



# INSULIN RESISTANCE, FAT LOSS AND ENERGY METABOLISM

What Causes Insulin Resistance and How to Fat to Reverse it.

*KetoMaria.com*



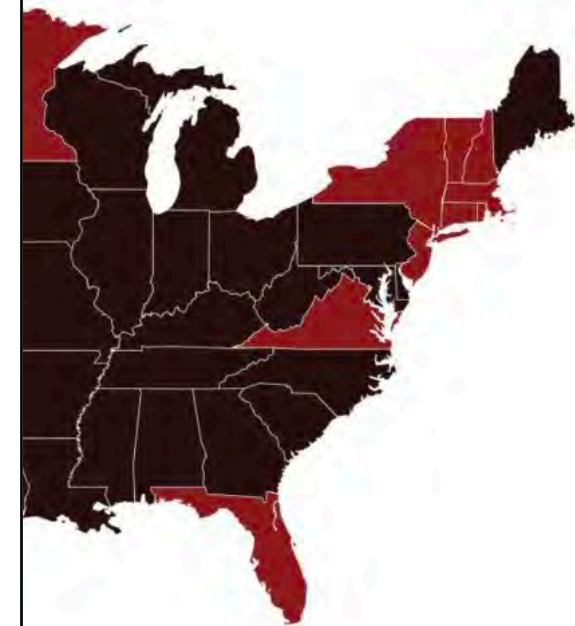
# ABOUT ME

- Maria's Husband
- Dealt with over 9 years of chronic Lyme Disease
- Tried everything you can imagine
  - Cavitation surgery, fillings replaced, IV therapy, Ozone, tons of supplements, parasite treatments, mold, heavy metals, etc.
- Currently have CIRS and ankylosing spondylitis
- Continue to do everything I can to find relief from chronic pain
- Eating the Carnivore diet provides some pain relief, more than most things
- Recently, Hyperbaric Oxygen treatments have really helped join pain



# CONSEQUENCES OF OBESITY IN AMERICA

Obesity by 2030



Gilles CM, Flax CN, Long MW, Gortmaker SL. Projected U.S. State-Level Obesity. N Engl J Med. 2019;381:2440-50. doi: 10.1056/NEJMs1909301



Map: Jeremy Key. Source: GHDX • Created with Datawrapper

DATA FROM 2021 RELEASE





# INSULIN

What is insulin's role in the body?

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# INSULIN'S ROLE – STORAGE HORMONE?

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- Is Insulin a storage hormone?
  - Yes, it helps store fuels (Fat, Carbs) and utilize Amino Acids (Protein)
- But there is a lot more to it.
  - GLUT1 allows cells to use glucose without insulin
    - Source: <https://www.sciencedirect.com/topics/neuroscience/glucose-transporter>
  - Exercise stimulates cells low in fuel to float blood to surface and allow glucose to be absorbed without insulin
    - Source: <https://www.ncbi.nlm.nih.gov/books/NBK537322/>
  - Studies have shown that 83% of glucose uptake occurs without insulin (GLUT1, etc.).
    - Source: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2894300/>

# INSULIN'S REAL ROLE – FUEL THERMOSTAT

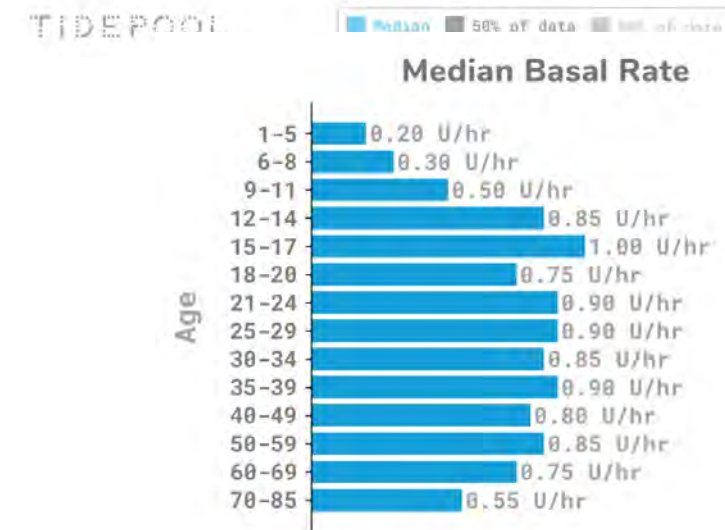
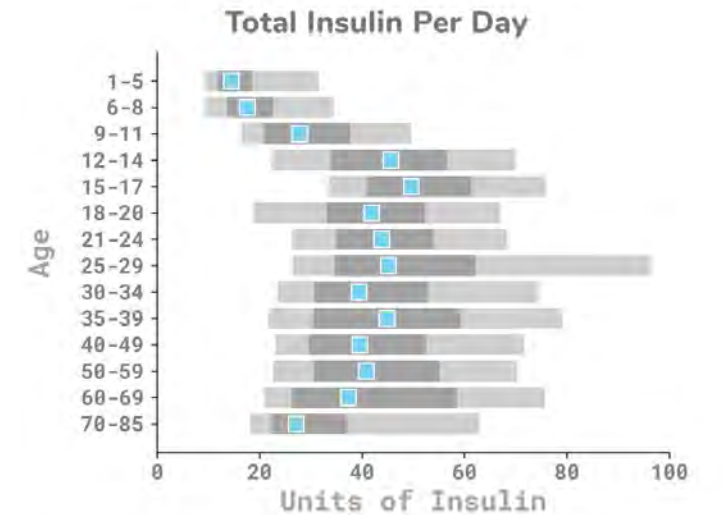
- Insulin **Holds Back** glucose and fat from flooding the bloodstream.
- But more accurately, Insulin is a thermostat.
  - Regulates Fuels in the blood
  - Not enough fuel (working out, etc.), lowers insulin to allow more fuel into blood
  - Too much fuel (ate a meal), increases insulin to remove excess fuel from the blood
- Like a net on your fat cells holding back fuel



# BASAL INSULIN MUCH GREATER THAN TRANSIENT SPIKES

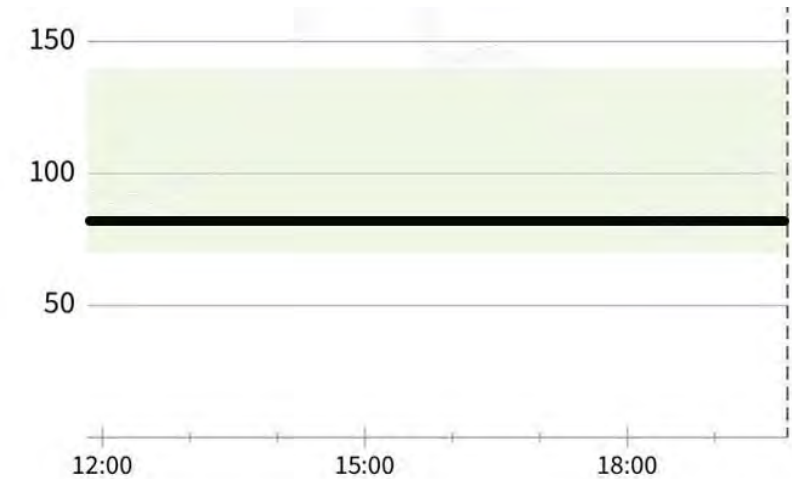
- Your body will use 90% of the daily insulin to maintain basal or baseline levels (eating low carb)
  - Around 0.9 U per hour on average or **21 units insulin per day**
  - Could be **upwards of 1.75 units per hour in obese people**
- Only 10% will be for meals
  - **2-3 units per day for meals (eating low carb)**
  - Closer to 10-20 units per daily when eating high carb
- **If eating low carb, fearing insulin rises with food (protein, sweeteners, etc.) is not useful**
- **Insulin can't store fat you didn't eat**

Source: <https://www.tidepool.org/blog/lets-talk-about-your-insulin-pump-data>



# DON'T FEAR NORMAL GLUCOSE FLUCTUATIONS

- Some people think blood glucose levels should look like this:
- You want some fluctuations in glucose levels
  - Eating protein or any food
  - Exercise
  - Good stress (sauna, cold therapy, etc.)
- Don't get hung up on a CGM glucose level (If eating low carb)
- Focus on getting macros right instead

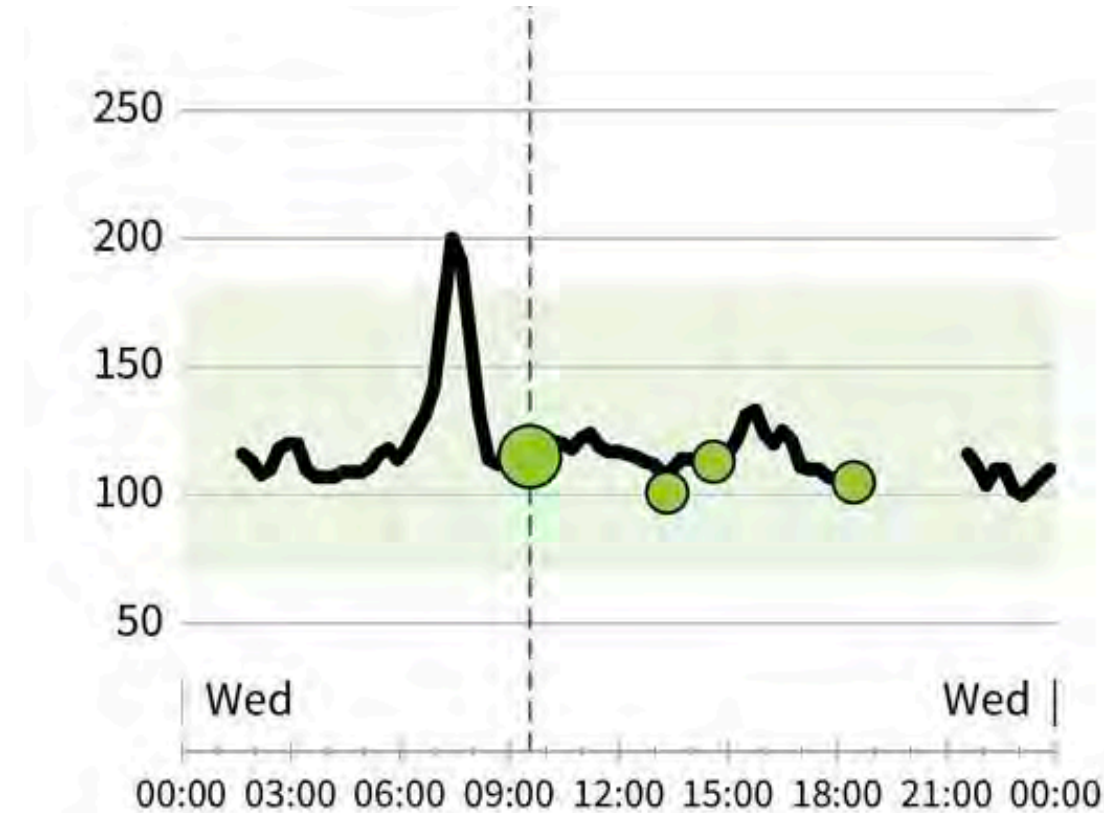


“Recently had 2 weeks worth of checking blood sugars and found out that they sky rocketed after exercising. The more intense exercise the higher the number went. **So now I’m not sure what to think of exercise...** Have you ever encountered that before with any of your clients?”



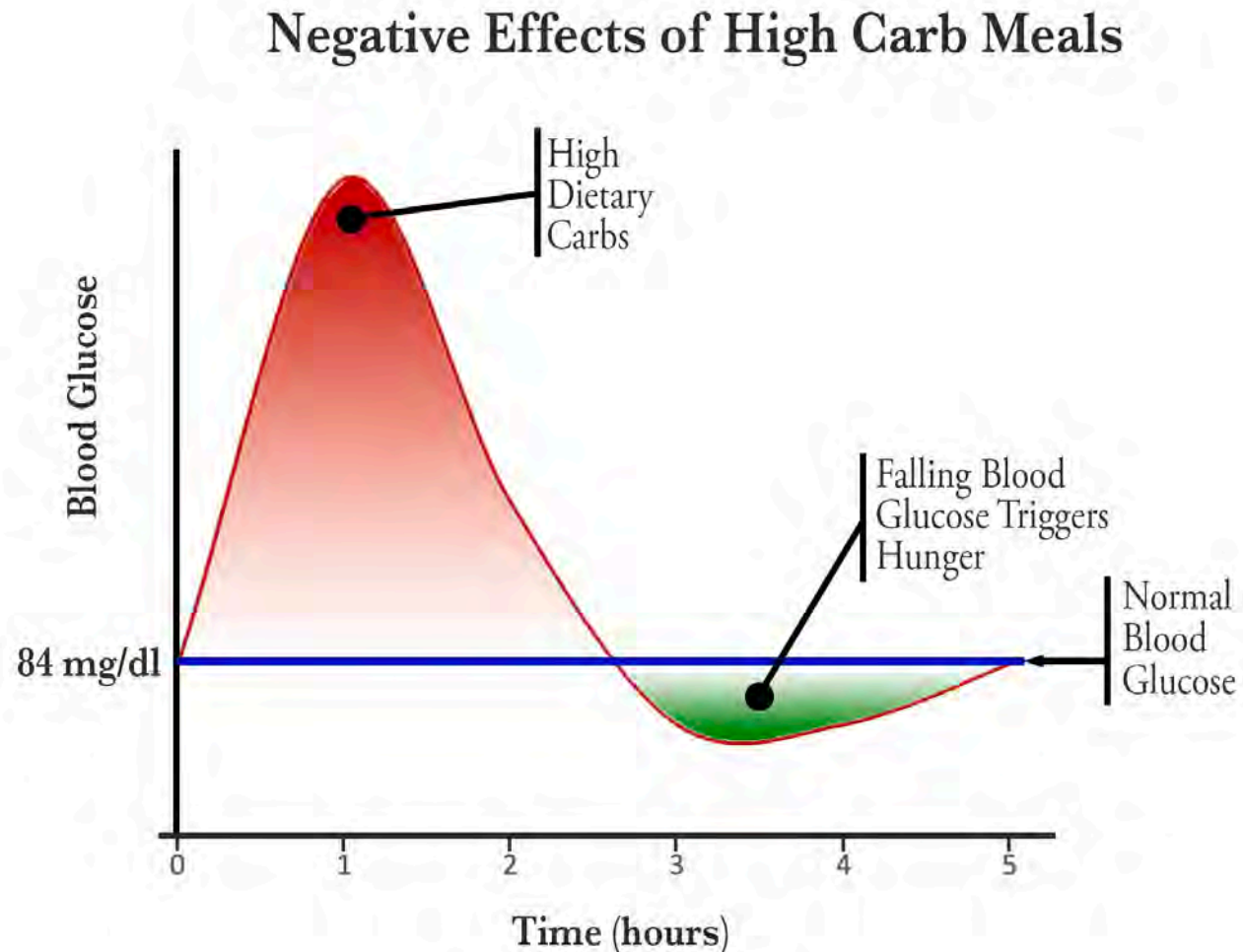
# GOOD GLUCOSE SPIKES

- Can there be Good Glucose Spikes?
  - Exercise
  - Sauna
  - Cold Therapy/Cold Plunge
- This glucose spike is because insulin went DOWN
  - To give your cells more energy



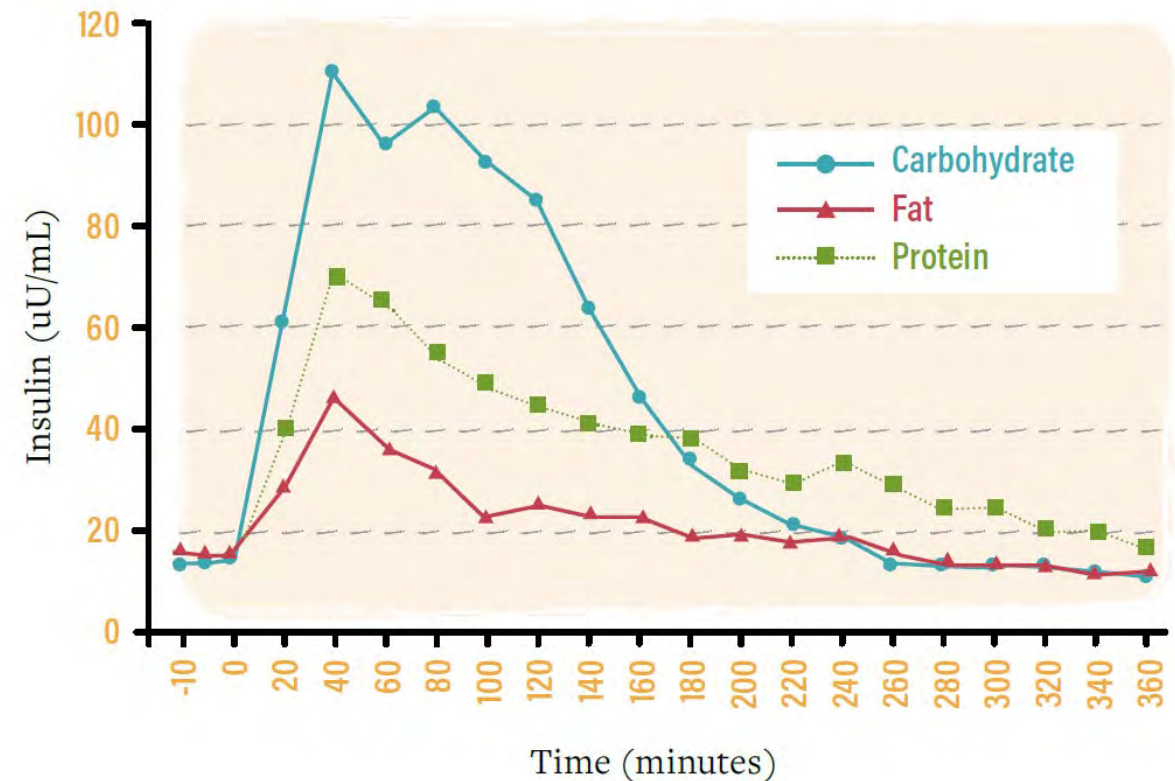
# BAD GLUCOSE SPIKES

- High Carb Meals
- Too Much Glucose in blood is toxic
- The falling blood sugar causes hunger
- This is the biggest problem with high carb diets
  - After 1,000 calorie milkshake, you are hungry again in 2 hours



# FAT DOESN'T AFFECT INSULIN?

- Some believe that fat doesn't affect insulin. Is this true?
- It does, just less than protein or fat
- You want fat eaten to be stored in fat cells
  - Otherwise, triglycerides would be sky high
- Acylation-stimulating protein (ASP) will place dietary lipids in storage without a rise in insulin levels

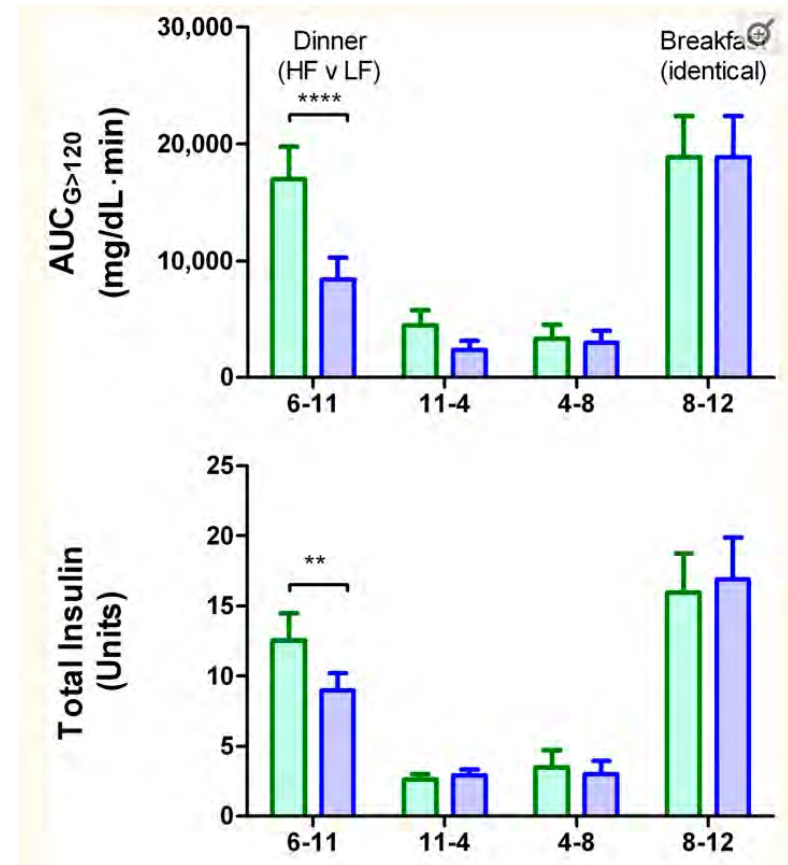
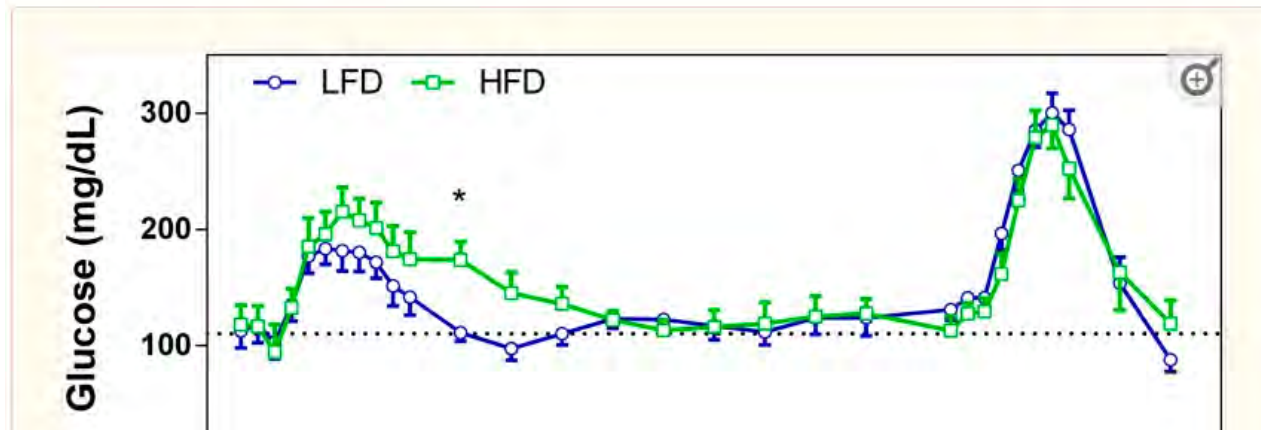


Source Study: Acyl and Total Ghrelin Are Suppressed Strongly by Ingested Proteins, Weakly by Lipids, and Biphasically by Carbohydrates." The Journal of Clinical Endocrinology & Metabolism, Volume 93, Issue 5, 1 May 2008, Pages 1971-1979, <https://doi.org/10.1210/jc.2007-2289>



# INSULIN NEEDS GO UP WITH FAT

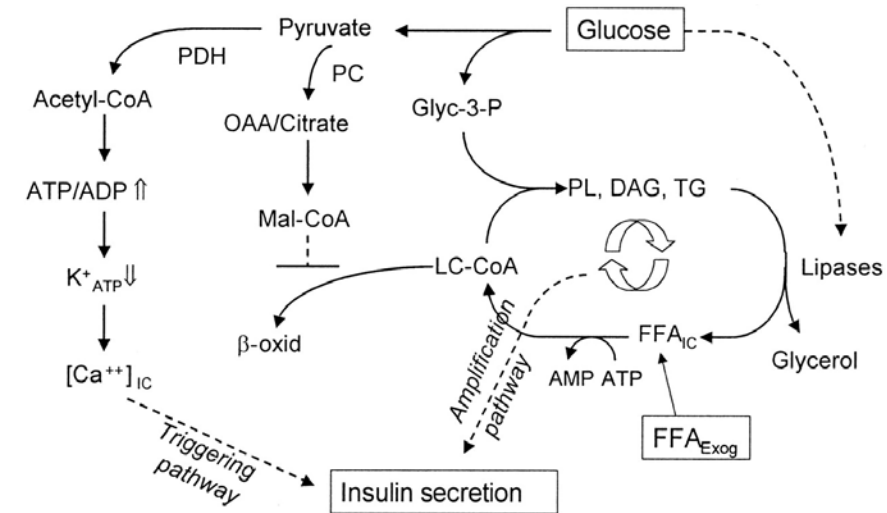
- Study of **Type 1 Diabetics**
- Identical protein and carb meals, just varying fat 10g to 60g in the meals
- Higher fat required a 42% increase of insulin for the day



Source Study: Dietary Fat Acutely Increases Glucose Concentrations and Insulin Requirements in Patients With Type 1 Diabetes, PMID: 23193216, PMCID: [PMC3609492](https://pubmed.ncbi.nlm.nih.gov/PMC3609492/), DOI: [10.2337/dc12-0092](https://doi.org/10.2337/dc12-0092)

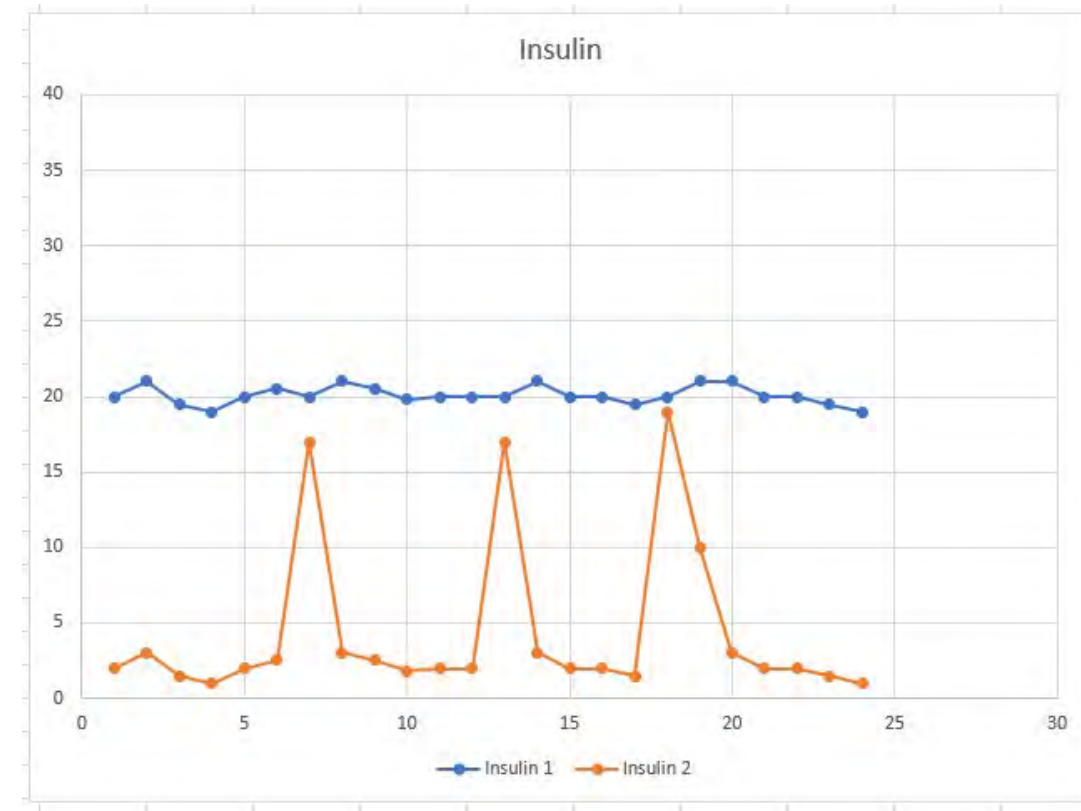
# FAT IS AN AMPLIFIER

- Lipids (fats in the blood) act as an amplifier for the Pancreas
- Presence of fatty acids increased the pancreas output of insulin in response to protein and carbs
  - Many metabolically damaged clients see a blood sugar low when eating more protein because they are eating too high in fat.
- This is how the body compensated for higher insulin needs of high fat meals



# BASAL INSULIN VERSUS INSULIN SPIKES

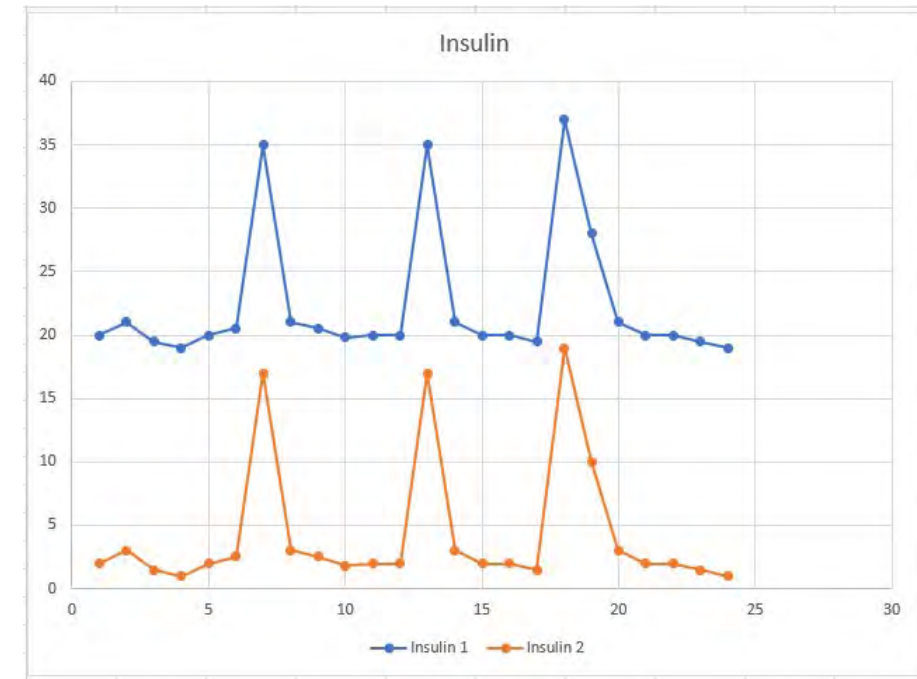
- Higher fasting insulin and high insulin spikes from food are both bad
- What if we lowered insulin spikes?
- Fasting insulin is still a bigger problem
- By far the biggest impact on overall insulin output will be to **lower fasting insulin**
- Biggest Goal in reversing insulin resistance is to lower fasting insulin





# MYTH: LOW INSULIN MEANS MORE FAT BURNING?

- Does lowering insulin mean more fat is released from fat cells?
- If it did, where would it go?
  - Stays in blood, sky high triglycerides
- It must be burned as fuel or go right back into storage
  - Sitting on the couch, not burning much fuel
  - Fat Flux (more on this later)
- And even with high insulin, your cells still get fuel, including fat
  - You don't collapse and pass out



# INSULIN

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- Insulin is not the enemy
  - You need it to utilize fuels and turn protein into muscle
- Small Transients of insulin aren't a problem
  - **Very large transients from high carbs are a problem because they drive more hunger**
- Insulin acts as much as a dam holding back energy as it is a storage hormone
  - Think of it as a “net” holding back fat from flooding your bloodstream
  - That is why obese people have high fasting insulin, you need to hold back a lot more fat.
- Chronically elevated insulin is a bigger problem
  - High Basal or fasting insulin
- **SO HOW DO YOU LOWER FASTING INSULIN? Glad you asked!**





# PERSONAL FAT THRESHOLD

What is the main driver of insulin resistance?

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# PERSONAL FAT THRESHOLD

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- After childhood, almost everyone stops making more fat cells (adipose)
- Adults either fill up or empty their existing fat cells
- Some people have many fat cells, some have very few



**Person with Low  
Personal Fat Threshold**



**Person with High  
Personal Fat Threshold**

# FAT CELLS CAN GET OVERSTUFFED

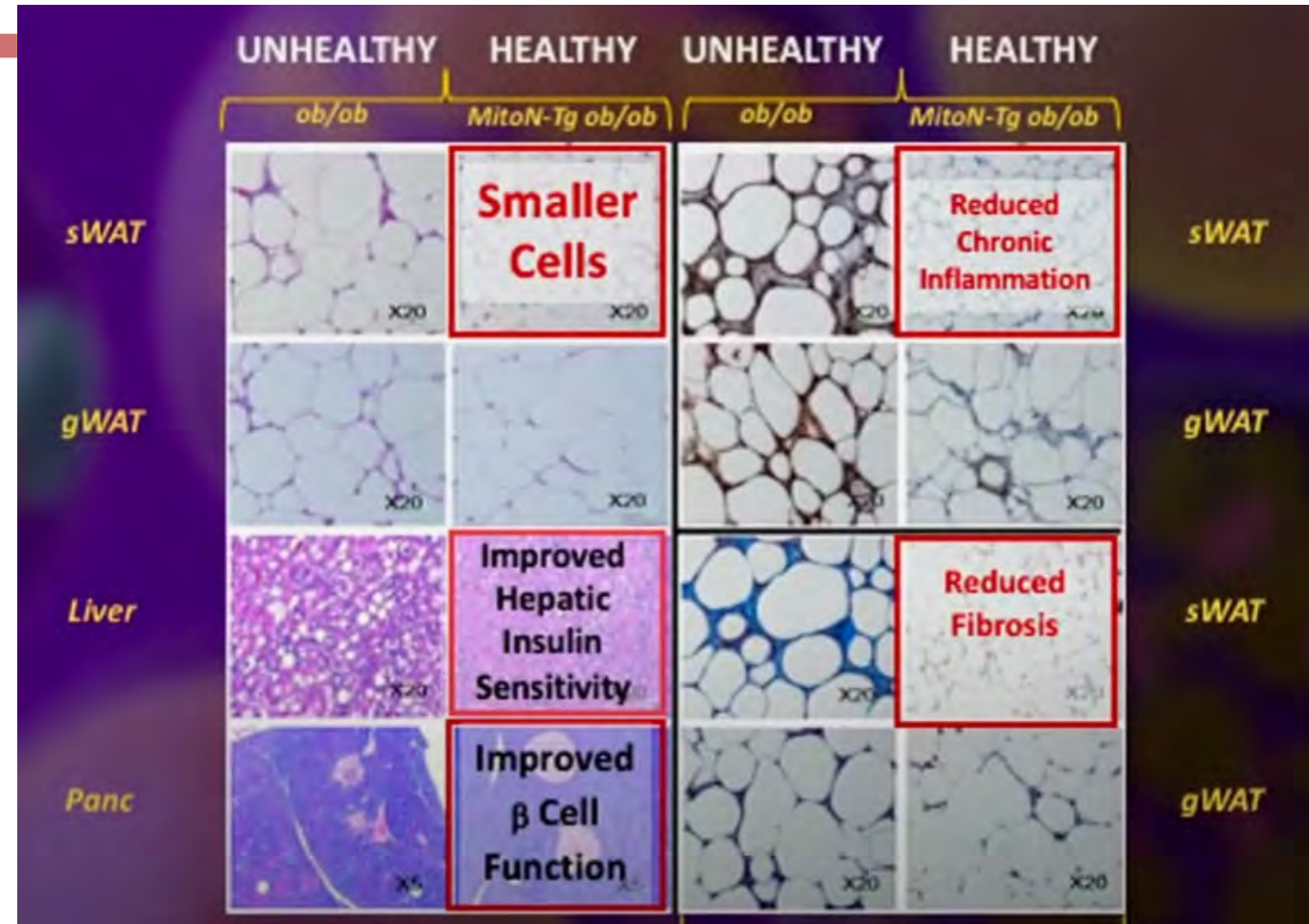
- Fat cells (adipose) are like balloons, you can only fill them with so much fat
- As a fat cell gets overstuffed, it rejects insulin (become insulin resistance)
  - To stop fat coming into the cell and prevent it from bursting
- As many of your fat cells get overstuffed, the body runs out of places to store dietary fat
- Fat accumulates in places it shouldn't be:
  - Liver, pancreas, etc. You are now insulin resistant
  - **Fasting Insulin rises**



**Insulin**

# HEALTHY VS. UNHEALTHY FAT CELLS

- Smaller fat cells are healthier
- Less fibrosis is better
- Less fat in liver and pancreas means better function
- Fat Cells growing and becoming dysfunctional (Insulin Resistant)

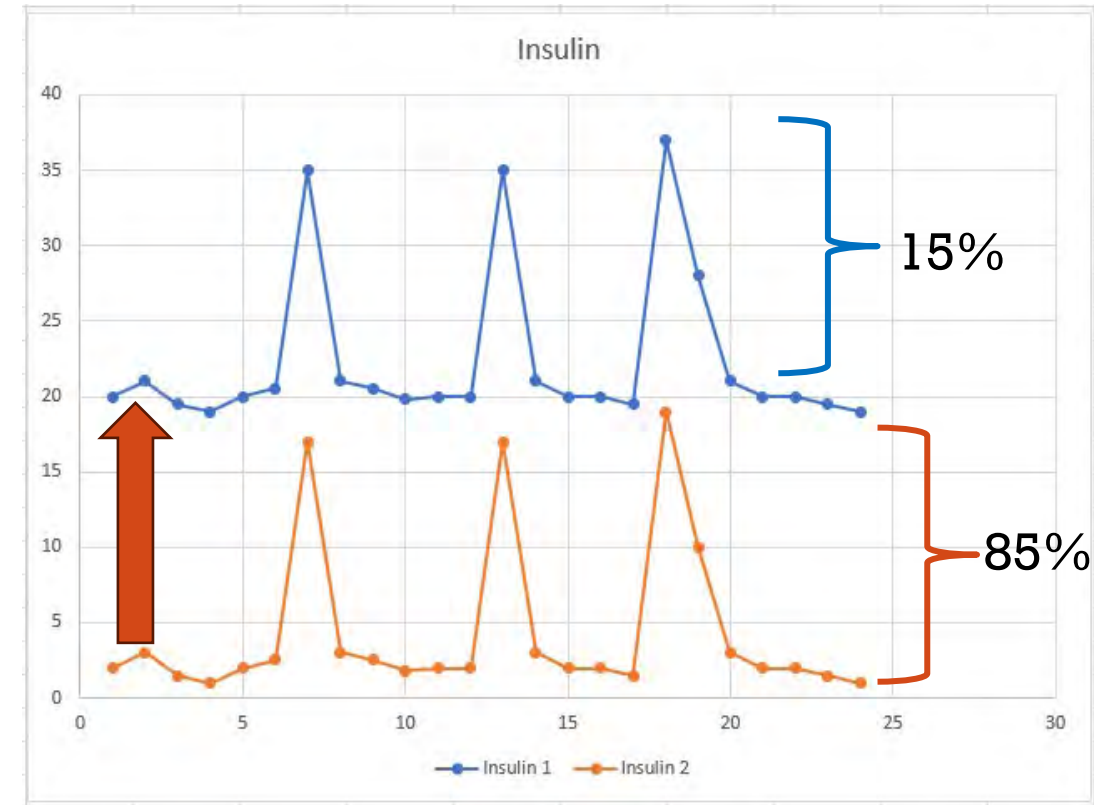


Source: <https://www.youtube.com/watch?v=zEBfwwpcTzU>



# PERSONAL FAT THRESHOLD

- When fat cells are overstuffed, fasting insulin rises
- Much Higher fasting insulin as you approach personal fat threshold
- By far the biggest impact on overall insulin output will be to lower fasting insulin
- Biggest Goal for reversing insulin resistance is to **lower fasting insulin**

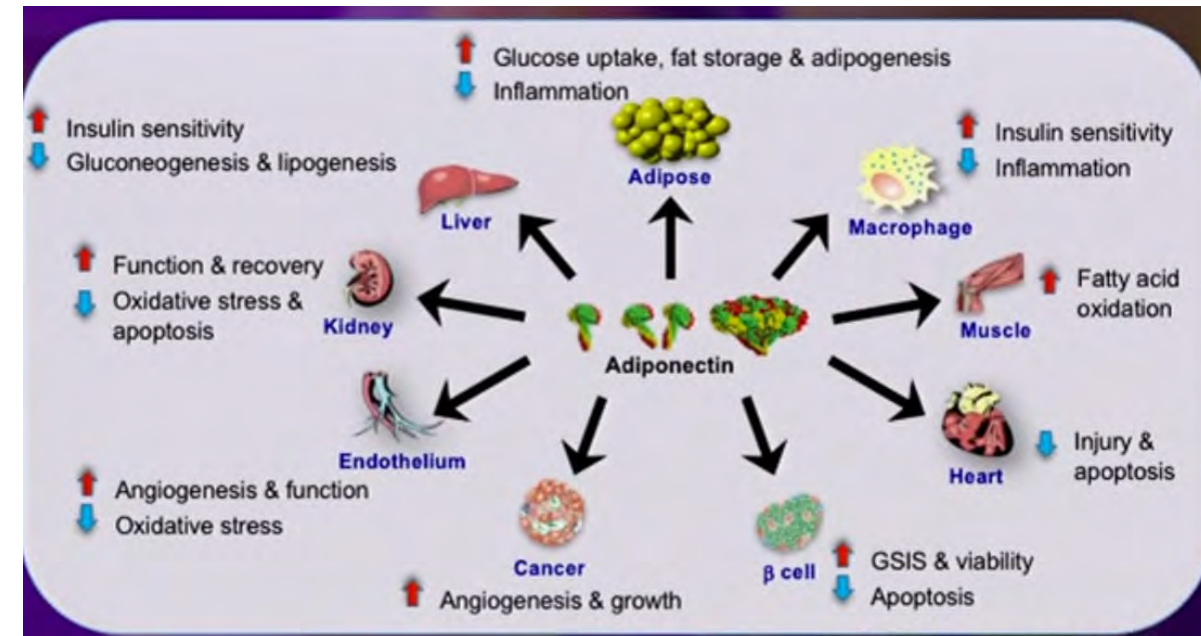


# MEASURING IF YOU ARE CLOSE TO YOUR PERSONAL FAT THRESHOLD?

- Best is to measure Adiponectin
  - Happy fat cells put out adiponectin
  - Stuffed and inflamed fat cells put out less adiponectin
  - 1,000s of studies about adiponectin effects
- Most doctors don't run this test or know what to do with the results
- Fasting insulin is a good proxy
- Fasting insulin AND fasting glucose helps too
- HOMA-IR is a calculation that uses both



Source: <https://www.youtube.com/watch?v=zEBfwwpcTzU>



# HOMA-IR

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- Can help identify insulin resistance
- Ranges:
  - **LESS THAN 1.0** MEANS YOU ARE INSULIN-SENSITIVE - THIS IS OPTIMAL.
  - **ABOVE 1.9** INDICATES EARLY INSULIN RESISTANCE.
  - **ABOVE 2.9** INDICATES SIGNIFICANT INSULIN RESISTANCE.

$$\text{HOMA-IR} = (\text{fasting insulin (mU/L)} \times \text{fasting glucose (mg/dL)}) / 405$$



# FASTING INSULIN

$$\text{HOMA-IR} = \frac{85 \times 20}{405} = 4.2$$

Glucose



Fasting Glucose Normal

85 mg/dl

Insulin



BUT Pancreas working really hard to keep glucose normal

20 mIU/L

# FASTING INSULIN

$$\text{HOMA-IR} = \frac{105 \times 2}{405} = 0.5$$

## Glucose



Fasting Glucose Normal

105 mg/dl

## Insulin



BUT Pancreas is in cruise control.

2 mIU/L



# CASE OF NEW FAT CELL GENERATION

- Tyler currently 575 pounds
  - Started at 645 pounds
- Unlike most of us, **Tyler can make more fat cells** (currently age 38)
- What **should** his labs look like?
  - Expect High insulin, high glucose, high A1c, High triglycerides, high HOMA-IR
  - All the markers of insulin resistance





# TYLER'S LABS

- Fasting glucose of 50
  - (normally around 90)
- Fasting insulin of 3.51
- Triglycerides of 77
- HDL of 42
- A1c of 5.6
- **HOMA-IR of 0.4**
- Blood markers show no insulin resistance
- If **high insulin drives obesity**, why is he so obese?

**US Specialty Labs LP** CLIA  
15150 Avenue of Science, Suite 100  
San Diego, CA 92128  
ph: 858.209.2300 fax: 858.209.2301  
Lab Director: Robert Veve, M.D.

Patient: Tyler  
Patient #: [REDACTED]  
Doctor: [REDACTED], Michael

Organization: Spot Health Inc.

			Sample Type	ADX Card Serum
Test Name	Result	Units	Flag	Reference Range/Cutoff
Weight Biology Panel (SK)				Run by ~AV on 4/18/2023 3:12:38 PM at Location: 2
HDL Cholesterol	42	mg/dL		23 - 92
LDL Cholesterol	76	mg/dL		0 - 130
Triglycerides	77	mg/dL		0 - 150
Glucose	50	mg/dL	LOW	70 - 105
Thyroid Stimulating Hormone (TSH)	1.86	uIU/mL		0.45 - 5.33
% Hemoglobin A1C	5.6	%		3.8 - 6.4
Insulin	3.51	uIU/mL		1.90 - 23.00
Vitamin B12	282.0	pg/mL		180.0 - 914.0

#### ADX

Run by ~AV on 4/18/2023 2:00:46 PM at Location: 2

**Location 2:** US Specialty Labs LP CLIA #05D2130115 15150 Avenue of Science, Suite 100 San Diego, CA 92128 ph: 858.209.2300 fax: 858.209.2301 Lab Director: Robert Veve, M.D.

Not good was just after Easter. I remember thinking the night before it might be really bad. My last meal before 13 hour fast was cookies and cream ice cream with Oreos crushed in it

Or close to Easter at least. I know I had a lot of bad food in the house

This doesn't mean he is healthy at his size.

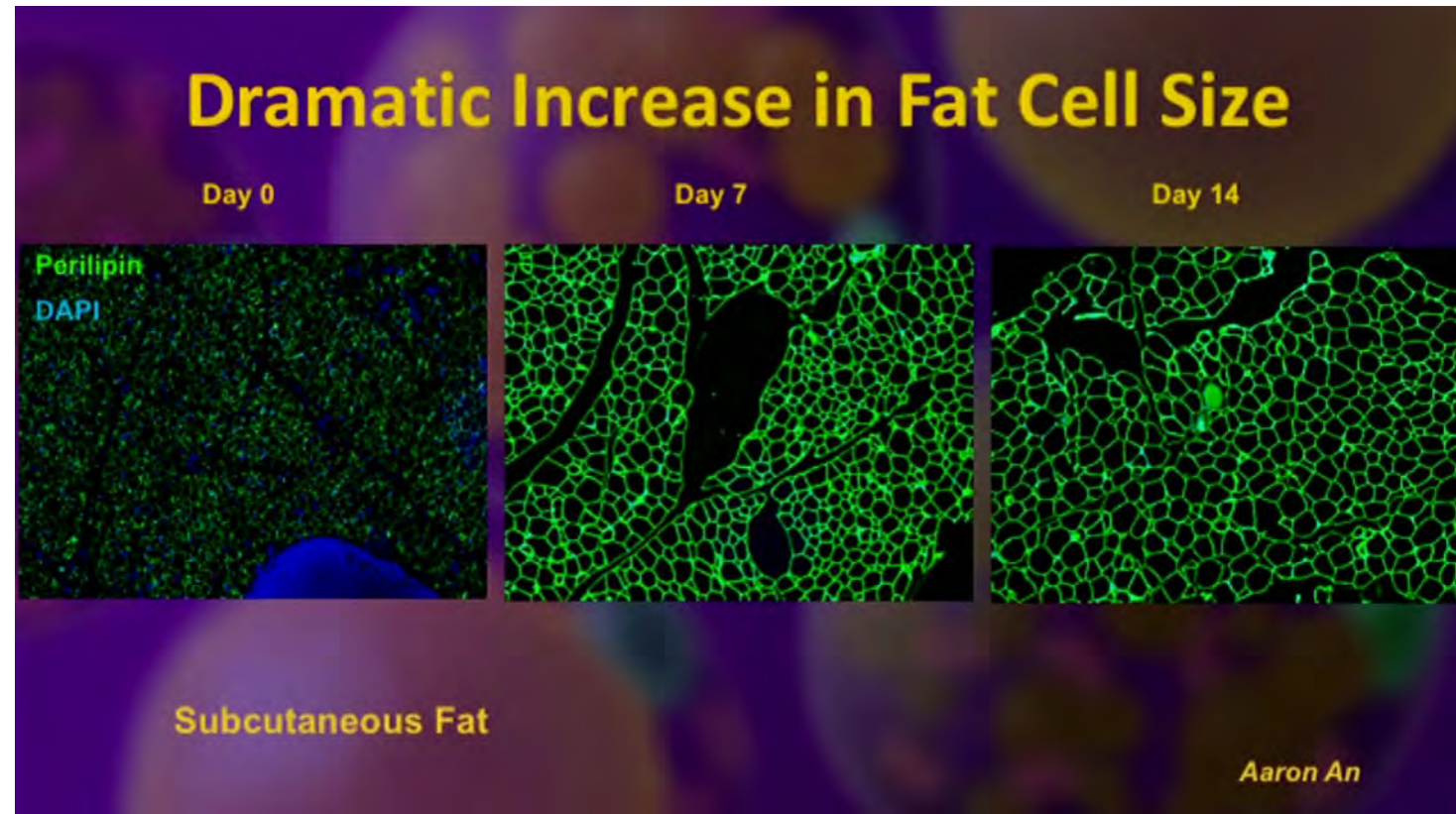
# THIS DOESN'T MEAN HEALTHY AT ANY SIZE

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- Tyler is working hard at losing weight, his life depends on it
- The pressure on joints, organs, heart
- Just shows how metabolically you can stay healthy if you make new fat cells and keep them small.
- Less excess body fat means more health, regardless of insulin resistance

# HAPPY FAT CELLS

- You want fat cells that are not inflamed
- This can be very few cells or a lot
- Metabolically more flexible
  - Can add a little weight gain without the system breaking
  - Liposuction will reduce number of fat cells making you more likely to get insulin resistant.
- Small fat cells are happy fat cells





# PERSON FAT THRESHOLD SCIENCE

- **Top Studies:**

<https://pubmed.ncbi.nlm.nih.gov/25515001/>

<https://pubmed.ncbi.nlm.nih.gov/11681812/>

<https://www.ncbi.nlm.nih.gov/books/NBK555602/>

<https://www.intechopen.com/chapters/52454>

<https://doi.org/10.1172/JCI105705>

<https://doi.org/10.1007/s00125-015-3810-6>

<https://doi.org/10.1096/fj.09-133058>

<https://doi.org/10.3109/10408363.2015.1041582>

<https://doi.org/10.1042/CS20140553>

<https://doi.org/10.1097/MED.0b013e3283514e13>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4587882/#>

<https://pubmed.ncbi.nlm.nih.gov/12784183/#>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2995547/>

- **Top Lipidologist (Philipp Scherer Ph.D):**

<https://www.youtube.com/watch?v=zEBfwwpcTzU>

**One study is from 1965**



# HOW OUR BODIES PROCESS FUELS

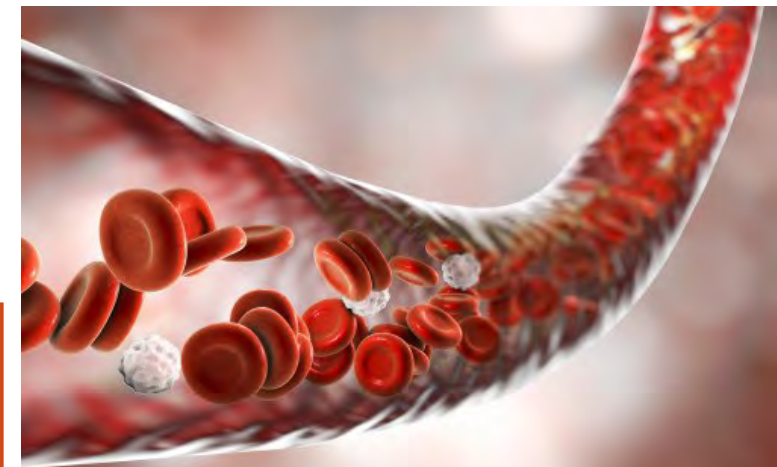
Alcohol, Carbs, Ketones, Protein and Fat

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# BLOOD VESSELS ARE LIKE FUEL LINES

- You want to control how much fuel gets to the engine
  - Too much fuel can blow the engine
- Body tightly controls how much fuel is in the blood (like a thermostat controls temp)
- Too much of any fuel is BAD:
  - Too high alcohol = Alcohol poisoning
  - Too high ketones = Ketoacidosis
  - Too high glucose = Hyperglycemia
  - Too high fat = Hypertriglyceridemia



At rest, the total of all fuels in the blood (Ketones, glucose, fatty acids) is about 80 calories.

# OXIDATIVE PRIORITY

- Body must prioritize fuels
  - At rest, only 80 calories of fuel in blood
- Reversed order of storage capacity
- Protein isn't really a fuel
  - Unless there is no other choice
  - No carbs or fat in diet, and none on the body
- Carbs and Fat are fuels

## Oxidative Priority Example

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A Meal Composing of:

**A couple beers, a cheeseburger and french fries.**



**Alcohol in beer.**

No storage so has to be burned first in the cells.



**Carbs in bun, beer, fries, etc.**

Stored in muscle and liver glycogen.



Excess carbs are turned into fat and also stored in fat cells.



**Protein in burger.**

Used to build muscle. Only used as a fuel when others aren't available.



**Fat in burger, cheese, etc.**

Stored in fat cells (Adipose).



**KETO/CARNIVORE REMOVE OTHER FUELS  
ALLOWING BODY TO BURN PRIMARILY FAT**

Source: The Best Selling Book "Keto." by Craig and Maria Emmerich

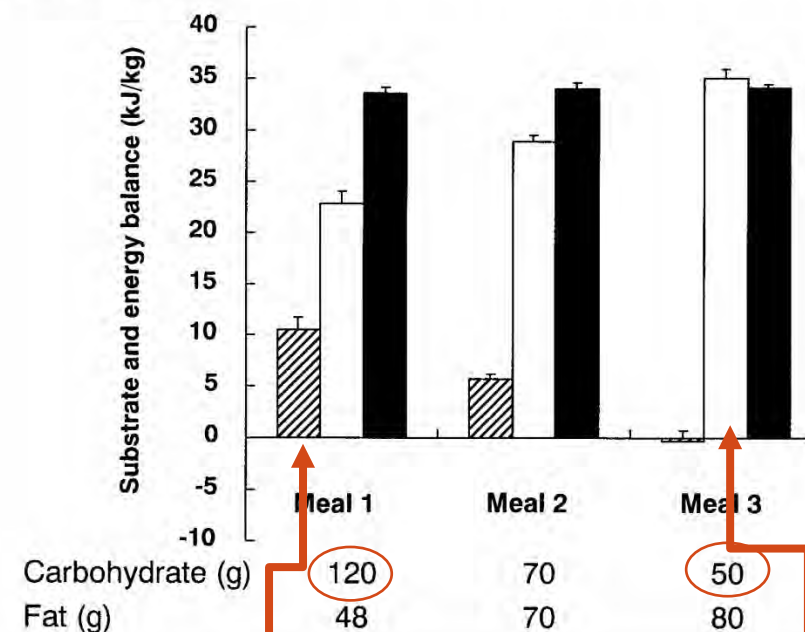


# CARBS DISPLACE FAT

- Protein is for muscle, vitamins, minerals, amino acids.
- If trying to lose weight, you must pick one fuel, Fat or Carbs.
  - More carbs you eat, less fat is burned by priority
- But carbs drive crazy hunger and have little satiety.
- **We keep carbs to a minimum (20g or less total carbs).**
- **Prioritize Protein**
- **And adjust fat based on goals.**

**Figure 1 |** Substrate and energy balance measured over 5 h following ingestion of three different isoenergetic meals varying in macronutrient composition

Meal composition is shown below the histogram. Substrate and energy balance are calculated from the amount ingested and the amount oxidized/expended, measured by indirect calorimetry. Energy balance (solid bars) was identical after the three meals but oxidation of carbohydrate (hatched bars) and fat (open bars) varied reciprocally in accordance with the composition of the meal. Data from [45].



Carbohydrate  
Oxidation

Fat  
Oxidation





# FAT METABOLISM

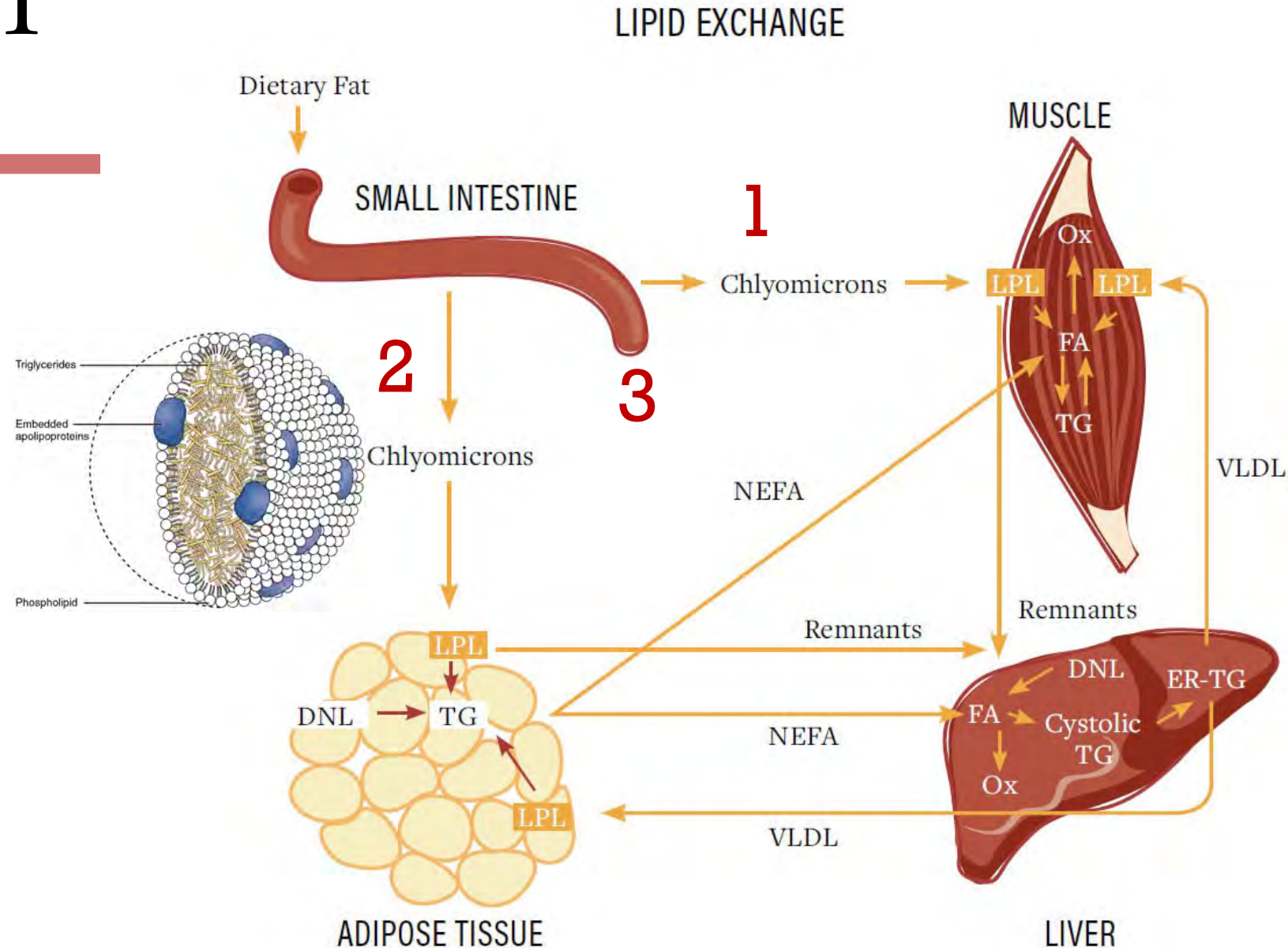
What happens to fat when we eat it?

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# DIETARY FAT

- Dietary fat has three biological pathways
  1. Burned as fuel
  2. Stored in fat cells
  3. Passed through colon
- Other uses (cellular walls, etc.) are tiny in comparison to these pathways.
  - Cellular walls, etc.



# DIETARY FAT THROUGH COLON?

- Does it pass through the colon?
- Studies show that only about 1-3 grams of dietary fat intake ends up in the stool.

[Study Link.](#)

- Olestra resulted in “anal leakage” due to an extra 10-20g fat a day.

[Study Link.](#)

- A large amount of fat in stool is not normal and would be very uncomfortable (think “anal leakage”).

Study varied dietary fat from 62g/day to 152g/day. Fecal output of fat was 1.14g to 3.1g. An increase of 1.96g of fat on average when increasing dietary fat by 90g!



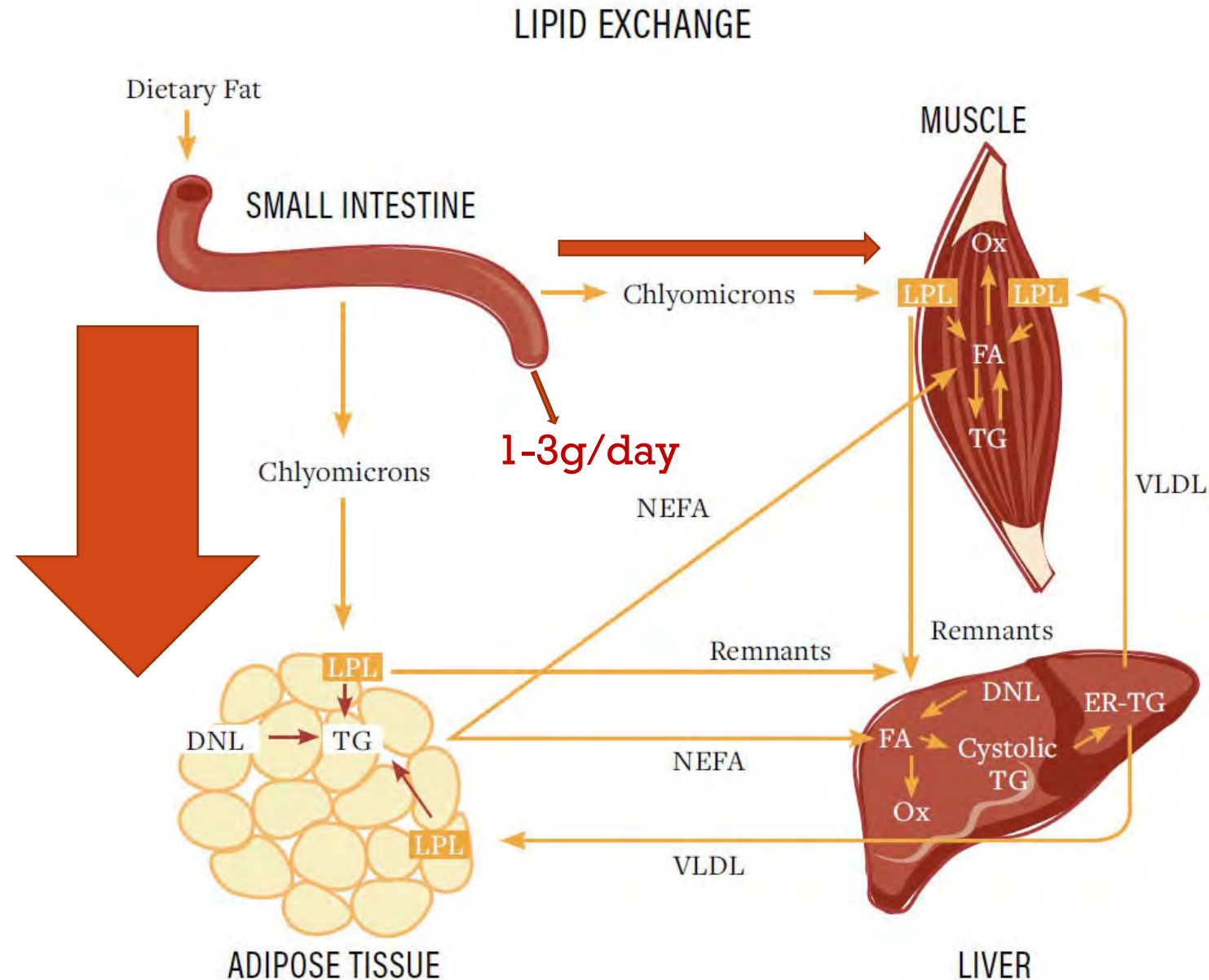
“Anal leakage” due to an extra ~10g fat Going through GI.

This Product Contains Olestra. Olestra may cause abdominal cramping and loose stools. Olestra inhibits the absorption of some vitamins and other nutrients. Vitamins A, D, E, and K have been added.



# DIETARY FAT

- Tiny amount goes through colon
- The vast majority of fat has two destinations:
  - Burned as fuel
  - Stored in fat cells (Adipose)
- In reality, almost all goes to storage
  - Unless you are running a marathon while eating



# WHAT HAPPENS WHEN WE EAT

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- Huge increase in fuel coming into the blood
  - At rest only 80 calories in blood
- Body must shut down endogenous production of fuel (fat from adipose, glucose from liver) so you don't die
- Then it prioritizes fuels to store (oxidative priority) in reverse order of storage capacity
  - or reverse level of toxicity
- Once back to tight fuel control (and if carbs are limited), fat flux (lipolysis) can resume





# FAT FLUX

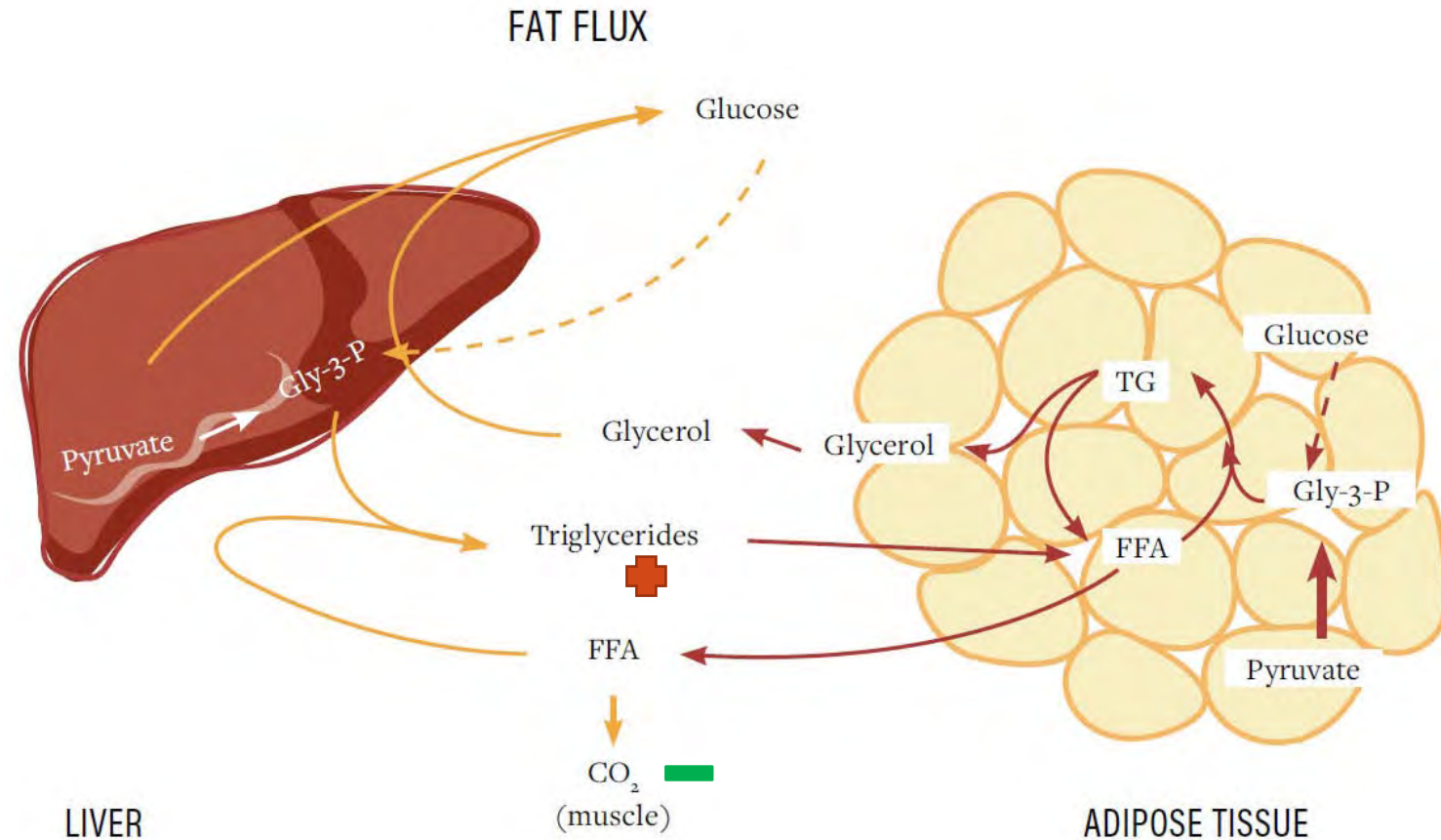
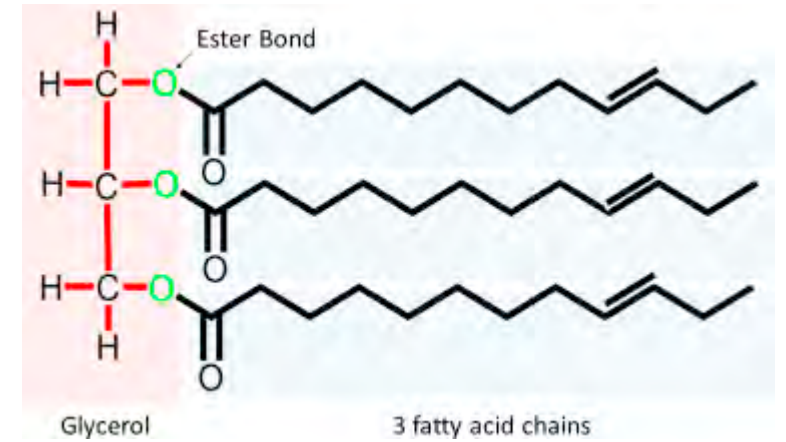
Lipolysis or fat burning.

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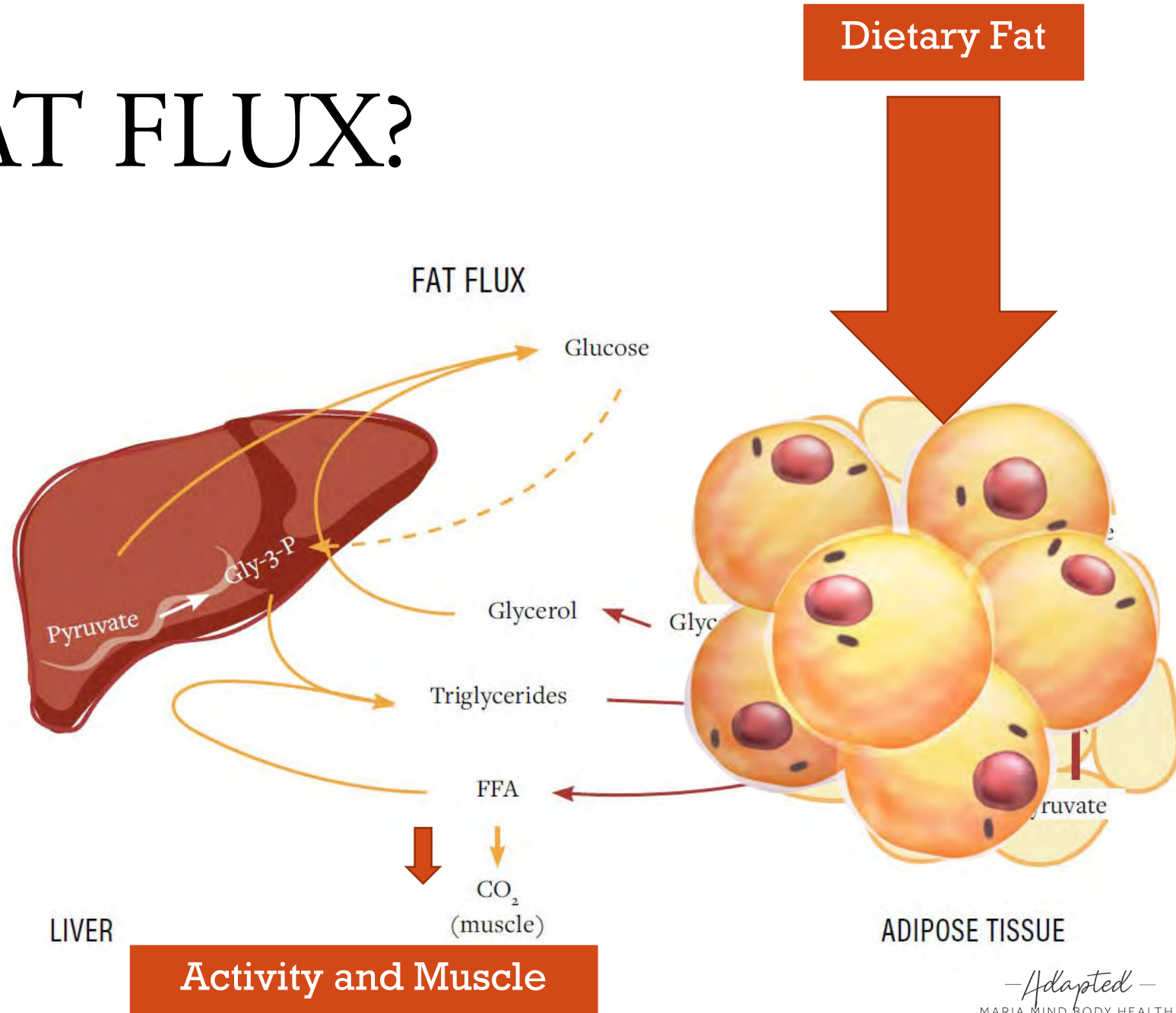
# WHAT IS FAT FLUX?

- Fat is stored in adipose (fat cells) as Triglyceride molecules
- A triglyceride is 3 FFA (Free fatty acids) linked together by a glycerol backbone
- Glycerol is cleaved off
- FFA bind to albumin
- FFA and glycerol go into blood
- FFA burned in muscle, glycerol goes to liver where 3 make glucose molecule
- Excess FFA packaged back up with glycerol and sent back to fat



# WHAT IS FAT FLUX?

- Constant cycle of fat moving in and out of our adipose (fat cells)
- Keto Primes you for fat burning
- Dietary fat is fat going into storage adding to amount stored
- Exercise and activity is fat coming out and being burned



# DIETARY FAT INTAKE

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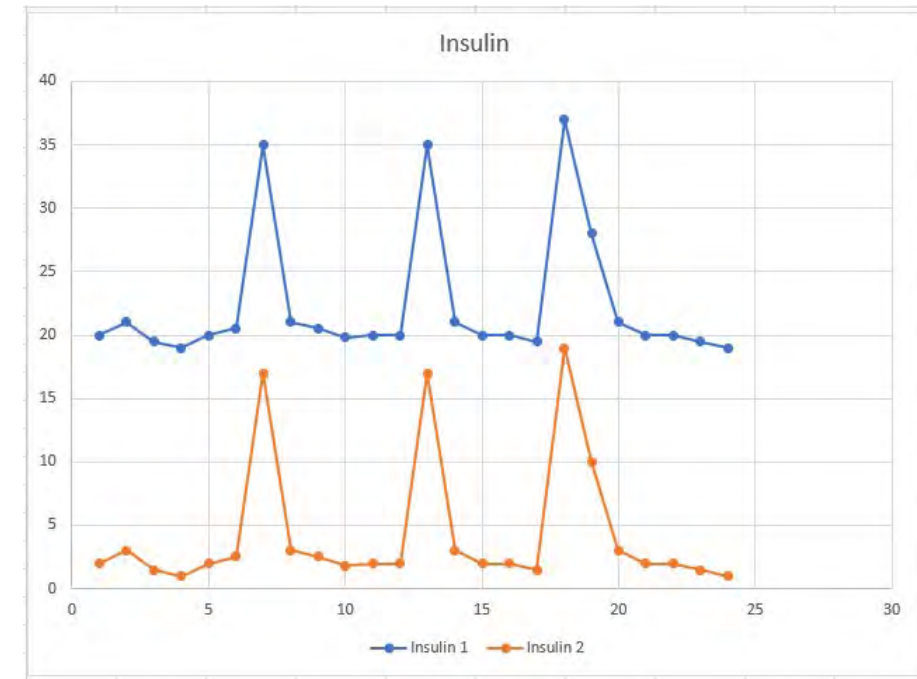
- Depends on your goals
  - Less in diet = More burned off the body
- Also Depends on Available fat on the body
  - Lots of overstuffed fat cells, less required in the diet
  - Closer to goal weight, less in fat cells, more needed in the diet, even in weight loss





# MYTH: LOW INSULIN MEANS MORE FAT BURNING?

- Does lowering insulin mean more fat is released from fat cells?
- If it did, where would it go?
  - Stays in blood, sky high triglycerides
- It must be burned as fuel or go right back into storage
  - Sitting on the couch, not burning much fuel
  - Fat Flux
- And even with high insulin, your cells still get fuel, including fat
  - You don't collapse and pass out





# WHY PRIORITIZE PROTEIN?

Why protein is important for weight loss, reversing insulin resistance, especially as we get older.

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# PROTEIN HAS HIGH TEF

- TEF (Thermic Effect of Food)
  - Calories burned to digest a nutrient
- Protein increases metabolic rate

THERMIC EFFECT OF FOOD (TEF)

ENERGY SOURCE	TEF	CALORIES CONSUMED	RESULTING CALORIES
Alcohol	15%	100	85
Ketones	3%	100	97
Protein	25%	100	75
Carbohydrates	8%	100	92
Fat	3%	100	97



## NUTRIENTS IN "SUPERFOODS" COMPARED TO ANIMAL PROTEIN

Per Serving	Apples	Blueberries	Kale	Beef	Beef Liver
Calcium (mg)	9.1	4.5	63.4	9.7	9.7
Magnesium (mg)	7.3	4.5	15.0	16.7	15.8
Phosphorus (mg)	20.0	9.0	24.6	154.0	340.6
Potassium (mg)	163.8	57.8	200.6	325.6	334.4
Iron (mg)	0.2	0.2	0.8	2.9	7.7
Zinc (mg)	0.2	0.2	0.2	4.0	3.5
Selenium (mcg)	0.0	0.1	0.4	12.5	34.9
Vitamin A (IU)	69.2	40.5	13530.9	35.2	46992.0
Vitamin B6 (mg)	0.0	0.1	0.1	0.4	1.0
Vitamin B12 (mcg)	0.0	0.0	0.0	1.8	97.7
Vitamin C (mg)	7.3	7.3	36.1	1.8	23.8
Vitamin D (IU)	0.0	0.0	0.0	6.2	16.7
Vitamin E (mg)	0.2	0.5	0.8	1.5	0.6
Niacin (mg)	0.2	0.3	0.4	4.2	15.0
Folate (mcg)	0.0	4.5	11.4	5.3	127.6

## MICRONUTRIENTS

- Across a wide range of micronutrients, steak is more nutrient dense
- Organ meat like Beef Liver is the real SUPERFOOD!





# HOW TO HIDE ORGAN MEATS

- Hide ground liver in my chili or spaghetti
- Make burgers with 4:1 ratio ground beef to ground liver

# NUTRIENTS IN FAT

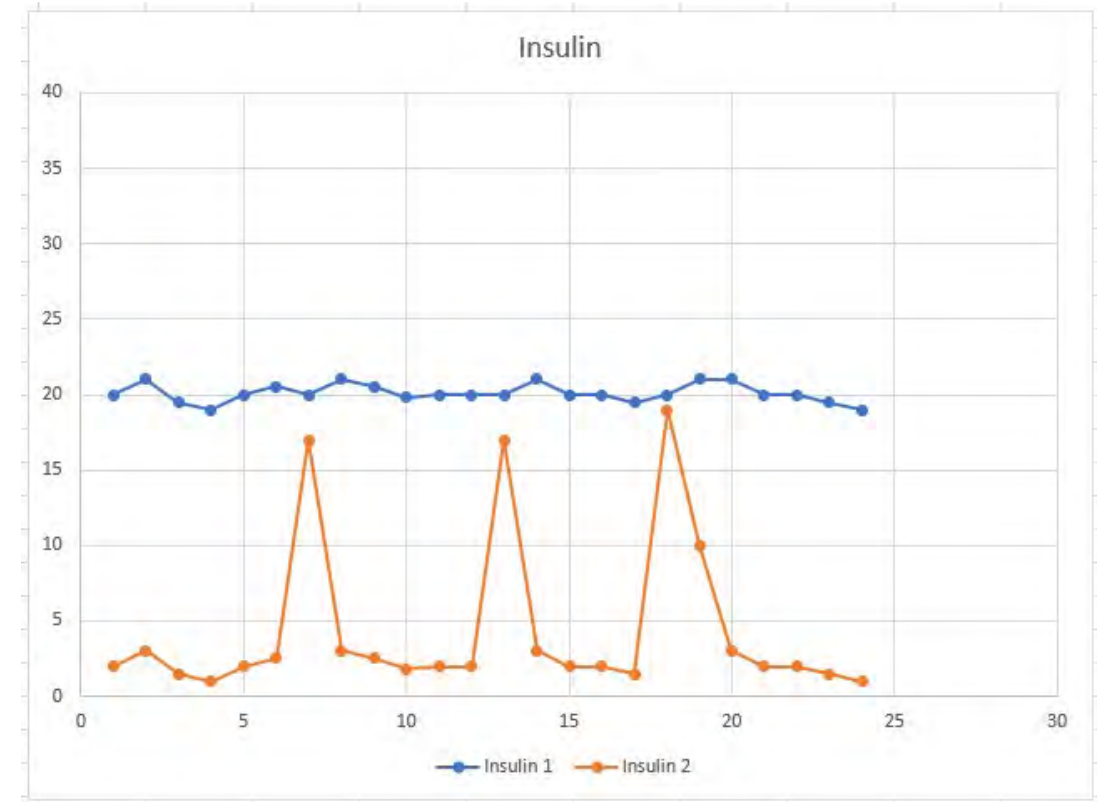
- Fats have little micronutrients
  - Fats are essential, they are your fuel in the absence of carbs
  - But they have little vitamins and minerals
  - If obese, there is plenty available on the body
- Chew whole foods rich in micronutrients with a focus on animal proteins
  - Skip the butter coffee
- Eat the fat that comes with the meat
  - Don't add a stick of butter to your steak

(per 400 calories)	Butter	Eggs	Beef
Calcium (mg)	13.8	132.0	23.5
Magnesium (mg)	1.0	26.4	40.7
Phosphorus (mg)	13.4	454.0	374.5
Potassium (mg)	13.4	332.0	791.8
Iron (mg)	0	3.1	7.1
Zinc (mg)	0	2.8	9.6
Selenium (mcg)	0.5	81.3	30.4
Vitamin A (IU)	381	1372.8	85.6
Vitamin B6 (mg)	0	0.3	0.9
Vitamin B12 (mcg)	0	2.9	4.3
Vitamin C (mg)	0	0.0	4.3
Vitamin D (IU)	5.7	229.7	15.0
Vitamin E (mg)	1.3	2.7	3.6
Niacin (mg)	0	0.2	10.3
Folate (mcg)	1.6	116.2	12.8
Protein	0.47	33.0	77.0



# FAT FAST

- Worse possible combination for body composition
- No protein so lose muscle (less places for glucose to go)
- All fat so less body fat burned (fasting keep insulin higher)
- Lose weight but most is muscle, not body fat.
- Almost no vitamins and minerals.



# NUTRIENTS IN CARNIVORE

## 85% Fat carnivore vs. Protein Prioritized Carnivore

(per 2000 calories)	85% Fat Carnivore Diet	Carnivore Diet Prioritizing Protein
Calcium (mg)	66	586
Magnesium (mg)	73	159
Phosphorus (mg)	668	1553
Potassium (mg)	1028	2598
Iron (mg)	9	11
Zinc (mg)	28	16
Selenium (mcg)	94	213
Vitamin A (IU)	1461	480
Vitamin B6 (mg)	1	3
Vitamin B12 (mcg)	9	12
Vitamin C (mg)	0	2
Vitamin D (IU)	29	770
Vitamin E (mg)	5	10
Niacin (mg)	12	40
Folate (mcg)	24	151
Fat (g)	189	140
Protein (g)	75	187
Percent Fat	85%	63%
Percent Protein	15%	37%

No need to add gobs  
of butter to steak or  
drink fatty coffee.

Just eat the fat that  
comes with the  
meat.

# PROTEIN SOURCES


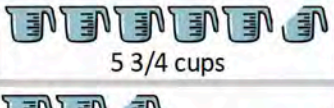
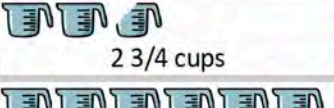
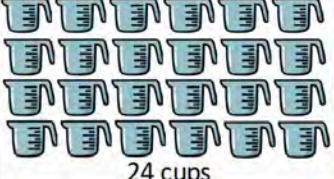

- Source of the protein matters
- Completeness of Amino Acids
  - Leucine is key as are other essential amino acids



## COMPARING 30g OF PROTEIN

Getting enough protein is vital for your health, longevity, weight loss and maintaining muscle as we get older.

Getting at least 30g digestible protein ensures you trigger muscle buliding.

	AMOUNT	CALORIES	PROTEIN	PDCAAS	DIGESTIBLE PROTEIN	ANTINUTRIENTS	CARBS
Rice	 12 cups	2465	50g	0.6	30g	Phytic Acid, Arsenic, Many Others	534g
Quinoa	 5 3/4 cups	1277	45g	0.67	30g	Saponins, Phytic Acid, Oxalates, Tannins, Trypsin, Trypsin Inhibitors, Phytic Acid, Tannins, Lectins. Many Others	627g
Lentils	 2 3/4 cups	620	48g	0.63	30g	Glucosinolates, Goitrogens, Phytate, Oxalates, Many Others	109g
Broccoli	 24 cups	579	47g	0.64	30g	None	113g
Beef Tenderloin	 3.8 ounces	220	33g	0.92	30g		0g

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KETO  
-Adapted-  
MARIA MIND BODY HEALTH





# REVERSING INSULIN RESISTANCE

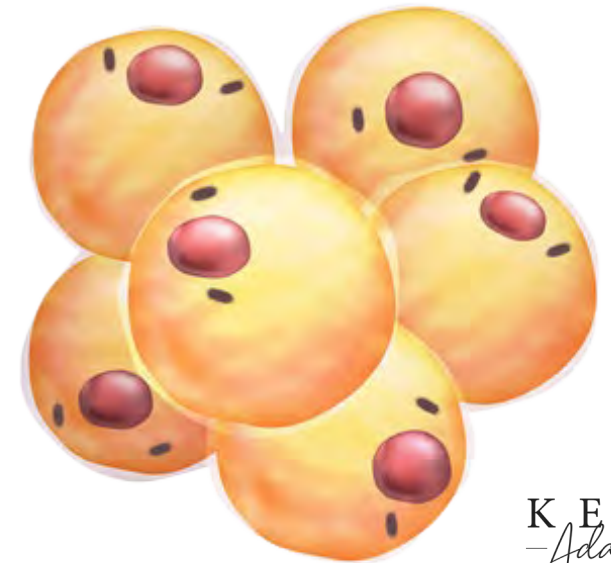
How to shrink our fat cells?

*KetoMaria.com*



# HOW TO REVERSE INSULIN RESISTANCE

- Maintain or Grow Muscle
  - Give Glucose more storage space
  - Increase BMR (Basal Metabolic Rate) burning more calories all day
  - Prioritize protein
  - Strength training
- Shrink Fat Cells (adipose)
  - Reverse adipose insulin resistance
  - Get into negative Fat Flux







# CLIENT RESULTS

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# MEDICATION ELIMINATED

"Blood pressure, blood glucose and A1c are in normal range now — my doctor, who had given up on me as hopeless, is SO impressed. My medication costs have been slashed from about **\$200/month to less than \$45/month**" - Joyce

"Thank you SO much Maria! I have to tell you how you've given me my life back! Two years ago **I was on 17 total medications**. Most were daily, including long and short acting insulin, metformin, prednisone, etc. Some were weekly (methotrexate) and some were twice a year (Remicaid). I have RA and PsA.

- Abilify
- Klonopin
- Cymbalta
- Wellbutrin
- Abilify
- Lamictal
- Cymbalta
- Methotrexate
- Remicaid
- Metformin
- Armour
- Ketoprofen
- Bentyl
- Plaquenil
- ACE Inhibitors (enalapril, lisinopril, perindopril and ramipril)
- Dupixent
- Many types of pain medication
- Many types of Statins
- Many types of Steroids
- Advair
- LOPRESSOR
- DILTIAZEM
- Imitrex
- Sumatriptan
- Xanax
- Solriamfetol
- Adderall
- Topamax
- Lamotrigine
- Buspirone
- Linzess
- Trulicity
- Cyclosporine, methotrexate, prednisone, mycophenolate and azathioprine
- Cosentyx
- Otezla
- LOPRESSOR
- Insulin (Humulin, Novolin, Levemir, etc)
- Ozempic
- Losartan
- Lithobid
- Zyprexa
- Lamictal
- Neurontin
- Prednisone
- Seroquel



Before Keto & after Keto  
13 pills/day, now zero  
Parkinson's arrested & all labs normal



... so many meds started at a low dose. I took it, I was on it. I gained almost 100 lbs. Medication induced

h you last year advice. **My A1c is 10.0** my meds for RA but I know my body so I am trying to get my body heals

the help, wonderful for the amazing way of eating, but I just want

you to know what a hero you are to so many people ♡♡♡" Michele

# OFF MEDICATIONS

"That's 1/2 of a blood pressure pill. Should be gone soon too. I love it!"  
-Rebecca



"These are a few of the meds I no longer have to take since starting a Keto diet in May 2014." - Rian



I'm down over 60 pounds, and off all but **one prescription medication!!!** I was taking over 600 pills a month, prescription and non-prescription.

I sleep better, and have more energy. I used to take Wellbutrin 2 times a day, Abilify 1 time a day, Lamictal 2 times a day, Cymbalta 3 times a day, Klonopin 2 times a day. I'm off all those medications now! My moods have stabilized and I no longer have severe depression.

"When I was 14 I suffered from Osteomilitus and Rheumatic fever at the same time. I had to take 50 pills and a horrific amount of steroids to combat this (otherwise it would have been amputation of the affected parts). I spent thousands of pounds on dermatologists, trichologogists, drugs, pills, steroid creams shampoos all to absolutely no avail... It wasn't until a month ago after reading your book did I finally understand and went keto. But the miracle here is that it cured everything completely that I had! I literally cant believe it. I feel I can get close to people and live a normal life which I never thought would be possible. So thank you for saving my life Maria." - Sue

"I was taking close to 20 pills per day. Those pills barely took the edge off my pain. Since starting eating Maria's Way, I rarely use pain meds." - Pam

At the time of my surgery, I was on 10 different medications and a CPAP machine. Fast forward to one year after surgery. I lost 109 pounds and all but one medication." - Bobbie



# LOWER FAT

I was keto for 4 years and mostly carnivore for the last year. I lost 30 lbs 4 years ago and then listened to everyone that said to eat more fat and I gained the 30 lbs back. Well to add insult to injury, not only did I gain 30 lbs back, I went on a four-year weight stall. Most people would have given up, but with the healing I was getting, I kept at it. I'm so grateful I got educated

Thank you for the mct oil video and for all that you do. That trend is everywhere. I switched to eating a high fat (over 200grams a day) approach with a coach and gained so much weight. They kept



**Amy Whiting**

I used to eat high fat keto. I eventually stalled and even started putting on weight. When I switched to Emmerich keto my weight loss picked back up. I never really feel hungry. Actually when I splurge and have a higher fat day, it ups my cravings and I find I'm more hungry the next day.

4m Like Reply



**Amanda Reed**

I was totally convinced that this was the way to go... LCHF.. because I lost so much weight the first time I did it. I realize now that I was losing lean muscle mass 😞. I ended up plateauing and people kept telling me to eat more fat but it didn't work so I gave up. I wish I'd have dug further into Maria and Craig's teaching and realized I needed to increase protein and implement some PSMF days. I gained all the weight I'd lost back. But I'm with the program now! 25 lbs down today, 5 weeks on Emmerich keto.

2m Love Reply Message Hide



I made the decision to stop this nonsense and take back my health and wellbeing. I'm returning to Keto vs Carnivore, following your above Macros. With all this said I'm sorry I left you for this 4 months but realize so much now how precious/Blessed you both are in helping, guiding, educating so many!! I'm sorry and I Thank You!

I felt horrible on all the...  
my body can't ad...  
High protein makes r...  
@aa01jua01n • 4...  
Just started on S...  
carnivores and a

inflammation/weight gain...  
them to get tested. 🙏 thank you again & again for all your help & advice & free resource tools! 💙💗💖 I will continue to watch & sing your praises, & I unsubscribed from the stick of butter supporting channels 😞...Go Protein, Go Protein! Have a beautiful amazing day! 🌟💖



in my gut from lower fat.

Amazing. Unfortunately I listened to the eat!!!!!!



# TESTIMONIES RELATED TO PERSONAL FAT THRESHOLD



**Ben Thompson** 4 months ago

I did high fat carnivore for 18 months and my blood sugars doubled and as a diabetic I was really ill. My triglycerides were very high too. I got diagnosed with non alcoholic fatty liver. I got told by alot of well known carnivore advocates I was lying trying to ruin the carnivore name. I have now done your psmf and my blood sugars have gone down by half. My morning fasting glucose is amazing best it's ever been. I am fat and I have over reached my threshold clearly. I am glad I found you and other low energy advocates.

Show less

@benthompson9397 • 1 month ago

I've been on a high fat carnivore diet for over 7-8 years. I was a type 2 diabetic but I have developed into a type 1 diabetic. Even on carnivore. I did stop high fat a year ago after watching you vid on fat threshold and diabetes. My blood sugars we slashed in half daily and I went from a 3 month diabetic bloods 98 mmol/l down to a 64 mmol/l. Unfortunately I got taken in again before Christmas and I tried high fat again for 3 weeks and and I had to stop I put on 10 kg on in fat. My blood sugars were high. I was feeling so ill. Lucky for me I've gone back to lower fat and lost the 10 kg and a few more kg on top. Blood sugars are down again. The only problem I have is my folate acid is low very low and I don't want to eat veg or

Keto  
Oksana · 1h · 📷

Hey guys, I want to share my keto journey with you : I started keto may 18, 2020, I was eating a lot of cheese and almond flour, lost 10 pounds and then stalled , then I found a group on FB that promoted high fat keto, I decided that this is for me because "fat does not raise blood sugar":))) (I am a type 1 diabetic). I did high fat keto for 9 months and gained all my weight back and not only that, my blood sugar was constantly high and I had to use a lot of insulin to keep my blood sugar normal. It was very difficult to do as the blood sugar came down very slowly but not for long. Then I found Maria and in three months I lost all the weight that I gained and even more, my blood sugar became a lot better and I use a lot less insulin, I became more insulin sensitive. I'm still working on my weight loss (I have 10 more pounds to go) and I know it's double! Thank you Maria Keto Adapted - Maria Emmerich and Graig !!! ❤️❤️



**Adriana**

Thank you, Craig Emmerich and Maria for educating people about high fat! I fell for this nonsense as well. Gained weight, and felt terrible. Could not connect the dots cause I was doing pure carnivore and initially I felt better on high fat. After listening to you, and going high protein - I finally feel so much better! I seem to not be able to lose the fat, but I am so satisfied with the food, I don't experience any more inflammation, and I recover much faster. My acne is healing, my eyes are brighter, and my hair... They are growing so fast 😱 So high protein made me finally heal 😊 I am doing some higher fat days, but only if my body want's me to 😊



# PSORIASIS EXAMPLE

”Thank you Maria!!! I want you to see what you have done for me personally...I attach photos. I have been on Otezla for over a year (it does not control the flares and is **\$3k a month**) and makes me nauseous daily. I also take shots every 2 weeks of Dupixent (again no change, never got better, but never got worse \$3k) I asked you during one of your live videos on your paddleboard if Carnivore level 1 would help me. You said yes but I should add 6 capsules of Emu Oil daily. So, I did! **After 3 weeks**, you can see the change! I see my dermatologist this coming Monday and I'm bringing my bottle of Emu Oil in. ♥“ - Susan H.







THANK YOU!

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## KETO AND CARNIVORE MACRO CALCULATOR

This calculator incorporates all the knowledge and experience from 20 years of using keto to help clients. **NOTE: Set to sedentary for fastest fat loss and set to Fast Weight Loss with PSMF for best fat loss results. Protein is a goal, fat and carbs are a limit to stay under and Carbs are total carbs, not net carbs.** The minimum fat you need is 30-40 grams a day to ensure vitamin absorption and hormone production. (under 10 years old only the protein target is given for reference) **Body Fat Percentage: It is important to get body fat percentage as accurate as possible.** If you know it accurately you can enter it. If you don't, select "NO" and enter all the measurements. To check if you are in the right range for your protein goal, use this rule of thumb. Women 5 foot tall start around 80-90g protein then add 5g protein per inch of height. Men 5 foot tall start at 100g protein and add 5g per inch of height. If your protein goal isn't in this ballpark, adjust body fat percentage until it is. **NOTE:** The 10g carbs for fast fat loss is a stretch goal. 20g or less is fine too.

Imperial

Metric

### Weight and Age

Current Weight

0

lb

Age

0

yrs

### Body Fat Percentage & Gender

Male

Female

☒ Yes ☐ No Do you know your body fat percentage accurately (like a DEXA scan)?

Body Fat %

0

%

### What are your Goals?



# GET YOUR MACROS!

- Get started today with our Free Macro Calculator!

<https://mariamindbodyhealth.com/calculator/>



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Protein Sparing Modified Fasting Method: <https://amzn.to/3jsmU28>

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Keto Comfort Foods: <https://amzn.to/2LEBgNM>

Keto Air Fryer: <https://amzn.to/2ZGnsXB>

The Carnivore Cookbook: <https://amzn.to/2tfjQzM>

Quick and Easy Ketogenic Cooking (Halle Berry's favorite)  
<https://amzn.to/2AaRGbV>

The 30 Day Ketogenic Cleanse: <https://amzn.to/2JVVi8WE>

Keto: <https://amzn.to/2OkqlBE>

Keto audio book (read by me): <https://amzn.to/2JW6Ykr>

Keto Restaurant Favorites (which is my favorite!): <https://amzn.to/2mJmS8V>

Easy Dairy Free Ketogenic Recipes: <https://amzn.to/2JV3gaJ>

Keto Instant Pot Recipes: <https://amzn.to/2uQDfVA>

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