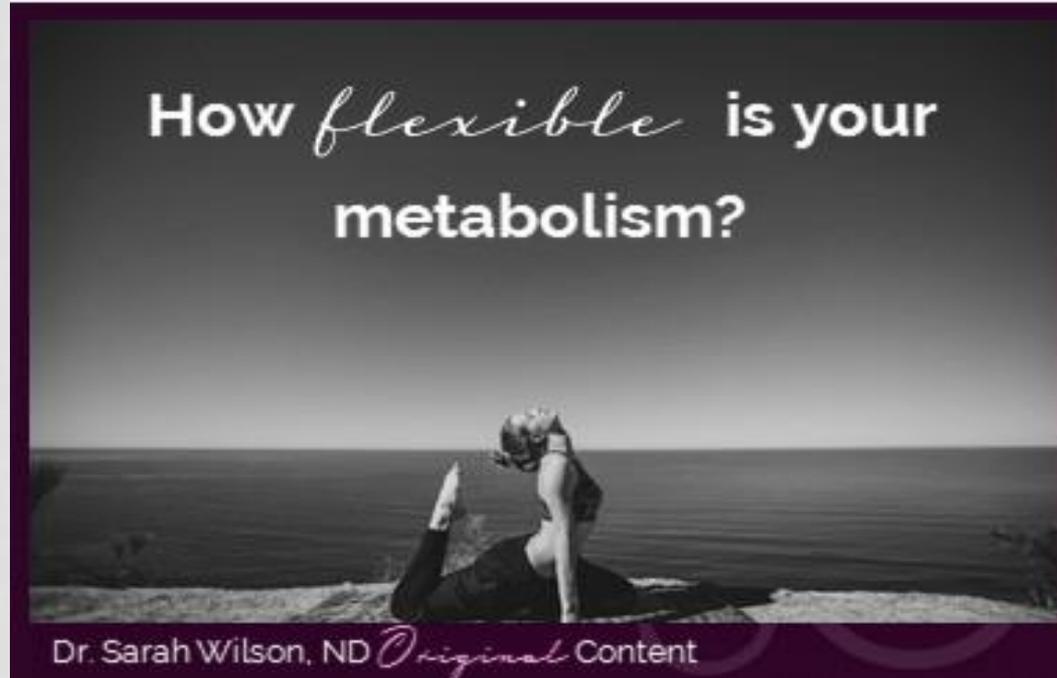


**Dr. Will Cole**

Top Functional Medicine Expert and Cohost of *Keto Talk*

# METABOLIC FLEXIBILITY

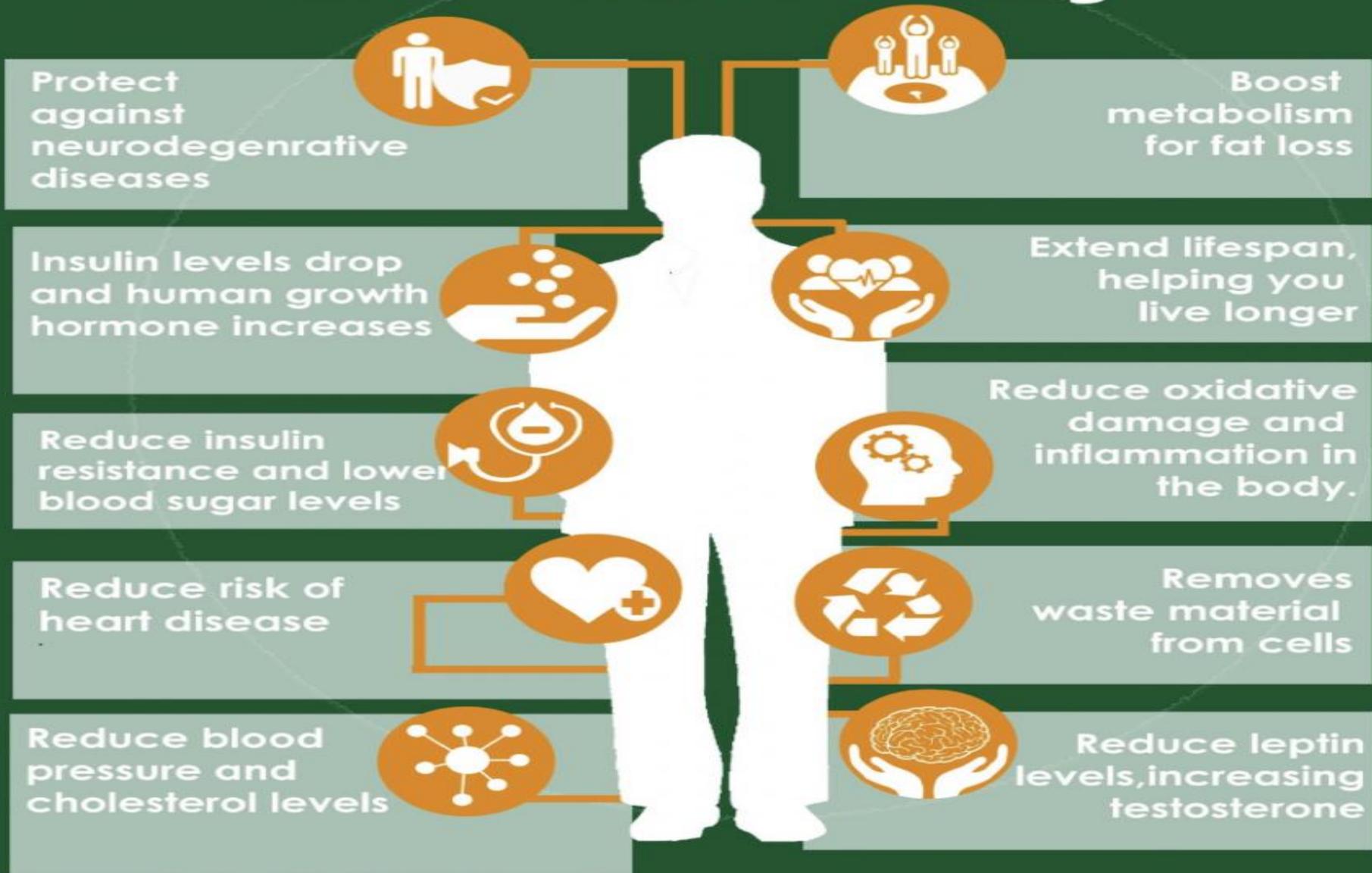
- Metabolic flexibility – Is the ability to switch back and fourth between the two major energy substrates—glucose and fat based on availability and need.



3.



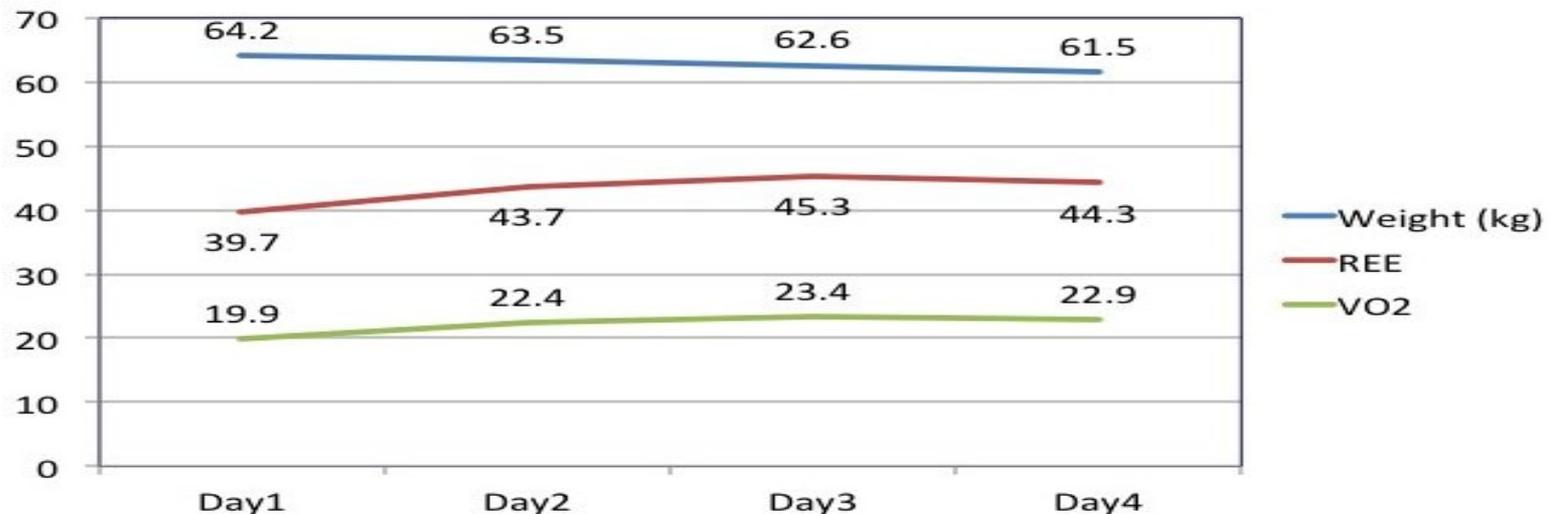
# 10 Benefits of Intermittent Fasting



# FASTING

- Chronic calorie restriction reduced basal metabolic rate, where intermittent fasting did not.
- Chronic intermittent fasting increases ghrelin (hunger hormone) where fasting did not.

**Metabolic Changes over 4 days of fasting**



# 5 Types of Fasting



<b>Simple Fast:</b>	12 hours
<b>Cycle Fast:</b>	16 hours - 3x weekly
<b>Strong Fast:</b>	16-18 hours daily
<b>Warrior Fast:</b>	19-21 hours daily
<b>1 Day Fast:</b>	Full 24 hour fast each week

# FASTING

- A pound of fat supplies app 3,500 calories of energy
- 180 pound man with 25% body fat = 45 lbs body fat  
– enough body fat to carry him for 90 days without eating any food whatsoever before he is in danger of wasting.



**382** days without food.

The longest ever fast!



## 382 DAYS

@fastingnews



546 likes

**fastingnews** Believe it or not (it's in the Guinness Book of World Records) the longest recorded fast lasted 382 days. In 1965, Angus Barbieri, 27, weighing 456 pounds (207 kg), started what was initially supposed to be a 40 day fast.

However, encouraged by his progress, he decided to go on until he reached his goal weight of 180 pounds (82 kg). The fast was supervised by health professionals who prescribed Angus a daily vitamin supplement, vitamin C, yeast for B vitamins, and the occasional electrolyte supplement. He was allowed to consume any non-caloric beverage as he wished, such as tea, coffee, and sparkling water. On day 382 of the fast, he had lost a total of 276 pounds (125 kg), weighing in at his goal weight of 180 pounds (82 kg). What's more, is that he experienced no significant adverse side-effects and five years following the fast, he had maintained his weight loss at ~196 pounds (89 kg).





# 4. BUILD MUSCLE



# BUILD MUSCLE

- Muscle mass is a predictor of longevity in older adults (6)
- Increased muscle mass improves metabolism (7)
- Muscle is responsible for 80% of post-prandial glucose uptake (9)
- Increased muscle mass improves insulin resistance(9)

# BUILD MUSCLE

- Move – light easy exercise particularly in a fasted state. Shoot for 10,000 steps/day
- Strength Training – lift something heavy twice weekly.
- HIIT Training – 1-2 times a week
  - Tabata intervals – 20 sec hard followed by 10 sec rest
  - Sprinting, swimming, cycling, etc..
- **Stop Chronic Cardio** – increases cortisol which leads to a disregulation of other hormones including insulin.

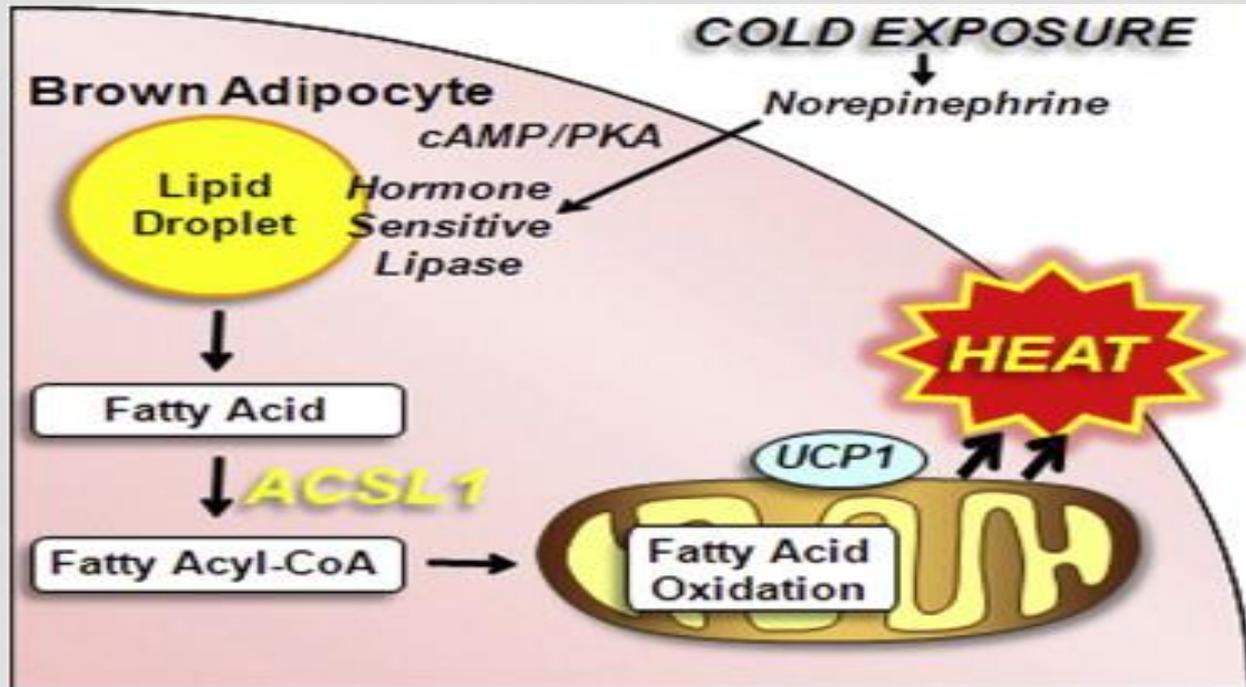
## 5. OPTIMIZE HORMONES

- Thyroid – TSH, Free T3, Free T4, Reverse T3
- Testosterone in men and women
- Estrogen in women
- Vitamin D
- Decreased **Cortisol**
  - **stress**

## 6. COLD THERMOGENESIS



# BAT ACTIVATION



# ADIPONECTIN ACTIVATION

- Adiponectin is a hormone released during cold exposure that breaks down fat and shuttles glucose into muscles (which can lower blood sugar). This not only has an anabolic, muscle repair effect, but can also enhance recovery. Interestingly, low adiponectin levels have been associated with obesity, diabetes, and cardiovascular disease.

# HIGHER METABOLISM & LOWER BLOOD SUGAR

- Cold exposure can cause blood glucose to be burned rapidly as fuel to assist in heating the body or stored in muscles to enhance recovery or performance – before that blood sugar can potentially be converted to fat via the liver.
- When the metabolism of human BAT is studied using a combination of positron emission tomography (PET) combined with computed tomography (CT), glucose uptake has been observed to increase 12-fold in BAT by exposure to cold temperatures, along with a significant increase in metabolism and energy expenditure.

# ENHANCED IMMUNE SYSTEM

- Cold therapy has been proven to enhance the immune system, primarily by increase levels of immune system cells that help fight disease and infection.
- Specifically, cold exposure – likely due to it's ability to stimulate norepinephrine release – can induce leukocytosis and granulocytosis, an increase in natural killer cell count and activity, and a rise in circulating levels of interleukin-6, all of which can massively improve your immune system integrity.

# INCREASED CELL LONGEVITY

- Cold exposure has an effect on cellular longevity by similar decreasing mTOR pathways and stimulating AMPK as caloric restriction and intermittent fasting. Basically, you can think of it as a combination of simultaneously increasing your cell's hardiness and health.

# DYI COLD POOL



# DYI COLD POOL

- Freezer
- Cold shower
- Bath
- Bengreenfieldfitness – DIY Cold Thermogenesis
- Dr. Jack Kruse – [www.jackkruse.com/coldthermogenesis](http://www.jackkruse.com/coldthermogenesis)
- Wimhof - <https://www.wimhofmethod.com/>

# SUMMARY

- 1. Decrease carbohydrates especially processed carbs
- 2. Eat more fat and protein
- 3. Fast
- 4. Exercise to build muscle
- 5. Optimize Hormones
- 6. Get Cold

# RESOURCES

- The Obesity Code – Dr. Jason Fung, M.D.
- Why We Get Sick – Dr. Ben Bickman, PhD
- [www.dietdoctor.com](http://www.dietdoctor.com)
- [www.insuliniq.com](http://www.insuliniq.com)
- Fit Rx Podcast
- Youtube: Dr. Ken Berry, M.D.

“PEOPLE MAY  
DOUBT  
WHAT YOU SAY,  
BUT THEY WILL  
*believe*  
WHAT YOU DO”

~LEWIS CASS

# WALK THE TALK (BE THE EXAMPLE)



# CONTACT INFO

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- [405-376-1381](tel:405-376-1381)



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# QUESTIONS

