NUTRIENT DENSITY AND USING CRONOMETER MINI WEBINAR

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Lauren Keller, APRN, CNM
Two Purple Carrots

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WHAT IS NUTRIENT DENSITY?

- A meal that contains the essential nutrients needed to thrive. Essential nutrients are vitamins, minerals, fatty acids and amino acids that our bodies can't produce on it's own so it is required to get them from food.
- More nutrient dense foods tend to be those with higher protein as well as more fiber and therefore less carbs and fats
- The closer you come to optimal levels of nutrients in your food, the more satiety you will have, the more stable your blood sugar and the less likely you will crave and over eat.

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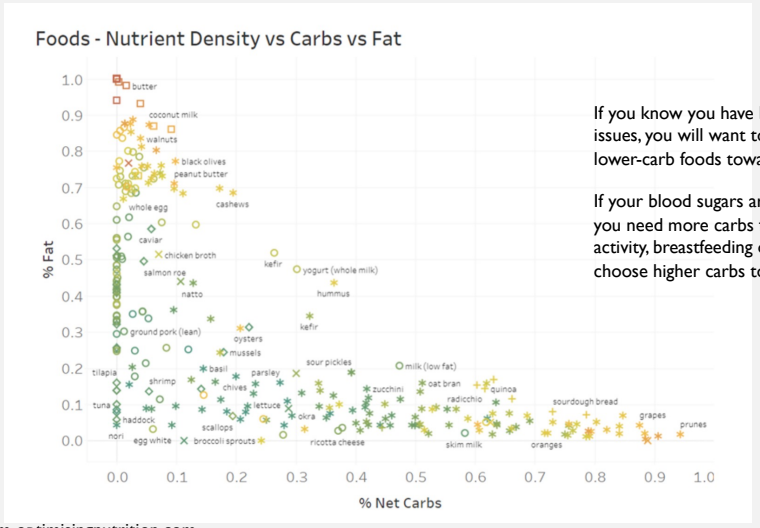

If you know you have blood glucose issues, you will want to choose lower-carb foods towards the left.

If your blood sugars are great and you need more carbs for lots of activity, breastfeeding or pregnancy, choose higher carbs to the right

Chart from optimisingnutrition.com

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WHY IS NUTRIENT DENSITY IMPORTANT?

- Health: improve longevity, prevent chronic diseases, prevent the uptake of heavy metals, support the immune system, support cellular function.
- Weight maintenance (or loss or gain depending on your goals)
- Improved energy levels and less crashing mid morning or afternoon
- Avoid nutrient deficiencies which leads to osteoporosis, anemia, impaired immune function, impaired cellular communication, thyroid and hormonal issues.

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WHAT ARE MACROS AND MICROS?

- Macros are your carbohydrates, fats and proteins. These provide your body directly with energy.
- Micros are your omegas, amino acids, fatty acids, vitamins and minerals. These do not directly provide you with energy, but they provide you with the building blocks for your body to be able to use energy.
- Why each person will have different macros.
  - Depends on goals
  - Depends on activity level
  - Depends on health condition
  - Depends on oxidation rate
  - Depends on satiety

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A WORD ON CALORIES

- There is no defined calories that a person should be in, again this depends on goals
  - Weight loss
  - Muscle building
  - Health issues/diabetes
  - If you really want to generalize, try to get in between 1800-2200 if you are a childbearing female but otherwise, it's important to differentiate for each person.
  - Remember though that the closer you come to nutrient density, the less calories the body will crave/need and you will start eating more intuitively.

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CALCULATING MACROS

- Unfortunately there isn't a set formula for this. There are many macro calculators on the web but none are perfect and some are downright inaccurate.
- People with more lean mass generally need more energy, while those who carry more fat need less. The more lean mass you have, the more calories you can eat and the more fat OR carbs you can sustain.
- Younger people can do okay with lower protein levels b/c of general vitality levels but as we age, protein becomes even more important as we lose muscle.
- So, many macro calculators don't take into account lean body mass and therefore are quite inaccurate.
- The fat and carbs generally don't matter as much as protein unless you have diabetes.
- If you're fasting blood sugars are high or they rise more than 30mg/dL after eating, then keeping an eye on carbs is more important.
- For a very general rule, protein should be between 30-50% of your total macros.
- Carbs should be >10% of your macros since many non starchy veg contains micronutrients not found in proteins and any less would mean limiting micronutrients.
- Fats should be around 20-40% of diet

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BODY MASS

A DEXA scan is the best way to get body fat percentage but if you can't do that, then you can use this chart to estimate. Lean mass is more metabolically active than body fat.

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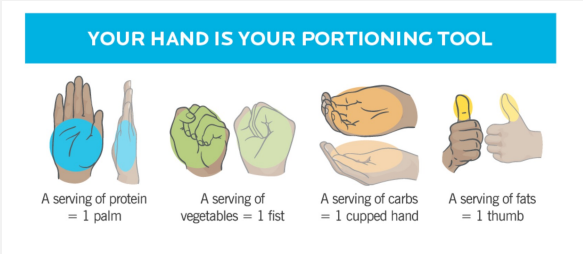
PORTIONS



Protein- 20-30g per portion/ 200 calories
Fats- 7-12g per portion/ 90 calories
Carbs- 20-30g carbs/ 120 calories
I still recommend weighing food and inputting into cronometer

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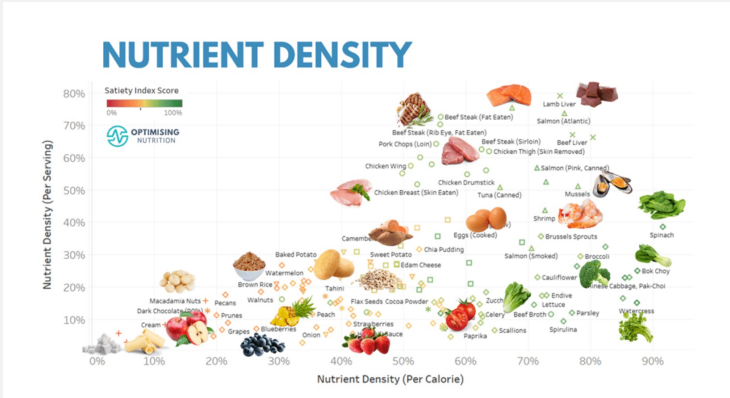
We calculate nutrient density as per calorie or per serving.



Taken from optimisingnutrition.com

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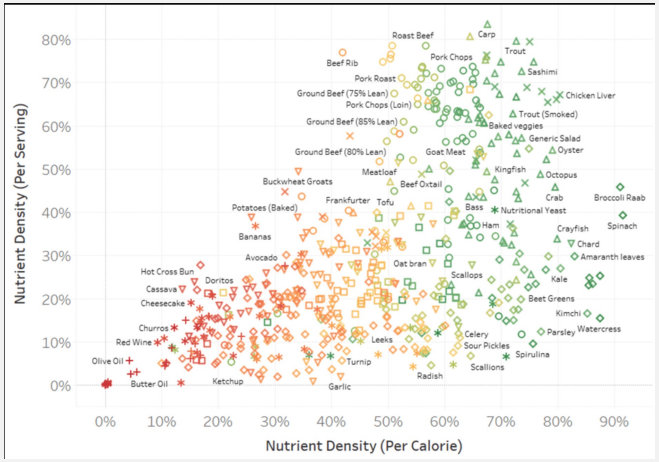
Interactive Chart



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MOST NUTRIENT DENSE FOODS PER SERVING

- Animal: liver, pork chops, steak, chicken breast, ground beef, eggs
- Seafood: salmon, mackerel, mussels, tuna, carp, trout
- Plants: spinach, brussels sprouts, chard, broccoli, sweet potato, potato, kale, avocado

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Cronometer August 3

MOST NUTRIENT DENSE FOODS PER CALORIE

- Plants: spinach, bok choy, watercress, asparagus, kimchi, chard, kale, broccoli, endive, lettuce, brussels sprouts, cauliflower, mushrooms, green beans
- Animal: liver, beef steak, chicken thigh, chicken drumstick, eggs
- Seafood: mussels, salmon, mackerel, shrimp, tuna
- (not all of these might be suitable given heavy metal content)

- Note that fruit didn't show up on any of these lists….lets take a look

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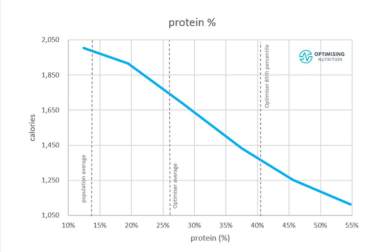
PROTEINS



Protein is the most satiating food per calorie, so is the easiest to manipulate to keep you nutrient dense and satiated. Fats and carbs are less satiating, leading people to typically overconsume calories. Fats are also much less nutrient dense than carbs and proteins.

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NUTRIENT INTAKE

- The DRI (dietary reference intakes) are what the governments put out as minimums that we must meet to "stay alive"
- In contrast, many people have developed ONI (optimal nutrient intake) which are levels that humans needs to thrive. Depending on where you look, there are slight differences. In general, they are 3x more than the DRI's.
- Keep in mind that food has lost nutrient density over time due to overfarming/soil destruction so these will also likely change over time.
- For now, the amount of foods you need to eat to get adequate nutrition is more than it was in 1930. However, the focus isn't necessarily on eating MORE but eating SMARTER.

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Cronometer

ONI'S

Minerals

nutrient	ONI	DRI or AI	units
calcium	1650	1200	mg
copper	3.0	0.9	mg
iron	30	18	mg
magnesium	825	320	mg
manganese	5.5	1.8	mg
phosphorus	1250	700	mg
potassium	6000	2600	mg
selenium	300	55	mcg
sodium	4000	1500	mg
zinc	25	8.0	mg

Vitamins & Omega 3

nutrient	ONI	DRI or AI	units
thiamine (B1)	3.0	1.1	mg
riboflavin (B2)	6.0	1.1	mg
niacin (B3)	60	14	mg
vitamin B5	12	5.0	mg
vitamin (B6)	5.0	1.3	mg
vitamin (B12)	12	2.4	mcg
folate	1000	400	mcg
vitamin A	3000	900	mcg
vitamin C	350	75	mg
vitamin D	1200	600	IU
vitamin E	25	15	mg
vitamin K1	1100	90	mcg
omega 3	6.0	1.1	g

Amino Acids

nutrient	ONI	DRI or AI	units
cystine	2.4	0.9	g
histidine	5.4	1.4	g
isoleucine	8.8	–	g
leucine	15.2	–	g
lysine	15.2	–	g
methionine	4.8	–	g
phenylalanine	7.9	1.6	g
tryptophan	2.2	–	g
threonine	8.1	–	g
tyrosine	6.6	1.6	g
valine	9.8	2.3	g

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HOW TO INCORPORATE MORE NUTRIENT DENSITY

- TRACK your food!!!! This is key, b/c the foods I eat everyday are different than the foods you typically eat in a day and different than the foods you may like.
- So, it's important to track in Cronometer to see where you are lacking specific nutrients. The most common nutritional deficits are calcium, omega 3/6, iron, magnesium, potassium, vitamin A.
- So, after a few days of tracking, you notice that your calcium score is low, you can refer to lists to determine how to get more calcium in the diet.
- Think of it as a game…how can you incorporate more nutrient density on a daily/weekly basis once you see your deficits.

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A WORD ON SUPPLEMENTATION

- You can supplement for some things, but they do not lead to the same satiety and reduced hunger as a food based source would so keep that in mind when supplementing various minerals/vitamins.
- Supplementation should not be counted in your Cronometer with the exception of fats/oils that you might take in capsule form since they are whole food based.

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WHEN TO EAT

- The meal with the most protein should be breakfast. Ideally getting 50-60% of protein needs at breakfast will set you up for a more satiated/satisfied day
- Eating protein in the morning is the easiest on your digestion as well due to dietary induced thermogenesis (your body takes a lot of energy to break down protein). It is not ideal to be breaking down protein at night, rather eating more carbs/fats at night is easier on the system and leads to better glucose control.
- Skimping on breakfast or skipping it altogether will certainly lead to poorer food choices, more fatigue, less mental clarity and possibly weight gain.
- That's not to say to not eat protein at night…you should eat it at every meal, but satiety and glucose control will be improved with more protein at breakfast.
- Try to only eat 3 square meals per day for better absorption/digestion. You can eat one snack if you desire
- Try to fast for 12-13 hours per day (eat dinner at 6pm and breakfast at 7am for example).

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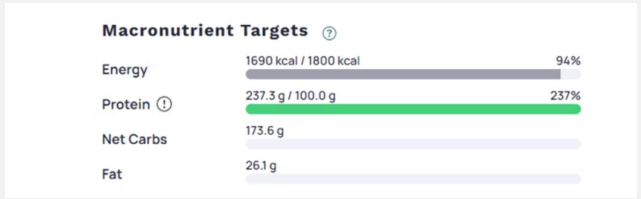
PROTEIN AT FIRST MEAL



You want your protein bar to be longer than your energy bar, especially in the AM after breakfast.

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PROTEIN SOURCES

- 0% cottage cheese- 25g protein per 200g
- 4 oz steak- 31g
- 4 oz ground turkey- 22g
- 100g Chicken breast- 27g
- 100g Beef liver- 26g
- 100g Ground pork-24g
- 3 oz pork shoulder- 20g
- 1 cup plain Greek yogurt- 25g
- 3 oz tuna- 24g
- 1 egg= 6 grams
- 1 ounce cheddar cheese= 7 grams
- 3 small chicken sausages= 10g

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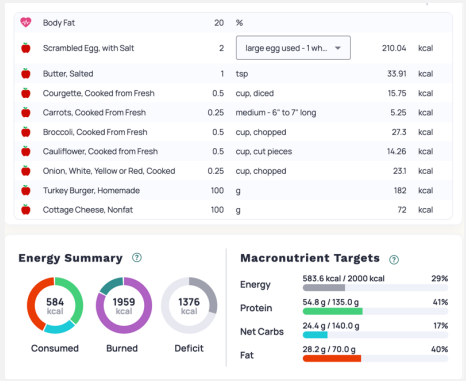
MY BREAKFAST



Energy bar is shorter than the protein bar. This is ideal.

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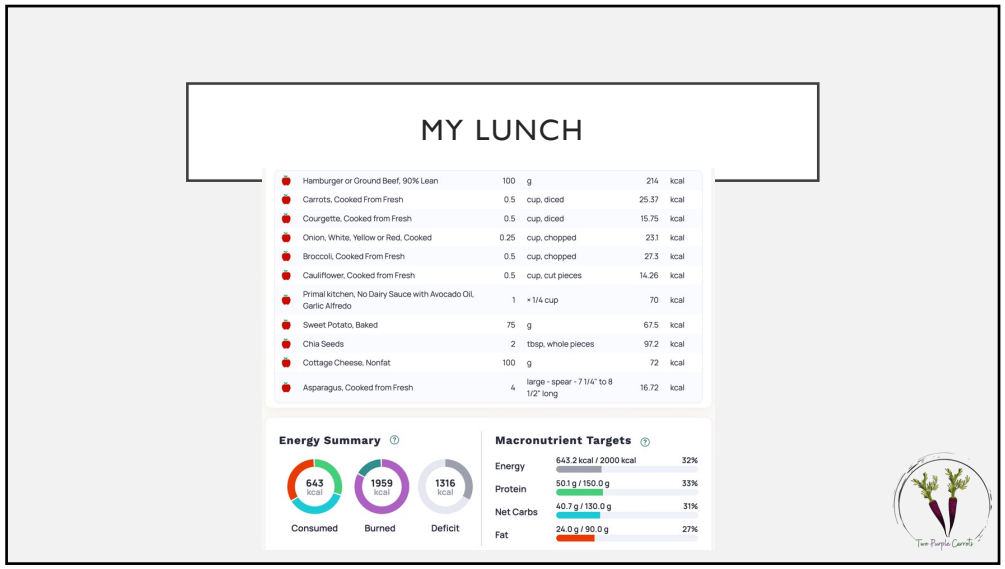
MY LUNCH
Hamburger or Ground Beef, 90% Lean 100 g 214 kcal
Carrots, Cooked From Fresh 0.5 cup, diced 25.37 kcal
Courgette, Cooked from Fresh 0.5 cup, diced 15.75 kcal
Onion, White, Yellow or Red, Cooked 0.25 cup, chopped 23.1 kcal
Broccoli, Cooked From Fresh 0.5 cup, chopped 27.3 kcal
Cauliflower, Cooked from Fresh 0.5 cup, cut pieces 14.26 kcal
Primal kitchen, No Dairy Sauce with Avocado Oil, Garlic Alfredo 1 × 1/4 cup 70 kcal
Sweet Potato, Baked 75 g 67.5 kcal
Chia Seeds 2 tbsp, whole pieces 97.2 kcal
Cottage Cheese, Nonfat 100 g 72 kcal
Asparagus, Cooked from Fresh 4 large - spear - 7 1/4" to 8 1/2" long 16.72 kcal
Energy Summary
643 kcal Consumed
1959 kcal Burned
1316 kcal Deficit
Macronutrient Targets
Energy 643.2 kcal / 2000 kcal 32%
Protein 50.1 g / 150.0 g 33%
Net Carbs 40.7 g / 130.0 g 31%
Fat 24.0 g / 90.0 g 27%

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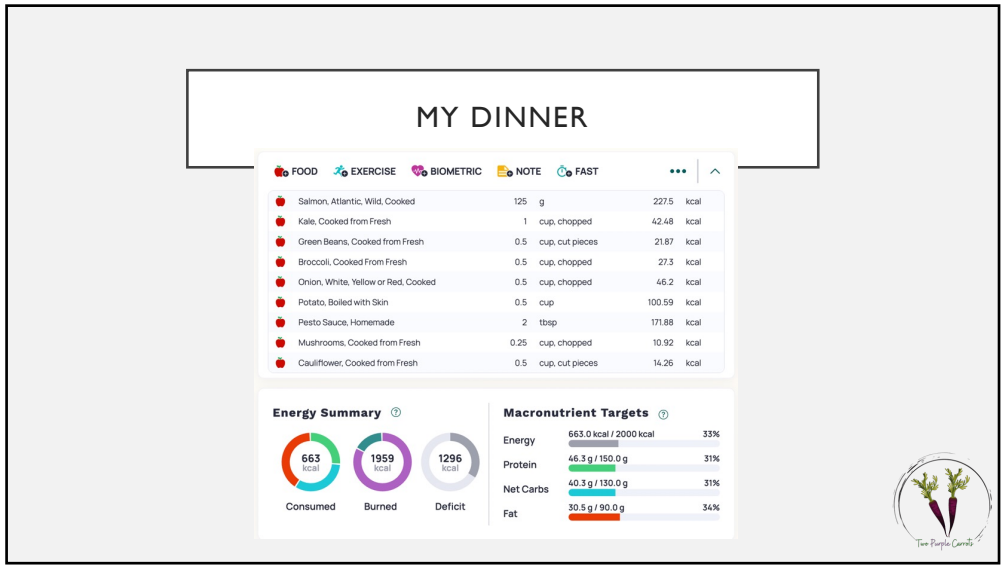
MY DINNER
FOOD EXERCISE BIOMETRIC NOTE FAST
Salmon, Atlantic, Wild, Cooked 125 g 227.5 kcal
Kale, Cooked from Fresh 1 cup, chopped 42.48 kcal
Green Beans, Cooked from Fresh 0.5 cup, cut pieces 21.87 kcal
Broccoli, Cooked From Fresh 0.5 cup, chopped 27.3 kcal
Onion, White, Yellow or Red, Cooked 0.5 cup, chopped 46.2 kcal
Potato, Boiled with Skin 0.5 cup 100.59 kcal
Pesto Sauce, Homemade 2 tbsp 171.88 kcal
Mushrooms, Cooked from Fresh 0.25 cup, chopped 10.92 kcal
Cauliflower, Cooked from Fresh 0.5 cup, cut pieces 14.26 kcal
Energy Summary
663 kcal Consumed
1959 kcal Burned
1296 kcal Deficit
Macronutrient Targets
Energy 663.0 kcal / 2000 kcal 33%
Protein 46.3 g / 150.0 g 31%
Net Carbs 40.3 g / 130.0 g 31%
Fat 30.5 g / 90.0 g 34%

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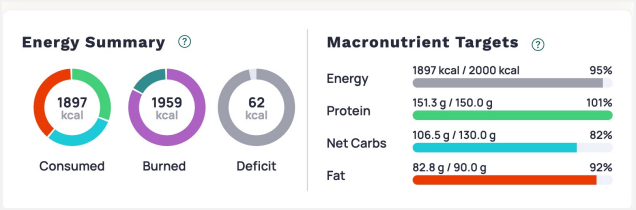
Cronometer- August 1

LETS CHECK OUT THE WHOLE DAY ON CRONOMETER



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WEIGHT LOSS IN NUTRIENT DENSITY

- One of the best things about nutrient density in terms of weight loss is that the closer you come to the ONI's, typically, the more weight you will lose b/c you are satiated and your body does not crave foods given that it is receiving the nutrients it needs.
- The more nutrient dense foods you eat, the less calories you end up eating b/c the body is satiated.
- When you increase protein, you reduce intake of carbs and fats typically leading to better glucose control and better satiety.
- Nutrient dense foods tend to be lower in fat and carbs. That doesn't mean to be low in fat AND carb b/c that is not sustainable and there will be energy deficits.

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BIOAVAILABILITY

- Animal based sources have more bioavailability of nutrients ie vitamin A, iron, and zinc which is one of the reasons why omnivorous diets are superior to plant based diets for nutrient density.
- Also, plant based foods do not have complete amino acid profiles, without complete amino acid profiles, they are much less bioavailable leading to deficiencies over time.
  - You can supplement with amino acids to get a full profile and fast absorption if you are set on eating a more plant based diet.

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PREPPING

- I suggest prepping your meals each week to prepare to eat nutrient dense foods that meet your goals.
- My preparation looks like this:
  - making my veggies fresh every morning in a pressure cooker.
  - Cooking all of my proteins for the day in the morning as well (either in the crock pot, oven or stove top)
  - Having 2-3 sauces either store bought or made each week to add to meats/fish/veggies
  - Planning my carbs for the day (mine are almost always starchy veg)
- However, if you work a regular work hours job, you might need to do all of your prep the night before or even prep all meals over the weekend and freeze/reheat.

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BREAKFAST EXAMPLES

- Mackerel Bowl (One serve provides 370 calories, 57 g protein, 11 g fat, 4 g of net carbs)
  - 80g mackerel
  - 250g spinach
  - 150g egg whites
  - 40g anchovies
  - 5g nutritional yeast
- Cottage cheese frittata (One serve provides 250 calories, 26 g protein, 12 g fat, 8 g net carbs)
  - 4 eggs
  - 250g cottage cheese (4 oz)
  - 50g spinach
  - 50g mushrooms
  - 1 tbsps Nutritional yeast
- Egg dish– 51g protein!
  - 3 eggs (18g protein)
  - 4 oz chicken sausage (20g)
  - Mixed veggies of choice (onions, peppers, mushrooms)
  - 100g cottage cheese (13g)

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CAVEATS

- In the world of HTMA testing, certain oxidation types will need more or less fat and more or less carbohydrates.
- Seafood is generally very high in heavy metals and eating a lot of the bigger fish and shellfish is not recommended despite nutrient density.
- You do not want to eat any farmed fish due to bioaccumulation of metals and lack of selenium.
- Lowest mercury fish are:
  - Sardines, anchovies, wild caught Alaskan salmon, trout cod, halibut, mackerel. I personally stick to wild caught Alaskan salmon, sardines and the occasional trout

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TAKEAWAYS

- Eating nutrient dense means eating for cellular energy, it does not mean deprivation. In fact, the more nutrient dense you eat, the less deprived you feel if you do it correctly.
- Nutrient density is required now more than ever for optimal health and wellness given the toxic state of the world.
- Make it a game, play around with the foods in Cronometer to make your days more nutrient dense
- Perfection is not the goal, slowly increasing protein and veggies over time and lowering carbs will ensure minimal stomach upset and also the subsequent binging that comes from feeling restricted.
- Prepare now so you don't have to think much about it later. This should become routine where you know your foods, your normal deficiencies and in general what serving sizes look like along with the macros. But, it does take some time up front to learn.

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