HAVE YOUR KETOSIS, AND EAT BREAD TOO!

Learn how you can be in ketosis-build and repair your body, calm and elevate your mood, and end sugar cravings-by eating a high lysine ketogenic diet of ancestral foods (including bread!), using ketosis-inducing condiments!
Northern Europe—the land of hearty rye breads, ancient cheeses, creamy oatmeal, sauerkraut and sausage, liver pate, collagen-rich soups and sauces, steak au poivre, quiche, steak and kidney pie, pea and ham soup, savory beef stew with turnips and other roots, mussels steamed with aquavit, and salmon with dill and horseradish sauce. Northern Europeans have been thriving on this fare for thousands of years, and no wonder—each of these delicious foods is a nutritional powerhouse! This is the land of my ancestors: Ireland, Sweden, Finland, Germany. Three of my great-grandparents lived to their late 80’s and early 90’s, eating their traditional diets, and without the benefit of modern medicine. Yet, many of these foods have been on the “bad list” for years, such as gluten grains, eggs, liver, animal fat, full-fat dairy, and sausage. Were my ancestors just lucky? Perhaps they worked so very hard that they were able to eat food that would likely kill any of us, as we’ve been told? Or, are these foods actually very healthy, and perhaps taking the rap for the many unnatural, or non-traditional, foods that Americans of Northern European ancestry have been increasingly eating since the late 1800's, foods like refined wheat, caffeine, high fructose corn syrup, oil from seeds rather than butter and lard, as well as food chemicals? Even more intriguing, are the foods of our own ethnicity actually necessary for our mental and physical health? Not too far-fetched of an idea, when you think about it!

We know about diets of many ethnic groups, and their food preparation techniques, thanks to Weston A. Price, a dentist who traveled around the world to study the health of populations untouched by western civilization. Wherever he went, Dr. Price found that beautiful straight teeth, good physiques, and resistance to disease were typical of native groups still eating their primitive diets, rich in essential nutrients. These people stood in sharp contrast to civilized moderns, subsisting on sugar, white flour, canned milk, coffee, and vegetable oils. As Dr. Price discovered, all healthy traditional people consumed some sort of animal food, the only source of essential omega fats, but the whole animal was consumed, with the organ meats and fats preferred. Their diets also had a high content of food enzymes and beneficial bacteria from fermented vegetables, beverages, dairy, meats (dry-fermented ham and sausages), and condiments. Nearly all ate whole grains, which were fermented for days before making them into bread or into warming comfort foods, like creamy and naturally sweet porridges. Dr. Price used his discoveries to treat American children who had serious dental problems with foods like high-vitamin cod liver oil and pastured raw milk, butter, beef stew with roots, and whole grains, which healed over their cavities! Thus, he showed us that traditional foods heal.
In contrast, a large number of Americans are sick at this time, physically or mentally. In fact, the health care industry is the largest industry in the U.S. Many diseases have emerged since the late 1800's, when Americans stopped eating their diets of meat and bean stews, sourdough whole grain bread, pastured dairy, lard, oysters and other seafood, and began to eat more sugar (teens now eat 34 teaspoons/day!), refined flour, vegetable oil, and coffee. Many Americans became deficient in essential fats that kill bugs and heal our bodies, B vitamins and zinc (depleted with refined carbs and coffee), iron, and certain amino acids (especially lysine). This has weakened our immune and detox systems, making us vulnerable to pathogens, heavy metals, stress, and the many chemicals we are exposed to, including medications. Our new diet also impedes healing. People try different diets to correct their health problems, but most focus on “super-foods”, and get even further away from the simple foods that kept their ancestors strong.

The latest “healthy diet” is the ketogenic diet. The state of ketosis is very important because your body burns fat, instead of storing it, so you not only lose weight, but you power your heart (which uses mainly ketones) and make enough energy for the body to regenerate. Also, as chemicals play a large part in causing disease-by disabling hormones, depleting nutrients, causing inflammation, etc.-the benefits of the keto diet may be due in part to its great detoxifying effect. The keto diet was first formulated in the 1930's for epilepsy, with its seizures and muscle spasms. So, being in ketosis calms and repairs the brain/nervous system! Our brains and nerves depend on essential fats DHA and arachidonic acid (AA) to function, as these fats determine the integrity of the nerves and the myelin nerve covering, which are damaged in epilepsy. The AA hormone PGI2 repairs nerve damage, plus it increases the calming neurotransmitter GABA, while decreasing excess excitatory glutamate, which damages myelin. AA (only in animal fat) is plentiful in the keto diet they still use today, which includes bacon, eggs, gravy, butter, and whipping cream. Similarly, with MS and stroke, PGI2 increased the “regeneration ability of damaged axons”. So, the great benefit of repairing our brain and nerves, and relaxing tense muscles, may be of even greater consequence than weight loss.

The keto diet also treats diabetes, fatty liver, high triglycerides (stroke, heart attack, heart disease), and some cancers and autoimmune diseases (it's anti-inflammatory). The keto diet is effective for diabetes because ketosis is needed to prevent fatty liver (causes insulin resistance). In a study, mice who weren’t able to induce ketosis-fat burning-stored fat
instead, and developed fatty liver! This causes insulin resistance, which prevents sugar from being made into energy and, instead, is turned into fat. At the same time, it causes sugar cravings (for energy). This causes a vicious cycle of high insulin demand, then more sugar/fat. But, with the keto diet, fatty liver is resolved, sugar cravings lessen, and demand for insulin drops. The keto diet was used to treat type 2 diabetes in the 1930's, and my own grandmother was put on this diet! The problem for her might have been the Crisco, that was just becoming very popular, in her diet. Crisco is high in the omega 6 fat linoleic acid (LA), and LA free radicals block the ketosis hormone adiponectin. A low level of this hormone is a marker for diabetes, and the build-up of LA free radicals is “pathogenic” for diabetes.

My own experience was that I ate an international vegetarian diet for 35 years. My diet included a lot of high anti-oxidant “superfoods”, like sprouted almonds, colorful berries, fruits, and vegetables, whole grains, tofu and other legumes, herbs and herbal teas, honey, olive or canola oil, natural, organic peanut butter, flax seeds, and bit of 80% dark chocolate every day. Yet, I was suffering from frequent colds, low energy, depression, IBS, low blood sugar/sugar cravings (I fainted twice), osteoporosis, tense muscles, and back pain. I also had an injury that wasn’t healing. Since I had such a “healthy" diet, I had no idea what I should eat. Then, I tapped into the wisdom of our ancestors-I asked my parents what they ate growing up! They said they ate beef stew, pea soup with pork, sausage and sauerkraut, fish, oatmeal, potatoes, beef liver and bacon, and milk and cheese, but also white bread, sweets, and Crisco!

So, going back further, I looked into the foods my very healthy great-grandparents would have eaten: pretty much the same, but no white bread, sweets, or Crisco. In fact, my mother told me a story about when my great-grandmother had immigrated from Sweden and was living on a farm in Northern Wisconsin, she made sourdough rye bread, which they ate spread with lard or bacon fat. The Native Americans would come to their cabin when it was baking, lured by the smell, so she would give them some bread! My great-grandparents also didn’t eat any of the “superfoods” I had been eating on a regular basis. Their vegetables were mainly cabbage and roots, and they ate little nuts or fruit-just some hazelnuts added to the occasional dessert, and berries when they were in season. So, I wondered how they could have been so healthy, eating red and processed meat, animal fat instead of olive oil, and without all the anti-inflammatory anti-oxidant foods we seem to need today. They also didn’t eat high vitamin C fruits.
I looked up the nutrients that my ancestors were getting with their diet, and found that their food was high in essential nutrients, like essential omega fats DHA and arachidonic acid, essential amino acids like lysine, and nutrients needed for our own antioxidants-cysteine for metal detoxing MT, glycine for glutathione, iron (catalase) and zinc/manganese (SOD) to protect our cells, which are far more powerful than the antioxidants in berries, nuts and cocoa! In contrast, my own diet was high in the non-essential amino acid arginine that, in excess, actually feeds viruses like Epstein Barr and herpes, and high in inflammatory omega fat linoleic acid. It was also high in copper but low in zinc and iron, a big problem as both are needed for copper metabolism. I was also researching into the foods that I was sensitive to or couldn’t digest, and found that many of the foods that I had been eating were high in oxalates and phytates (prevent absorption of calcium, iron and zinc), salicylates (lower energy and overheat), and indigestible modern milk casein and modern gluten. So, I started eating just my ancestral foods, took lysine and other amino acids, zinc, and essential fats as supplements to help with recovery, and I soon felt stronger and happier, with no more sugar cravings!

But, I also wanted to lose the extra ten pounds I still had, plus I hadn’t fully recovered from my health problems. So, I decided to try the ketogenic diet, in order to heal and regenerate. But, I found that the modern ketogenic diet included many foods that I had problems with, foods that were high in arginine, oxalates, salicylates, and modern casein: nuts, peanut butter, chocolate, coconut and olive oil, greens, berries, and whipping cream and butter. So, my efforts at following a high lysine keto-diet were very limited. Still, I was amazed at the results: I lost weight quickly, felt very upbeat, could think clearly, and I had energy like I never had before! But, I really needed more variety in my diet, plus I still wanted to eat the delicious Danish “smørrebrød” open-face sandwiches. So, it seemed impossible to get the benefits of ketosis long-term. Then, I discovered an important fact: there are many ways to induce ketosis besides eating fat! Most interesting was that even the condiments my N. European ancestors put on their fatty meat-horseradish, mustard, black pepper, vinegar-induce ketosis, burning that fat! I also identified foods that block ketosis, which included nearly all the foods I had been eating! like the omega 6 fat linoleic acid, which is high in peanut butter, oils, nuts, and seeds. So, by emphasizing ketogenic foods and activities, and avoiding foods that block ketosis, I found that I was able to eat a higher carb (about 60/day) and lower fat ketogenic diet, lose weight, and still eat my ancestral foods, such as a slice of rye bread with butter or bacon fat at each meal: a delicious win-win situation!
After I lost the weight, I kept using the many “tricks” to stay in ketosis, but I added more carbs, like popcorn, legumes, milk, and the occasional treat, to about 100 carbs/day. So, I now have an easy-to-stick-to, healthy and delicious maintenance diet that continues the benefits of inducing ketosis!

In this book, I explain how ketosis is natural, and why we are no longer in ketosis. Next I go over the extensive health benefits of a keto diet of ancestral foods. Then I explain what the diet is, including traditional food preparation techniques, which are critical for digestibility and flavor. I’ve included about 80 recipes, many of which are traditional, but others are changed for modern taste. There are also meal suggestions for three levels of total carbohydrates: 20 grams of carbohydrates per day, 45 grams, and 60 grams. It’s best to add carbohydrates slowly, that is, start with the 20 carbs per day, and continue for two to three weeks. Once you’ve incorporated the ketosis-inducing foods and condiments into your diet, and are avoiding ketosis-blockers, you can eat up to 45 grams per day (there are also many helpful keto supplements). After a few weeks, go up slowly to about 60 grams. After you’ve lost the weight you wish to lose, and your health has improved, you can increase your carbs, depending on your metabolism and health condition, up to about 100 grams. You should include several ketosis-inducers at every meal. I use a lot of hot sauce, which, although not Northern European, is a very convenient way to make sure you burn the fat. As my Mexican friend explained, “If there’s heat in your mouth, you’re burning the fat!” Thus, even though ancestral foods “fill the bill” regarding my own ancestry, and this guides my food choices, most of this information is relevant to all ethnic groups. So, I hope that this book will inspire you to search back into your own roots. You can then develop your very own ancestral wellness diet, based on the foods that your healthy great-great grandparents would have eaten. This will be your foundation, from which you can build, stone upon stone, the strong mind and body that is your true “goodly heritage”!

Love and best wishes,
Joan, the “Diet Architect”

“The Upper Room”, Battery Park City Esplanade, NYC
Ned Smythe, Artist
Joan Tendler, Architect
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1. KETOSIS: GOOD MOOD, ENERGY, BODY REPAIR, WEIGHT LOSS
THE KETOGENIC DIET CAN HELP WITH MANY PROBLEMS

- Obesity
- Epilepsy
- Type 2 diabetes, sugar/alcohol cravings
- Heart disease: fatty liver, high VLDL and triglycerides, arterial plaques, angina, shortness of breath, enlarged heart, chest pain, palpitations, microvascular impairments, neuropathy, stroke, retinopathy, HBP, sodium retention
- Many cancers (cancer cells need sugar to grow, so cancer cells are starved)
- Some autoimmune diseases, asthma
- Poor dental health
- Cocaine and heroine addiction
- Benign prostatic hyperplasia/hair loss
- Alzheimer’s
- ALS (while a high carb/lowfat diet increases risk for ALS!)
- Parkinson’s
- Autism
- Depression (low dopamine) and anxiety (low serotonin)
- Migraine headache
- Brain injury
- Schizophrenia
- Bipolar
- ADHD
- Irritability, anger
Activating PPARα has many health benefits: weight loss, longevity (SIRT1 increases life span by inducing PPARα), lowers inflammation and pain, powers the heart, liver, kidney, and muscles, curbs junk food cravings, maintains healthy metabolism, regulates the nervous system, reduces permeability of tight junctions in the gut, and much more.

Many Northern European foods induce PPARα/ketosis, like bacon, salmon, butter, liver pate, chevre, but also black pepper, vinegar, horseradish, exercise, sunlight. Even coffee, wine, CBD oil do! The right fats are critical. The omega 6 animal fat, arachidonic acid (AA), is the strongest inducer of PPARα, but the unstable plant omega 6 fat linoleic acid (LA), blocks ketosis w/free radicals that it readily makes if exposed to toxins, stress, etc.

Fiber from rye, oats and barley is helpful for ketosis because the beta glucans in it feeds gut bacteria, like F. prausnitizii, that make the ketone butyrate. Colon cells use butyrate for energy, while colon cancer cells use glucose, so butyrate prevents colon cancer. Beta glucans control blood sugar and appetite, and sourdough rye has less sugars and more leucine/manganese (decreases weight/cholesterol) than wheat. Sourdough rye (not wheat/oats) lowered heart attack risk for both men and women. So, sourdough rye is recommended for weight loss, for diabetics, and to prevent CVD. Dairy fat is the only food source of butyrate, so sourdough whole grain rye bread with butter is colon healthy!

There is a wide range of food macros in keto: 5-15% of your calories as carbs (minus grams of fiber), 60-75% fat, and 15-30% protein. Grams of protein depend on your needs: for an upbeat mood, focused energy, and building and retaining muscle mass.

This higher carb keto diet, based mainly on traditional foods of N. Europe, emphasizes carbs that don’t spike insulin, foods and activities that induce ketosis, foods that are high in AA (liver, bacon, eggs), and avoiding PPARα blockers. Thus, you can eat more carbs and still be in ketosis! This might be 60 grams of carbs, like a small serving of whole grain bread/cereal, sprouted tortilla, or legumes at each meal. It all depends on your degree of insulin resistance, activity level, metabolism, and calorie needs. To jump-start ketosis, especially helpful for weight loss but not necessary, deplete liver glycogen stores by eating 20 carbs per day. Include as many ketosis-inducing foods and activities as possible. At this point you’ll be burning dietary and body fat for energy, instead of carbs. Then, slowly increase your carbs to as much as 100/day. As long as you feel good, aren’t hungry, have energy, and are losing weight, you’re in ketosis. Best of all, you’ll feel less of a need to induce ketosis w/caffeine, wine, or CBD oil-you’ll be doing it naturally!
### PPAR-ALPHA ACTIVATION BENEFITS

#### INCREASES/BALANCES:
- Commonly low hormone/nutrients: GABA, monogamy/empathy hormones oxytocin and AVP, taurine, glycine, “feel-good” dopamine/serotonin, melatonin (sleep)
- Acetylcholine (ACh): memory, focus, anti-inflammatory
- Mitochondrial function (low w/CFS, chronic pain, fibro.)
- Autophagy: neuroprotection, cleans out damaged cells, makes new ones. SIRT1 (regulates autophagy, DNA repair, stem cells, and telomeres) increases life span by activating PPARα. Induces BDNF (brain-derived neurotropic factor), low w/eating disorders, depression.
- Ketone production and energy from dietary/body fat
- Bile production: enables the body to absorb fat, which protects against absorption of fat-soluble solvents and pesticides. Detoxes heavy metals and repairs DNA.
- PPARα “inhibits inflammatory immune pathways”.
- IGF-1: cell/myelin repair, cognition, normal metabolism
- Insulin sensitivity w/diabetes, Alz., alcoholism, addiction
- Apoptosis of cancer cells
- HDL-good cholesterol, arterial nitric oxide for blood flow
- Superoxide dismutase-SOD-major detoxifier/antioxidant
- Myelin basic protein, neurogenesis, and cognition-treats PTSD, Alzheimer’s, bipolar, ADHD, epilepsy

#### DECREASES:
- Oxidative stress/DNA damage from ROS-reactive oxygen species free radicals-formed during carb metabolism.
- Pro-inflammatory cytokines, ICAM-1, osteopontin: RA, MS, colds, colitis, allergies, asthma, osteoarthritis, bone/tooth demineralization: “most prominent effect of (DHA and AA) is inhibited Th1 (inflammatory autoimmunity) cells”!
- TGF-B growth factor (high in cancer, Alzh., autoimmunity): cell growth, changes viruses like EBV into virulent viruses.
- Excess aromatase and 5α-R (that estrogenic chemicals induce) in obesity, breast cancer, PCOS/infertility, BPH
- Inflammatory nitric oxide (flu deaths) and markers and inducers of inflammation (as caused by heavy metals, oxidized LDL, stress, pathogens, radiation, chemicals)
- Brain inflammation, histamine-via-palmitoylethanolamide, or PEA, substance abuse, neurodegeneration, fear
- Cancer cell proliferation and migration, C-reactive protein: lowers risk for cancer/heart disease
- Enlarged heart-chest pain,palpitations, shortness of breath, microvascular impairments, neuropathy, stroke, traumatic brain injury, retinopathy, HBP, sodium retention, VLDL “bad” cholesterol, triglycerides, atherosclerosis
- Open sodium channels (with cardiac arrhythmias-stroke and heart failure, MS, bipolar, depression, SIDS, epilepsy, pain perception, migraines, autism)
“Ketogenesis occurs constantly in a healthy individual.”
Paul Engel, Bio-chemist
Normal Carbohydrate and Fat Digestion:

- First, carbs are brought into the cell via insulin (with its zinc component), manganese, B1, B2, B5, B6, and B12 to make quick energy. This generates free radicals (ROS), which need glutathione to detoxify. Extra carbs are stored in the liver (which blocks ketosis) and made into saturated fat-palmitic acid-as body fat.

- As blood sugar declines, fat is digested by lipases. Hormone-sensitive lipase, induced by cortisol, activates PPARα, so fat enters the cell w/carnitine, where it’s oxidized for ketones. Ketones are needed for heart, muscle, liver, kidney, intestinal energy. Mice w/no PPARα have heart failure, hypoglycemia, fatty liver, similar to alcoholics (alcohol blocks PPARα).

Digestion changes due to a modern diet high in refined carbohydrates, caffeine, alcohol, and modern oils, coupled with chemical exposure, which impairs the insulin receptor:

- Metabolism of refined carbs, caffeine, and alcohol deplete B1, biotin, B5, zinc, and manganese (needed to make energy from carbs) as well as glutathione. Instead, carbs just raise blood sugar, insulin, and growth hormone (linked to cancer). This blocks PPARα and turns carbs into the saturated fat palmitic acid, sending it to storage. Saturated fat from carbs causes inflammation, fatty liver, and insulin resistance. Zinc deficiency raises unbound copper, causing depression, high cortisol, poor immunity. Low B1/biotin causes acidosis, chronic fatigue, high ammonia. Caffeine induces PPARα but, in excess, it blocks it, as does alcohol, as they activate the opposing PPAR gamma, that makes storage fat.

- High linoleic acid (LA) in vegetable oils is a major cause of insulin resistance, due to LA free radicals, formed by chemicals, which block PPARα, so fat is stored in the liver.

- Gallstones form with a high carb/low essential fat (DHA and arachidonic acid-AA) diet.

- Estrogenic chemicals and heavy metals bind to amino acids in: PPAR alpha, fat-digesting lipases, and the insulin receptor. This de-activates PPARα and lipases, and causes insulin resistance, preventing fat breakdown. So, dietary fat is stored as fat, and our mitochondria don’t produce enough energy, either from carbs or from fat.

So, in order to get more energy for all the vital functions of your brain and body, it’s very helpful to lower your carbs, and glycogen, enough to activate the PPAR alpha receptor again. Then, the body makes ketones out of dietary/storage fat, and uses them for energy.
KETOSIS: NO FREE RADICALS

Creating ATP from carbs forms free radicals—ROS—that are so destructive, damaging DNA and even changing latent viruses into virulent viruses, that this process is the “most popular” theory of aging. In fact, a major action of anti-inflammatory drugs (NSAID’s) is to block this process, although, as a result, less energy is generated for bodily functions. In contrast, ketosis doesn’t generate free radicals, plus it makes over three times more energy! Thus a keto diet is especially helpful for those w/chronic pain (who take NSAID’s). Also, cancer cells can’t make ATP from fat, only from glucose, so the keto diet starves cancer cells of the glucose they need to use for ATP energy.
Before modern times, N. Europeans would cycle in and out of ketogenesis, depending on the season and food availability. Ketogenesis is a healthful, natural state of metabolism in which you burn the fat you eat for energy, rather than store it as fat. Typically, they would eat one large meal with meat, fish, or cheese, including the fat, along with small meals for breakfast and/or supper. Also, they were in the sun for much of the time, were exposed to cold in winter, and had regular exercise. This way of eating, and these activities, induce ketosis.

N. European food, like rye, oats, and barley, was low in omega 6 plant fat linoleic acid (LA), which blocks ketosis. In contrast, LA is high in our modern diet of oils, P.B., nuts, seeds, and even whole wheat. Their food was also low in refined carbs: sugar, refined flour, potatoes. Instead, peasants ate a lot of cheese from goat, sheep, and cow milk, eggs, and meat and fat from seafood, wild birds, game, seafood, and pigs. They did eat high LA nuts in fall and winter, to put on fat to endure the cold. But, their protein and fat foods were high in ketosis-inducing fats-arachidonic acid (AA), DHA, GLA, and medium-chain fats-and the ketogenic amino acid lysine (the competing amino acid arginine is high in grains and nuts). They’d eat meat and fish as gelatinous soup, stew, gravy, and sauces made w/bones and skin, for digestion. Liver, high in ketogenic AA, GLA, vit. A, was highly prized. Meat was preserved from nitrosamines and made more ketogenic w/black pepper (pastrami), oregano (gyros), celery juice (apigenin), lactobacteria (sausage), vinegar (pork), cayenne, and spices. Also, meat was served w/horseradish, mustard, black pepper, and vinegar, which induce ketosis.

They ate low glycemic fermented carbs like sourdough rye bread, oat porridge, buckwheat crepes, as well as cabbage, greens, sour berries, onions, which feeds ketone-producing gut bacteria. Rutabaga and parsley are very important Northern European foods for much of the year, and they are the best sources for the ketogenic anti-oxidant myricetin. They would eat lacto-fermented vegetables, which are 25% acetic acid (like vinegar), and so help with ketosis. Goitrogens in crucifers induce fat storage, but fermenting cabbage for sauerkraut lowers them, and fermenting bacteria produce lysine, the most ketogenic amino acid, in the gut. Even their liquor, aquavit, contains ketosis-inducing herbs, like dill and caraway!

So, the N. European traditional diet and life-style induces ketosis in many ways, despite their grains and carb-rich roots. It also avoids excessive fat storage, as they ate the plant fat, LA, sparingly. These foods also supply all nutritional needs, especially for N. Europeans, but the principle of eating mainly your ancestral foods may be helpful for all ethnic groups. Thus, by eating the foods of your ancestors, you’ll begin to experience physical benefits of weight loss and healing, as well as a calmer, more upbeat mood, and no more sugar cravings!

**A MODIFIED KETOGENIC DIET, BASED ON N. EUROPEAN FOODS**

Northern Europeans have eaten a ketogenic-type diet of meat (including the fat), fatty fish, full-fat cheese, low carb roots, and fermented grains, for many thousands of years.

“Ketogenesis is the biochemical process through which the organism produces ketone bodies through breakdown of fatty acids and ketogenic amino acids (lysine).”

Dr. Joseph Maroon, Neurosurgeon: “People have cycled in and out of ketosis for 3,000,000 years!”
Unsaturated saffron, PPAR.

Medium-chain saturated fats in goat cheese, coconut oil: capric (very strong binds directly with PPARα), caprylic and capric acid. MCT’s require less bile/pancreatic enzymes, and no carnitine. Two ounces of goat cheddar has as much MCT’s as a tablespoon of coconut oil!

Stearic acid (beef/pork/dairy/mutton fat), CLA (pastured meat/dairy), PEA (egg yolk/legumes). The positive effects of CBD oil and nicotine are from increasing PEA, thus inducing PPARα!

Short chain saturated fats are ketones made by gut bacteria out of lysine, threonine, glycine. Oleic acid in hazelnut oil, olive oil-one of its hormones is a strong activator. DHA, EPA, coconut oil are weak to moderate. NOTE: linoleic acid hormones induce PPAR gamma (PPARG)-stores fat.

Vinegar (malt vinegar is low in salicylates) lowers carb load by 80%. Soy sauce induces PPARγ.

Black pepper, hot sauce, horseradish, onions (quercetin)-best, mustard, fresh dill/ginger/thyme/oregano, radish, celery, rutabaga, parsley, paprika, fenugreek, berberine, saffron, cranberries, caraway, sour cherries, mango, lemon/orange peel, cinnamon, nutmeg, coriander, resveratrol

Stevia sweetener, caffeine (small quantities), hops-in beer, sunshine on skin, cold, fasting (breaks down arginine, for more lysine), exercise, drugs (CBD oil, nicotine, cocaine). Sauna: detoxifies.

Astaxanthin, coral color in wild-caught salmon and shrimp, w/its shells (is an anti-histamine)

Amino acids: glycine induces adiponectin, activating PPARα (bacon/meat, gelatin, shellfish), taurine-“extremely potent” (seafood), carnitine (beef, lysine), betaine (beets, rye). Serine, lysine, tyrosine, threonine are needed for PPARα. Arginine induces insulin the most, blocking PPARα.

Nutrients: Vit. A-liver, cod liver oil, carrots, romaine, rutabaga, pumpkin; B1 inhibits PPAR gamma (which stores fat): in pork, salmon/trout/mussels, legumes, barley; B3 (increases AA/BDNF); B5 (sl. 34), D: lowered w/chemicals, needs lysine, cholesterol, zinc; DHEA, alpha lipoic acid. NOTE: folic acid (synthetic folate) blocks ketosis! It’s added to flour, and 75% of Americans are high in it. Folic acid is a growth factor. It’s linked to autism, cancer (breast, leukemia, lung, prostate) and RA pain. In fact, chemotherapy that treats the same cancers, as well as RA, are anti-folates, and work by blocking folic acid metabolism! High folic acid also can mask anemia caused by B12 deficiency (both folate and B12 are needed to build and replace red blood cells).

KEYS TO KETOSIS:

By choosing foods, sauces, condiments, supplements, and activities from this list, you will keep yourself in ketosis, even if you eat a small serving of grains or legumes at every meal (traditionally vinegar was added to legume dishes). As you replenish deficiencies and detox chemicals, these activators will stop cravings for sugar. Also, since caffeine, alcohol, nicotine, chocolate, many drugs, and addictive behaviors activate PPAR alpha, cravings for these will also diminish, as shown with many studies!
“Infernal headache and fever.”...“Have some cayenne-pepper with your fowl.” From Thackeray’s Vanity Fair-1847

In countries where they eat a lot of grains, tubers, and legumes, hot condiments like chili peppers, fresh ginger, and mustard are commonly added to dishes, and this would help them stay in ketosis! This is true where the most centenarians live—Okinawa, Nicoya (home of “killer” hot sauce), and Sardinia—also in countries throughout Asia, Indonesia, the Philippines, Afghanistan, Turkey, Iran, North Africa, West Africa, Somalia, Ethiopia, the Caribbean, Mexico, and Peru. In fact, in India and China, which have some of the hottest cuisines, “pungency” (the burning sensation in the mouth from hot pepper) is considered to be a basic flavor, along with salty, sweet, bitter, and sour!
“If there’s heat in your mouth, you’re burning the fat!”
**Most Important Foods for Ketosis:**

- Fat in meat/fish, pastured-butter, lard, bacon fat, schmaltz, tallow, hazelnut oil
- Goat, sheep, and cow cheese (raw if possible), cream, yogurt, goat milk
- Unpasteurized malt, cider, other vinegar w/food, condiments, pickles
- Liver, other organs
- Eggs (especially yolks)
- Gelatinous meat/fish broths with fat
- Mercury/PBDE-safe, fatty seafood
- Fatty meat, esp. pastured (pastured meat and dairy have CLA), fresh pork must be marinated. Lacto-fermented cured meat is very digestible.
- Water w/Celtic salt (your weight in ounces), stevia/nettle/dandelion/rosehip tea w/Celtic salt, decaf coffee, weak black tea w/lemon peel
- Flavorings: black pepper, cayenne/hot sauce, mustard, horseradish, fresh (only) ginger, rosemary, dill, thyme, chives and oregano, fennel, caraway, poppy seeds, cinnamon, cardamom, stevia (tea), aquavit (has dill, caraway)

**High Fiber Foods (to feed ketone-producing gut bacteria):**

- Raw: Onions, Boston lettuce, romaine, parsley, scallions, shallots, radish, pea shoots, tomato
- Cooked: celery, rutabaga, turnips, asparagus, mushrooms, cauliflower, collards/crucifers, green beans, leeks, pumpkin, carrots, celeriac (ketogenic in soup), spaghetti squash
- Lacto-fermented vegetables: sauerkraut, beets, pickles, etc.
- Small servings of healthy carbs: whole grain rye sourdough bread, sprouted or soaked grains as cereal or in soup, low carb legumes (split peas, sprouted lentils, cannellini, kidney beans), sprouted tortilla, potato-peeled, cooked, cooled
- Limited fruit: berries, papaya, mango, Montmorency cherries, cranberries, plum, citrus peel, Golden Delicious apples, watermelon

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**BEST FOODS FOR KETOSIS**

- Pastured fat and meats
- Goat dairy
- Malt vinegar
- Liver
- Eggs
- Broths-w/rutabaga/celery/parsley/dill/rosemary/thyme
- Wild-caught seafood
- Water with Celtic salt
- “Hot” flavorings
- High fiber veggies
2. THE END OF ANCESTRAL FOODS, AND KETOSIS!
A SHORT HISTORY OF THE END OF ANCESTRAL FOODS, AND KETOSIS!

It is believed that, for thousands of years, Europeans have cycled in and out of ketosis, depending on food availability and time of year. But, as refined carbs became more available, especially after the Caribbean sugar (and slave!) trade was established after 1500, it became increasingly difficult to burn fat for energy. For example, in Renaissance Italy, the Medieval custom of serving sauces made with vinegar, which would induce ketosis, changed to sauces sweetened with sugar, as “sugar became prevalent in most dishes”. Huge and intricate sugar sculptures were made for parties by sculptors, including Leonardi DaVinci, whose step-father was a pastry chef, and sweetened almond paste-marzipan- was reportedly a favorite of DaVinci’s. This new way of eating may be why, from around 1650, many Europeans were drinking copious amounts of coffee, chocolate, tea, and red wine, and smoking tobacco, all of which activate PPARα. Enlightenment thinker Voltaire drank 40 to 50 cups of coffee with chocolate, the illustrious Dr. Johnson drank 40 cups of tea, and Sigmund Freud smoked 20 cigars, every day! Marx was co-president of a drinking club (his father owned a vineyard), and Hitler ate 1/3 of a chocolate cake for breakfast, along with sweet biscuits. Chocolate was so important to the Jesuits that they insisted on drinking it during their fasts, and, after 100 years of prodding, the Pope relented!

This would have had many effects on behavior. Ex., monogamy hormone AVP is induced by PPARα, but sugar increases “love hormone” oxytocin, related to polygamy in animals. So, sexual and social behavior could be affected. PPARα also balances acetylcholine, serotonin, and dopamine. So, the new diet would have caused problems with mood, like brain fog, depression, anxiety. Dysfunction of these hormones is also linked to violence.

Sugar was eaten in Spain as early as the 10th century, when the Moors introduced it, and, of all the seasonings, black pepper is the best activator of ketosis. So, this situation may explain why black pepper was so important to the king and queen of Spain—all that black pepper they would eat (in their very spicy sausages, for example) may have been essential for Spaniards to get back into ketosis!

1492: Black pepper was, and still is, the most important spice traded worldwide, and, in 1492, was worth more than gold! It was so important that the king and queen of Spain funded Columbus’ expensive journey to find an alternative trade route to obtain it. However, all he found was an unrelated “hot” red fruit. So, he called it: “pepper”! Black pepper has proven to be so healthful that its active ingredient, piperine, forms the basis of many modern medicines, especially those that treat mental and neurodegenerative illnesses.
On his visits to his patients, in the country, Dr. Thuillier noted the food that was set out on the tables, usually pork or beans, but the main staple and what always seemed to be present was a loaf of rye bread, which always seemed to be prominently displayed in the center of the table.
1945: World War II ends, and the nerve poison Sarin, derived from petroleum, is made into insecticides-organophosphates. They bind to the amino acid serine ("Sarin") in enzymes/receptors, altering them. One of the altered receptors is ketosis-inducing PPARa receptor. Many other petro-chemicals were also made. Farmers changed to productive Holsteins for fresh milk, but w/indigestible A1 casein, instead of cows w/A2 casein, like Guernsey. Before, A1 milk was mainly used for aged cheese, because this pre-digests the casein.

1948: Sales of Crisco, made by soap company Procter and Gamble, fell after World War II, while soybean oil sales rose. In 1948, P&G hired the "father of propaganda," Edward Bernays, to increase sales. He arranged for a contest to give some worthy group $20 million (in 2020 dollars), which was given to the AHA on their extremely popular "Truth or Consequences" radio show. This propelled the AHA into national prominence.

1950’s: the AHA, w/Ancel Keys, went on television to tell Americans that animal fat causes atherosclerosis-CAD, backed by their now-disproven dietary cholesterol hypothesis, and that people should eat Crisco and margarine instead. P&G still sits on the AHA “Nutrition Advisory Committee”. AHA is now funded by many other makers of oils, as well as grain producers, incl. Bayer, which owns Round-up (Glyphosate), corn (HFCS), GMO (Round-up resistant) soy (oil), sugar beets, and cotton (oil). These are heavily sprayed with Round-up. So, it’s no surprise the AHA has always been, and continues to be, in favor of a diet high in seed oils and grains, and low in animal foods, as the only healthy diet. Yet, LA, coupled with chemicals or the gossypol in cottonseed, may be the real CAD culprit, as they raise liver cholesterol production. They’re both in red/processed meat—because cottonseed is fed to these animals! Interestingly, Keyes, who ate high cholesterol liver, lived to be 100!

1768: Gossypol-a blood poison in cottonseed-first used to treat colitis by Dr. Otto (U.S.). In 1803 Otto first described hemophilia.

1856: Solvents were invented, and were used in France to extract oil from seeds, which was eaten as margarine and mixed in olive oil. Solvent-related diseases of the nervous system-Parkin., MS, ALS, CMT—were first diagnosed in France. Cases of hysteria increasing.

1880: Refined wheat begins replacing whole rye. Cancer is increasing, perhaps from refined carbs that, unlike ketones, feed cancer cells.

Early 1900’s: Crisco is made from cottonseed oil. CAD-arteriosclerosis (heart disease/high cholesterol) first diagnosed. PB in invented.

1930’s: Diabetes type II, related to CAD, is first diagnosed, and is a major health problem.
Meat/animal fat raise cholesterol, so they’re thought to cause heart disease. But, there is a cottonseed poison, gossypol, in red/processed meat that, as a fertility med, causes atherosclerosis-heart disease, Alzheimer’s, macular degeneration-MD-and diabetes.

Cows in the South, West, and on super farms, and farmed fish are fed cottonseeds (banned in EU). Gossypol depletes lysine, so they don’t suffer effects, like heart failure and infertility. Thus, gossypol has been found in cheap hamburger/beef hot dogs (made from old dairy cows), liver, dairy from big farms, poultry, fish.

Gossypol blocks cholesterol absorption so the liver makes it, causing high cholesterol/fatty liver (insulin resistance). It binds to lysine, needed for collagen (in blood vessel/artery walls, heart), breaking down red blood cells, arteries, heart. The RBC then release heme iron, which “may play...an essential role in the endogenous formation of nitrosoamines (from) red and processed meat”, which cause colon cancer. It also blocks PKC, a major anti-coagulant, causing blood clots, and blocks ACh and PGI2, needed for normal (vs. “flight-or-flight”), steady-state arteries and heart rhythm. So it causes labored breathing, arrhythmia, angina, sleep apnea, hypokalemia/high BP from sodium, edema, heart failure, heart attack, stroke. It blocks the lysine enzyme ADH, which metabolizes fructose and alcohol. If ADH is low, harmful AGEs form. Leaky blood vessels and low PGI2 are found in Alzh. and MD. “Plaques or tangles are more likely to cause Alzh. with strokes/damage to the brain’s blood vessels” and to the blood-brain barrier, perhaps from gossypol build-up (breaks down the BBB).

Gossypol blocks calcium absorption, the homocysteine cycle, the enzyme for sex hormones, lactate dehydrogenase/NAD+ recycling, lowers nicotinamide (related to nicotine). Effects include irritability, irrational thinking, brain fog, depression, angina. So it may have fueled the smoking (increases ACh/attention) and drinking (relaxes both the mind and arteries), maybe even the violence, that’s been prevalent starting in the early 1900’s. Also, deaths from heart disease, and smoking, declined after cottonseed oil consumption declined.

Criscen, Wesson, and Chiffon, with high omega 6 to omega 3 fat ratio, trans fats, large amounts of diacylcerides (insulin resistance), coupled with gossypol in cheap meat (depletes lysine), ravaged our mental and physical health from around 1900 until about 1970, when both smoking and deaths from CHD quickly fell. Linus Pauling had “dramatic” results when he treated angina w/ lysine plus vit. C.
1970: Inexpensive high fructose corn syrup is invented.

1980: The Select committee on Nutrition and Human Needs was tasked with ending hunger in America, but it ended up issuing dietary guidelines for all Americans: to increase fiber and lower consumption of foods that are high in cholesterol and saturated fat. So, Americans, as well as all federally-funded food programs, began to substitute whole grains and modern seed oils for red meat, eggs, and dairy. The guidelines were formulated according to Ancel Keys’s and the AHA’s cholesterol theory of heart disease. The switch from animal fat and meat to vegetable oil and grains increased sugar consumption, which then made many people more vulnerable to chemicals, pathogens, and stress, and continues to cause many health problems. As shown below, Alzheimer’s and chronic pain has skyrocketed since 1980, and increased chronic pain also contributes to the great increase in drug overdose deaths. Furthermore, heart disease/hypertension has now been found to be caused by free radicals formed when transfats or LA (a major problem of the recommended seed oils!) is oxidized by chemicals: cigarette smoke, exhaust, cadmium, arsenic, birth control pills, phthalates, BPA, organophosphates, perhaps gossypol, etc. Importantly, palmitic acid is the only dangerous saturated fat, linked to many diseases, plus it feeds parasites, but the main source is excess carbs that are converted to palmitic acid!

1950: Dwarf wheat is bred to increase production, but an indigestible gluten is now present. Gluten and A1 casein are broken down by the same enzyme, DPP4. Low DPP4 is found with celiac and chronic sinusitis (linked to both gluten and casein, for DPP4 also breaks down histamine). Diabetes type 1 is linked to A1 casein, as A1 casein makes BCM, possibly the “key trigger” of diabetes type 1. So, these modern changes have had very serious consequences. Interestingly, DPP4, which enhances insulin production, is in excess w/ diabetes type 2 and obesity, because body fat induces DPP4 production, and thus too much insulin.

1955: Pres. Eisenhower, a smoker, has a heart attack. Some thought it was caused by air pollution (which contained lead). Keys said it was from dietary cholesterol.
Transfats have been in food since cottonseed oil was hydrogenated for Crisco. Transfats block D6D. N. Europeans convert little or no LA in seed oil to AA, which is needed for mental health, brain/bone development, etc., as they have little D6D activity because they get GLA, AA and DHA in their diet. So, for N. Europeans, transfats block D6D activity still further. From 1930 onward, Crisco/Spry became very popular. So, the change in fat, esp. w/the high fat diet of N. Europeans, may have had a major impact on their mental and physical health, and may have contributed to making the 20th century the “most violent century”, from the Ku Klux Klan to World Wars.

1989: Center for Science in the Public Interest coerced restaurants to stop using stable saturated animal fats, and use unsaturated oils instead, which form transfats. In 1990, CSPI denied transfat dangers, then changed their minds and insisted that transfats in foods be labeled. Now transfats and HFCS are common in many restaurant, deli, and processed foods! Transfats block D6D enzyme production of arachidonic acid which, w/modern oils, would cause fatty liver. So, not surprisingly, since 1990, obesity skyrocketed, especially childhood obesity, and a new disease, juvenile type 2 diabetes, emerged in the 1990's.

1995: The AHA recommends eating fat "sparingly": “To control fat, choose snacks...such as low-fat cookies, low-fat crackers, unsalted pretzels, hard candy, gum drops, sugar, syrup, honey, jam, jelly, marmalade.” But refined carbs prevent production of EFA’s, and nutrient and energy deficits from a high carb but low protein and low animal fat diet has caused us to be irritable, sensitive, anxious, depressed, and, still, sick. So, we crave sugar, caffeine, chocolate, alcohol, and drugs, including addictive behaviors.

2015: High cholesterol eggs found to lower stroke risk. So, nutrition experts decided that cholesterol is “no longer a nutrient of concern”, and eggs and butter are pronounced “healthy”. A study, in 2019, showed that LDL (so-called “bad” cholesterol) that is less than 70 doubled risk for stroke! The problem of low cholesterol, as well as low taurine (only in fish/meat), is thus significant, and may explain vegetarians' higher stroke risk.

2017- A large study showed “total fat and saturated and unsaturated fats not significantly linked with risk of myocardial infarction or cardiovascular disease mortality,” and that a higher fat diet lowered stroke risk, while a high carb diet increased mortality.

Despite lowering cholesterol and animal fat in our diet, 1 in 9 still die from heart failure, heart disease is the leading cause of death and the second most costly disease (after the related disease diabetes), and stroke is the leading cause of disability and the second leading cause of death.

2018: Into this whirlwind of conflicting studies came the “explosively popular” ketogenic diet, which is high in cholesterol, saturated and essential fats, and stops sugar cravings. So, now that we can finally get back into ketosis again, we are finally getting healthy, again!!!
3. DIABETES, SUGAR CRAVINGS, AND CHEMICALS
Insulin resistance is caused by a combination of a diet that is high in carbs and the omega fat LA, and by toxins that block the insulin receptor. Together they lower adiponectin, which then blocks PPAR. Plus, toxins block PPAR alpha directly by binding with amino acids. So, dietary fat, instead of being burned for energy, accumulates in the liver and as body fat. This causes fatty liver, insulin resistance/high blood sugar (which requires extra insulin), and diabetes. In the 1920’s, diabetes was treated with a high animal fat/low carb diet of bacon and other meat, fish, broth, gelatin, eggs, butter. Then insulin and, later, metformin were invented (metformin induces AMPK, which induces PPARa). So, the diet was no longer used.

- **DIET CHANGE:** In the early 1900’s, lard and butter, high in essential fat arachidonic acid (AA), were replaced by Crisco, vegetable oil (from seeds), peanut butter, and margarine. But, these fats are high in unstable linoleic acid (LA), so free radicals from LA (HODE's) accumulate in the liver. HODE's are so prevalent in diabetics they’re “early markers” for the disease. We also eat less meat, eggs, and dairy now than in 1900, and AA, which activates PPARa, is only in meat and animal fat. PPARa prevents fatty liver by burning fat (and HODE's) for energy, plus AA protects the pancreas, which makes insulin. Seed oils, in contrast, have no AA or med. chain saturated fats, the main activators of ketosis. Sugar and white flour, which were increasingly eaten, block ketosis, and increase copper, both of which cause obesity. These foods deplete B1, B6, zinc, biotin, magnesium, manganese. These nutrients are needed to use carbs for energy. Fatty liver increases ammonia, which swells nerve cells for carpal tunnel. Biotin detoxes it-best sources: liver, salmon, egg yolks.

- **PPARa:** Diabetics-type 2 can’t make energy from sugar due to insulin resistance, so ketosis bypasses this problem by burning fat instead. Diabetics are low in zinc and adiponectin, needed to burn fats, and low in glycine, which induces adiponectin. Interestingly, bacon, tough meats, broth, and gelatin, from the original diabetic keto diet, are the best foods for glycine. HODE’s are stored in body fat and the liver, so they’re also burned for energy with the keto diet, as well as high triglycerides and bad cholesterol/VLDL. PEA, a PPARa activator and anti-histamine, is used to treat retinopathy and neuropathic/other pain. It’s in eggs/liver, and is made from phosphatidylethanolamine, which contains AA. Diabetics are high in altered PEA-in chocolate and soymilk—which cause cancer.

- **PPARa (needs zinc) protects pancreas beta (insulin-producing) cells, increasing glucose-induced insulin, but is low functioning w/diabetes-1. W/o PPARa, ketones accumulate for ketoacidosis. Zinc maintains the structural integrity of digestive enzyme-producing cells, is essential to kill the virus found w/diabetes-1 and mouse suppl. w/zinc prevents diabetes-1.

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**1920’s KETO DIET: EFFECTIVE TREATMENT FOR DIABETES**

Estrogenic chemicals block the insulin receptor, so people who have been exposed to estrogenic lawn herbicides, insecticides, and fungicides, including in the womb, have impaired blood sugar control, are predisposed to gain weight, and have higher risk for diabetes. This is also true regarding arsenic, which has been in common use since the early 1800’s. Diabetics are low in AA, B1, B6, biotin, lysine, zinc, magnesium, manganese, high in free copper. “Especially coupled with” a high-LA and sugar diet that depletes these nutrients and causes fatty liver—thus insulin resistance/high ammonia—chemicals increase risk for diabetes.
Thiamine, or B1, is needed to convert carbs into energy instead of into storage fat, yet it’s often deficient. B1 is needed to form acetylcholine-ACh, principal neurotransmitter of the alpha state “rest and digest” nervous system (rational thinking, myelin/body repair, regular heartbeats, calming GABA, strength/coordination from electrolyte flow). Low B1 causes skin wrinkles, acidosis, cataracts, and heart failure. It’s depleted by: caffeine, sugar and HFCS, refined flour, alcohol, exercise and sweating, mental stress, birth control pills, smoking. B1 is needed for stomach acid (meat digestion). The top B1 source is pork, the most popular meat worldwide, then fish and sprouted legumes. Zinc (meat, oysters, eggs) and biotin (liver, eggs, salmon, dairy) are also needed for carb digestion, and both are depleted in the same ways. So, low B1, zinc and biotin depresses the appetite for healthy food, and can lead to hypoglycemia, causing fatigue, panic attacks, moodiness, irritability, weak muscles, palpitations, tightness in the chest, nightmares, night sweats, congestion, hunger (for junk food, not a healthy appetite), and blurry vision. Thus, when we’re low in B1, we find we need even more calming activities, like yoga and meditation.

Biotin and a B1 enzyme (2-OGDH) prevent a build-up of ammonia in the brain. So, a B1 and biotin deficiency can cause high ammonia, so they’re excitable, emotional, anxious, argumentative, impulsive, clumsy, confused, prone to laughing, and to have insomnia, short attention span, blurry vision, anorexia, and headaches. Very high ammonia, such as in schizophrenia or with liver failure, can cause hallucinations. In fact, low B1 and biotin is most common w/alcoholics. People with rH negative blood, which is most prevalent w/N. European ancestry, can’t detox ammonia very well, so they are vulnerable to ammonia build-up. Carnitine deficiency (only in meat) can cause lactic acidosis, while supplementing with alpha lipoic acid (induces ketosis), can prevent this. Ammonia chelates copper, which is needed for iron, and manganese. It’s detoxified in the urea cycle when it’s turned into arginine, and then to urea by arginase to be expelled as urine. So a diet high in lysine and low in arginine is very important to prevent ammonia toxicity.

“Sugar is as addictive as cocaine or heroin”...

...but the keto diet supplies nutrients that we need for energy, like B1, zinc, biotin (also B5 and manganese-high in rye), to prevent sugar cravings, and other addictions as well. It also provides powerful ketones for heart and brain energy that we need in order to overcome bad habits, especially when we’re deficient in B1, zinc, and biotin (depleted w/high carb diet, diabetes, physical and mental stress, smoking, caffeine, and alcoholism). In fact, “the brain prefers ketones for their energy source when ketones are available.”-Dr. Annette Bosworth
An important cause of weight gain is estrogenic chemicals, which are petro-based (a fat!), and metals. These chemicals cause weight gain because they impair insulin/thyroid receptors, lower adiponectin/AMPK. This raises insulin in the blood, affects metabolism, plus it activates PPAR-gamma, causing fat storage. But, we can induce PPARα, detoxify, and burn these fats for energy! Estrogens cause weight gain by binding to the estrogen receptor, that activates aromatase. This turns testosterone into estrogen (w/BPH), and 5α-R, which makes DHT from testosterone. PPARα inhibits these enzymes. Prenatal exposure induces weight gain, causes autism. They cause cancer, affect blood sugar, disrupt sexual behavior by lowering AVP (low w/bipolar, schiz., Asp., needed for weight loss, empathy, cooperation, monogamy), but PPARα increases them! These chemicals over-stimulate NMDA receptors, lower acetylcholine, dopamine, serotonin, GABA, zinc, raise cortisol. This causes irritability, seizures/neurological disorders, depression, anxiety, insomnia. Carbs are calming so the stimulatory effects of chemicals may be a cause of carb cravings. Estrogenic chemicals prevent recovery by blocking repair IGF-1 (myelin repair) and glutathione and ALDH (detox formaldehyde, alcohol, LA free radicals). These chemicals affect gut bacteria, increasing harmful E. coli, mycoplasma (MS, RA, CFS, fibro, endometriosis, PID, type 1 diabetes, multiple myeloma, scleroderma) and prevotella (“highly implicated in autoimmune/inflammatory conditions” like MS and RA). People w/MS “normalized their microbiome” on the keto diet. Estrogenic chemicals also activate cancer and cause viruses, like EBV, to replicate.

-PBDE’s has skyrocketed since 1980: computers, electronics, found in air/dust by computers
-Pesticides: crops, ornamentals, Round-up, pet insecticides, mosquito control
-Phthalates (plastics), BPA (including BPS in BPA-free plastics), birth control hormones (also in drinking water), Tylenol (made from coal tar, biggest cause of liver failure)
-Polycyclic aromatic hydrocarbons (exhaust, smoke, fragrances)
-Solvents (toluene: “T” in DEET, BHT), adhesives, fumes, air fresheners, cleaners, oils parabens-cancerous w/sunlight (widely used: sunscreen, makeup, creams, lotions)
-Arsenic (like organophosphates)-in rice, poultry, water, tobacco, juice, wine-heart disease, lung cancer, TB, CF, cognitive dysfunction, diabetes (arsenic causes AGES)
-Aluminum (in baked goods, frozen pizza, antacids, vaccines)-w/Alzheimer’s, autism
-Lead (very widespread, esp. from leaded gasoline, and stored in bones, re-circulated w/ menopause, disease, stress, etc.)-brain damage, gastrointestinal and kidney diseases, high blood pressure, and poor vitamin D metabolism. Calcium is displaced by lead, so dietary calcium and lysine (for calcium absorption) are critical to protect from lead.
-Cadmium (tobacco/spinach/soy/roots/seeds)-cancer, heart/bone disease-displaces zinc
Normally, ketogenesis occurs “constantly”, via the enzyme hormone-sensitive lipase (HSL). HSL makes ketones by breaking down triglycerides, and is activated as insulin decreases. However, HSL activity is blocked by the very common estrogenic insecticides carbamate and Chlorpyrifos, at sub-lethal doses. This prevents the body from making ketones from triglycerides (thus raising triglycerides and cholesterol) and causes fat to be stored. So, they should be avoided! Carbamates are very widely used, even in home gardens, and as insect repellent. There are three main carbamates: Sevin, Aldicarb, and Picaridin.

- Sevin is banned in most European countries, but is “the third-most-used insecticide in the U.S. for home gardens, commercial agriculture, and forestry and rangeland protection, and is favored for food crops in the US.” Sevin is also used in head lice shampoo.
- Aldicarb is “extremely important” in potato production, cotton, dry beans, peanuts, soybeans, sugar beets, and sweet potatoes. Usage has increased in recent years (as soybean production has increased to our main export crop) because it is one of the few insecticides effective on soybean aphids.
- Carbamates like Picaridin are recommended by the CDC to prevent mosquito and tick bites, as a safer insecticide than DEET. As a result, use of Picaridin is experiencing “notable growth.”

The most widely-used pesticide in the US, Chlorpyrifos, blocks HSL (serine at the active site) at sub-lethal doses, preventing ketosis and causing high triglycerides. Soy, cotton, corn, alfalfa, almonds, and fruit are top crops for Chlorpyrifos use. It is also used at golf courses and for mosquito control. It also blocks many other vital enzymes, causing many diseases.

As of 2019, obesity rates have reached an historic high. According to the Centers for Disease Control and the USDA, the problem is that we don’t eat enough fresh fruits and vegetables, whole grains, nuts and seeds, soy products, and lowfat milk, and we need to exercise more. Yet, this is the same advice they have been giving since 1980, when obesity first began to rise, so apparently these foods don’t help to prevent obesity! Notably, these foods also have the most pesticide residue, which would increase obesity. So, in major contrast, minimizing these foods, and increasing fat and meat, has now been found to be a very effective weight loss plan!
Regeneration/Detoxification Cycle

PPARα, DETOX, METHYLATION

An impaired detoxification cycle is found in modern disease: ALS, Alzh., obesity, RA, MS, gout, atherosclerosis/CAD, autism, high blood pressure, heart failure, and mental illnesses. The cycle needs certain amino acids, zinc, choline, and B vitamins. PPARα begins the cycle by making glycine from lysine, then serine. There are many products: muscle, dopamine, serotonin, brain blood/oxygen flow. Creatine production for muscles (from arginine) uses most of the methyl groups. Thus, excess arginine increases need for the cycle, so it generates fewer methyl groups and more homocysteine.

SERINE AND STEM CELLS: Activation of SIRT1 regulates and protects stem cells. Study: “We hypothesized that the metabolic production of NAD⁺ from L-serine and thus activation of SIRT1 contribute to the action of L-serine. Supplemeting L-Serine increased intracellular NAD⁺ content and led to activation of SIRT1.”
- Prevents insulin resistance, diabetes, cataracts, neuropathy, muscle/nerve degeneration
- Precursor for carnitine, which enables ketosis: for a strong heart and energy, lowers LDL/triglycerides, protects pancreas, makes acetylcholine (ACh)-principle neurotransmitter (for steady state nervous system, attention, memory, sleep, heart). Low carnitine is found with diabetes, heart failure, heart attack, irregular heartbeats, and peripheral vascular disease, male infertility, low energy production in the brain. The food source of carnitine is meat.

- Lysine is needed for PPARa, insulin, and cortisol receptors to function. Free cortisol blocks essential fat results in abdominal/back fat, thin arms/legs, weak muscles/bones, fragile skin. Other receptors: dopamine (increases AVP), vit. D3 and A, thyroid, blood pressure hormones. Lysine is also needed for sex hormone/oxytocin receptors-mammary glands, ovaries, sperm count/motility, parenting, social behavior, pineal gland-puberty/melatonin.

- Inhibits testosterone conversion to DHT. DHT causes infertility, enlarged prostate/cancer, hair loss, depression, insulin resistance, frequent urination, excess body hair, fat, acne.

- Major precursor, combined w/B5, for acetyl CoA-for brain/body energy, blood oxygen.

- Calming, anti-anxiety: anticonvulsant, regulates GABA, opioids, increases serotonin by preventing its breakdown (sparring B3), regulates cortisol-"central" to restraining response to stress, prevents hair loss. Lysine is the last amino acid to break down during a 12 hour fast.

- Proper DNA expression, silences retroviruses. Major cancer fighter as p53: blocks serine synthesis by cancer cells, sends serine to repair DNA and make glutathione, or destroys cell if beyond repair. Incr. natural killer cells, regulates inflammatory response-inhibits TNFα/IFN.

- Prevents lactic acidosis, stiff, painful and weak muscles (fibromyalgia), repairs muscle.

- W/glycine, copper: forms collagen-connective tissue (in gastrointestinal, spinal discs, bones, cornea-prevents cataracts, blood vessel membrane-prevents aneurysms, and in the blood-brain barrier), elastin (ligaments, lining of the artery-stiffening of arteries from broken down elastin causes heart attack, stroke), connective tissue needed for bones, teeth, nails, teeth.

- Calcium absorption: lowers calcium loss w/calciitonin, preventing osteoporosis/calcification.

- Controls arginine w/arginase/OTC (detoxes ammonia-problem w/TH- blood). Fungi, t. gondii parasite, P. aeruginosa (cystic fibrosis), viruses-herpes, EBV, varicella, etc. (w/autoimmune diseases, Alzh., cancer, colds, birth defects, schiz., bipolar, autism)-need arginine to grow.

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**LYSINE: JACK OF ALL TRADES, MASTER OF ALL!**

Lysine is so important that the body holds it longer than other amino acids, even after 12 hrs. When it finally breaks down, it forms cadaverine, at death! Yet, many chemicals deplete lysine so it’s commonly low. One benefit of fasting may be in part that you break down arginine, which blocks ketosis and increases ghrelin, the hunger hormone, but not lysine! High heat, such as used to make processed foods like peanut butter, destroys up to 50% of the lysine! Low-heat processed whey is the best source, as well as for cysteine and anti-oxidant glutathione for detox. Whey increases insulin, thus blocking ketosis, but it can be taken before exercise, which takes up the carb load to builds muscle.
A low-functioning thyroid increases belly fat, as well as fatigue, sensitivity to cold, constipation, dry skin, hoarseness, muscle weakness/aches/tenderness, stiffness, high cholesterol, thinning hair, slow heart rate, depression, and impaired memory.

N. Europeans eat crucifers which, as goitrogens, can lower thyroid activity. But, their diet also protects the thyroid. For example, they boil, or shred/marinate, these vegetables, lowering the goitrogens (into cooking water). Stir-frying or steaming doesn’t lower them.

PBDE’s, found in air and dust near computers, impair thyroid by replacing iodine w/bromine. So, it’s critical to eat foods high in iodine, like cod, shrimp, clams, milk, and yogurt. Dulse, seaweed was another traditional iodine-rich food in N. Europe. Asparagus, peas, carrots, potatoes, mushrooms, egg yolk, onions, cabbage, and turnip greens are also high in iodine.

As aspirin and other salicylates lower T4 and TSH levels, excess salicylates in the diet may contribute to hypothyroidism. Also, sal’s block PGE2 (from arachidonic acid), which maintains temperature, and PGE2 is low in hypothyroidism. The high AA N. European diet has few foods with salicylates, so should be helpful for hypothyroidism.

Zinc is needed to activate the thyroid, and copper and selenium are needed for adequate thyroid hormone. So, a deficiency contributes to hypothyroidism. Copper, toxic in excess, is dysregulated in hypothyroidism. Zinc regulates copper, disposing excess via bile. Zinc and copper need to be in a 10:1 ratio. Yet, zinc is commonly depleted due to caffeine, refined carb, smoking-cadmium, alcohol, excessive stress, so raising copper relative to zinc. Copper makes epinephrine from dopamine, so excess copper affects mood and adrenals, yet, in a vicious cycle, adrenal function is crucial to properly bind copper! Zinc and copper are high in seafood, esp. oysters/scallops. Copper : zinc is well-balanced in many traditional foods: salmon, sardines, crab, chicken/pork liver, rye (no other grains), cabbage, legumes, but many foods are much higher in copper than zinc, like wheat, nuts and seeds (plus the zinc content that these foods contain is not bio-available!), beef liver, and spinach. P.B., eggs, yogurt, and other meat are high in zinc but low in copper. Brazil nuts are very high in selenium but also arginine and an excess is toxic, so seafood/meat may be better sources of selenium.

A chronic stress response blocks thyroid activity, but arachidonic acid (plentiful in the N. European diet) protects against chronic stress and a chronic inflammatory immune response w/cannabinoids and lipoxin. In contrast, free radicals from the plant omega 6 fat linoleic acid (from modern seed oils) are high in “sub-clinical hypothyroidism”. Plus, “insulin resistance and abdominal adiposity are associated with high levels of LDL oxidation”.

Belly Fat, Low Thyroid

Canned crab cakes, with rye bread crumbs and added dulse. Provides a large and well-balanced amount of zinc, copper, and selenium. Crab is also very high in lysine, which activates the thyroid receptor. Serve with spicy Cajun butter sauce!
4. OMEGA 6 FAT
LINOLEIC ACID: MOST HARMFUL FAT
FAT STORAGE: Unlike AA hormones, which induce PPARa and fat burning, LA hormones, HODE’s, which are free radicals, induce the opposing PPAR gamma: storing fat and raising appetite. PPAR gamma “contributes to plaque formation”, “promotes tumor growth”. PPARg increases inflammation. TH17 (makes autoantibodies) in psoriasis, RA, MS, lupus, asthma, depression, leukemia, Lyme, fibro, multiple myloma, and infertility in women, colitis, acne, and eczema. Thus, LA consumption “increased histamine release” as well as Th-17 cells.

CHRONIC INFLAMMATION/DISEASE: “Inflammation involves mainly LA”. In fact, HODE’s were found to be “nearly ideal” markers of inflammation. Plus, “lipid peroxidation seen in (chronic mental and physical) diseases involve mainly LA (not AA),” because “the main target of reactive oxygen species (ROS) is LA” HODEs “have been implicated in working together to signal for pain perception” by binding to TRPV1 pain receptors, thus, high sensitivity to pain “may be particularly dependent on oxidation of LA”. “After eating food rich in LA its LPO products become increased in low density lipoprotein (LDL). This LDL is able to enter endothelial cells and damage cells from inside, long before an inflammatory response is detectable.” “Increases TNFa.” “Formation of 13(S)-HODE (many cancers) is one way mitochondria become more permeable and subject to degradation and cause cell injury.”

HODE’s and/or 4-HNE are found with fatty liver, obesity, diabetes, heart failure, asthma, atherosclerosis, cancer (gastric, prostate, breast, etc.), RA, nephritis, pancreatitis, PCOS, pain, Parkinson’s, epilepsy. HODE’s are also found with epilepsy, Alzh., schiz., cataracts, bipolar, glaucoma. These conditions are also linked to T. gondii, which is fed by LA and by arachidic acid in peanuts, corn, and cacao (peanut butter cups!). In major contrast, AA kills parasites, rather than feeds them, w/leukotrienes, then resolves inflammation w/lipoxin.

Linoleic acid, an omega 6 fat, is found in large quantities in vegetable oils, margarine, mayo, P.B., soy, nuts, seeds, quinoa, wheat germ. W/a diet high in LA and low in AA, LA replaces AA in our cells. Now, LA is the “most abundant n-6” fat in our blood and membranes! This is especially problematic for our brain, w/its large amount of omega fats and, thus, its “high vulnerability” to LA free radicals. In fact, free radical damage in the brain can be assessed by measuring ethylene, a product of LA, in the breath! Notably, fatty liver is induced in lab rats with a diet high in LA.
KETO DIET BURNS LINOLEIC ACID AND PETRO-CHEMICALS STORED IN YOUR BODY FAT FOR ENERGY, PREVENTING SUICIDE!

From a 2017 study: “A significant change in the Western diet, concurrent with the obesity epidemic, was a substitution of saturated fatty acids with polyunsaturated, specifically linoleic acid (LA).” The study found that “LA induces obesity and insulin resistance, and reduces activity, more than saturated fat.”

The National Institute of Health found that higher consumption of omega 6 fat linoleic acid was linked to higher incidences of aggression, violence, mental illness, suicide and homicide. They concluded that lowering consumption of vegetable oils “may reduce aggression and violence.”

“Omega-6 is the most abundant fatty acid in low density lipoprotein (LDL) particles. Oxidized LA free radicals are the most abundant oxidized fatty acids in oxidized LDL.”

For untreatable chronic “suicide” headaches, reducing dietary LA lowered a specific LA free radical, which then “correlated with clinical pain reduction.” LA is also the “most commonly found” omega fat in skin, and researchers have found 30-fold more of the same LA free radicals in psoriatic skin than in normal skin. Notably, there is higher depression, suicide and self-harm risk with psoriasis.
Chronic Inflammation from High LA and Sugar, but Low AA, Diet

"The American diet is overloaded with omega-6 linoleic acid (LA) from vegetable oils, which are added to nearly all processed foods, and these omega-6 oils oxidize too quickly and become pro-inflammatories." Dr. J. Anshel, OD
Salicylates are chemicals found in many medicines, plant foods, and food preservatives, flavorings, and dyes. In plants, salicylates function as the plant's own pesticide. The most well-known salicylate is aspirin, or salicylic acid, which is derived from the bark of the willow tree. Salicylates are also present in high amounts in foods, mainly those native to hot climates (more insects!), cinnamon (also from bark) and other spices, herbs, coconut and olive oil, avocados, nuts (except hazelnuts), chia seeds, peanuts, most fruit, peppers, tomatoes, and many other vegetables, including most salad greens. Salicylates act as pesticides by preventing glutamate breakdown, thus overstimulating the nervous system. They also increase inflammatory nitric oxide, block vital leukocyte anti-bacterial activity, and impair ATP production by “de-coupling oxidative phosphorylation”, which contributes to mitochondrial dysfunction. In addition, they block detoxification of harmful aldehydes from 4-HNE, alcohol, benzoates, Candida, solvents, cigarette smoke, exhaust, fragrances, and they block vitamin K2, needed for calcium absorption. Glycine detoxifies salicylates.

Aspirin relieves pain, in part, by blocking COX, which blocks PGE2 from AA. However, PGE2 builds bone, protects neurons, controls bleeding, plus it is required to maintain and repair the gastric mucosa (esp. important w/"hot" condiments). People who often take aspirin, or who are sensitive to sals, may get bleeding ulcers/anemia and higher fracture risk. PGE2 is also needed to induce lipoxin and regulatory T-cells, resolving inflammation. Notably, "the anti-inflammatory potency of lipoxin is comparable w/corticosteroids (which block the main ketosis inducer), but w/o immunosuppression". COX "prefers" to act on LA, turning it into free radicals called HODE's, which "signal for pain" via CGRP, so aspirin lowers HODE's! CGRP releases histamine and "plays a key role in development of... enhanced pain" in migraine, allodynia, psoriasis, TMJ, arthritis, fibro, etc. The LA present in skin/nerves, thus sensing of pain through HODE's, is increased by LA in the diet!

Salicylates also relieve pain by inducing ketosis! From a 2018 study—"until now, no receptor has been identified for aspirin. PPARα, a nuclear hormone receptor involved in fatty acid metabolism, serves as a receptor of aspirin." This may explain why it is "one of the most widely used medicines worldwide". So, in addition to lowering HODE's, high salicylate fruits and vegetables, and drinking a moderate amount of wine and tea, can have health benefits through ketosis, esp. for people whose ancestors ate these foods. However, for many, Northern Europeans, and people who can't metabolize salicylates quickly enough, even in the much smaller amounts found in foods, salicylates have bad side effects. So, for them, avoiding LA, and inducing PPARα w/diet to burn off LA, is better than taking aspirin!
"Eicosanoid Switch": Missing in Action

Inflammation occurs when Linoleic Acid is High and Arachidonic Acid is Low.

Excess LA lowers AA in membranes and plasma, preventing the "eicosanoid switch". The eicosanoid switch occurs when the AA hormones PGE2 and PGD2 rise to a certain point. Then, the hormone lipoxin, induced by ALOX12/15, changes the immune response from inflammatory to anti-inflammatory. But PGE2 can't be blocked by salicylates, and there needs to be enough AA, rather than LA, so LOX12/15 acts on AA, instead of making HODE's from LA.

"The continuation of inflammation in autoimmune diseases could be attributed to failure of the resolution process due to deficiency of lipoxin. The combined situation of AA deficiency together with a reduced intake of omega 3 fatty acids such as DHA and EPA (necessary for the flip flop reaction of LOX-5 and the Eicosanoid Switch), enable a perpetuation of the pro-inflammatory initiation phase therefore of chronic inflammation."

"LA free radicals are lowered in the body with a low-LA diet for 12 weeks, by as much as 23%." [https://link.springer.com/article/10.1186/1743-7075-9-32]
"ARA supplementation results in large decreases in LA in phospholipids, no inflammation."

**Phosphatidylcholine**
is in the phospholipids of every body cell

- Linoleic acid
- Arachidonic acid
- LysoPC
- PLA2
- Prostacyclin
- Heart health
  - Myelin repair

- LPA
- Choline
- Atherosclerosis
  - Demyelination
- Feeds firmicutes, and proteobacteria that make TMAO, LPS: gut inflammation, diabetes, autoimmunity, cancer, neurological, CAD.

Phosphatidylcholine (PC) is the most abundant phospholipid in animal membranes. An important part of the lining of the colon, it prevents "bacterial penetrance" that occurs with leaky gut and inflammatory bowel disease. It is also the donor of choline for acetylcholine, needed for both brain and heart health. Zinc deficiency lowers production of PC, thus acetylcholine.
Omega-6-rich vegetable oils are causative in atherosclerosis and heart disease—by Dr. James DiNicolantonio

- Oxidized linoleic acid metabolites (OXLAMs) are recognized by immune cells and recruit neutrophils to atherosclerotic lesions.
- Greater amounts of OXLAMs are found in LDL and plasma of patients with atherosclerosis and in atherosclerotic plaques.
- A diet higher in oleic acid or lower in linoleic acid decreases LDL susceptibility to oxidation.
- Linoleic acid is the most abundant fatty acid in LDL and is one of the very first fatty acids to oxidize.
- A meta-analysis of randomized controlled trials found that when saturated fat plus trans-fat is replaced with omega-6 fat, there is an increase in all-cause mortality, ischemic heart disease mortality and cardiovascular mortality.
- oxLDL is no longer recognized by the LDL receptors on the liver but by scavenger receptors on macrophages causing monocyte infiltration into the subendothelium, foam cell formation and eventual atherosclerosis.
- 9-HODE and 13-HODE are found in infarcted tissue.
- Ultrasound of the carotid arteries in healthy patients who have high 9-HODE in LDL have signs of atherosclerosis.
- The increase in 9-HODE begins between 40 and 50 years old prior to the clinical manifestation of atherosclerosis.
- 9-HODE is a good indicator of oxLDL, especially if other causes of inflammation are excluded.
- An increased oxidized LDL and hence levels of 9-HODE and 13-HODE in LDL, found in patients with rheumatoid arthritis may explain why they have an increased risk of heart disease.
- 9-HODE is a strong promoter of inflammation and hence may be both a marker and inducer of atherosclerosis.
- 13-HODE can induce direct toxic effects to the endothelium causing an increase inflammation, reactive oxygen species.
- Exposure of the endothelium to LA increases LDL transfer across the endothelium, an essential step with atherosclerosis.
- OXLAMs are considered a danger signal activating innate immune cells, which are involved in atherosclerosis formation.
- Linoleic acid is the most abundant fat found in atherosclerotic plaques, and this has been known since at least the 1960s.
- Oxidised linoleic acid but not oxidised oleic acid is found in atherosclerotic plaques.
- Linoleic acid in adipose tissue and platelets positively associates with CAD.
- Linoleic acid serum concentrations (as opposed to per cent of fatty acids) are higher in patients with CAD.
- Using the fat-1 transgenic mouse model, which converts omega-6 to omega-3 creating an omega-6:omega-3 ratio of around 1:1 in tissues and organs, reduces atherosclerotic lesions by inhibiting systemic and vascular inflammation.
- An excess dietary intake of linoleic acid causes greater endothelial activation compared with an excess of saturated fat.
- Linoleic acid can activate vascular endothelial cells, a critical step for inducing atherosclerosis.
- Linoleic acid metabolites promote cardiac arrhythmias, cell death, organ failure and cardiac arrest.
- Patients who have died from sudden cardiac death have more linoleic acid and less omega-3 polyunsaturated fats in their coronary arteries versus control patients who died mostly from traffic accidents.
5. MEAT, FISH, AND DAIRY FATS REPAIR AND PROTECT
Butter supplies the vital ketone butyrate, which the heart needs for 70% of its energy. Butyrate increases mitochondrial activity, which protects against stroke, plus butter protects against diabetes type 2. Thus, a 2016 study found that there is no link between consuming butter and heart disease or stroke.

In the 1930's, Weston A. Price, a dentist, studied people who followed ancestral diets. The Swiss, who ate butter, cheese, sourdough rye bread, meat/fish soups, and cooked vegetables, were strong and healthy and had well-formed teeth and bones. Examining Swiss cheese, Dr. Price discovered vitamin K2, which brings calcium into bones/teeth, and increases mitochondria. Dr. Price’s butter oil is especially high in K2. Vitamins A and D are other fat-soluble immunity vitamins present in butter, but they are under-consumed in the U.S. Vitamin A protects against the measles/vision loss, and vitamin D protects against heart disease, diabetes, and cancer. Egg yolks and fish/seafood are other important sources of A and D, as well as zinc in oysters-activates vitamin D.

The religious reformer Martin Luther was suffering from digestion problems from the poor diet he ate when he was a monk, and he was eating butter to heal. Then, in 1520, butter was banned, and olive oil was the only fat allowed during fasting days. Luther wrote a scathing essay protesting the ban. So, it may be no coincidence that, one year later, the Protestant Reformation was begun: by the butter-eating countries of N. Europe!

N. Europeans spread butter liberally on bread, and the Danish expression, tand smør, means enough butter so you can see tooth marks! Goat dairy fat is also high (higher than cow milk) in medium chain triglycerides (turn into ketones). Greeks eat more cheese than other European countries, but they have the fewest diabetics!
Only animal fat contains the saturated fat butyrate, which is a ketone. Cheese and butter are the best food sources of butyrate (most is made by gut bacteria like F. prausnitzii). Butyrate protects from heart attacks, diabetes, and atherosclerosis (while margarine increases risk). Butyrate also increases muscle mass, helps with leaky gut, and increases arachidonic acid production (an essential fat that's necessary for gut health). Butyrate treats Alzh., epilepsy, and depression by upregulating Brain-Derived Neurotrophic Factor, which builds new neurons, plus it inhibits neuro-inflammation. Butyrate, and PPARα, also protects against IBS, colon cancer, and colitis, as it's the main energy source for the colon.

W.H.O. classifies red or processed meat as probable carcinogens for colon cancer, as they form HAs/PAHs w/high heat or have nitrates, but it's a very small risk and isn't causal. There are many actual causes, like estrogenic chemicals, diabetes, alcohol, and smoking. In addition, colitis, with altered gut bacteria, is a major risk factor. Inactivity, HFCS, low vit. C (indicates low stomach acid/altered gut bacteria) and vit. D, and refined carbs are also linked. Inactive, obese, smoking, drinking people are also likely to eat the most red meat—but as fast food burgers and hot dogs, along with the usual bun, HFCS soda and chips, rather than cook healthy beef meals. W/all these risk factors, those who eat the most red/processed meat may get colon cancer, but perhaps from obesity, alcohol, smoking, HFCS, instead of from red/processed meat. Also, E. colt, high in colon cancer/colitis/obesity, make nitrosamines from nitrates plus arginine, and E. coli may be the “trigger” of colon cancer! Butyrate-producing bacteria F. prausnitzii protect us from colon cancer (energizes colon cells), and F.p. is low in colon cancer, colitis, and obesity. Antibiotics lower F.p., plus cause colitis, plus they increase risk for colon cancer, while bacon actually lowers risk! Saturated fat feeds F.p., and stearic acid (in beef/pork/dairy fat) increases F.p. the most! Also, beef is high in selenium to detox chemicals. Processed meat supplies only 5% of our nitrates, but nitrate in water from fertilizer, plus low vit. C, doubled cancer risk. So, eating less beef, and growing more fertilized crops instead, may actually increase colon cancer.

Palmitic acid (PA) is the one saturated fat that is harmful, in excess. It is in body fat/fatty liver and is linked to heart disease and cancer (beef tallow prevents fatty liver!). But, the body makes most of its PA from excess carbs. PA is also used extensively in processed foods, even organic. So, high carb and processed food consumption seems to be a major cause of palmitic acid-related health problems. Also, there is much evidence that oxidized LA, the unstable and inflammatory omega fat in seeds, modern oils, and margarine, rather than saturated fat, plays a major part in heart disease, and beef fat contains nearly no LA.
W/obese women and younger men, it’s common to have iron deficiency. In fact, studies have found that iron deficiency prevents weight loss, but replenishing iron enables it! In overweight women “dietary iron absorption is reduced”. Iron from meat is easily absorbed but vitamin C-sauerkraut is very high-is needed for safe absorption. Many plant foods prevent iron absorption due to tannins (tea, wine), phytates (unfermented grains, legumes, nuts), oxalates (cocoa, greens, beets, grains/ quinoa, peanuts, sweet/potatoes, nuts, seeds, beans-not black-eyed peas, berries-not cranberries). Obese people are low in gut bacteria F. prausnitzii, which is “one of the most important indicators of a healthy gut.” This bacteria is needed for proper iron metabolism. In a study, F. prausnitzii, yogurt, plus another bacteria raised iron up to 12-fold! Iron supplements actually decrease F. prausnitzii. So, it’s better to eat liver, beef, and shellfish for absorbable iron, and use traditional iron pots.

F. prausnitzii is a major butyrate-producing bacteria. F. p. is low with diabetes, heart disease, IBD, psoriasis, celiac, colon cancer, food allergies, fatty liver, asthma, gallstones, bipolar, depression, ankylosing spondylitis, fibromyalgia, Alzheimer’s, and frail/hospitalized elderly. Butyrate powers the heart, decreases fat tissue inflammation, and prevents insulin insensitivity by increasing adiponectin and fat oxidation. Butyrate regulates intestinal permeability, for a healthy gut. Anti-biotics, smoking, and proton pump inhibitors lower F. prausnitzii, while whole grains, vinegar, pectin (in carrots, peas, sour apples, and sour berries-cranberries), inulin, egg yolk, yogurt, and mushrooms increase F. prausnitzii. Also, saturated fats, esp. the stearic acid in beef, increase F. prausnitzii, while unsaturated omega 3 fat from fish and flaxseeds decrease it (maybe from lowering the critical digestion system omega fat AA)! Thus, high omega 3 fat increases risk for diabetes II (low in AA) for Americans, but not for Asians, who traditionally eat a very high omega 3 diet. So, it seems to be of great importance to eat your ancestral foods for the right gut bacteria!

Free iron in brains is dangerous because it is easily oxidized, and F. prausnitzii (low w/ Alzheimer’s and Parkinson’s) is needed for safe iron metabolism. The butyrate from F. p. also increases brain-derived neurotrophic factor (BDNF), which builds neurons/myelin that is thin or missing in neurological/mental illnesses like Alzh., Park., eating disorders, and MS. BDNF does this via PGI2 from AA. Thus, iron regulation and higher BDNF, by increasing F. p., are needed w/Alzh. and Park., and the high saturated fat in the keto diet may be partly why this diet helps these diseases. Arabinoxylan, a fiber in grains, esp. rye and wheat, also feeds F. prausnitzii, and it was found to raise BDNF. So, eating traditional N. European foods might be very important to prevent brain-related illnesses, especially for N. Europeans.

KEYS TO KETOSIS: IRON AND GUT BACTERIA
Iron deficiency prevents weight loss! Other iron deficiency symptoms are fatigue, shortness of breath, rapid breathing with exercise, poor concentration, leg cramps, angina, and pale skin. If you are low in iron, in spite of eating foods that are high in iron, as well as vitamin C and manganese (needed to absorb iron), the amino acid histidine is very helpful, as it sequesters iron and puts it into red blood cells (keeping iron safe-not oxidized). Dr. Walsh found that violent criminals who had no remorse were less violent when their blood iron was increased.
High levels of TMAO have been found with atherosclerosis (CAD) and colon cancer. TMAO can be formed from carnitine in meat and choline in eggs. So, some researchers are saying to avoid eggs and red meat, to prevent the harmful effects of TMAO.

But, TMAO is very high in fish, which is protective of heart disease, and levels of TMAO after a fish meal are much higher than after an egg or red meat meal. Furthermore, many researchers have found TMAO to be protective, not harmful. From a May 2019 study: “TMAO may not be the ‘culprit’ but may be considered as a potential biomarker. High levels of circulating TMAO may reflect changes in the composition of the gut microbiota (increased firmicutes) which increase disease susceptibility. TMAO is a naturally occurring osmolyte, protecting cells against the harmful effects of stressors. Furthermore, TMAO slows the development of atherosclerosis in (susceptible mice). These data suggest that TMAO plays a role in preventing the development of atherosclerosis in humans.”

So, instead of focusing on eggs or meat, we need to ask: why are there changes in “gut microbiota”? Firmicutes makes TMAO from carnitine/choline, and high firmicutes is found with CAD, colon cancer, and the related IBD, diabetes, and obesity. But what causes firmicutes to grow? Choline feeds firmicutes, so an excess would increase it. There’s a major source of choline that is unrelated to dietary choline. Choline is stored in the body as phosphatidylcholine and, when PC is oxidized by stressors like smoking, PC is broken down into choline, thus feeding firmicutes and increasing TMAO. PC (major constituent of cell membranes) is the storage vessel for arachidonic acid and AA is needed for heart health and to maintain the gastric mucosal! However, in a study, 98% of dietary linoleic acid, which is easily oxidized (turned into free radicals) by smoking, etc., displaced AA in PC. Moreover, oxidized PC is the main fat in VLDL and contains HODE’s, the free radical of LA, and oxidized PC plays a “pivotal role” with heart disease. Thus, it seems that the problem is the enhanced vulnerability of PC to smoking, etc., due to the displacement of the normal omega fat in PC, which is AA, by unstable LA. In fact, high LA oils, like corn, have been found to promote atherosclerosis, as well as colon cancer. Plus, the “associated decrease in AA” blocks the critical heart hormone PGI2. So, LA, not eggs (high in AA) or beef should be avoided, as well as chemicals (like cigarette smoke) that have been linked to firmicutes growth, probably via breakdown of PC. Beef is low in AA, but beef liver and eggs are high in AA. Beef liver is also the top source of folate, which prevents CAD and colon cancer. NOTE: firmicutes is decreased w/the keto diet!
A TALE OF TWO STUDIES

2009 British study: “Mortality from circulatory diseases and all causes is not significantly different between vegetarians and meat eaters.” But, in a 2013 study from Loma Linda, a vegetarian-advocacy group, researchers concluded that, “Vegetarian diets are associated with lower all-cause mortality.” So, what can explain the different conclusions?

- Ethnicity-the first study, which found no increase in mortality with meat-eaters, included only Caucasians. The results wouldn’t be surprising then, as meat is an important ancestral food for the British. In contrast, the second study included about 25% African-American subjects, whose ancestral diet is closer to a vegetarian/high carb diet, which also results in the proper gut biome for African Americans: prevotella, while prevotella can induce inflammation in Northern Europeans. So, the beneficial results they found with the vegetarian diets of the second study aren’t directly applicable to Caucasians.

- Definition of Vegetarian Diet-Strangely enough, the so-called “vegetarian diets” that were found to be healthy in the second study included people who ate seafood, which is high in cholesterol, every day- hardly a vegetarian diet! Furthermore, it was this group that had the lowest mortality rate of all, which would have skewed the results for the total “vegetarian diets”. However, the researchers made no mention of this important finding in their summary or in their conclusion- that people who ate a lot of seafood, which has always been an important ancestral food, were the healthiest of all.

As a result, the reporting of the second study in the media was very misleading. For example, in Science News Daily, its headline and summary of this study said: “Vegetarian diets associated with lower risk of death: Vegetarian diets are associated with reduced death rates in a study of more than 70,000 Seventh-Day Adventists with more favorable results for men than women, according to a new report.” By re-defining “vegetarian diet” in a completely new way, with an unlimited amount of seafood, this study was able to generate very misleading headlines that led people to think that it’s healthier to avoid all animal foods, instead of what it really showed- the importance of eating ancestral foods.

Another example: a Harvard study found that eggs increased risk for diabetes. But high cholesterol eggs are top sources of many of the nutrients that diabetics are low in, like AA and choline. So, it makes more sense that the opposite is true, as was found in a more recent study regarding Korean men: egg consumption was found to prevent diabetes!
Essential Fats are omega 3 and omega 6 fats. Omega fats from plants, alpha linolenic acid and linoleic acid, must be converted into EPA and DHA (omega 3), and GLA and arachidonic acid (omega 6), in order to function properly as bio-active fats.

“There are three important functions of essential fatty acids (EFA):

◦ The most important is as part of phospholipids in all animal cellular membranes—a deficiency of EFA results in the formation of faulty membranes.

◦ A second is the transport and oxidation of cholesterol; as a result EFA tend to lower plasma cholesterol.

◦ A third function is as precursors of tiny, but powerful hormones, known as eicosanoids (prostaglandins, leukotrienes, and thromboxanes), which are only formed from EFA.”

When bio-active fats are deficient, the body makes inferior mead acid out of oleic acid (olive oil) to substitute in membranes, via the enzyme that normally converts stearic acid to oleic acid. So, mead acid is diagnostic for EFA deficiency, which also results in excessive stearic acid.

Arachidonic acid and DHA are important for ketogenesis, as they are some of the most powerful inducers of ketosis. “The increase in ketone bodies is mainly due to the oxidation of fatty acids, particularly the polyunsaturated fatty acids (PUFAs)”

“Deficiency of EFA plays an important part in the causation of atherosclerosis, coronary thrombosis, multiple sclerosis, complications of diabetes mellitus, hypertension, and certain forms of cancer.”

“Fatty acid deficiency signs are unusually common in people with ADHD, dyslexia and autistic spectrum disorders; allergic or ‘atopic’ tendencies (such as eczema, asthma, hayfever etc.), poor night vision, sensitivity to bright light, or visual disturbances, letters and words may appear to move, swim or blur on the page, distractibility, poor concentration and difficulties in working memory, depression, excessive mood swings or undue anxiety, sleep problems.”

“Clinical investigations are needed to evaluate if lowering or preventing insulin resistance through diet by increasing arachidonic acid, EPA, and DHA, while lowering linoleic acid and decreasing trans fatty acids from the diet, will modify or prevent the development of these diseases.” Artemis Simopoulos, M.D.
As studies show, rodents make EPA, DHA, GLA, and AA from alpha-linolenic acid and LA in seeds. This would be expected, since rodents and birds are the seed eaters of the animal kingdom. However, the enzyme D6D, that begins the conversion, is inadequate for humans. D6D needs B6, zinc, magnesium as cofactors. D5D completes conversion for DHA and AA, and needs niacin, zinc, and vit. C. D6D is even lower or blocked w/hypoglycemia, elderly, infants, N. Americans, Native Americans, w/HBP, zinc/B6/magnesium deficiency, radiation, viruses, diabetes, heart disease, chronic illness like RA, cancer, eczema, prednisone (cortisol), ADHD, w/dietary transfats, high sugar (high insulin levels) and fructose, alcohol, LA. Omega 3 fats EPA/DHA (fish, pastured animal fat) are concentrated in neurons. They lower AA inflammatory hormones by preventing AA release, conserving AA. In the brain, DHA is found mainly in phospholipids. Eggs contain DHA in phospholipids, which alone can enter the brain, but studies have found that DHA from fish oil doesn’t enter the brain.

AA, stored in phosphatidylcholine, makes many anti-inflammatory hormones like prostacyclin-PGI2, our repair/anti-cancer/cardiovascular hormone, and marijuana-like cannabinoids/EET. Yet, AA is labeled inflammatory because the plant omega 6 fat, LA, has been found to be inflammatory and, in mice studies, LA is converted to AA. However, in humans little to no LA is converted to AA. Thus, “to achieve the required AA level, AA should be present in the diet.” People take B3, which increases production of AA from DGLA, to treat heart disease, because it increases the essential heart hormone PGI2 made from AA. AA does make inflammatory PGE2, PGF-2, and leukotrienes. But, PGE2 also lowers TNFa/stops arthritis and gut inflammation/damage via lipoxin and stem cells, builds bone, prevents allergies/asthma. PGF-2 builds muscle, treats ED/incontinence. In fact, people with high blood AA have lower inflammation/higher anti-inflammatory markers, and, in studies, AA increases PGI2, not inflammation or PGE2. Notably, “lowering dietary LA reduced the (pathogen) increase in PGE2.” 25% of brain fats have AA, and it’s used 4X more than DHA.

If AA is low, we make mead acid from oleic acid. Mead acid is present “in large quantities” in knees, hips, neck, spine, and trachea. W/inflammation, mead acid induces histamine/leukotrienes, like AA makes LTB4. But unlike mead acid, AA is also made into cancer-fighter and anti-inflammatory PGI2, and lipoxin that resolves inflammation/pain, plus LTB4 induces PPARa. Mead acid also prevents bone repair. So, having just mead acid in our knees, hips, neck, spine, and not AA, may contribute to cartilage/bone degeneration/replacement, and asthma. This may explain why men who ate the most AA had 80% fewer hip fractures.

Omega 6 GLA (in liver) for skin health, is anti-allergy, and is anti-inflammatory.

ESSENTIAL FATS
The main omega fats, AA and DHA, have many functions. It’s assumed people can convert the omega fats LA and alpha-linolenic acid in seeds to an adequate amount of these fats, like lab rats can do. But, as early as 1980, researchers made the “unexpected” finding that human artery cells made less prostacyclin (PGI2), which is necessary for heart and artery health, from LA-enriched cells. Now, many researchers have determined that, due to low D6D and D5D enzyme activity, humans cannot make adequate AA or DHA from plant omega fats. In fact, similar to the niacin flush, a “major effect of statins” is increasing D5D, which produces AA and then the vital heart hormone PGI2!
OMEGA 3 FATS
DHA/EPA:
NORTHERN
EUROPEANS EAT
3 TIMES MORE
FISH THAN
AMERICANS!

Seafood has much more than omega 3 fats. It has supplies vitamins A and D, iodine, detoxifying selenium, and B-12! B-12 is especially needed for brain and nervous system function (myelin), as well as blood flow and oxygen delivery to cells, so B12 is important for neuropathy. Oysters are the best source of zinc, which is needed to make phosphatidylserine. Only six oysters provide 32 mg of zinc, or 291% of the minimum daily requirement!
High cortisol causes belly fat! Cortisol is controlled by DHA plus serine, as phosphatidylserine (PS). But, serine is a main target for chemicals/metals, and, if serine is low, the body makes serine out of sugar, causing sugar cravings. PS must contain DHA to activate dopamine. But, with low-DHA diets, there is “considerable accumulation” of DPA in PS instead of DHA. We make epinephrine (EPI), via serine and methylation, to block histamine. But, constant release of EPI/low serine lowers EPI and raise histamine (wakefulness, breathing problems, allergies, over-stimulated nerves, OCD/perfectionism, fatigue, vasodilation, migraines/headaches, sinus/nasal congestion, pain, hives, high sex drive, low temperature, cramps/irregular menstruation, irregular heart beat, and leaky gut/BBB). Cortisol, EPI, and ACh (via PPARα), are needed to lower histamine effects. LA free radicals increase cortisol.

Vit. B5 is the source for CoA, needed to make ATP from carbs, thus it prevents belly fat! CoA detoxes excess serotonin (increasing dopamine), salicylates, alcohol, aldehydes, makes cholesterol (vit. D), HEP (BDNF, bones-is low w/osteop.), bile (detoxes copper), hemoglobin, ACh (maintains/repairs nerves). B5 is the main nutrient for adrenal function, for it’s needed to make epinephrine, cortisol, melatonin. B5 is depleted by high carb diets, stress, birth control pills. Refined carbs raise blood sugar quickly, which then falls. Cortisol is then released, raising blood sugar again, but by converting muscle into glucose! Caffeine stimulates cortisol release, and fat slows blood sugar rise, preventing crashes. So, we crave carbs, caffeine, and fat to raise blood sugar for energy. Constant cortisol release causes its dysregulation, depletes B5, and causes belly fat, hypoglycemia, high histamine (cortisol normally breaks it down), fatigue, weak restless legs, and poor sleep. High cortisol damages the part of the brain that controls stress (while AA “enhances” il) w/both PTSD and bipolar.

How do we try to lower histamine, and raise dopamine and ACh? We take antihistamines, “some of the most commonly-used drugs”! But, we also use caffeine, nicotine, cocaine, meth, pot, etc., that lower histamine, and raise dopamine and ACh. High-risk activities also raise dopamine and cortisol, lowering histamine, but also stimulate belly fat.

So, stress, low DHA, high carbs and caffeine, and chemicals/meds cause low energy/blood sugar, low dopamine, and dysregulated cortisol/histamine, and this may be a major factor driving drug addiction and risky behavior. However, increasing B5, protein, DHA, and AA by eating ancestral foods, especially including omega 3 eggs and onions (w/antihistamine quercetin), will increase ketones for energy and provide nutrients that help us to regulate cortisol and lower histamine naturally. We can thus avoid refined carbs and caffeine, have less of a need and desire for addictive drugs and behaviors, and start losing that belly fat!

DHA: ESSENTIAL AND ANTI-HISTAMINE!
The best, and perhaps the only, direct source of DHA for the brain is omega 3-rich egg yolks, as it is in the form of phospholipids. Fish contains DHA, but, in order to enter the brain, DHA needs to be combined with serine and zinc to make phosphatidylserine (PS). Best sources of serine are liver, egg white, seafood, turkey, and cottage cheese.

PS and B5 are both needed to control histamine. Blocking histamine helps with insomnia, anxiety, memory, depression, anorexia, enables myelin repair. It increases brain blood flow, dopamine, acetylcholine (ACh), lowers food intake, reduces body fat and pain, normalizes insulin tolerance. Sources of B5 are liver, meat, drippings, mushrooms, seafood, milk, egg yolk, peas, sunflower seeds, avocado.
AA produces inflammatory hormones so it’s thought to be inflammatory, but it makes more anti-inflammatory hormones. Thus, a 2018 study states: “It is time to shift the AA paradigm from harm-generating to necessary for normal health”, esp. in nervous system, digestion, muscle, immunity. AA does not initiate inflammation and, most importantly, leads to resolving inflammation and wound healing. Other studies: Supplementing AA may reduce Alz. Symptoms, slowing the disease progress (PGI2 repairs axons damaged w/stroke, and leaky blood-brain barrier).” “Men w/highest intakes of ARA had an 80% lower risk of hip fracture than those in the lowest intakes.” “AA given to spontaneously hypertensive rats can retard development of hypertension.” Low AA leads to fatty liver. “AA makes cell junctions to protect us from pathogens.” Oleic acid (olive oil) “enhanced” pancreatic cancer but AA “reduced” it (w/PGI2). “Higher levels of ARA were associated with decreased pro-inflammatory markers/increased anti-inflammatory markers.” “AA is an important structural component of the brain (the building blocks around and w/in nerve cells, lining of blood vessels, heart, liver, kidneys, placenta and other organs. “AA regulates the glutamate/GABA system, decreasing oxidative damage/inhibiting cell death.” “The most recent systematic review and meta-analysis found that blood ARA levels was associated with a reduced risk for heart disease.” “Pregnant diabetic rats given AA had fewer babies w/spina bifida/cleft palate.” Myelin integrity is “mostly related to concentration of AA.” “AA, in addition to promoting dopamine release, can inhibit its transport.” Dietary AA increased AA in cells, but not PGE2 or pain w/RA.

Endocannabinoids - anandamide, PEA, and 2-AG are made from AA, and they induce PPARs. They are like CBD oil, so they’re anti-pain, anti-histamine, neuroprotective, etc., but are far more potent and have more functions, like increasing brain oxygen. “ECs are AA derivatives, critically important for emotion, stress response, pain relief, energy balance, and brain reward/motivational processes.”

ARACHIDONIC ACID IS ANTI-INFLAMMATORY!

AA is the strongest inducer of ketosis. A critical component of every cell, it’s also needed for digestion, brain, muscle, bone, heart, reproduction, and immunity. AA is literally the “taste of chicken”, which we intuitively know is healthy and satisfying, and is something we need to eat. Pastured animal fat has both AA and DHA in almost equal amounts. Since birds, and their eggs (top sources of AA), have been eaten since humans began to cook, it may be that our large brains, w/its high requirement for AA and DHA, evolved by eating bird, fish, dairy, and other animal fat. Chicken soup, or “Jewish penicillin”, the traditional remedy for colds and flu, is high in AA, which kills viruses.
- AA makes leukotrienes that induce PPARα, kill bacteria, Candida, viruses (EBV, colds, flu), parasites, and lower inflam. Th2 cells. AA in breastmilk lowers HIV transmission to infants.
- Strengthens bones/muscles (while mead acid, which subs for AA, prevents bone repair!).
- AA is the most important fat for the integrity of myelin (nerve cover), so it protects from open sodium channels, stopping harmful neuron “hyper-excitability”/epileptic seizures.
- Prevents blood clots, heart attack/failure, CAD, stroke (vegetarians have higher risk for stroke), hypertension, and sodium retention (AA’s 20 HETE). In a heart failure study, they free radicals causing the heart damage and dysfunction (4-HNE) were derived from LA, not AA. Heart patients take niacin, which produces AA, and thus heart-protective PGI2.
- Is mainly found in organs and muscle meat, rather than in fat, because AA is stored in muscle (AA is a muscle building supplement) rather than as body fat (LA is stored as fat).
- Protects our brain, myelin, blood-brain barrier, grows neurons. Brain-derived neurotrophic factor (BDNF), low in Alzh., activates AA for BBB repair via PLA2. BDNF is in muscle, retina, ovary, airways, liver. AA protects against glioblastoma, via PPARα by anadamide/2-AG.
- Normalizes pancreatic enzyme secretion, protecting the pancreas/beta cells, and preventing pancreatic cancer (AA has an “antitumoral role”). Diabetics are low in AA.
- Estrogenic chemicals raise glutamate (amplifies pain perception by stimulating NMDA receptors). But, AA lowered excess glutamate in an anesthesia study, as it raised GABA and ACh, normalized dopamine (dysfunctional w/depression/schiz./t. gondii), and raised glutathione (detoxifies estrogenic chemicals) and SOD (protects the mitochondria).
- Normalizes stress response, lowers histamine and inflammation via AA hormones PGE2, then lipoxin (stops the inflammatory response). But, pain relievers/other salicylates block AA’s PGE2, which is needed for lipoxin and anti-inflammatory T-reg cells (from stem cells). Also, PEA is made from AA carrier phosphatidylethanolamine (PE). PEA relieves chronic and neuropathic pain by inducing PPARα, blocking histamine’s increase in sensitivity to pain. So, PEA increases efficacy of opioids which are otherwise taken in increasing doses.
- Prevents GERD, protects our gastric mucosa. AA is critical when eating “hot” condiments.
- Fetal development: prevents vision defects, spina bifida, crowded teeth, receding jaw.
6. MYELIN: FOR A CONNECTED BRAIN

THINKING INSIDE THE BOX
The 1920's anti-seizure diet was ketogenic: mainly bacon, eggs, cream and butter. When meds were developed, they stopped using the diet. Yet, many seizure meds are ketones!

- **DIET CHANGE:** In the early 1900’s, lard and butter were replaced by Crisco and oils high in LA. These fats have no DHA, AA, or medium chain fats, which induce ketosis. Also, people were eating more refined carbs, which block PPARa and lower butyrate (made by gut bacteria), and are low in lysine (lysine blocks seizures). Refined carbs deplete manganese (detoxes ammonia, preventing seizures) and epileptics are low in manganese (high in rye).

- **PPARa AND GABA:** The keto diet stops seizures by raising calming GABA and lowering glutamate via PPARa. Seizure med barbiturate also increases GABA, and valproic Acid is a ketone similar to medium chain fat caprylic acid (major PPARa activator). Valproic acid also increases the ketone butyrate, and sodium butyrate is another med. The butter in the diet has caprylic acid and is the top source of butyrate. Ketosis increases production of calming glycine, serine, and taurine (the only foods containing taurine are meat and fish).

- **SODIUM CHANNELS:** Eggs are a major source of essential fat arachidonic acid (AA), also in butter and bacon. AA stops seizures by inhibiting voltage-gated sodium channels. AA is the strongest activator of PPARa via cannabinoids (which are made from AA). Seizure med Dilantin stops seizures by blocking sodium channels. Glycine is the hinge of sodium channels and of gut tight junctions (for gut bacteria butyrate), so glycine prevents seizures. Also, creatine in our muscle is made from glycine, and it protects from seizures. Bacon, tough meat, broth, gelatin are best sources of glycine.

- **ROUND-UP/MOSQUITO SPRAY:** Roundup (Glyphosate) is made from glycine, so it depletes glycine, opening sodium channels/causing seizures. It also chelates (depletes) manganese. Mosquito spraying w/DDT-like pyrethroids also opens sodium channels. Open sodium channels cause many problems: afib. (more common with Caucasians), stroke, heart failure, migraine, increased pain perception, depression, anxiety, autism, SIDS, and bipolar (which is treated w/valproic acid). Most of these have been shown to be helped by the ketogenic diet. Cocaine and ketamine block sodium channels, and valproic acid (a major PPARa activator) “may be useful in treatment of cocaine addiction”. So, cocaine and ketamine users may be self-medicating from open sodium channels, and the KD would probably be very useful to them, as studies have indicated. Interestingly, cocaine is up to 90% diluted with lidocaine, which is a form of glycine, so glycine supplements may be very helpful for cocaine addicts, as well as for stopping seizures.

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**1920’s KETO DIET:** EFFECTIVELY TREATS SEIZURES

Excess glutamate and dopamine, and too little GABA and serotonin, can induce seizures and damage myelin, but "the keto diet inhibits hyperexcitability". AA is the most critical fat in the myelin, thus it protects the myelin, and "regulates the glutamate/GABA system, decreasing oxidative damage/inhibiting cell death." Ammonia induces seizures/irritability, as found w/the solvent toluene and the parasite t. gondii-killed by AA (in certain people, also raises risk for suicide). A high carb/arginine and vegetable oil diet feeds t. gondii. Biotin, high in egg yolks and liver, detoxes ammonia. Thus, a keto diet high in AA and biotin effectively inhibits seizures.
Glycine induces adiponectin (low in ADHD, cancer, metabolic syndrome) and AMPK, thus inducing PPARα. So, it “enhances fat loss and improves sensitivity to insulin”, activates mitochondrial biogenesis, converts glucose into energy, alleviates fatty liver, and makes hemoglobin for oxygen. It is a calming neurotransmitter in the spine and brain stem, regulates nitric oxide, and prevents muscle loss (as creatine) and bone loss (as cartilage).

Meat is high in methionine, which can accumulate as harmful homocysteine. W/glycine, folate (highest in chicken liver), B12, B6 (slide 17), it’s made into antioxidant glutathione, heart-protective taurine, and methyl groups that form DNA and regenerate cells.

Glycine is important for bile-detoxifies-and gallbladder function, preventing gall stones.

Glycine (w/lysine) is a major component of cartilage/elastin: joints/ligaments/bones (increases bone mineral density), muscles, dental enamel, arteries, gastric mucosa, skin. It’s the hinge of tight junctions (gastric mucosa) and sodium channels (nerve pain, muscle control). So glycine is helpful with leaky gut (10 grams of glycine as a supplement per day), IBS, autism, pain, neuropathy, afib, GABA-related disorders: MS, epilepsy, fibro, twitches, schiz., Parkinson’s, Alzh., bipolar, and Lyme.

DETOX: As glutathione, glycine (w/cysteine, selenium) detoxes aldehydes: mold, alcohol, 4-HNE-LA oxidation products via toxins/pathogens, formaldehyde, solvents, pesticides, DEET, Candida, BHT, ammonia, arsenic, and is “particularly effective” to detox aluminum, which raises blood sugar. It rids the body of excess arginine (cancer, infection, irritability, neurological disorders). It prevents harmful advanced glycation end-products-AGE’s.

Glycine is low w/diabetes, cancer, and heart disease. It treats schiz., stroke, memory loss, fatigue, BPH, sleepiness/twitches/Parkinson’s, ADD/ADHD, digestion, seizures, diabetes.

Glycine is particularly important now, because Round-up (Glyphosate) is glycine plus phosphate, so it substitutes for glycine in the body! Round-up is applied preharvest on grains/legumes in northern states, and is widely used. Bacteria in vinegar and kombucha (low oxalate tea) detoxify Round-up. Glycine must be replenished as an “antidote” to Round-up. Glycine lowers high uric acid, which can be secondary to oxalate build-up (80% of stones are oxalate), and glycine was shown to not cause kidney stones. In contrast, Glyphosate increases formation of oxalate crystals. Threonine, which is converted into glycine, dissolves oxalate crystals, perhaps by its conversion into glycine. So, vinegar, kombucha, and glycine might prevent and treat Round-up-induced gout.

So, we crave sugar? Our need for glycine one of the reasons we crave sugar?
Main points:

Myelin is the white brain matter that enables nerve impulses to connect to each other. Problems with myelin are found in many nerve/mental disorders: OCD, MS, anxiety, self-injury, depression, ADHD, Alzh., autism spectrum, savants, allostynia, dysmorphia, schizophrenia/depersonalization (loss of sense of “self”), bipolar, insomnia, anorexia, neuropathy, anti-social personality, epilepsy, MS, drug addicts, autism, movement disorder, vision loss, tone deafness, PTSD, dyslexia, pathological lying, narcissism, Tourette’s, stuttering, plantar fasciitis.

Dr. D. Perlmutter: “Creating the most advantageous environment for repair and regeneration of myelin requires an adequate supply of essential fats.”

The amount of AA in myelin, more than other fats, determines how intact and functional the myelin is. But, AA is displaced in myelin by plant omega 6 fat LA, which is easily oxidized.

PPARa builds myelin and neurons, via AA’s PGI2, by increasing BDNF and IGF-1. The most-prescribed Alzh. drug, Donepezil, is derived from the strong PPARa activator black pepper, and black pepper itself helps with Alzh. BDNF is lowered by unregulated cortisol, which is found w/Alzh. and other disorders, like those with unreasonably restrictive diets/OCD.

Acetylcholine (induces ketosis), cholesterol are building blocks of myelin. Thromboxane and PGI2, from AA, build myelin, as shown by recovery from a spinal cord injury with dietary AA. PGI2 protects neurons, but linoleic acid is an “inhibitor of PGI2”. Myelin repair also requires lysine, fat-soluble vit. A, E, K2, and vit. C. B1, B5, B6, zinc, and copper. Myelin also needs methylation: serine (myelin building block), glycine, choline, betaine, folate, B12, B6, etc.

Refined carbs, stress, drugs, toxins, alcohol, smoking all cause B1 deficiency, which lowers energy and damages the LA in myelin via glutamate excitotoxicity. Estrogenic chemicals damage myelin by increasing glutamate. For example, pyrethrroids, which are commonly used for mosquito spraying, affects the anti-convulsant and neuroprotective kyurenic pathway, causing glutamate toxicity. The kyurenic/glutamate pathway is dysfunctional with bipolar, schiz., autism, Asperger’s, tic disorders, Alzh, Parkinson’s. This also causes agitation, nightmares, and learning/memory deficits. Notably, AA protects against myelin damage from glutamate excitotoxicity and normalizes ACh release. Solvents, which are detoxed by glycine, and aspartame are major factors in demyelination/MS.

Kathleen DesMaison’s successful addict treatment program is high in lysine, AA, and DHA, with eggs for breakfast, and 5 oz. servings of meat or fish. She also advises extra B vitamins, C, and zinc: myelin-repair nutrients. These nutrients are also supplied in the ketogenic diet.

MYELIN: MISSING IN ACTION

Myelin, up to 75% fat, protects neurons, directs the flow of neuron activity, and feeds them w/glucose or ketones! Myelin is low with mental/neurological disorders. It is myelin that enables us to inhibit impulses “that trigger compulsive addictions”, so we can “discontinue addictive behaviors in the face of the negative consequences associated with them”. Myelin needs to be repaired w/nutrients like AA. Eggs, an important source of AA, are the perfect brain food! The oldest living person, as of 2018, said she had eaten 3 eggs per day, as a doctor advised her as a sickly young girl. Eggs are also high in other myelin nutrients: B vit., vit. A, D, K2, E, zinc, choline, and cholesterol.
Egg yolks are the best source of choline (90% Americans are low!) needed for acetylcholine (ACh). ACh is induced by PPAR α. ACh regulates cortisol and induces the relaxed alertness, “in-the-flow” alpha state, to “rest and digest”. It’s needed for brain/nerve myelin, blood sugar control, normal blood pressure, memory, organized thinking, muscle action—prevents sleep apnea by powering breathing muscles during sleep. ACh induces dopamine for good mood, appetite control—low w/obesity. ACh grows neurons, and blocks histamine (histamine increases need for opioids). Caffeine, nicotine, marijuana bind to ACh receptors, inducing the alpha state, but also habit-forming dopamine—next slide. Cholesterol and AA, high in yolks, increase ACh! Choline’s needed to make glutathione, dopamine, epinephrine and serotonin, for DNA replication and repair, to control inflammation, detoxing, and fat transport (liver health). ACh is low w/diabetes (in arteries) and ADHD, which explains ADHD symptoms of inattention, impulsiveness, lack of organized thinking/planning skills, and sleep apnea (30% of those w/ADHD have sleep apnea), as well as their desire for drugs. ACh is blocked by antidepressants and antihistamines, which is why these drugs are linked to Alzh.

Choline (also low in fatty liver): in yolks, meat, liver, poultry, seafood, dairy. Betaine subs for some functions, like methylation. Betaine (rye, beets, shrimp, meat) improves insulin resistance/fatty liver, hydration, fights cancer, detoxes brain toxin ammonia—high w/ diabetes and alcoholism, so rye bread is recommended. It’s also detoxed by biotin (in yolks/liver, also made by gut bacteria), by taurine, ornithine. Ammonia is high w/epilepsy, schiz/bipolar (t. gondii), OCD, autism, Alz., Lyme, irritability, brain fog.

**EGGS HELP TO CALM AND FOCUS OUR MINDS**

Many have trouble getting into the alpha state, the calm and focused state of meditation/, due to depression or anxiety. This may be from too little ACh—the neuro-transmitter of the parasympathetic nervous system and a “strong anti-inflammatory” (from phosphatidylcholine). ACh induces ketosis, and turns off the “fight or flight” response of the sympathetic nervous system, (which causes HBP, high blood sugar, heart palpitations, fear, anger, high cortisol, epinephrine rush, muscle tension), and turns on the healing alpha state. ACh is lowered by infection, pesticides, cottonseed poison gossypol, birth control, while ACh is raised w/nutrients in yolks: lysine, AA, B1, B3, B5, choline, betaine, PS, NAC, cholesterol., and magnesium.
Acetylcholine activates the ACh receptors, which increases PEA, which then induces PPARα and ketogenesis. Many other substances increase PEA, and thus ketosis, in this way: caffeine, nicotine, anandamide (chocolate/marijuana), cocaine. Methamphetamine also stimulates acetylcholine. So, a low level of acetylcholine activity, due to the replacement of AA in animal fat with modern oils and margarines made from seeds, and the lack of ketosis due to the great increase in dietary sugar, may be a major reason for the surge of drug use that started in the late 19th century. This is when, in addition to caffeine, chocolate and nicotine, cocaine became very popular among deep thinkers, authors, and inventors such as Freud, Robert Louis Stevenson, Jules Verne, and Thomas Edison. Sherlock Holmes’ cocaine habit testifies to not only its popularity, but to the highly stimulating effect that cocaine, and PPARα, has on insight and cognition. Drug use has greatly increased since then and, at this point, Americans spend $100 billion per year on illegal drugs! A point beyond the devastating effect this has on our health is that cocaine and marijuana are the two drugs most responsible for the illegal drug trade that is causing violence in Central and South America, as well as in the US. PPARα stimulates the same part of the brain as cocaine does—the lateral hypothalamic neurons. So, it is extremely important that Americans rebuild their brains by getting back into ketosis, naturally, so there can be less of a demand for cocaine.

**In a study of formerly cocaine-addicted mice, inducing ketosis reduced “re-instatement of cocaine-seeking behavior.”**
Northern Europeans are the most likely to have ADHD, autism, or Asperger’s. Symptoms of these disorders are worsened by chemicals, including salicylates (red/yellow dye, benzoates, parabens in sunscreen and make-up), sals in food, and MSG. “Dr. Benjamin Feingold conducted tests on hyperactive children. He found that children whose diets are rich in sals (in many kid-friendly foods: apples, raisins, etc.) were more hyper than children whose diets had fewer salicylates.” Those on the autism spectrum also test low in AA and DHA, and a low sals and high animal fat keto diet has been found to be very helpful. Other high sals foods are coconut/olive oil, avocados, nuts, fruits, spinach, tomato sauce, herbs and spices, wine, caffeine (esp. tea), vinegar (except malt vinegar), sweet potato, sweet peppers, cucumber, radish, sprouts, and broccoli. Thus, the Mediterranean diet is high in sals. Sals also block a clotting factor. The PPARa activators capsaicin, hops in beer, etc. are antidotes to sals, by binding to TRPV1, the sals receptor. TRPV1 is a pain receptor that LA free radicals (HODE’s) cause pain by binding to, and sals and PPARa relieve pain by desensitizing TRPV1. Many Americans have a very high sals diet-HFCS is high in sals! Yet, 50% Caucasians and blacks, most Hispanic and Nat. Americans, have type O blood, which has less of the clotting factor that sals decrease. So, the need to counter the blood-thinning effects of sals may explain spicy Mexican cuisine, and why we have a “growing obsession with hot sauce” and with hoppy beer!

ADHD: Impulsive, restless, aggressive, risk-taker
- 2-fold increased risk for drug abuse, cocaine, nicotine, and meth, which are antihistamines.
- 25-fold increased risk for institutionalization
- High levels of LA free radicals found w/ADHD.
- Obese mothers increase risk for ADHD, etc. (diet high in linoleic acid?)
- Excess damaging nitric oxide and ammonia in the brain with ADHD. Benzene in oil and glue lower ammonia so gas/glue sniffing is common.
- Low oxytocin and AVP, needed for empathy. Low ACh and dopamine, high glutamate, which overstimulates the brain. Sals lower dopamine and raise glutamate, which may account for greater sensitivity to sals with ADHD and others on the spectrum. Ritalin, the ADHD drug, works by stimulating ACh receptors, which then increases dopamine.

AUTISM SPECTRUM, SALICYLATES, HISTAMINE
Salicylates, which are chemicals in plants and medicine, can disturb our thinking. The strongest salicylates are chemicals: menthol, flavorings, dyes, tea, NSAIDs, preservatives, aspirin. Poorly-metabolized salicylates induce histamine. So, in susceptible people, symptoms are rumination, racing thoughts, anxiety, disturbed sleep, OCD, irritation, increase blood flow, sweating, flushing, restlessness, tinnitus, shallow breathing, low oxygen, inflam. Th2 autoimmune response, fatigue, sinus headache, hypoglycemia (raises cortisol), eczema, migraine, IBS, rhinitis, hives, tinnitus, and asthma.
Ghrelin is the hormone that makes us hungry. It also induces cravings for stimulating drugs, like cocaine, alcohol, and nicotine. A high protein meal reduces ghrelin the most, followed by a high fat meal, while a high carb meal reduces it the least. One amino acid, arginine (high in legumes, grains, nuts, chocolate, seeds) increases ghrelin! Chocolate contains anandamide (like marijuana), which induces ghrelin, causing the “munchies”. Chocolate has healthy flavonols, but they’re lost in processing. So, health benefits of eating chocolate are minimal, while problems are considerable. So, it is important to eat adequate, high quality protein to avoid cravings for carbs, chocolate, caffeine, fried food and snacks, etc.

Refined carbs, chocolate, and caffeine cause cravings/addiction because they quickly release dopamine, serotonin (regulates appetite/sleep), and endorphins. These are low w/depression, a common problem for obese people. This quick release has the effect of increasing receptors of these hormones, which intensifies cravings. Addictive drugs, like heroin, also bind to these hormone receptors, and addictive activities (gambling, sex, porn, shopping, computers, etc.) induce these hormones, so cravings of all kinds are increased from receptor over-stimulation. Then blood sugar/brain energy and hormones drop, causing brain hypometabolism and fatigue. Ghrelin levels rise, and, in a vicious cycle, we crave more carbs, chocolate, caffeine, and/or addictive drugs and activities.

In contrast, the ketogenic diet takes away hunger, and makes you feel happy! It regulates dopamine receptors, powers the brain w/ketones, reduces ghrelin, and replenishes carb-depleted B vitamins, manganese, and zinc, as well as AA. Moreover, less stimulation by dietary carbs, etc. lowers the number of hormone receptors, making cravings less intense. Notably, AA, is needed to make anandamide and endorphins, and to release dopamine naturally, AA also is the strongest inducer of ketosis. Only meat, eggs, dairy and fish, the basis of the original keto diet, contain AA, which is converted into heart-protective EET, and EET is converted into endorphins. In addition, protein is needed to make dopamine and serotonin. Glutamic acid and glycine in meat and broth help reduce carb cravings. The ancestral keto diet includes slow-digesting, high fiber carbs, which keep blood sugar levels even, thus avoiding highs and lows. So, as shown in many studies, the ketogenic diet appears to “hold potential as a therapy for drug addiction.” For example, one way the keto diet improves focus is by increasing dopamine and acetylcholine, and people with ADHD are low in both, so they use Ritalin, cocaine, and nicotine for better focus. Also, a diet high in lysine increases dopamine, thus pleasure. So, rather than just telling us to stop eating sugar and junk foods, or using drugs, the ketogenic diet takes away our cravings!

**FORTY SHADES OF GHRELIN…….
THE CRAVING HORMONE**

Anhedonia: the inability to feel pleasure. “Dr. Robert Lustig notes that the brain’s dopamine (reward) pathway is the same whether it is sugar, alcohol, nicotine, cocaine, porn, gambling. ‘All hedonic (pleasure-causing) substances and behaviors work through the exact same dopamine pathway.’”

People who are low in dopamine, serotonin, beta endorphins, like bulimics, alcoholics and people with ADHD, social anxiety, OCD, phobias, rage, or depression, who experience anhedonia, are more vulnerable to these substances and behaviors.
A KETOGENIC DIET HAS BEEN FOUND TO BALANCE HEALTHY GUT BACTERIA AND LOWER BAD GUT BACTERIA

A healthy gut, with the proper balance of gut bacteria, is essential for mental health. Good bacteria make vital attention and “feel-good” neurotransmitters, like acetylcholine and serotonin, as well as ketones for energy, while pathogenic bacteria give off waste products that cause symptoms of anxiety, bipolar, autism, and more.

HEALTHY GUT BACTERIA

- Studies have found that the keto diet promotes healing in the gut. Part of this may be by supplying the arachidonic acid, and thus PGE2, that it needs to heal, and avoiding salicylates (that block PGE2) and LA (that feeds harmful bacteria). It also supplies ketones that the gut cells, and some of the gut bacteria, use for its energy. However, some studies found negative results with the keto diet. So, it’s very important to eat enough high quality fiber, from onions/properly-prepared whole grains, and pectin, from small servings of split peas, carrots, cranberries and apples. Also, gelatinous broth, chevre, sauerkraut help heal the gut, as they are the best sources of glutamine, the main food of digestive system cells.

- The ketogenic diet, fatty fish, black tea, bamboo shoots, and cranberries increase anti-inflammatory A. municipphilia, which is low with Alzheimer’s, diabetes, obesity, IBD and ALS. A. municipphilia produces vitamin B3 and increases gut barrier function.

- Bacteroides, a bile-tolerant bacteria associated with lean body mass and low with MS, is also increased with the ketogenic diet.

- As mentioned previously, saturated fat feeds the very important bacteria F. prausnitzii. F. prausnitzii increases the very important, and often deficient, anti-inflammatory IL-10.

- Tyrosine, in cheese, and glutamine in broth, chevre, cottage cheese, sauerkraut feeds c. sporogenes, which makes a neuroprotective anti-oxidant that is more powerful than melatonin. C. sporogenes is lowered with a high LA diet and w/anti-biotics.

HARMFUL GUT BACTERIA

- Linoleic acid increases harmful Enterobacteriaceae (salmonella, e. coli, klebsiella, and proeobacteria-urinary tract infections). Segmented Filamentous Bacteria (“potently induce immune responses” and IgA in autoimmune diseases, celiac, liver failure, HIV) and Clostridia. Enterobacteria, clostridia, Citrobacter produce large amounts of ammonia.

- Sugar, refined wheat flour, and other carbohydrates feed firmicutes bacteria, which are found in greater abundance with obesity.

- Arginine, amino acid that’s high in plant proteins-seeds, nuts, grains, peanuts, some beans: soy (not tofu), chickpeas (not red, black, white beans, black-eyed peas, lentils) feeds B. fragilis-can cause abscesses. Xylose, diabetic sweetener, also increases B. fragilis.
7. ANCESTRAL FOODS
KETOGENIC DIET
The Ancestral Foods Wellness Diet enables you to eat 60 healthy carbs or more, per day, and still burn fat, because it emphasizes the foods that induce ketosis the most:

- Foods that contain essential, omega fats: liver (esp. important for GLA), egg yolks (duck eggs are highest per gram), bacon fat, goat cheese (raw, if possible), dark chicken meat, mercury- and PBDE-safe fish and shellfish, pork/bacon fat/lard, butter or ghee, (pastured, organic, or humanely-raised, if possible).

- Foods that contain medium-chain fats: goat cheese (raw if possible) and MCT oil. 1 tablespoon of MCT oil at every meal helped people with early Alzh’s recover their memory! Goat milkfat is a major source of ketone-producing medium chain fats (MCT) capric, caprylic, and caproic acid (named after Capricorn, or goat!), with more MCT than in cow milkfat. 2 oz. goat cheese has the same amount of MCT as 1 T. coconut oil!

- Goat dairy, instead of modern cow milk dairy, esp. if sensitive to dairy. Many people can’t digest the A1 casein in Holstein cowmilk but can digest goat/sheep milk, which have A2 casein. Holstein milk traditionally was made into cheese, and fermentation breaks down the casein, so cheese, ghee and whey protein are more digestible.

- One tablespoon of malt vinegar (acetic acid) at every meal, and/or lacto-fermented vegetables (25% acetic acid), cuts the carb load by 80%. Vinegar, as acetone, also feeds the critical ketone (butyrate)-producing gut bacteria F. prausnitzii. F. prausnitzii is low with obesity, and “might be a major factor of human health”. Russian fermented drinks kvass and kombucha also have this effect. Try 1 teaspoon of vinegar, if sensitive.

- High lysine foods: dairy, esp. whey protein powder, fish, meat, black, white, red beans.

- Sources of glycine: bacon, broth (meat/fish, skin, bones), tough cuts of meat, especially beef, gelatin, brewer’s yeast.

- Low salicylate vegetables (see salicylatesensitivity.com for a complete list).

- Low salicylate condiments and seasonings that activate PPARα, especially horseradish, hot sauce, black pepper, fresh ginger. Mustard is also an important PPARα activator.

- Nuts-hazelnuts are best. They are the lowest in arginine, and low in salicylates, and the traditional Northern European nut. Seeds-sprouted pumpkin seeds are best). They are low in salicylates (as are most seeds), and are uniquely very high zinc/low in copper.
GLUTEN

- Traditionally, grain was fermented. This lowers gluten enough so even gluten-sensitive people often can eat sourdough bread. Changes in the grain w/fermentation, that protect from diabetes and heart disease, are greater w/rye than wheat. Rye and oats have less gluten than wheat, and a barley enzyme breaks down gluten w/fermentation. Modern wheat contains an unusual and indigestible gluten, which can cause an inflammatory immune response which can damage the gut lining. Certain gut bacteria digest both gluten and lactose: L. brevis (also makes GABA), found in fermented pickles and sauerkraut, and lactococcus, in sour cream. These foods were regularly consumed in N. Europe. In addition, Europeans ate high-glutamine foods for a healthy digestive system—broth, chevre (goat milk) and quark (cow milk) or chevre (goat milk), cured fish, and cabbage. Importantly, high gluten wheat used in artisan bread, grown in northern states and Canada, is sprayed with Round-up (glyphosate) before harvest. Round-up destroys gut bacteria, and so may be a major cause of gluten sensitivity and celiac.

OXYLATES

- Many plant foods are high in oxalates that block calcium absorption—spinach, grain/quinoa, legumes (not black-eyed peas), berries, nuts, potatoes, beets, cocoa. Also, unfermented grains, nuts, and legumes are acidifying, adding to oxalate formation, while fermenting lowers acidity. Grains/peas have an enzyme that prevents oxalate formation, making glycine instead! Lacto-bacteria, in sauerkraut, etc., break down oxalates. Sauerkraut is also very high in vit. C, which breaks down oxalates (while ascorbic acid—“vitamin C”—is turned into oxalates!). Split pea soup was eaten weekly in Northern Europe, but the peas were laco-fermented for three days! Beets were also lacto-fermented.

- Oxalates are also made in the body: from candida or collagen degradation. Also, if zinc, B1, or B6 are low, oxalate crystals can build up. Refined carbs feed candida, and deplete zinc and B1, increasing lactic acid, which draws calcium out of bones, used to form crystals. So, as you give up refined carbs, it will help prevent this. Birth control pills also lower zinc/B6, and often cause candida. Thus, they are strongly linked to vulvodynia, an oxalate problem. Estrogenic pesticides also lower zinc and B6, in people, but also in plants, which has increased oxalates in our food! This was found with Round-up, which chelates zinc from soil. Also, it’s sprayed just before harvest on legumes and grains! So, when we eat these foods, they lower our zinc, and may increase oxalate crystals.

N. EUROPEANS: GLUTEN, DAIRY, OXALATES

The DPP4 enzyme breaks down many molecules, incl. hard-to-digest gluten and modern milk casein. DPP4 is low with celiac disease/gluten sensitivity. DPP4 also breaks down histamine-producing mast cells and oxalates! So, eating gluten and A1-casein might lower available DPP4 and cause excess histamine, thus the eczema and hives associated w/gluten and casein. Europeans ate low-gluten fermented rye. They also drank milk from digestible A2 casein brown cows, goats, sheep, and water buffalo (mozzarella). So, even if you’re sensitive to these foods, it’s likely that you can eat A2 dairy products and traditional low-gluten breads, like S.D. rye.
FERMENTING RAISES LYSINE, B1, ZINC, IRON, CALCIUM, MAGNESIUM

Grains, legumes, nuts and seeds, in their natural state, are indigestible. This is because they are very high in phytates and oxalates, anti-nutrients which prevent absorption of B1, iron, zinc, calcium, and magnesium. This naturally discourages animal predation. But, long fermentation, as in making sourdough bread, reduces phytates, and grains are transformed: from an unhealthy, indigestible seed, into the “staff of life”! Soy is very high in phytates, so traditionally it was fermented.

Charts are from the World Health Organization
SUGAR AND HFCS-HFCS is 55% fructose, sugar is 50% fructose, so they’re basically the same.

REFINED/WHOLE GRAINS, NUTS, SEEDS-not pumpkin seeds, PEANUTS, SOY, CORN, COCOA:

- HIGH IN ARGinine/LOW IN LYSINE: These foods are high in the non-essential amino acid arginine, which has a bitter taste, and low in the essential sweet amino acid lysine, which controls arginine actions and competes with it for absorption. Arginine is made in body out of ammonia, in the process of making urine to dispose of ammonia. So, it’s very high in nitrogen, and is the source for inflammatory nitric oxide (a high arginine diet increases infection/flu deaths). Importantly, unlike lysine, arginine blocks PPARα, plus it’s the only amino acid that increases, rather than decreases, the hunger hormone, ghrelin. It feeds viruses, bacteria, fungi, parasites, as pathogens use arginine for growth. Excess arginine can thus lead to virus-related illnesses, like Bell’s palsy and shingles. It feeds cancer (cancerous nitrosamines are made w/arginine), while arginine depletion shrinks tumors/induces autophagy. Excess arginine becomes glutamate: can cause excitotoxicity, inattention, anxiety, irritability, insomnia, restless legs. Side effects of taking it as a supplement include edema, bloating, digestive discomfort, acidosis, back pain, hair loss, poor appetite, fatigue, headache, cold extremities, strong sex drive, tight muscles, blood-shot eyes, anemia, nosebleeds. It’s made into creatine, using up methyl groups.

- HIGH IN LINOLEIC ACID (nuts, seeds, peanuts, soy-lecithin in cocoa, corn, and their oils)

- HIGH IN COPPER: Copper’s needed for many crucial functions but must be balanced w/zinc at 1:10 ratio, or it can be unbound and toxic. Zinc is needed for PPARα function, but free copper blocks it. Free copper over-stimulates the brain: brain fog, insomnia, phobias, mood swings, OCD, migraine, panic, depression, Alz., schiz., emotionality, pain, obesity, bone loss, induces cortisol. Zinc is the critical cellular anti-oxidant SOD, anti-inflammatory, is needed for dopamine, carb metabolism, D6D, thyroid hormone, DNA, metal detox, brain executive functioning, immunity, neurodevelopment, prevents leaky gut, fights cancer and acidosis, inhibits testosterone loss, red blood cells (maintains membrane), activates vit. A/D, builds myelin. “Assaultive young males” are low in zinc. Plant sources of zinc have phytates that block zinc, so just copper is absorbed. Seafood has a high amount of zinc and copper at the right ratio, so is the ideal source of both.
Gelatin in broth is derived from collagen in meat/skin/bones. The main constituent of skin and of bones, collagen is responsible for skin elasticity plus it’s needed for bone strength. Collagen is also the main component of cartilage, tendons, ligaments, and is part of capillaries, teeth, artery walls, and cornea. The main component of collagen is glycine!

Broth also contains glutamine, which controls appetite/blood sugar and repairs tissue. Glutamine is a major food for intestinal cells, so it prevents leaky gut, thus keeping toxins and harmful bacteria from going into the rest of your body. Supplemental glutamine has even lowered risk for infections in a number of studies. Also, glutamine enables production of glutathione, the most important anti-oxidant of the body. Glutamine may be very important now due to Glufosinate, Round-up’s replacement, which blocks the detox of ammonia as it’s converted to glutamine. But, when broth is cooked for a long time, its glutamine is made into glutamate, and glutamate blocks PPARα. The histidine in broth is also converted into histamine. Traditional Jewish chicken soup, with the whole chicken and extra chicken feet, was cooked in less than 4 hours, plus there’s no increase in gelatin after 8 hours of cooking broth. The neck and feet contain much collagen, which is made into gelatin, so including the neck and six or more feet, rather than cooking bones for many hours, is a much better way to get gelatin. Likewise, fish heads should be added for fish broth, and oxtail, knucklebone, or shark for beef broth. Broth also has hyaluronic acid, chondroitin and glucosamine for joint shock absorption and skin and vision health.

Rendered chicken fat-schmaltz, high in AA, was a mainstay of traditional Jewish cuisine. It’s still available, and can be used for cooking carrots, Brussels sprouts, onions, turnips, and more. Full-fat chicken broth-based soups are the most popular soup in many countries around the world, with its excellent flavor, adaptability for many different ingredients, easy availability, and many nutrients. In fact, the national soup of many European countries, as well as Russia, India, Japan, China, Indonesia, Pakistan, Korea, the Philippines, Iran, Iraq, and many South American countries are chicken broth-based soups. The French have perfected the art of using chicken broth in countless sauces, stews and soups, including many cold soups, so you can enjoy the many benefits of gelatinous chicken broth, even in the heat of summer. Onion soup also is rich in the antihistamine quercetin. Cold vegetable soups, like cream of lettuce, onion, asparagus, mushroom, tomato, broccoli, and spring greens, are finished with heavy cream, so they make perfect ketogenic soups. Along the same lines, gelatin from pigs or fish is traditionally made into cold fish, vegetable, and fruit molds — perfect for summer meals, and sausage casings are made with gelatin.

GELATINOUS BROTH IS AN IMPORTANT KETO FOOD

Jewish chicken soup, made w/chicken feet, is very gelatinous, but it is also particularly rich in ketogenic flavonoids! Besides parsley, peppercorns, celery (root), Jewish cooks add rutabaga and dill, and rutabaga and dill, as well as black pepper, celery and parsley, contain ketosis-inducing flavonoids, like myricetin and apigenin! Dark chicken meat is also one of the best sources of arachidonic acid, so AA is also in the broth. Thus, in addition to the healing benefits of gelatin, Jewish chicken soup induces ketosis! So, it’s no wonder that Jewish chicken soup is called “Jewish penicillin”.

- Gelatin in broth is derived from collagen in meat/skin/bones. The main constituent of skin and of bones, collagen is responsible for skin elasticity plus it’s needed for bone strength. Collagen is also the main component of cartilage, tendons, ligaments, and is part of capillaries, teeth, artery walls, and cornea. The main component of collagen is glycine!
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Bowl of Chicken Soup: Nutrients

- Arachidonic acid
- Ketogenic flavonoids
- Collagen: glutamine, glycine, hyaluronic acid, glucosamine, chondroitin
- 45% monosaturated, 30% saturated, 21% unsaturated (arachidonic acid)
- Niacin, B6, zinc, beta-carotene, vitamin C

Meat, vegetables

Fat

Broth
<table>
<thead>
<tr>
<th>Country</th>
<th>Chicken Soup Recipe</th>
</tr>
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<tbody>
<tr>
<td>Japan</td>
<td>Torijiru</td>
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<tr>
<td>Italy</td>
<td>Cappelletti in brood</td>
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<tr>
<td>India</td>
<td>Sweet Corn Chicken Soup</td>
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<tr>
<td>Jewish</td>
<td>Matzah ball soup</td>
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<tr>
<td>Indonesia</td>
<td>Soto avam</td>
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<td>Hungary</td>
<td>Újházi</td>
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<td>Greece</td>
<td>Avgolemono</td>
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<td>Germany</td>
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<tr>
<td>France</td>
<td>Consommé</td>
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<td>Denmark</td>
<td>Hønsekødssuppe</td>
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<td>Colombia</td>
<td>Ajiaco</td>
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<tr>
<td>China</td>
<td>San qi soup</td>
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<tr>
<td>Bulgaria</td>
<td>Chicken soup with yogurt and egg</td>
</tr>
<tr>
<td>United States</td>
<td>Chicken noodle</td>
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<tr>
<td>Great Britain</td>
<td>Cream of chicken</td>
</tr>
<tr>
<td>Scotland</td>
<td>Cock-a-leekie soup</td>
</tr>
<tr>
<td>Russia</td>
<td>Chicken, noodles, carrot, potato and onion</td>
</tr>
<tr>
<td>Rumania</td>
<td>Ciora de pui, ciorbă</td>
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<tr>
<td>Portugal</td>
<td>Canja</td>
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<tr>
<td>Brazil</td>
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<td>Poland</td>
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<td>Philippines</td>
<td>Mami</td>
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<td>Peru</td>
<td>Caldo de Gallina</td>
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<tr>
<td>Mexico</td>
<td>Caldo de pollo</td>
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<tr>
<td>Korea</td>
<td>Samgyetang</td>
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</tbody>
</table>
With spaghetti squash or cauliflower rice already made, there are dozens of easy ways to put together a delicious low carb meal. Here are just a few:

**Spaghetti squash pasta**
- Use anyway you would use pasta.
- Alfredo: add heavy cream, parmesan cheese and black pepper. Alfredo 2: add chevre and black pepper. To either one, add fresh parsley. Canned fish and shellfish go well with these Alfredos.
- Cut up hamburgers and gravy, or Italian sausage, with sautéed onions or a small amount of fresh tomato sauce and parmesan. Black-eyed peas can be added.
- The classic “linguini and clam sauce” can be made with canned clams and clam juice on spaghetti squash.
- Baked tuna or canned salmon casseroles
- Put spaghetti squash in onion soup, or as a stand-in for the noodles in chicken noodle soup.
- Hungarian goulash or Beef Romanoff can be made with spaghetti squash.

**Cauliflower rice**
- Use any way you would use rice.
- Goes well with Asian or Mexican flavors, like pork-fried cauliflower rice, or southwest chicken.
- Cauliflower pizza crust
- Cauliflower burger buns
- Pureed roasted cauliflower substitutes as a gluten-free thickener in soups.
- Mashed cauliflower is a stand-in for mashed potatoes in dishes like shepherd’s pie.
LONG-KEEPING FOODS (for at least a few weeks)

Flavorings: malt vinegar, tabasco sauce, red pepper flakes, horseradish, various mustards, peppercorns (large peppermill), Celtic sea salt, stevia, chili powder, cinnamon, oregano, pumpkin pie spice, maple syrup, tamari sauce, Worcestershire sauce, MCT oil, olive oil

Drinks: decaf coffee (rainforest-cert.), chicory and barley coffee substitute, whey protein powder (low-heat processed), teas: black or oolong, nettle, dandelion, rose hips, red clover

Refrigerated:
- Dairy: goat milk, cheese (goat cheddar-raw, goat feta, chevre, manouri, pepper jack, Parmigiano Reggiano, Emmental-raw), sour cream, sheep milk yogurt, butter/ghee, eggs
- Meat/fish/fat: chorizos, lunchmeat, prosciutto, grass-fed hot dogs, marinated herring, wild-caught lox, smoked wild-caught salmon, bacon/fat, lard, beef tallow, duck fat
- Vegetables/fruit: sauerkraut, lacto-fermented pickles and beets, fresh mushrooms, celery, cauliflower, parsley, lemons/peel, ginger root, leek, fresh herbs-dill, rosemary, thyme
- Hazelnut oil

Frozen: green beans, broccoli, greens, asparagus, peas, cranberries, salmon and other fish filets, sprouted corn tortillas, chicken soup heads/feet/neck, beef soup/marrow bones, chicken and/or beef liver, pork chops, ground beef/other cuts, ham hocks

Long-keeping produce-store in a cool place: tomatoes, spaghetti squash, roots (rutabaga, beets, turnips, carrots, celeriac, potato), onions, garlic, cabbage, golden delicious apples

Grains/legumes/seeds: dark rye flour, oat groats/oatmeal, sourdough rye bread, Finn Crisp, barley rusks, split peas and other legumes, hazelnuts, pumpkin seeds

Canned, fermented, dried: whey protein powder (low-heat), chicken/beef broth, gelatin, collagen, canned pumpkin, pickled “hot” mushrooms, pickled onions, jam (esp. mango), canned seafood, beans-black-eyed peas and refried, jalapeño slices

REGULAR, FRESH FOODS (seasonal, from garden or from farmers market, when possible)
- Lettuce (romaine, Boston), radishes, Brussels sprouts, tomato, meat, seafood, ginger

Many foods on this diet can be stored conveniently for a week or more: in the pantry, a cold place, or refrigerator/freezer. This list includes mainly low-salicylate, high lysine and zinc, and ketogenic foods, and excludes foods that are high in linoleic acid and arginine, which block ketosis. If you’re sensitive to butter, bacon fat (high arachidonic acid) is a good substitute, used on bread, oatmeal, and for sautéing. A small amount of olive oil can be used for flavoring-otherwise, lower linoleic acid and low sals hazelnut oil works well in many dishes. A slow-cooker, food processor, 8 qt stock pot, meat grinder, iron cookware, and a grain mill are helpful.
The keto diet works best when you have longer times between eating, or “delay, don’t deny”- coined by Gin Stephens. For ex., limit eating time to a 12 hour window-“intermittent fasting”- which is very helpful for staying in ketosis. Finishing your food by 7PM, and then delaying your breakfast until 7AM, works well. Also, delaying meals during the day, even eating once/day, can ultimately limit your carbs, and isn’t hard to do as you’re not very hungry when in ketosis. This may seem impossible, because w/a high carb diet we tend to snack. But this may be just an adaptation to blood sugar crashes on our modern diet. E.M. Forster made a point of this in “A Passage to India” when he writes that an Indian “had been warned that English people (who would be eating refined carbs and drinking tea) never stop eating, and that he had better nourish them every two hours”!
TYPICAL 20 GRAMS OF CARB MEALS

“Look, kippers for breakfast!”
From Jane Austen’s Persuasion

In an unpublished novel, Sanditon, Jane critiqued the excessive chocolate habits of her time when she had a young man say: “‘A large dish of rather weak cocoa every evening, agrees with me better than anything,’” with his sisters both crying out when they see the “dark-colored stream” — “Oh! Arthur, you get your cocoa stronger and stronger every evening!”

Breakfast
- 2-4 eggs, collards/asparagus/mushrooms/broccoli/onions.-poached or cooked in butter/bacon fat/lard, grated cheese, parsley, lots of sea salt, black pepper, hot sauce
- AND fish (kippers, trout, baked/smoked/salmon/lox), humanely-raised bacon, ham, or sausage (pork is best in the morning, as it takes a long time to digest).

Lunch or Dinner
- 1. Meat (pastured, organic, or humanely-raised) w/boiled sauerkraut, fermented beets or Bubby’s pickle, OR wild-caught fish/farmed seafood
- Salad (low salicylate): Boston, iceberg, or romaine lettuce, celery, onions, parsley, pea shoots or legumes, fermented beets, etc. Dressing: chevre or feta with vinegar or mustard, and lots of black pepper. If desired, hard-boiled egg, bacon/fat, or small amount of olive oil or hazelnut oil.
- 2. Soup or stew: collagen-rich broth/sauce with legumes (split peas, beans-not soybeans, lentils), and meat or wild caught fish. Add cheese, vinegar, parsley, scallions.
- Cooked vegetables in soup or on the side: celery, carrots, turnips, broccoli, Brussels sprouts, green beans, cabbage, rutabaga, celeriac, collards/kale-buttered or w/bacon fat and mustard or vinegar. Cauliflower rice or buns (can be made into pizza crust/onion tarte), spaghetti squash (small serving) with chevre or fresh tomato sauce.

PARSLEY: Fresh parsley should be eaten with just about every meal. Highly valued in Nordic countries as a green vegetable available even in winter, parsley is sprinkled liberally on vegetables and meat dishes. Families grow it “in abundance”, even in winter “in the deep windowsill”. Parsley is particularly important in the ketogenic diet because it induces ketosis!
**Breakfast**

- 2-4 eggs, collards/asparagus/mushrooms/broccoli/onions.-poached or cooked in butter/bacon fat/lard, grated cheese, parsley, lots of sea salt, black pepper, hot sauce
- AND smoked fish (kippers, trout, salmon or lox), bacon, ham, or sausage (pork is best in the morning, as it takes a long time to digest.
- 12 grams carb: 1 small slice 100% whole grain sourdough rye/sprouted bread/Finn crisp, w/butter, chevre or bacon fat, OR small serving kamut/rye/oats, soaked and made into a thin cereal, with fresh ginger, cream, Greek yogurt, butter, a few berries/mango, or bacon fat, OR refried beans served with poached eggs for a kind of huevos rancheros.

**Lunch or Dinner**

- 1. Meat (pastured, organic, or humanely-raised) w/"live" sauerkraut, fermented beets or Bubby’s pickle, OR wild-caught fish/farmed seafood
- 12 grams carb: 1 small slice whole grain sourdough rye or barley bread, sprouted bread, or 4 Finn Crisps, buttered or with chevre
- Salad (low salicylate): Boston, iceberg, or romaine lettuce, celery, onions, parsley, pea shoots or legumes, fermented beets, etc. Dressing: chevre or feta with vinegar or mustard, and lots of black pepper. If desired, hard-boiled egg, bacon/fat, or small amount of olive oil or hazelnut oil.

- 2. Soup or stew: collagen-rich broth/sauce with legumes (split peas, kidney, lentils), and meat or wild caught fish. Add cheese, vinegar, parsley, scallions.
- Cooked vegetables in soup or on the side: celery, carrots, turnips, broccoli, Brussels sprouts, green beans, cabbage, rutabaga, celeriac, collards/kale, cauliflower rice or buns (can be made into pizza crust/onion tarte), spaghetti squash (small serving) with chevre or fresh tomato sauce.
- 12 grams carbs: Small serving barley, potato, pasta, barley rusk, sprouted tortilla, pasta, buttered bread
Breakfast

- 2-4 eggs, collards/asparagus/mushrooms/broccoli/onions.-poached or cooked in butter/bacon fat/lard, grated cheese, parsley, lots of sea salt, black pepper, hot sauce
- AND smoked fish (kippers, trout, salmon, lox), humanely-raised bacon, ham, or sausage (pork is best in the morning, as it takes a long time to digest).
- 17 grams carb: 1 slice 100% whole grain sourdough rye/sprouted bread/Finn crisp, w/butter, chevre or bacon fat, OR small serving oats, coarsely-ground, soaked, and made into a thin cereal, with cream, Greek yogurt, butter, ginger, bacon fat, a few berries or mango, OR refried beans served with the eggs for a kind of huevos rancheros.

Lunch or Dinner

- 1. Meat (pastured, organic, or humanely raised) w/"live" sauerkraut, fermented beets, or Bubby's pickle, OR wild-caught fish/farmed shellfish
- 17 grams carb: 1 slice whole grain sourdough rye or barley bread, sprouted bread, or 5 Finn Crisps, buttered or with chevre
- Salad (low salicylate): Boston, iceberg, or romaine lettuce, celery, onions, parsley, pea shoots or legumes, fermented beets, etc. Dressing: chevre or feta with vinegar or mustard, and lots of black pepper. If desired, hard-boiled egg, bacon/fat, and/or small amount of olive oil or hazelnut oil, and oregano.

- 2. Soup or stew: collagen-rich (can add powdered) broth/sauce with legumes (split peas, kidney, lentils), and meat or wild caught fish. Add cheese, vinegar, parsley, scallions.
- Cooked vegetables in soup/on the side: celery, carrots, turnips, broccoli, Brussels sprouts, green beans, cabbage, rutabaga, celeriac, collards/kale-buttered or w/bacon fat and mustard or vinegar, cauliflower rice or buns (can be made into pizza crust/onion tarte), spaghetti squash with chevre or fresh tomato sauce.
- 17 grams carbs: Serving barley, potato, pasta, barley rusk, sprouted tortilla, buttered bread

In “Bleak House”, Charles Dickens writes of his idealized working-class woman, Mrs. Bagnet: “Mrs. Bagnet, like a military chaplain, develops an exact system; allotting to every portion of pork its own portion of pot-liquor, greens, potatoes, and even mustard!”
KETOSIS SNACKS DESSERTS DRINKS

SNACKS
- Sausage (especially hot sausages, like chorizo) or pickles or cocktail onions or spicy pickled mushrooms with goat cheddar, Emmental, etc. (raw is best), or mustard
- Goat cheddar or Emmental, oregano, mustard, tomato
- Marinated herring (soak in water), wild-caught lox w/chevre, shrimp w/hot sauce, sardines w/hot sauce
- Small amount of pumpkin seeds (sprouted), sautéed in butter/bacon fat, with cayenne or goat cheese, or served with warm sweet potato and plenty of black pepper
- Small serving of popcorn cooked in bacon fat
- Radishes, celery sticks, and scallions with salt/butter, cheese, or smoked trout spread
- Finn Crisp or Wasabrod with butter, or “hot” jam (like mango-add tabasco) and cheese (manouri sheep cheese is best), or chevre w/tomato and oregano or w/wild-caught lox
- Chevre mixed with lacto-fermented beets

DESSERTS
- Greek yogurt with ¼ teaspoon cayenne and 1 teaspoon glycine, or mango pieces
- Glycine/serine/threonine/lysine sweetened desserts
- Canned pumpkin w/whipping cream or goat milk, fresh ginger, and sweet amino acids
- Ricotta/mascarpone/quark/manouri and cocoa dessert
- Cranberries sweetened with sweet amino acids or stevia, add whipping cream
- Small serving raspberries/blackberries/strawberries/plum w/a few hazelnuts

DRINKS
- Whey protein powder (low-heat)-before working out. Nettle tea w/salt, weak black tea with lemon, decaf coffee or coffee substitute w/fresh ginger, whipping cream, MCT, goat milk, or butter. Low carb alcohol: Lite beer, Pinot Noir, aquavit

Snacking is not recommended on the ketogenic diet, as it tends to interfere with ketosis. So, it’s best to fill up at meal times. You can save your carbs for snacks, as long as you include a ketosis-inducer, like mustard.
Let old habits slip away, like avoiding exercise, overeating high calorie food because you know it’s healthy (which was a big downfall of mine), and snacking mindlessly. This is a “carb-conscious” diet, without strict carb counting, so it’s important to also be conscious of changes in your appetite and energy level, which will allow you to go longer between meals, and to exercise more. Joining a gym, especially one that has a sauna, is very helpful, so you build, rather than lose, muscle mass (but this is generally only a problem if you cut down on protein too much).

- At 42 cal. and 7 carbs/cup, delicious, versatile spaghetti squash is your new best friend.
- For an easy and quick breakfast, cook mushrooms, etc., for your eggs, the night before.
- When you’ve eaten too much, like at a party or if you got tired of the diet, a good “keto rescue” is a tablespoon of vinegar. You’ll stay in ketosis if you remember this handy trick.
- Always have bacon fat on hand, especially if you’re sensitive to the A1 casein that’s in butter—it’s very good as a substitute on bread, on oatmeal, and for sautéing.
- Always have chicken broth in the freezer, in glass jars for quick thawing by boiling. Then you can make a large variety of quick soups.
- If you don’t make your own chicken broth, take store-bought chicken broth and cook the PPARα inducers black peppercorns, fresh dill, rutabaga, celery, and parsley in it for up to two hours. Even better, add powdered collagen when serving.
- Be sure to drink enough water, with added sea salt, as many ounces as half your weight in kilograms. Other liquids can count toward this.
- If you eat avocado, make it into guacamole, with hot sauce, onions, lemon juice, right away, so doesn’t spoil, and the capsaicin in the guacamole will counter effects of sals.
- After oats or legumes have been cooked, soak the next batch!
- Make spicy cooked black-eyed peas in the fat from frying chorizos. Canned is OK as they’re low in oxalates. Just be careful—it’s extremely easy to eat too many of these!
- Check if you are making ketones with ketone strips. This should be happening a few days after you start the diet eating 20 carbs per day, but it may take three weeks or so.
FOCUS ON HEALING: ANCESTRAL FOODS, KETO SUPPLEMENTS

Supplements that induce ketosis include vitamins A, B1, B3, B5, D, zinc, DHEA, alpha lipoic acid, and arachidonic acid. 3 of the amino acids in the detoxification cycle—serine, lysine, and threonine—are also at the active sites of PPARs. These are powerful “catalytic” amino acids. Other catalytic amino acids (which are depleted by chemicals) include histidine and tyrosine. Taurine, as the end-product of the detoxification cycle, “spares” the other amino acids of the cycle, and glycine induces ketosis. So, these are all helpful supplements.

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Plant omega 6 fat LA feedS ammonia-producing bacteria: clostridium, enterobacteria, proteus, which chelate copper (needed for myelin)! These are found w/nervous system disorders: ADHD, autism, autoimmune diseases (RA and MS), giddiness, Parkinson’s, self-injury, violence, tic disorders, OCD, schizophrenia, depression. Also obesity, inflammation, UTI’s, metabolic diseases, allergic disorders, and tumors. These bacteria also crowd out normal flora, which make B vit, and neurotransmitters! Other causes for harmful bacteria include refined carbs and meds (anti-biotics, birth control pills, antacids, pain relievers).

- Good bacteria, like L. plantarum lactococcus (sour cream), destroy these bacteria.
- Pre-biotics: fiber from collard greens, asparagus whole grains, beans, crucifers, onions, re-warmed potatoes, garlic, chicory root (coffee sub), is digested/eaten by good bacteria: L. rhamnosus (increases GABA) and b. infantis and bifidum (both produce six B vitamins).
- Sauerkraut and lactofermented pickles: supply L. plantarum and L. brevis, which destroy histamine, improve obesity markers and make GABA, B1, folic acid and B12 (contains histamine, so eat only if not sensitive to histamine). Probiotic B. infantis makes ketones, breaks down histamine. Quercetin-onions (fresh is highest), cabbage, apples, dill, radish leaves, asparagus, buckwheat-destroys histamine.
- Cheese: acetylcholine (which lowers histamine) is made by L. lactis in cheese. The high lysine content of cheese supplies the “acetyl” group. L. lactis also makes GABA. The arachidonic acid in cheese maintains and repairs the gut. Low histamine cheeses include freshly-made cottage and ricotta cheeses, quark, young Gouda, and butter cheese.
- AA can be taken as a supplement, and DHA is high in cod liver oil. Weston A. Price highly recommended cod liver oil and butter oil for vitamins A and D (induce ketosis) as well.
- DHEA induces ketosis. Alpha lipoic acid is a ketone plus sulfur! It helps w/blood sugar, weight loss, nerve pain, muscle spasms, Alzh., heavy metal detox by regenerating glutathione, vitamins C/E, protects DNA/mitochondria, skin, collagen, vision, reduces aortic calcification (heart attack).
- Amino Acids—the building blocks of body cells, neurotransmitters, enzymes, receptors, etc. Serine, threonine, lysine, tyrosine are vital catalytic components of PPARs. Chemicals react with these specific amino acids, depleting them and blocking PPARs. So, it’s critical to have adequate amounts of these nutrients. Cysteine and histidine are also catalytic.
**Lysine**-fights cancer via P53, that blocks serine synthesis via PHGDH (that feeds cancer). It also sends depleted serine stores to damaged cell for DNA repair and makes glutathione. If beyond repair, P53 destroys it. As collagen, lysine prevents cataracts and heals wounds, increases serotonin (spares B3), reduces HPB/high blood sugar—much more on lysine in P.Pt.

**Serine**-in many enzymes/receptors/phospholipids, depleted by carcinogens, so deficiency may be common. Serine deficiency activates cancerous PHGDH (P53 blocks it) which replenishes it by making it from sugar. PHGDH is active in lung, ER-breast, skin, colon, pancreatic cancers, fed by the serine made from sugar, and by pathway by-products. Drugs that block PHGDH are being sought to treat these cancers. Serine also breaks down fat and triglycerides via lipase. It’s needed for functional, calm brain/nerves, as it regulates NMDA receptors concentrated in the hippocampus (source of memory, ability to react/choose rationally, controls the “fight or flight” response that is overstimulated in many disorders). Serine is needed for methylation/detoxification (esp. with MTHFR alleles): recycles critical form of niacin-NAD+, breaks down histamine, for hormones, vision, muscle. It prevents fatty liver, breaks down blood clots and fibrin (via the enzyme plasmin), gluten/dairy casein (via enzyme DPP-IV), cholesterol/triglycerides, relieves pain, increases brain oxygen (via cannabinoids), forms/repairs DNA, maintains blood pressure (AVP). As phosphatidylserine, it activates protein kinase C (prevents blood clots) and controls cortisol for sleep. It’s the basic building block of phospholipids which make up membranes, incl. myelin. Serine tastes like sugar, so a deficiency may cause cravings for refined carbs/alcohol. It’s being studied to treat ALS, Parkinson’s, Alzh., schiz., addiction, PTSD, OCD, depression, autism, and insomnia, which are linked to chemicals. Latent viruses are altered via binding on their serine/threonine active sites, so toxins may be the main culprit in the many diseases where re-activated viruses, like EBV, are found. Insulin resistance is caused by binding serine and threonine sites on the insulin receptor, thus serine is being studied for diabetes (serine and threonine may help with insulin receptor function) and high cortisol (autoimmunity, Alzh., asthma, osteoporosis, myeloma, prostate cancer). Many toxins are estrogenic, so they bind to serine on the estrogen receptor, leading to cancer, PCOS, hair loss, allergies/ asthma, BPH, etc. Dairy, meat, fish are the best sources.

**Cysteine**-as NAC, treats many diseases. Example—a cysteine enzyme breaks down oligosaccharides in legumes that cause problems with IBS, and NAC treats IBS. Cysteine, with glycine, is needed as the precursor to glutathione (our main anti-oxidant and metal chelator) and taurine. It’s highest in beef liver and whey. Whey raises insulin, but if you drink it before exercise, it increases calorie burning for 24 hours, plus it might increase DPP-vi!

### HEALING FOODS AND KETOGENIC SUPPLEMENTS

The “highly toxic” aldehyde 4-HNE is formed in the body mainly from linoleic acid, via reactive oxygen species (the main source of ROS is during carbohydrate metabolism). 4-HNE strongly binds to lysine, cysteine, and histidine in the many proteins, enzymes, etc. that they are a part of. 4-HNE also binds to serine, threonine, and tyrosine. 4-HNE has been linked to many diseases: Alzheimer’s, cataract, atherosclerosis, cancer, diabetes, and more. So, replenishing these amino acids, and going on the keto diet to generate fewer ROS, is very important.
Threonine is a major part of our gastric mucosa, impaired with leaky gut. Thus, threonine, combined with serine, cysteine and proline, "reequilibrated gut microbiota" in colitis. It's needed for tooth enamel and to break down histamine. Threonine treats MS, back pain, Parkinson's, spinal cord injury, because it enters the spinal cord, where it becomes glycine which calms nerves, relieves stiff muscles, inhibits spasticity. Threonine, as glycine is a major component of elastin/cartilage: for strong and resilient skin, joints, muscles, neck, and heart. So, threonine also helps with TMJ, neck, shoulder pain. It's the active site of many receptors, like Histidine. Like Histidine, it's an anti-inflammatory. Beef, pork, poultry, fish and shellfish are best sources. Threonine tastes like salted caramel or brown sugar, a very popular flavoring these days!

Histidine activates arginase, controlling arginine and killing pathogens (caffeine blocks arginase). Histidine regulates iron by making hemoglobin out of free iron. Iron feeds the pathogenic bacteria (like the ones that cause dental problems), so histidine treats infections, eczema, anemia, allergy. Histidine was undetectable in children with dental fillings. It promotes the anti-inflammatory system, increasing regulatory T-cells, so it treats RA. It's the active site of MT (metal detox), antioxidant SOD, and CDO (makes taurine and sulfate for detoxification, is low in neurological disorders and RA ). Carnosine (treats Alz., protects against histamine) is made from histidine. 4-HNE, from LA, depletes histidine. Fish and meat broth are top sources. Histidine feeds critical gut bacteria F. prausnitzii. However, histidine depletes zinc, and can cause an increase in histamine (although perhaps as a result of lowering zinc), so if you take a histidine supp, add zinc.

Tyrosine-made into dopamine; controls appetite, pleasure, motivation, reward, sense of purpose, habit, coordination. Obese, depressed, and w/Park. (all linked to chemicals) are low in dopamine. Addictive, stimulating foods, behaviors, drugs raise dopamine, so addiction may be from low tyrosine, depleted by chemicals. It’s needed for thyroid hormone, and is the active of many enzymes and receptors, like the insulin receptor. It’s critical for stamina, memory, focus, stress, (epinephrine). High in cheese (cheese crystals are tyrosine), it induces DPP4 for casein digestion. Like lysine, it’s only made into ketones.

Taurine is “one of the most essential substances in the body,” yet many are low due poor methylation. Prevents gallstones (incr. bile), blood clots, heart failure, afib., acidosis, cataracts (concentrated in retina), lung cancer, lowers inflammation, reduces weight, helps w/sleep, CAD, diabetes, vision, seizures, prevents stroke. Taurine prevents calcium loss and seizures by closing calcium channels, treats mitochondria diseases/ Parkinson’s. Taurine is only available in animal proteins, and is highest in shellfish.
1. Talley up your total carbohydrates on an average day. It will probably be much higher than you think, so this is a great incentive to do the diet.

2. Eliminate modern oils (processed/deli/restaurant foods), peanut butter, soy, nuts, seeds, and limit olive oil and avocado (especially if sensitive to salicylates). Eat butter, ghee, or butterkäse, chevre, bacon fat, lard, beef tallow, small amount of hazelnuts/oil.

3. Eat gelatinous broth everyday, plus take digestive enzymes, probiotics. Use PPARa inducers: hot sauce, horseradish, black pepper, ginger, mustard, (turmeric too, if desired), etc., and seaweed. Take ketogenic supplements: B vitamins, zinc, lysine, glycine, etc.

4. Gut health: add lacto-fermented sauerkraut, pickles, beet/celery juice (induces PPARa), chevre/quark. Take glycine-10 teaspoons per day-for three weeks, to heal gut.

5. Breakfast with protein everyday (just whey protein powder OK, if you exercise)

6. Eat 3-5 ounces eggs/meat/fish at most meals. Add alkinizing vinegar and parsley.

7. Eat A2 dairy if possible: goat milk/cheese, sheep cheese and yogurt, fresh cheeses and sour cream, w/most meals (this helps with the added hot condiments).

8. Avoid high salicylate foods: olive/coconut oil, avocado, processed foods, wine, as much as possible. Lightly-caffeinated drinks only, small servings low hops beer, aquavit.

9. Eliminate refined flour: soaked/sourdough whole grains only.

10. Include resistant starch pre-biotic foods and pectin (for gut health) with: onions, cabbage, carrots, golden delicious apple, cranberries, chicory root and barley (coffee substitute), leeks, asparagus, peas, oats, potatoes (cooked, then cooled).

11. Eliminate refined carbs and limit/avoid wheat (eat spelt/kamut instead)-NO SUGAR.

12. Lower carbs to 20 carbs per day and increase fat and PPARa inducers. Eat liver 1 time per week, seafood 2-3 times/week.

This is modeled after Kathleen DesMaisons’ plan for a lower carbohydrate/higher protein diet for addicts of every kind, including sugar addicts. She stresses that, for ultimate success, it’s very important to take as long as needed to do the transition.
9. AN ECOLOGICAL DIET
70% of the American diet is packaged, processed foods! Not only are these foods unhealthy and low in nutrients, but processed foods, along with fresh fruit and vegetables, avocado, coconut and olive oil, peanut butter, almonds, macadamia nuts, coffee, cocoa, wine, and sugar, are often shipped long distances. This is a major problem because transportation, together with increased demand for electricity for growing industries (like electronics and computer use/manufacturer), are major contributors to the carbon dioxide emissions which may be a major cause of the rise in global temperatures since 1980. Also, a combination of transportation, industry’s increasing demand for coal-fired electricity and fracking (main source of methane—not cattle!), and the electronic industry’s use of PBDE’s, has resulted in mercury and PBDE pollution, now found in the fatty fish that is a critical source of vit. D and omega 3 fats. PBDE sales and pollution have risen exponentially since 1980, as the computer/electronics industry was expanding. So, it’s important to buy only mercury-safe fish that is low in PBDE’s, but also to protect this vital food supply, possibly through legislation regarding industrial pollution. In addition, many “healthy” plant foods—soy, almonds, walnuts, berries, spinach, olive oil, lettuce, peaches, kale, grapes, rice, apples, peppers, grapes for wine, whole wheat—are heavily irrigated, fertilized, and pesticided. Growing them organically results in crop loss, so they need more acreage for the same yield. In contrast, rye and peas, important traditional foods, have a greater yield when grown without pesticides or fertilizers, and can even be grown in cold climates!

The early N. European diet was ecological. They had a balanced and varied diet, including local, seasonal vegetables, unprocessed raw dairy, pastured meat, wild fish, rye/oats, some hazelnuts, and seasonal berries. Pea soup with ham was eaten once a week. So, most of the food in this diet can be obtained locally from farmers markets, such as meat, cheese, eggs, storage and pickled vegetables, and grains, thus avoiding long transit, plus you’re supporting your local economy. Also, market farmers use fewer pesticides than large growers. So this diet lets us reclaim the health of our planet, as well as our own health!

This keto diet is a therapeutic diet, to recover from a poor diet, chemical exposure, and medications, rather than an exact copy of the ecological early N. European diet. This is because the typical American is unlikely to be able to induce ketosis as easily as Northern Europeans were in the 1700’s, for Europeans were outside in the sun, got a lot of exercise, ate little to no refined carbohydrates, and had little chemical exposure. So it includes some PPARa activators, such as cayenne, MCT oil, and mangos, that are shipped long distances. But, hopefully, we’ll be able to eat more ecologically, as our health improves.
Animals should be pastured/raised humanely. Pastured meat, especially from pastured dairy cows, is healthier and is more ecological than crops re: energy, carbon storage, wildlife, pesticides, flooding, soil compaction and erosion. Manure and grazing is critical to restoring soil bacteria (that break down methane!) and minerals that have been depleted with cultivation. Alan Savory’s “holistic management” of grazed animals even reverses desertification! Buying locally raised pastured chickens and hogs is more eco than conventionally-raised: growing feed and shipping accounts for nearly all emissions from raising them indoors. Meat is nutrient-dense, so less is needed to provide nutrients, esp. if we eat it as soups/stews, and eat the organs. In fact, eating a high animal fat vs. a low animal fat diet lowers the acreage required, for it’s far more efficient when we eat the fat, organ meat, and use bones for soup (only the protein is compared in meat vs. pea studies). Plus, w/diets of equal calories, vegan and omnivore, emissions were equal. Farmed clams, oysters and mussels are also safe/eco.

SAVING OUR SOIL AND THE PLANET

With only 60 years of topsoil left, and rapid loss of farm land to development, it is crucial that we “undo the loss of billions of tons of topsoil and the emission of carbon (rather than carbon storage) caused by the repetitive tilling of farm fields, and to curb massive inputs of fertilizers, nitrogen, and pesticides.”

American Farmland Trust
The Ancestral Foods Ketogenic Diet: The Gift of the Natural High
Weston A. Price, DDS, studied primitive diets worldwide in the 1930's. He found that:

1. all of the primitive people who had excellent health ate animal foods, like full fat raw cheese and butter, meat and fish soups and stews, organ meats, fermented whole grains, and seasonal vegetables.
2. people living nearby, who cooked with vegetable oil and ate sugar, margarine, white flour, canned vegetables, and chocolate, were unhealthy, had malformed bones, and had many cavities.

Sally Fallon Morell and Mary Enig, PhD., an expert on fats, began the Weston A. Price Foundation to teach the importance of eating traditional foods, including meat and animal fat, prepared in ways that make grains, legumes, and dairy wholesome and digestible. These dietary principles form the basis of a truly healthy and delicious ketogenic-type diet!


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