FUNCTIONAL NUTRITION WORKSHOP

COMPLEX UNDERSTANDING, CAN DO NUTRITION

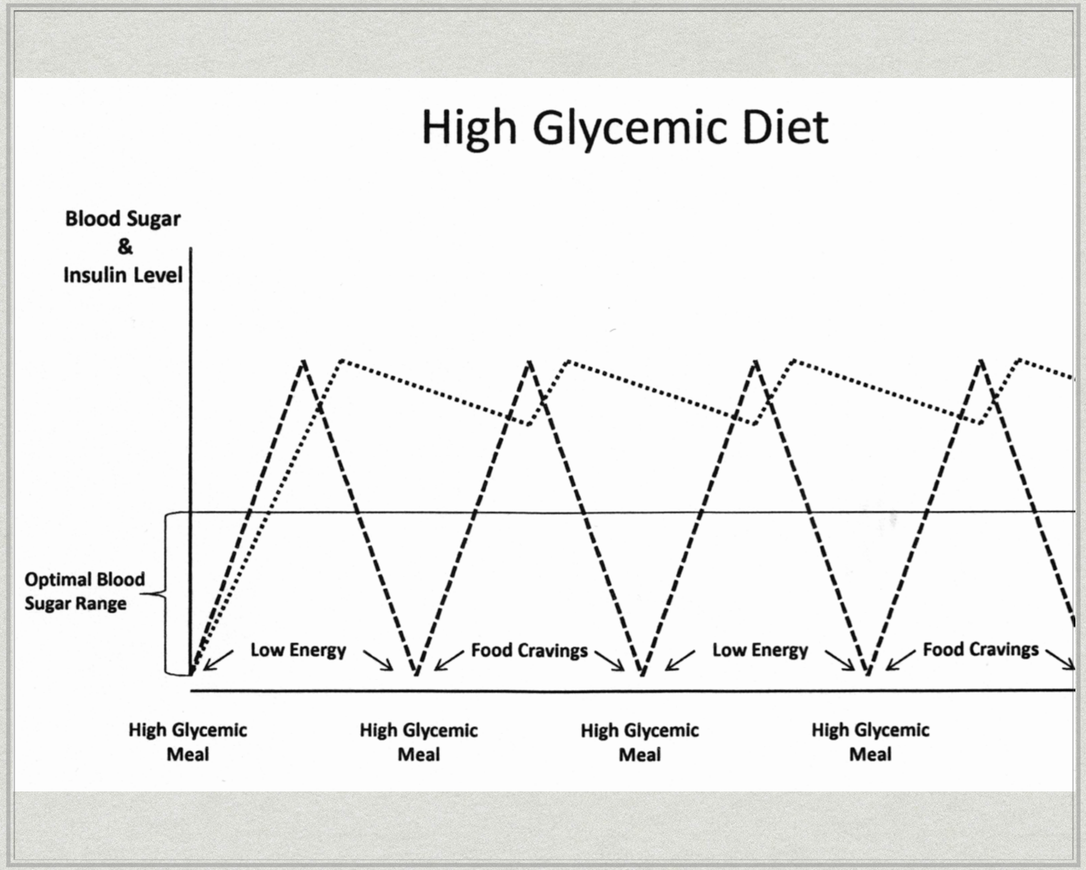
SCIENCE

WE ALL LOVE THE NEW TECHNOLOGY THAT TAKES US FROM VHS TAPES TO DVD TO STREAMING WITH HIGH DEFINITION AND THEN 4K THEN 5K…

BUT NUTRITION SEEMS TO BE DIFFERENT. WE FEEL CHEATED IF LOW FAT DIET IS REPLACED BY LOW CARB OR EATING SUGAR FOR RACING IS REPLACED BY NOT EATING SUGAR.

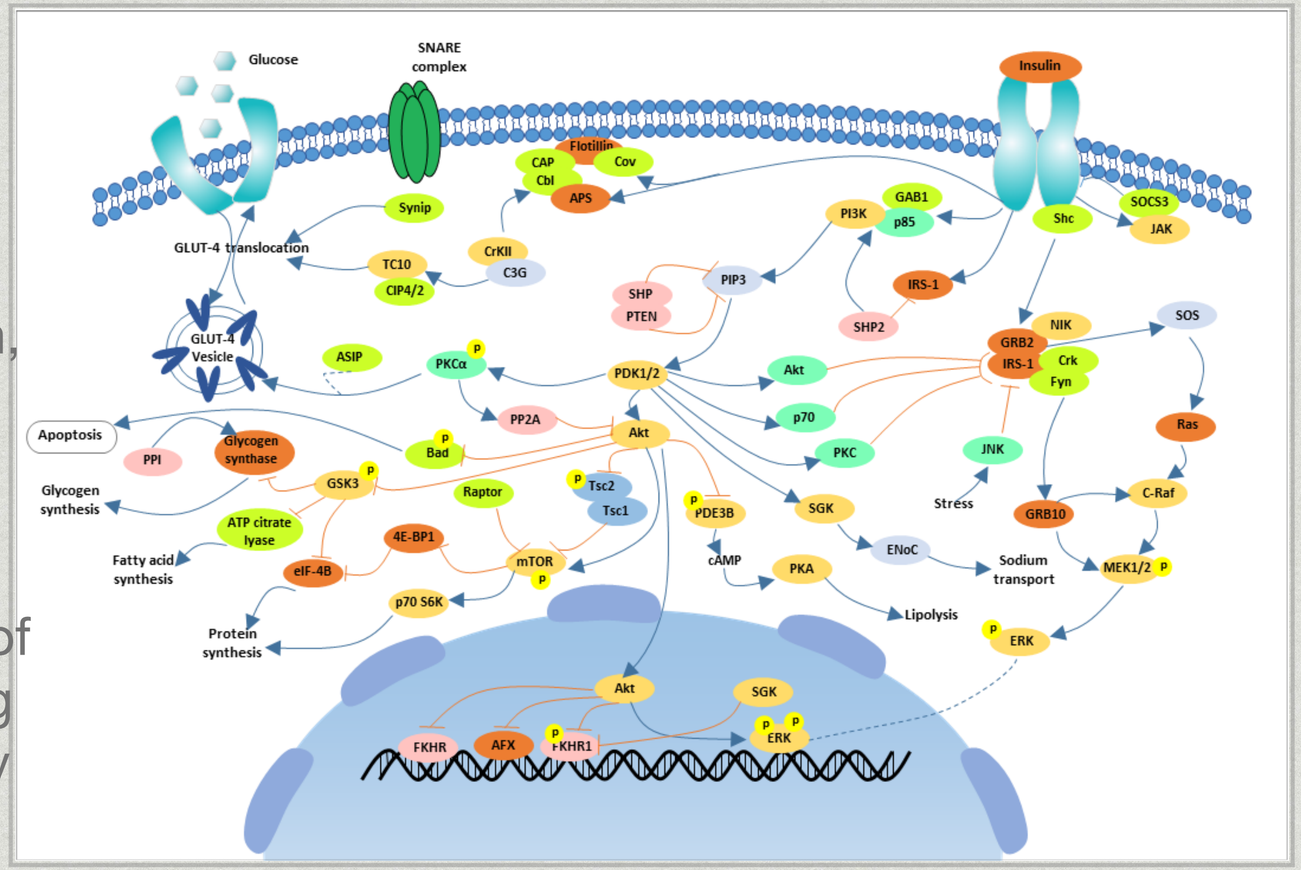
Insulin = hormone that decrease blood sugar by moving sugar into cells where it is used as energy or stored as fat.

- Higher levels of insulin keep fats from being broken down
- Fat cells are more than just storage but are endocrine organs (release hormones) that ‘talk’ with other cells
- Lipolysis stored fatty acids are move out of cell and into bloodstream to be used for energy. Inhibited by high insulin levels
- Lipogenesis moves fatty acids into your cells from blood to be stored as fat for later use. Can use carbs if in high amounts.



Insulin signaling pathway

- Keeping insulin lower can keep us from getting fat
- Every cell in body responds to insulin
- some HTN, Migraine, Fertility disfunction, Alzheimer's are the result of insulin resistance
- Are you insulin resistant? HTN and overweight, lots of skin tags, darkening of skin around neck. OR Check your fasting insulin levels. OR triglycerides divided by HDL and if >1.5 = likely insulin resistant



Lypolysis stimulated by

- Growth Hormone
  - ***release after go to sleep thus no food 3 hours prior to bedtime***
  - ***released with intense exercise***
- Also Glucagon, Epinephrine, Cortisol - it is complex system we don’t fully understand

Lipogenesis inhibitors

- Leptin
- Growth Hormone
- acute increase in Cortisol

Fibroblast Growth Factor-21 (FGF-21)

- Decreases appetite
- Decreases the rate carbs are burned for energy
- Increases the rate fats are burned for energy
- Improves blood glucose control
- Increases brown fat activity (a metabolically active type of fat)

FGF-21

- Interestingly, eating excess carbohydrates increases FGF-21, but overeating fat doesn’t. And under certain conditions, FGF-21 can override insulin to stimulate lipolysis (fat burning).
- This isn’t to suggest that FGF-21 is some secret to fat loss. (Such a secret doesn’t exist.) But rather to ask the question: How does FGF-21 fit into the carbohydrate-insulin model? Not clear.

Hormones and appetite regulation

- Leptin
- Cholecystokinin (CCK)
- Ghrelin
- Amylin
- Glucagon-like peptide 1 (GLP-1)

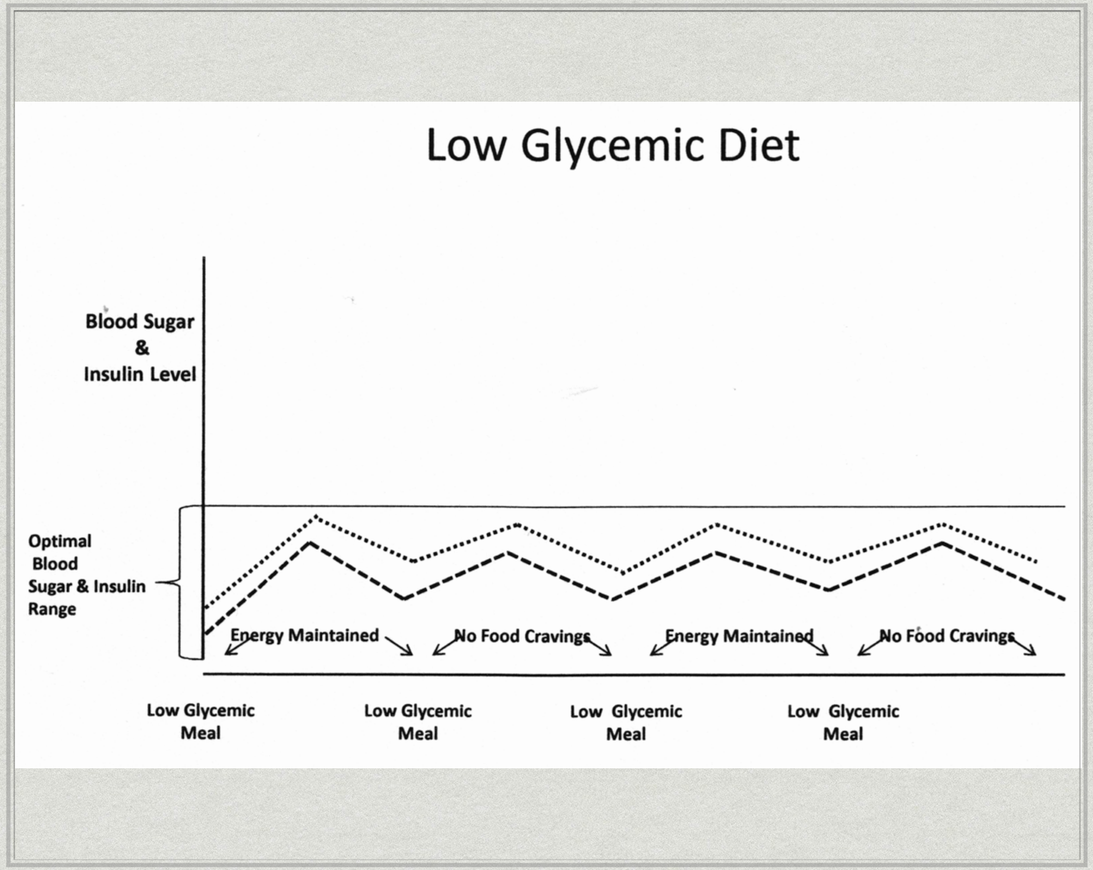
“Its complex.”

FUNCTION

SO WHAT THINGS DO WE THINK WE KNOW AND HOW CAN WE USE THE INFO WE HAVE EFFECTIVELY LOWER BODY FAT?

What has worked?

- Weight Watchers - lower body weight but % body fat only slightly changed. can be a place to start
- Eating half as much at each sitting
- Intermittent fasting
- Daily cardio/HIIT set & some nutritional changes
- Low Carb
- Plant only - vegan, vegetarian



Low Carb/limit sugar = limit insulin

- Protein increases satiety and reduces appetite
- Limited food choices cut out hundreds of highly-processed calories they might have eaten otherwise—such as cookies, muffins, and chips—and made room for more nutrient-dense and calorie-sparse foods like produce
- Water or tea or coffee (black) - no liquid calories

Examples

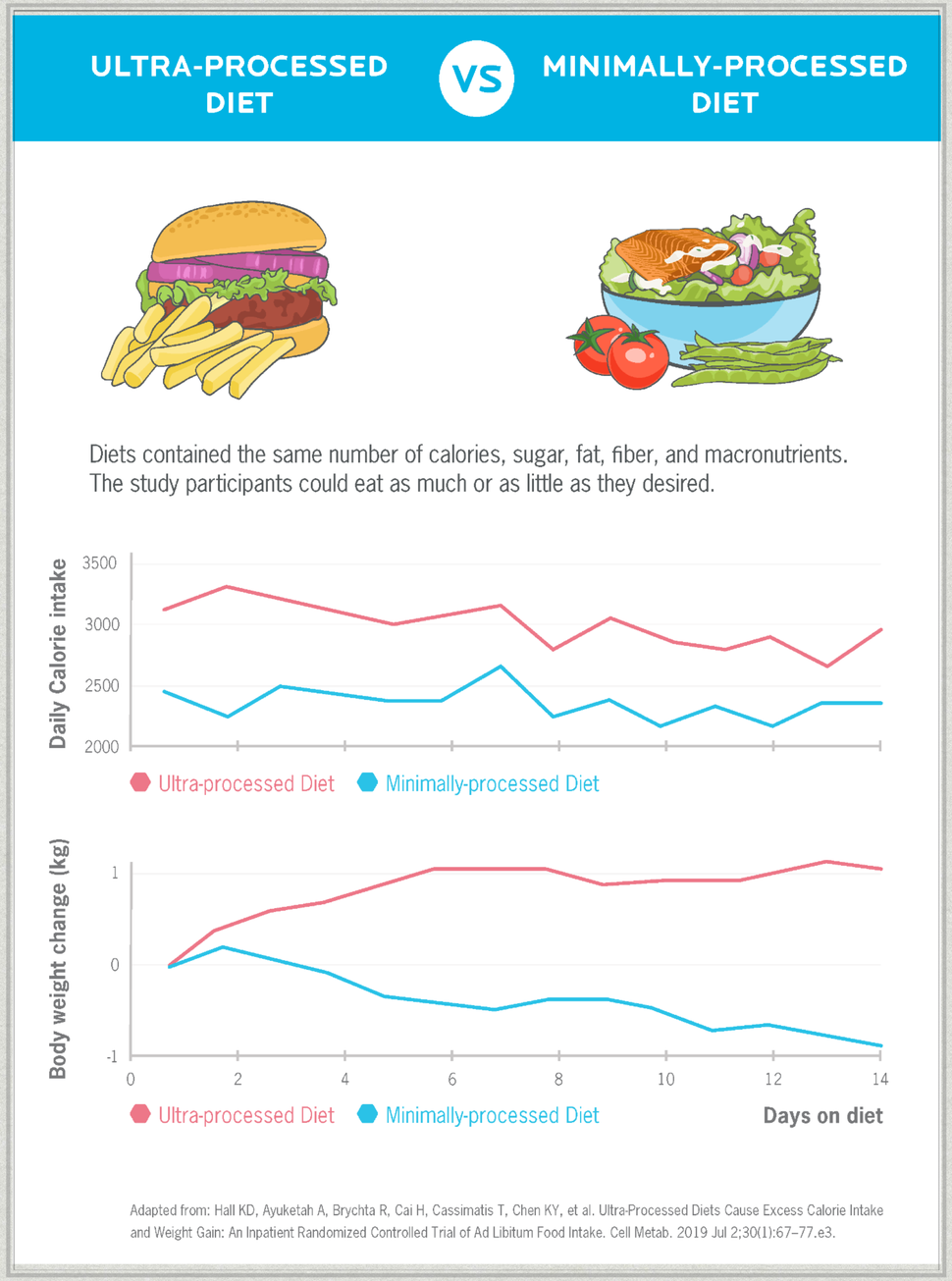
- **Lean protein**:Eggs, chicken, fresh water fish, low fat dairy, lean beef, shellfish, tofu for females (soy increase estrogen in men - thus increasing body fat)
- **Healthy fats**:almonds, ground flax seed, pecans, pine nuts, pumpkin seeds, walnuts, avocado, olive oil, sesame oil
- **Veggies**: artichokes, asparagus, broccoli, cabbage, carrots, brussel sprouts, cauliflower, green beans, mushrooms, onions, tomato, yellow squash, zucchini
- **Fruits**: apples, berries, citrus (limited), grapes, peaches, pears, plums. Dried - apricots, prunes
- **Grains/legumes**: barley, brown rice, Quinoa, Steel cut oats, wheat germ, garbanzo beans, lentils, mung beans, soybeans - women only

Plant Protein

- Protein Powder: beware plant based since have lots of heavy metals in them. Use whey or egg.
- Plants have some protein but also have molecules that inhibit their absorption - i.e. tannin.
- Very challenging to get all your amino acids

Sugar

- Large Coke = 3 apples
- What's more, an apple isn't highly-palatable or highly-rewarding, so it doesn't stimulate your brain towards overconsumption like soda does.



Adapting to low carb diet

- takes time: 2-4 weeks
  - low energy till body adapts
  - < 50 grams of quality carbs
  - Protein 1-2 gm/kg body wt
    - increase age increase protein needs

Intermediate Fasting

- 18/6: fasting to eating time, same time each day
- 24 -36 hr fast 1-2x's per week
- 5:2 = eat only 500 calories on two non-consecutive days
- Older and female may not respond as well as young male.

Fasting Effects

- Increase HGH
- Lowers insulin
- Cellular repair
- Longevity? via gene expression
- Decrease Inflammation

Practice

- Takes a bit to get used to as your body reorients
- Higher % body fat loss
- Also lower total caloric intake
- Intermittent fasting vs daily calorie restriction for type 2 diabetes prevention: a review of human findings: https://www.sciencedirect.com/science/article/abs/pii/S193152441400200X

Who should NOT until ask physician

- H/O eating disorders
- Diabetics
- Low blood pressure
- Underweight
- Women who are trying to conceive
- Pregnant

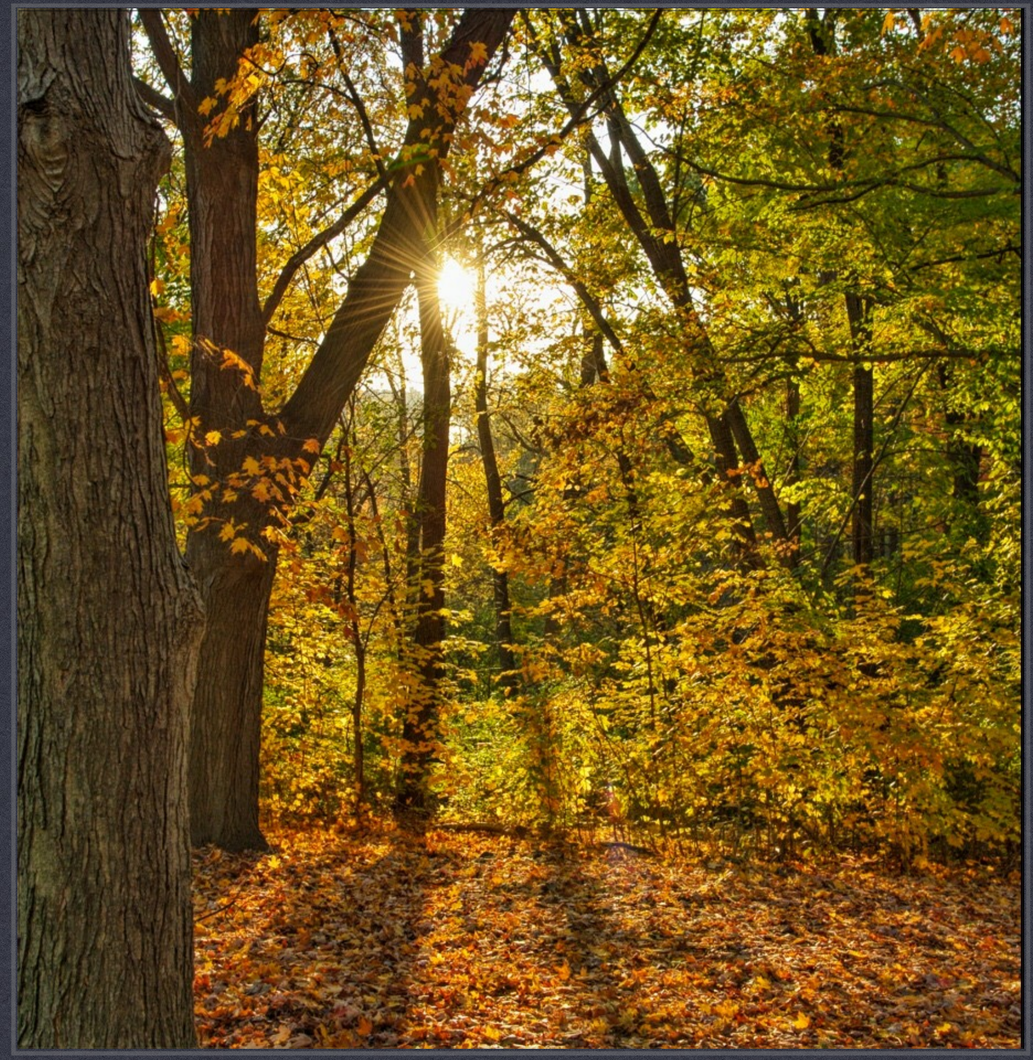
When get to goal:

- Go 5 lbs farther
- plan on keeping at this weight for 1 year
- add back carbs slowly and adjust
- consider switching to Mediterranean diet? Plant based?
- Like your car you will need to adjust/ do maintenance

FUNCTIONAL

EAT LESS ENERGY THAN YOU EXPEND

DEVELOP EATING, EXERCISE, AND STRESS-MANAGEMENT HABITS THAT ARE SUSTAINABLE LONG-TERM



Big Picture

- choosing mostly minimally-processed, nutrient-dense foods
- eating enough lean protein and vegetables
- Intermittent fasting?
- getting adequate sleep
- managing stress
- moving regularly, lifting
- reducing excessive smoking/alcohol consumption
- Post exercise - don’t eat carbs since affects insulin resistance improvement from exercise

Waist Measurements for Cardiovascular risk

- Measure your waist 1 inch above your belly button. In inches, male/female
- <31 / <28 Very low risk
- 31-39/28-35 Low risk
- 40-47/ 35-43 High risk
- >47/ >43 Very high risk

THANK YOU FOR YOUR TIME AND ATTENTION!

7 TIMES DOWN 8 TIMES UP

NOTHING TASTES AS GOOD AS BEING LEAN FEELS