Dr. Schumacher's Longevity Protocol

V. 1.13

Last update: 14th of Mar 2026

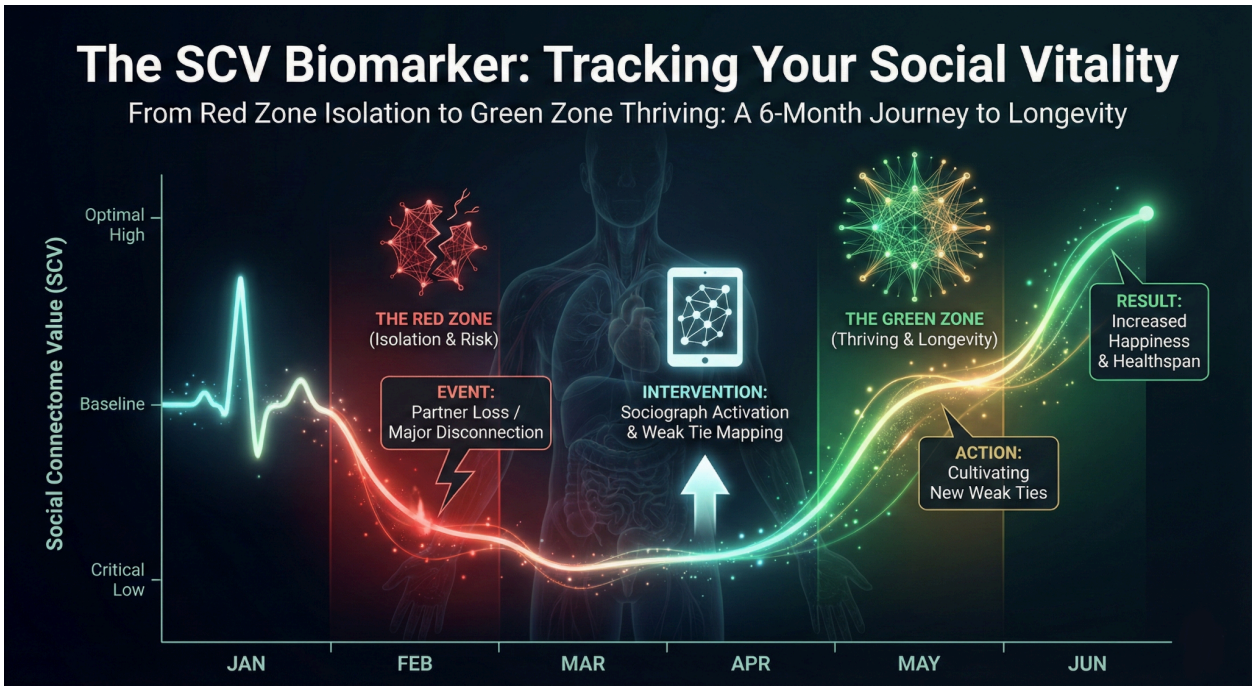
Note: Longevity science is a constantly evolving field, shaped by the latest research and discoveries. To stay informed, consider revisiting this guide regularly. While the supplements and ingredients discussed here may offer incremental benefits to health and longevity, it's important to approach them with realistic expectations—there are no miracle cures! Oh, and don't feel bad if I sound like a superhuman fountain of health and you're just sitting there clutching your coffee like it's life support. Spoiler alert: I'm not perfect either. **Most days, I barely manage to tick off half the things on this absurdly long list of "must-dos."** Life gets in the way. Laundry, deadlines, existential dread—you know what I am talking about. This guide isn't about achieving perfection; it's about taking meaningful steps toward better health and a longer life, one choice at a time. Ease and delight!



Tip 1: If you want to remember your daily routine, use a simple habit tracker to remind you of your tasks. I use the "Habits" app.

You can also spread this protocol via sharing this link: http://bit.ly/3IL2Uri

Before we dive into the protocol, most longevity protocols focus on downstream biology—glucose, sleep, inflammation, supplements. These matter. But they are not primary drivers. They are readouts of upstream regulation.
The **strongest, most neglected upstream variable** is your social environment.
Decades of longitudinal research show that the structure and quality of relationships predict mortality as strongly as smoking—and often more than classical risk factors. Yet unlike glucose or HRV, this domain remains largely unmeasured.
To address this, I track the Social Connectivity Value (SCV)—a quantitative biomarker of the Exogenous Social Connectome: the structure, quality, and biological impact of my relationships.



SCV treats social life not as a vague feeling, but as a modifiable system that directly shapes stress physiology, immune function, behavior, and long-term healthspan. It integrates network structure, emotional valence, evolutionary weighting, and real-world constraints into a single, trackable signal.
In my protocol, SCV is not optional—it is the central organizing metric. Sleep, nutrition, and interventions are interpreted in its context.

You can read the full scientific framework and methodology here:
https://doi.org/10.31235/osf.io/m6h58_v1

Morning Routine

Waking up at YOUR right time

Wake up naturally without alarm clock. For me, average time 08:35am[1] . While I don't use a classic alarm clock, I use a sunrise alarm clock lamp that increases the light in the room steadily[2]. You should aim to wake up at about the same time every day.

[1]That is about the average for people with my chronotype. Researchers discovered that there are genetic associations with being a morning person versus a night person. For example, 23andMe has a statistical model to predict what time you'd typically wake up on your days off when you don't have to wake up for work. The report also allows you to adjust your genetics or your age to see how that might impact the prediction. Typically, the older you are the earlier you wake up.

[2] Sunrise alarm clocks are designed to mimic natural sunlight, which is one of the most important factors when it comes to regulating and maintaining your circadian rhythm. Research has shown that timed, artificial light from a sunrise alarm clock can work to give you better sleep quality. I use a Philips Wake-Up Light alarm clock which simulates the sunrise by cycling through 20 brightness settings—from deep red through warm oranges and yellows to bright white—in the half-hour before I want to wake up.

The first thing in the morning is to go to the kitchen and make myself a glass of 'water'. The benefits of drinking water in the morning are believed to include positive effects on weight, mood, skin, and kidneys and reduces the risk of coronary disease.

Morning "Water":

I aim at drinking about 400-500ml[3] of the following drink:



- **2 Tbsp Lemon Juice**[4]
- **1 Tbsp Apple Cider Vinegar**[5]
- **50 ml of Sauerkraut Juice**[6]
- **Half Tsp Cinnamon** [12]
- **10.5g of Longevity Powder** (see supplements)
- **1-2 Tsp Extra Virgin Olive Oil**
- **1-2 Tbsp of Ginger Juice**[7]
- **2g of Spirulina:Chlorella Powder** [8]
- **1 Tsp Omega-3 Oil** [66]
- **500mg of Potassium Citrate** [53] **(Specific to my diet)**
- **Fill to 400-500 ml with water (alternatively with water Kefir)**
- **Optional: If you can't cope with the taste, add 30-50 ml of unfiltered & unsweetened apple-juice.**

Mix in a blender and drink quickly.

Together with my morning water, I do take some supplements in pill form. My newest addition is **AgeViva**, a supplement I am co-developing together with a Swedish startup. Based on in-vitro and in-vivo studies, it has positive effects on at least 7 hallmarks of aging —from enhancing mitophagy and mitochondrial function to reducing chronic inflammation and preserving genomic integrity.

[3]You should drink about 400-500ml glasses of water in the morning according to the limited research available. It's quite a lot but you can get used to it.

[4] **Lemon water** contains nutrients such as Vitamin C, sodium (Na), potassium (K), calcium (Ca), and magnesium (Mg). and may protect against diabetes. It can reduce the bacteria in the mouth and may prevent the formation of kidney stones.

[5] The research on apple vinegar in water is limited but it may contribute to lowering blood sugar.

[6] **Sauerkraut juice** contains Glutamine, an amino acid, a fuel source for cells lining the small and large intestine (enterocytes and colonocytes, respectively). It helps to enhance and maintain gut barrier function by stimulating proliferation of intestinal cells, thus, preventing breakdown of the lining. Indole-3-carbinol, an active form of glucosinolate glucobrassicin, a glucosinolate with cancer-protective mechanisms through regulation of inflammation, cell proliferation, and inhibition of tumors. It also stimulates phase II detoxification enzymes to improve hormone regulation in females and males and to reduce oxidative stress. Contains also Sulforaphane, another glucosinolate known for its anti-carcinogenic effects and as a stimulator of phase II detoxifying enzymes. While sauerkraut juice from the supermarket is good, ideally, if you can find it – or prepare yourself – you should use juice with living probiotic bacteria.

[7] **Ginger** has various other beneficial effects on the aging process. Ginger can reduce inflammation (low-grade inflammation that increases during the aging process), has epigenetic effects, and impacts mitochondrial functioning. Personally, I use a German brand, Alnavit Pur, which contains 97% Ginger Root. Most brands have lower amounts of ginger, so you may need to increase the amount you drink. Add ginger to a smoothie by grating fresh ginger and blending it directly, juicing fresh ginger for a more potent flavor, or using store-bought ginger juice. Alternatively, add unsweetened ginger drinks or ginger powder for convenience. As ginger juice of high concentration is very expensive, I did a lot of looking around and currently use this brand, which offers excellent juice for a good price. The only downside is that it comes only as 3 L package and needs to be cooled in the fridge.



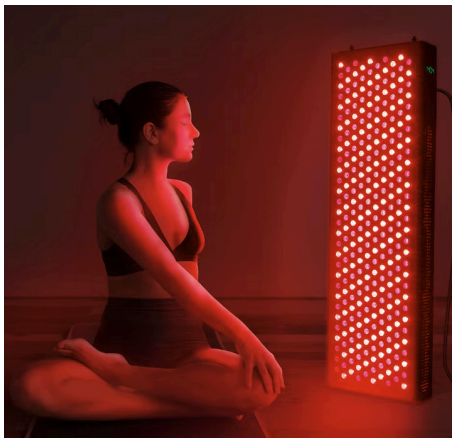
[8] I use a mix **50% Spirulina, 50% Chlorella** but I don't like the taste (and it produces aftertaste, at least Spirulina) and it is difficult to dissolve. You can use either Chlorella and Spirulina are the two of the most well-known microalgae genus. Both microalgae genus have a significant content of proteins, vitamins, pigments, fatty acids, sterols, among others. Chlorella genus is a eukaryotic microorganism, whereas Spirulina genus (cyanobacteria) is a prokaryotic microorganism. Both are good for your anti-aging regimen because of their content in spermidine and apigenin. 2g of Chlorella powder contains about 13.5 mg spermidine. In the human body, spermidine is made from its precursor, putrescine and another polyamine essential for cellular function called spermine. Spermidine induces autophagy, the process of cellular rejuvenation, through the TOR kinase pathway. Autophagy occurs naturally in cells as it regulates cellular metabolism. Autophagy also balances nutrients during cell stress so can be accelerated by fasting or by caloric restriction mimetics (CRMs) like spermidine that mimic fasting's effects on the body On the longevity front, spermidine has been shown to increase lifespan in a number of animal studies and prevents liver fibrosis and hepatocellular carcinoma. Chlorella also contains a wide range of antioxidants such as omega-3s, vitamin C, and carotenoids like beta-carotene and lutein. These nutrients fight cell damage in our bodies and help reduce your risk of diabetes, cognitive disease, heart problems, and cancer. Storage: It is imperative that spirulina and chlorella is transported and stored in an oxygen-free environment, even after opening. If spirulina or chlorella is exposed to oxygen, the nutritional value quickly starts to diminish, because vitamins, enzymes and antioxidants are particularly sensitive to oxygen.

53 **Potassium Citrate.** I do not generally recommend to take this. I use it because I need it as part of a special diet. In 2022 I had kidney stones and potassium citrate is effective against them. Potassium citrate is thought to work against kidney stones in a number of ways. First, it makes your urine less acidic, which can help to prevent the formation of calcium oxalate and calcium phosphate kidney stones. These are two of the most common types of kidney stones. Second, potassium citrate can help to dissolve existing kidney stones. This is because it increases the amount of citrate in your urine. Citrate can bind to calcium and other minerals that make up kidney stones, and this can help to break them down and make them easier to pass. Third, potassium citrate can help to increase the volume of your urine. This can help to flush out kidney stones and prevent them from forming in the first place.

66- **Omega-3 oil**. Omega-3 oil is a powerhouse of essential fats critical for your body and mind. Found in fish, algae, and seeds, these fats include ALA, EPA, and DHA—each playing a vital role in health. Since your body can't produce omega-3s, you need to get them from your diet or supplements. These fats work wonders for your heart, lowering triglycerides, reducing blood pressure, and fighting inflammation that can damage arteries. For your brain, DHA supports memory, attention, and mood, protecting against depression and age-related diseases like Alzheimer's. Omega-3s are potent anti-inflammatory agents, easing joint pain, improving mobility, and reducing skin issues like acne or eczema. They keep your eyes healthy, preventing dry eyes and macular degeneration, and even slow telomere shortening, a marker of cellular aging. The secret to longevity lies in omega-3's ability to reduce oxidative stress, improve lipid metabolism, and support autophagy—your cells' cleanup system. They also protect neurons, reducing cognitive decline as you age. For general health, aim for 250–500 mg of EPA and DHA daily, either from fatty fish like salmon or quality supplements. Balance is key—avoid overloading on omega-6 fats, which can counteract omega-3 benefits. If you're on blood thinners or need higher doses, consult your doctor. The Omega-3 brand that I use is Moellers Omega-3, simply because it was the brand that I found which has the best cost per unit of high quality oil; but please do your own research.

Whole-body Photo Bio-stimulation (20 min)

LED's provide a mechanism for Low-Level Light Therapy (LLLT) or "Photo Bio-stimulation" – also called 'Phototherapy'. The effects of Phototherapy and LLLT are photochemical. When the correct intensity and frequency are used, the light energy photons, generated by the LED light sources, are absorbed by select chromophores in the tissue. This process stimulates mitochondrial activity and Adenosine Triphosphate (ATP) production; promotes blood circulation and tissue oxygenation,



leading to pain relief and cell proliferation, and facilitating the creation and extension of the anti-aging enzymes. Low Level Laser Therapy (LLLT) of the correct wavelength , irradiance, energy density dissociates Nitric Oxide allowing oxygen back into the cell, so ATP is restored and oxidative stress reduced. Once normal mitochondrial function is restored by LLLT then cell metabolism improves, and the cells normal function is restored. I used a device, GYH Cloud S Wireless Infrared/Red & Blue LED Light Therapy Face Mask. But after testing I figured out that the intensities are just not strong enough, and you only cover part of your face.
Therefore, I switched to much stronger lightsource: BESTQOOL BQ60 Red Light Therapy Device, Near-Infrared Light 660nm 850nm Dual Chip Clinical Grade 60 LEDs High Performance Panel, 105W, and a larger BESTQOOL Pro200 (340W with 200 LEDs). I arranged them over my guest-bed, so I can lie under the lightsource panels. I have good experience with these panels, they are at the lower end in price. There are newer and better models (but also more expensive) out there that have more wavelengths and more functions. A great overview about amost all LED panels can be found here: Best Red Light Therapy Panel 2024? EPIC Comparison

→ 10-30 min once a day, in the morning (!!) as a combination of 660nm 850nm

Morning Skincare



Before I go out for a walk, I apply skin cream to my face*. Overall, skin screams are not super effective against aging, meaning you will not rejuvenate, but it has certainly effects on how your skin ages. I apply skin cream at least twice a day. In the morning, I use a skin cream that has UV protection. Applying UV skin cream in the morning provides a protective barrier against harmful ultraviolet (UV) radiation from the sun. UVB rays can cause sunburn and DNA damage, while UVA rays penetrate deeper, promoting premature skin aging and potentially contributing to skin cancer. The UV filters in the cream absorb, reflect, or scatter this radiation, helping to mitigate these effects. Additionally, many creams also contain antioxidants that can neutralize harmful free radicals generated by UV exposure, further supporting skin health.

- **Skin cream (with UV protection)**
- **Every 2nd week: Micro-Needling**
  About twice a month, I use a needle roller, or micro-needling, which stimulates the production of collagen and elastin through minor skin injuries, helping to rejuvenate and tighten the skin. This process can improve the appearance of scars, wrinkles, and pores. Weekly treatments allow sufficient time for healing and new cell generation. Micro-needling also enhances absorption of skincare products by creating micro-channels, leading to better efficacy. Always ensure hygiene to prevent infection.
  Preparation: On the day of the treatment, the skin needs to be clean and free of makeup. An antiseptic can be applied to the skin to disinfect the area prior to treatment. Alternatively, wash with a mild soap (I use a CeraVe Facewash).
  Procedure: The microneedling device is then rolled over the skin in various directions to ensure an even distribution of micro-punctures. The pressure should be firm but not aggressive. This will create micro-injuries that stimulate the body's wound healing process, increasing cell turnover and collagen production.
  Post-Treatment: Following the procedure, a calming serum or a hydrating mask may be applied to soothe the skin. There might be some redness and minor swelling, similar to a mild sunburn, for a few days following the treatment.
  Aftercare: Sun exposure should be limited for a few days and sunscreen should be used religiously. It's also important to moisturize the skin and avoid using harsh products until the skin has fully healed.

***Tips:** I just use regular, inexpensive creams from the drugstore/Amazon.
In the morning, I use **Mixa Ceramide Deep Moisture Skin-Strengthening Cream**. Cheap but effective.

I also use **CeraVe cream** every evening, as in my experience is the best cream I could find over the years. The cream is immediately absorbed to the skin. The CeraVe Moisturizing Cream for body and face hydrates the skin and supports the skin's own protection mechanisms with three essential ceramides 1, 3 and 6-II strengthen the skin's protective barrier, while hyaluronic acid provides the skin with moisture. Through the special MVE active ingredient release, the nourishing ingredients are released throughout the day.

Other clinically proven skin care products:

Most skincare products are utter nonsense! However, there are a few products that have clinically proven effects on skin aging:

Vitamin A derivatives, like retinol, are among the few skincare ingredients with robust clinical backing. Retinol stimulates collagen production, reduces fine lines, and enhances skin elasticity. It also accelerates cell turnover, improving texture and tone while minimizing hyperpigmentation and acne. Retinol's ability to penetrate the skin barrier and act at the cellular level makes it highly effective. Prescription-strength retinoids (like tretinoin) deliver stronger results but may cause irritation. Consistent use, combined with sunscreen to protect sensitive skin, can yield noticeable improvements. These properties make retinol a gold-standard ingredient for anti-aging and overall skin health.

Copper peptide serums are clinically supported for their skin-repairing and anti-aging benefits. Copper peptides promote collagen and elastin production, enhancing skin firmness and reducing fine lines. They support wound healing, improve skin barrier function, and reduce inflammation, making them ideal for sensitive or damaged skin. Additionally, copper peptides boost antioxidant activity, protecting against environmental stressors that accelerate aging. Unlike some active ingredients, they are gentle and suitable for most skin types. Regular use can improve skin elasticity, texture, and tone, offering a well-rounded approach to maintaining youthful, healthy skin.



Sea buckthorn oil (Sanddornöl) is a nutrient-rich skincare ingredient with proven benefits. It is packed with vitamins C, E, and A, as well as omega fatty acids, particularly omega-7, which support skin repair and hydration. Its anti-inflammatory and antioxidant properties help reduce redness, soothe irritated skin, and combat free radicals, slowing signs of aging. Sea buckthorn oil is especially beneficial for dry, sensitive, or damaged skin, improving moisture retention and enhancing skin barrier function. It is gentle, well-tolerated, and promotes a radiant, healthy complexion with consistent use. You can also add this oil to your diet, it is one of the most underrated anti-aging supplements. However, you must be careful about the quality of the oil. Most sea buckthorn oils are NOT suitable for using them as supplement! There is one German website that lists those brands that are good: https://www.vergleich.org/sanddornoel/

AHA (alpha hydroxy acid) exfoliants, like glycolic or lactic acid, are clinically proven to improve skin texture and radiance. They work by dissolving the bonds between dead skin cells, promoting cell turnover and revealing smoother, brighter skin. AHAs help reduce fine lines, uneven skin tone, and hyperpigmentation while improving moisture levels due to their humectant properties. Regular use can also enhance collagen production, promoting firmness and elasticity. Best suited for dry to normal skin types, AHAs should be paired with sunscreen to protect the skin from increased sun sensitivity.

Morning Walk (15-30 min)



This is important for several reasons. First, you need to get exposure to natural light. Second, moving your body gets you going and increases your overall health. Ideally, if you can, you should go to a place with lots of green. Personally, walk into the forest[9] that is close to my apartment. Walking and staying in forests decrease feelings of hostility and depression and increase liveliness. Numerous studies show that both exercising in forests and simply sitting looking at trees reduce blood pressure as well as the stress-related hormones cortisol and adrenaline.

[9] Forest bathing is a Japanese practice; a process of relaxation; known in Japan as shinrin yoku. The simple method of being calm and quiet amongst the trees, observing nature around you whilst breathing deeply can help you de-stress and boost health and wellbeing in a natural way.

Optional: If you are in the forest (or if you have the availability at home), do a couple of minutes of **Inversion Therapy**, meaning hang from a branch, upside down[10]. I do this by hanging my legs over a branch and then just hang there upside down for a minute or two.

[10] This may stretch out the spine and decrease pressure on the discs and nerve roots. It may also increase the space between the vertebrae. Potential benefits of hanging upside down during inversion therapy include: short-term relief from back pain, sciatica, and scoliosis. This also creates an increase in available oxygen to the brain, which improves mental clarity.

My morning walk is also already part of my daily 'AMORO' mindfulness ritual

Note: This is important for people who want to find a partner or maintain a long-lasting relationship in case you already have a partner. The ritual is an evidence-based method that I developed when writing my dating book "The Art & Science of Dating" (to be released in 2025/2026), and it uses practices combined from psychotherapy, meditation science, and from an elite society of men who use similar exercises in their daily lives. If you are interested in this ritual, let me know.

You are now ready to **start your work**.

Work Day

Start Working

Personally, I start at around 09:30 am.
Because I work from home, I use an app (Productivity Challenge Timer) that reminds me of my work sessions. Recently, I also bought a [Visual Timer] which I can recommend. The normal work session takes 25 min, followed by a 5 min short break. In the breaks I have time to make coffee, do some exercises or go on social media.

25 work
↓
5 min pause
↓
25 min work
...
and so on



Power Coffee

Overall, I drink quite a lot of coffee (3-7 cups). While coffee was long thought to be harmful, the opposite seems to be the case. Coffee consumption correlates with longevity and health status, especially when consumed in the morning. For example, a meta-analysis of 40 cohort studies showed a lower incidence of cancer for high versus low coffee consumption. Overall, there are indications that drinking coffee is linked to a lower likelihood of type 2 diabetes, heart disease, liver and endometrial cancers, Parkinson's disease, and depression.
It's even possible that people who drink coffee can reduce your risk of early death. In a review of 21 prospective studies totaling over 10 million participants, drinking one cup of coffee (whether decaf or with caffeine) per day was associated with a 3% reduced risk of death, and drinking 3 cups of coffee was associated with a 13% reduced risk of death. Once or twice a day, I use a special coffee version that is intended to boost my energy and focus. It is a variation to bulletproof coffee. Usually,



I drink it if I feel tired and unconcentrated. I aim at drinking about one cup of the following drink:

- **1 Tbsp MCT Oil** [11]
- **Half tsp of Cinnamon** [12]
- **150ml of fresh ground and fresh brewed coffee (usually an Arabica blend)**
- **1 Tbsp unsweetened Cocoa** [13]
- **Optional: Add a little birch tree sugar (Xylite) to taste**
- **Optional: Add a tsp of collagen powder**

This coffee is also a good addon to a keto-diet and intermitted fasting. Since it does not contain any sugars or carbohydrates, this coffee will not cause a rise in insulin levels and, therefore, will not break your fast.

[11] MCT is an acronym for medium-chain triglycerides. These chains have from six to 12 carbon molecules. I use a brand (GreatVita) that is based on coconut-oils which contains C8 & C10 fatty acids. MCT oil can increase your energy levels, which may make it a powerful partner to the caffeine in coffee. Typically, your body stores dietary fats in its adipose tissue, the fat around and inside of your muscles. But MCT travels directly to your liver, where it's processed into powerful energy particles called ketone bodies. MCT oil is also thought to promote the release of hormones that tell your brain that your stomach is full, which can reduce your appetite and lead you to eat less (which may lead to weight loss).

[12] Cinnamon has MANY health benefits. Go to this link for a comprehensive list. In a series of animal studies, cinnamon has been shown to boost longevity by up to 37 percent. I use a mildly aromatic, finely ground organic Ceylon cinnamon from Madagascar with warm and spicy notes. Thanks to the gentle processing, the essential oils are preserved, giving the cinnamon powder a unique, sweet taste. Compared to Cassia cinnamon from China, Madagascar Cinnamomum verum is also known as "true" cinnamon. This variety of cinnamon is more expensive and is less toxic to your liver because it's much lower in coumarin, a natural constituent that promotes blood thinning (think of the similar-sounding drug "Coumadin", otherwise known as Warfarin). The major compound in cinnamon is called cinnamaldehyde, which is oxidized into cinnamic acid. In the liver, this cinnamic acid is then oxidized into sodium benzoate (NaB). After it is consumed, NaB rapidly passes through the Blood Brain Barrier (BBB). Similarly, after the whole spice cinnamon was consumed, NaB was detected in the hippocampus of the brain.

[13] Cocoa powder, which is rich in polyphenols, is made from cocoa beans, which come from the plant Theobroma cacao L. Cocoa beans are the primary ingredient in chocolate, but they can also be ground into cocoa powder. The powder provides many potential health benefits from improved cognitive health, stronger immune system, better muscle and nerves function, better wound healing, lower risk of heart disease, reduced inflammation, and it helps with weight control. For more information, go to this link.

Alternatively, you can have a Grailmaster Power Cacao **– This is AMAZING –**

Power Masala Cacao V1.0 [50 servings → 10g of powder]

This is a tasty and very healthy cacao variant.

- **1 Tbsp MCT Oil** [11]
- **Cinnamon 0.5g [25g]**
- **Ginger powder 0.3g [15g]**
- **Cordyceps, Lion's Mane, Reishi, Chagapowder, Shiitake, Maitake, Tremella powder 3.5g [175g]**
- **Turmeric 0.4g [20g]**
- **Cardamon powder 0.5g [25g]**
- **Green tea powder (Matcha) 1g [50g]**
- **Cloves powder 0.15g [7.5g]**
- **Black Pepper powder 0.1g [5g]**
- **Nutmeg 0.15g [7.5g]**
- **Cocoa 3.5g [175g] – or more to taste –**
- **Collagen powder 0.3g [15g]**
- **Almond Milk to taste**
- **Optional: Add a little birch tree sugar (Xylite) to taste**



Fill with hot water, hot almond milk or coffee to tase (e.g. one cup of 300ml).

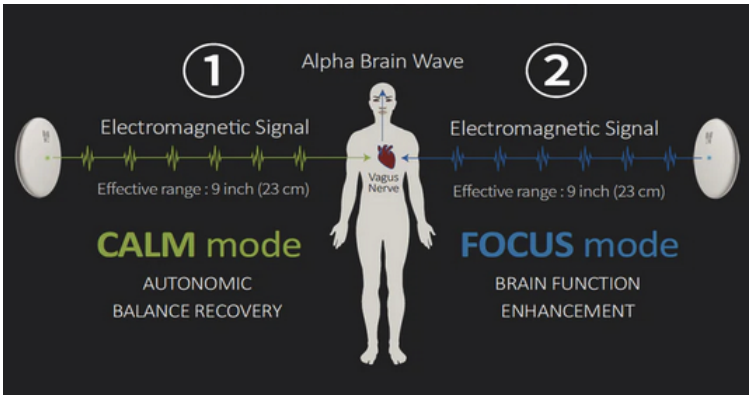
Note: Cardamom is the most commonly used spice in masala chai. It has a sweet and aromatic flavor that gives masala cacao its signature taste. Cinnamon is another popular spice in masala chai. It has a warm and spicy flavor that complements the other spices in the mixture. Ginger adds a bit of heat. It also has a number of health benefits, such as boosting the immune system and aiding digestion. Cloves have a strong and pungent flavor. They are used in small quantities in masala chai to add depth and complexity to the flavor. Nutmeg has a sweet and nutty flavor. It is used in small quantities in masala chai to add a bit of sweetness and complexity. Black peppercorns add a bit of heat and spice to masala chai cacao. They also have a number of health benefits, such as improving circulation and boosting the immune system.

Vagus Nerve Stimulation 4-7 min (Anti-Stress, Burnout or Anxiety program)

During the day I may use **2-3 times** a device for vagus nerve stimulation. Vagus Nerve Stimulation (VNS) is a type of therapy primarily used to treat epilepsy and depression, involving electrical stimulation of the vagus nerve, a key component of the parasympathetic nervous system. The vagus nerve is the longest of the 12 cranial nerves and plays a crucial role in the body's autonomic nervous system, which controls unconscious body functions like heart rate and digestion. Originating in the brain, the vagus nerve travels down the neck and then branches out in the chest to various organs, including the heart, lungs, and digestive tract. It plays significant roles in many body functions including heart rate, digestion, and mood regulation. In terms of physical health, VNS can influence heart rate variability (HRV), a marker of cardiac health. A higher HRV, which VNS can promote, is generally associated with better cardiovascular health. It also impacts gut health by regulating digestion and has been explored in treating obesity. For mental health, VNS has been used to treat refractory depression and potentially improve anxiety and stress levels. By modulating the body's stress response, it can lead to a sense of relaxation and well-being. Moreover, emerging research suggests potential benefits of VNS in conditions like Alzheimer's, migraines, and autoimmune conditions. However, it's important to note that VNS typically involved a surgical implantation of a device to deliver electrical impulses. Only in recent years, a few new devices entered the market that stimulate the impulses from the outside. The FDA has approved a noninvasive vagus nerve stimulation device to treat cluster headaches and migraine in the United States. Personally, I use the device from **Pulsetto** which is a very strong device that you can put around your neck. Other devices are Parasym, or Auricular.

Vagus Nerve Stimulation 3h

Currently, I also use the **Amofit S** vagus nerve stimulator. It has two modes, one for focus and one for relaxing. I use the focus mode once a day (runs for 3 hours) and the relaxing mode when I go to sleep. The claim of the manufacturer is that the bioelectronic wearable improves the whole human body by transmitting mild electromagnetic signals to the nervous system through the Vagus Nerve in the chest area in the form of electric currents. Supposedly, it improves sleep, reduces stress and anxiety by restoring the balance of the autonomic nervous system. It also supposedly enhances memory and creativity by promoting the generation of alpha brain waves, and restores internal balance through the mechanism of homeostatic autoregulation. After powering on the device, you can switch from CALM mode to FOCUS mode by pressing the touch area. CALM mode can increase the vagal tone and activate the parasympathetic nervous system to improve sleep, stress, and anxiety and correct the body's internal balance, as well as help with chronic diseases related to problems in the vagus nerve and the autonomic nervous system. FOCUS mode can enhance memory and creativity by increasing alpha brain waves.



Sport (afternoon)

- **about 75 min/daily (in total, including the short breaks between work sessions) every day (Aerobic + Muscle training), e.g.**
    - **3x 50 pushups**
    - **A quick 12km run**
    - **Pullups (30-50)**

I combine aerobic exercises with muscle strengthening. For example, I aim at going jogging 4 times a week and add swimming if time allows. In addition, I do muscle training (with weights) at home, do pushups and other exercises that can be done in short breaks at work. Scientific research underscores the benefits of incorporating both muscle training and aerobic training into regular exercise routines. Strength training promotes lean muscle mass, bone health, and functional fitness, important factors for aging and disease prevention. Recent studies also indicate a connection between muscle strength and improved cognitive function. On the other hand, aerobic exercises are known to boost cardiovascular health, aiding in the prevention of conditions like hypertension, heart disease, and stroke. They also enhance respiratory capacity and foster better stress management. A combination of both training types, according to a 2020 study in the Journal of the American Heart Association, led to the greatest reduction in cardiovascular disease risk and mortality. This multifaceted approach not only ensures a comprehensive fitness strategy but also optimizes overall health and longevity, maximizing the positive impacts of exercise on the body.

EMS Belly Training (2-3x each day)

Currently, I have been using a TESMED abdominal muscle trainer for several weeks now. It's an EMS abdominal muscle training belt for the central and lateral electrical stimulation of the abdomen. It is an absolutely innovative belt for toning and slimming the abdominal muscles. There's no need to place electrodes, you simply moisten the integrated pads and select one of the 15 programs specifically designed for abdominal muscles. The operation is entirely intuitive, the device works surprisingly well, and I feel the workout quite strongly. It has 99 intensity levels, with separately adjustable intensity for central and lateral abdominal muscles. So far, I am very satisfied with the trainer, but one can only say over the long term whether and how strongly the abdominal muscles are really strengthened. The good thing is that you can simply put on the belt and continue to work with it.

I always end every sports session with a cold shower.

Cold Shower (2 min)

Cold showers can contribute to health and longevity in several ways. Firstly, they can enhance circulation by forcing blood to surround our organs, which can help combat some problems of the skin and heart. Secondly, exposure to cold can increase metabolic rate and brown fat production, potentially aiding weight management. Cold showers can also boost mood by triggering a flood of mood-boosting neurotransmitters, which make you feel happy. Furthermore, they may strengthen immunity according to a study by the Thrombosis Research Institute/UK. To maximize benefits, start with warm water and gradually lower the temperature over 5 minutes until it's cold, letting your body adjust. Try to stay in the cold shower for 2-3 minutes. This can be done daily or at least



3 times a week. After you get used to it, just do the cold shower, no need to start with warm water. Do this during the day/morning, NOT before you go to sleep. Taking a cold shower before sleep can potentially inhibit rest.

HIIT, or high-intensity interval training

HIIT is a type of exercise that involves short bursts of intense activity followed by periods of rest or low-intensity activity. It is a very effective way to improve cardiovascular health, burn calories, and build muscle. HIIT has also been shown to have a number of benefits for longevity. For example, one study found that HIIT could slow down the aging process by reducing inflammation and improving cellular function. Another study found that HIIT could reduce the risk of age-related diseases such as heart disease, stroke, and cancer. If you are interested in trying HIIT, there are a number of different fitness protocols that you can follow. One popular protocol is the Tabata protocol, which involves alternating between 20 seconds of high-intensity exercise and 10 seconds of rest for a total of 4 minutes. Another popular protocol is the EMOM protocol, which involves completing a set number of repetitions of an exercise at the top of each minute.

- **Sprints:** 30 seconds all-out sprint + 10 seconds rest. 8-12 rounds
- **Stationary exercises:** 4 minutes of the highest intensity sustained exercise, followed by 4 minutes of recovery. 3-4 rounds.

Longevity Infrared Sauna [3x week+]



Sauna sessions can significantly contribute to longevity and overall health. Regular sauna use is associated with a lower risk of cardiovascular diseases, according to several studies, because the heat causes an increase in heart rate, similar to moderate exercise. It also stimulates the production of heat shock proteins, which repair damaged proteins and protect DNA - crucial for cellular health and longevity. Furthermore, the heat can help relieve muscle and joint pains, reducing inflammation and promoting recovery. I use a one-person infrared sauna (Artsauna Infrarotkabine Nyborg S90V) that I placed in my basement. Red light saunas, also known as infrared saunas, are particularly effective and less costly than regular saunas. They emit both heat and light waves, which penetrate deeper into tissues compared to traditional saunas, enhancing their benefits. Red light therapy is reported to boost cellular energy production, improve skin health, and aid muscle recovery. To reap these benefits, start with 10-15 minute sessions at a comfortable temperature (I use 100C in a regular sauna, and 60C in my infrared sauna), 2-3 times a week (eventually more in a cold winter). Gradually increase to 20-30 minute sessions. Ensure to stay hydrated and listen to your body. It's also a great opportunity to meditate.

Lunch (earliest at 4-5pm)



I do **19/5 intermittent fasting**. Intermittent fasting (IF) has been linked to various health benefits that may promote longevity. By cycling between periods of eating and fasting, it can improve metabolic health, aid weight management, and reduce the risk of chronic diseases. Research suggests that IF can improve insulin sensitivity, reduce inflammation, and enhance brain health. It also triggers autophagy, a cellular cleanup process that plays a critical role in disease prevention and longevity. There are several IF methods, the most common being the 16/8

method, which involves fasting for 16 hours and eating during an 8-hour window. I prefer a 19/5 window, meaning I only eat between 4pm and 9pm. By stopping to eat at 9pm I make sure that the food is digested before I go to sleep. I prefer to eat in the evening because the sleep phase can be used to prolong the fasting period. To start, choose an eating window that fits your lifestyle and gradually increase your fasting duration.
My lunch is based on the following food, called Hyper Veggie 1.0. This is a variation/improvement of the Super Veggie that Bryan Johnson prepares for his Blueprint plan.

Hyper Veggie V1.0
125g dried Black (Beluga) lentils
Broccoli (head+stalk), 250 grams
Cauliflower 150 grams
Shiitake or Maitake Mushrooms, 50 grams
Spinach 50 grams
Kale 50 grams
Mungo Beans 50 grams
fresh Garlic, 2 cloves (two pieces)
fresh Ginger Root, 3 grams
Lime or Lemon, 1 Tbsp
1 Tbsp Turmeric (Curcuma root powder) with 60 mg piperine [51]
Apple Cider Vinegar, 1 Tbsp
Hemp Powder [18], 1 Tbsp
1 Tbsp MCT oil [11]
3 Tbsp ground hazle & almond nuts
A little nutmeg
1 tsp of ground Ashwagandha [16]
Top with Walnuts
Add spices: e.g. rosemary, thyme, majoran etc..
Top with 3-5 Tbsp (20-30 ml) of Extra Virgin Olive Oil [27]
Top with 1 Tbsp of 100% Cacao Nibs
Optional: Top with 50-100g Kimchi (non-pasteurized) [26]
Optional: Add either vegetable broth or coconut milk to make it more liquid

While Bryan Johnson eats a lot of it, I eat less. Preparing this Hyper Veggie Mix is enough for 3-4 meals for me personally. Use it as a base and add whatever (health) foods you want to add.

Hyper Veggie Preparation instructions

- Weigh vegetables. Place broccoli, cauliflower, spinach, kale, mushrooms, ginger, and garlic in boiling water. Boil until tender (3-5 min; don't overcook). Steaming is also acceptable.
- Lentils & Mungo beans: Bring the water to boil in a medium saucepan. Add lentils & mungo beans. Reduce heat to low and cook uncovered for about 20 or minutes until "al dente". Place in a colander to drain and rinse under cold water.
- Add turmeric, apple cider vinegar, ashwagandha, MCT oil, grounded nuts, fresh Lime/lemon, and blend with cooked black lentils and mungo beans, the strained cooked vegetables, and blend until it becomes thick paste.
- If needed add some of the vegetable water (or steaming water) to thin out the texture.
- Top with hemp olive oil, cacao nibs, walnuts, and Kimchi.
- You may want to add either vegetable broth or coconut milk to make it more liquid.

[26] Incorporating **non-pasteurized Kimchi** into your diet offers numerous health benefits, potentially improving longevity. Being a fermented food, it's rich in probiotics, beneficial bacteria that support gut health. A healthy gut microbiome has been linked to a stronger immune system, improved digestion, and enhanced nutrient absorption. Some studies even suggest a connection between a healthy gut and mental health. Kimchi is also packed with vitamins A, B, and C, and essential minerals like potassium and iron. Its main ingredient, cabbage, is high in fiber and low in calories, supporting weight management and satiety. Kimchi's potent antioxidants and anti-inflammatory compounds can help combat oxidative stress and inflammation, associated with many chronic diseases. Furthermore, it may help lower cholesterol and improve heart health. Studies suggest eating ideally about 75g a day. If you buy from a supermarket or drugstore, make sure the kimchi is non-pasteurized!

[27] **Extra Virgin Olive Oil (EVOO)** is renowned for its health benefits, potentially supporting longevity, primarily due to its rich content of monounsaturated fats and antioxidants. A significant portion of EVOO's fats are oleic acid, a monounsaturated fat linked to reduced inflammation and heart health. Studies, including the PREDIMED study on Mediterranean diet, have shown that diets rich in monounsaturated fats can help reduce LDL (bad) cholesterol, increase HDL (good) cholesterol, and may reduce blood pressure, contributing to cardiovascular health - a crucial factor for longevity. The antioxidants in EVOO, particularly oleocanthal and oleuropein, have anti-inflammatory properties comparable to ibuprofen and protect LDL particles from oxidation, a key step in the development of heart disease. Furthermore, they have been shown to combat cancer cells in laboratory studies. EVOO is also linked to improved brain health. A 2020 study in the Journal of Alzheimer's Disease found that EVOO in a Mediterranean diet can improve brain function and potentially slow the progression of Alzheimer's disease. I target to eat at least **50g of olive oil** a day. The healthiest type of olive oil is extra virgin olive oil. This is the highest quality olive oil, made by cold-pressing olives, which preserves the maximum amount of nutrients. Here are some tips to consider when buying it. Check for "Extra Virgin" on the label: Only EVOO has undergone minimal processing and retains its antioxidants and healthy fats. Lower-grade types like "light" or "pure" olive oil undergo more processing. Look for Certification Seals: Seals from organizations like the California Olive Oil Council (COOC), North American Olive Oil Association (NAOOA), or European Union (EU) offer some assurance of quality and authenticity. Packaging: Light can degrade olive oil, so it's best to choose oils in dark glass bottles or tins. Harvest Date: Unlike wine, olive oil doesn't improve with age. Look for the harvest date on the label and try to choose the most recent one. Origin: The label should indicate where the olives were grown. In general, the fewer sources, the better. Avoid 'Refined' or 'Pure' Oils: These terms often mean the oil has been chemically processed. Taste: Quality EVOO should have a fresh, fruity, slightly peppery, or bitter taste. I buy EVOO in bulk, in 5L canisters either from Italy or Greece.

Brushing Teeth (around **45min after lunch**)

I recommend brushing teeth after lunch. Latest research suggests brushing teeth twice a day, for me, after lunch and once before bed, for at least two minutes each time. Brushing too often could wear down enamel and damage gums. Additionally, it's advised to wait at least **30-60 minutes after meals** before brushing, as acidic foods and drinks can soften enamel, making it susceptible to damage from brushing.

> **Note:** Sometimes, instead of the traditional toothpaste, I take Toothpaste tablets, also known as toothpaste tabs, are a more sustainable alternative to traditional toothpaste. They are made from natural ingredients and come in a recyclable container. To use toothpaste tablets, you simply chew one tablet and then brush your teeth with the resulting paste.

Yoga/Stretching (3x 5 min or 1x 15 min)

I try to stretch at least **3 times a day for a few minutes**, usually in my 5 min work breaks.

I admit, this is the part that I skip most often. However, incorporating yoga or stretching into your daily routine offers profound benefits for longevity and overall health. It improves flexibility, promoting healthier joints and reducing the risk of injury. Regular practice boosts cardiovascular health, enhancing blood circulation and heart function. It also improves mental wellness by reducing stress and anxiety levels. Yoga particularly helps in maintaining a robust immune system, boosting metabolism, and promoting digestive health. Moreover, it encourages mindfulness, strengthening your connection with your body and promoting healthier lifestyle choices. The compound effect of these benefits significantly contributes to longevity. Therefore, try to include at least 15 minutes of yoga or stretching into your routine, starting slow and gradually increasing intensity. A consistent practice aids in achieving sustainable health benefits.

Afternoon Longevity Drink

During the day, the second batch of longevity supplements have to be taken in form of the longevity powder. I aim at drinking about 300ml of the following drink:

- **1 Tbsp Lemon Juice**
- **50 ml of Carrot Juice**[x]
- **10.1g of Longevity Powder** (see supplements)
- **500mg of Potassium Citrate** [53] **(Specific to my diet)**
- **Fill to 300 ml with cold green tea**

Of course, you can find your own drink you prefer. Overall, I aim at having at least a little bit of Sauerkraut, Carrot, and Beet Root juice over the day in my longevity drinks. Alternatively, you can also use tomato juice instead of the green tea.



1x Meditation (±10 min)

I use a neurofeedback headband device, Muse S, to help me in meditating [14]. Incorporating meditation into your daily routine can greatly enhance overall health and longevity, as substantiated by various scientific studies. Regular meditation has been shown to reduce stress and anxiety by lowering cortisol levels, thereby potentially decreasing the risk of stress-related diseases. It also promotes emotional health, enhancing self-awareness and promoting a positive outlook on life. Research in neuroplasticity indicates that consistent meditation can change brain

structure, improving cognitive functions like memory and focus. Moreover, meditation can improve sleep quality, a crucial aspect of overall health and longevity. Some studies also suggest that it may reduce blood pressure and support heart health. Aim for at least 10-20 minutes of daily meditation. Start with guided practices if you are a beginner. Consistency is key to harvesting its long-term benefits.



[14] I use Muse S headband for meditation and, so far, can recommend it highly. It's a tool for enhancing your meditation practice, particularly for beginners. It provides real-time feedback on your mental activity, heart rate, breathing, and body movements to help you understand your physical response to meditation. The headband uses EEG sensors to detect brain activity, and through an app, translates this into soundscapes. For example, when your mind is calm, you hear peaceful weather sounds. When your mind wanders, the weather intensifies, providing an auditory cue to refocus. The device also includes a heart rate monitor and a breath sensor, providing additional metrics to track your meditation progress over time. The feedback from these metrics can assist in improving mindfulness and concentration. In terms of fostering longevity and overall health, Muse 2 can provide a more structured and interactive way to establish a consistent meditation practice. By providing real-time feedback, it helps you understand and optimize your meditation techniques, potentially enhancing the health benefits of regular meditation.

(Work) Afternoon-Evening

I work late most nights. I don't recommend it. Don't be like me. Go out. Have fun. Dance badly in public. Fall in love with the wrong person. You've only got this one life, and nobody gets out alive anyway - unless you follow this protocol.

Do something creative for your brain

In my work-breaks, try to play a little bit of chess every day, even if it is only for a few minutes. I also suggest you learn every day something new. This could be math, a new language or playing a music instrument. I picked up the guitar. Spoiler: I'm terrible at it. Turns out, learning new things isn't as easy when your brain has spent decades marinating in bad decisions. But it keeps the mind young. Or at least distracted from its inevitable decline. Same difference.



- Chess (5min+)
- Guitar (15min+)

Drink a 'Nuttberry Smoothy' (early evening)

This is a variation/improvement of the Nutty Pudding that Bryan Johnson eats for his Blueprint plan. You can use it instead of another meal. I use it almost every day, especially when I had a longer trainings session.

Nuttberry Smoothy V1.02	
50 mL Almond Milk	Do not use cowmilk. Almond milk, compared to cow's milk, is lower in calories and saturated fats, free from lactose and dairy allergens, and is a suitable option for vegans and those with dairy intolerances, while also offering a good source of vitamin E.
50-100 ml Kefir [15]	With living cultures!
3 Tbsp ground hazle/almond/walnut mix	instead of Macademia. I use ready-made grounded nuts that I buy in the supermarket. You find it in the baking section.
1 tsp of ground Ashwagandha [16]	
1 tsp of ground flaxseed	
1 Tbsp chia/flax/hemp seeds	Actually I use a mix of chia, hemp seeds & flaxseeds
15 g Pea protein [17]	I use much less than Bryan Johnson. Yu may want to use more if you do a lot of gym workouts.
5 g hemp protein [18]	
1 Tbsp Collagen powder [19]	
0.5 tsp Gotu Kola [54]	This is a leafy green plant from Asia
1-2 Tbsp cocoa [20]	
1-2 tsp Creatine [21]	Take more if you do muscle training
1 tsp lecithin [22]	From sunflower or soja
1 tsp ceylon cinnamon [12]	Around 3g
1 cup berries	For convenience and saving money, I use frozen berry mixes from the supermarket; containing blueberries, raspberries, strawberries, cherries, red- and black currants
1 Tbsp MCT oil [11]	
1 tsp Matcha powder [23]	
25 ml 100% Elderberry (Holunder) juice [24]	I just love the taste of this berry.
50 ml 100% pomegranate juice [25]	

Mix everything and blend in a smoothie mixer.



[15] **Kefir** is a beverage made from fermented milk and kefir grains. Despite their nomenclature, kefir grains are actually cultures or collections of bacteria and yeast, and when they're fermented with milk they're an excellent source of probiotics. I use a brand that has 13 living cultures, i.e. different Bifidobacterium, Lactobacillus, Leuconostoc, Lactococcus, and Streptococcus strains. Probiotics are a beneficial bacteria that boosts gut health, which is connected to other organ systems in your body. More diverse bacteria create a healthier gut, which promotes overall health. In comparison to yogurt, kefir contains three times more probiotics, most kefir contains 12 various types of probiotics, typically measuring at 15-20 billion CFU (colonizing forming units), while yogurt contains around 5 probiotic species and only contains approximately 6 billion CFU.

[16] **Ashwagandha**, a revered herb in Ayurvedic medicine, shows potential in promoting longevity based on various scientific studies. It is known for its adaptogenic properties, helping the body to manage and adapt to

stress, which is linked to longer lifespan due to reduced physiological wear and tear. Its potent antioxidant properties help combat oxidative stress, a significant contributor to aging and various chronic diseases. Ashwagandha may enhance brain health by promoting memory, cognition, and potentially mitigating neurodegenerative diseases like Alzheimer's and Parkinson's. Some research suggests it supports heart health by improving lipid profiles and reducing inflammation, key factors in cardiovascular disease. Furthermore, it might enhance immune function and support metabolic health, promoting overall vitality. However, it's crucial to remember that while ashwagandha shows promise, it's not a panacea and the results are likely only mild.

[17] **Pea protein** supplementation offers numerous health benefits. Being a high-quality, plant-based protein source, it provides essential amino acids, supporting muscle growth and maintenance. It's a great alternative for those with dietary restrictions, allergies, or sensitivities, as it's dairy-free, gluten-free, and generally easy to digest. Some studies suggest pea protein's positive impact on heart health by lowering high blood pressure, a risk factor for cardiovascular disease. Furthermore, as part of a balanced diet, protein-rich foods like pea protein can help maintain optimal health and slow age-related muscle loss, supporting a longer, healthier life.

[18] **Hemp protein** supplementation offers considerable health benefits. As a complete protein source, it contains all nine essential amino acids, crucial for muscle repair and growth. It's rich in fiber, promoting digestive health and aiding weight management through increased satiety. Its omega-3 and omega-6 fatty acids support heart health, potentially reducing the risk of cardiovascular disease. Hemp protein also has an impressive mineral profile, including magnesium, iron, and zinc, essential for various bodily functions.
[19] As the most abundant protein in our body, **collagen** is vital for skin elasticity, joint health, and the integrity of our bones, tendons, and ligaments. I often add it to my coffee. Its supplementation can help slow aging signs, like wrinkles and joint pain. Some studies suggest collagen aids in maintaining gut health, potentially reducing the risk of gut-associated diseases. Additionally, it can support bone density, reducing the risk of osteoporosis. Collagen supplements might also aid in maintaining muscle mass, particularly important as we age and naturally lose muscle.

[20] You want to use cocoa powder as natural as possible. Try not to use "Dutched" cocoa, also known as Dutch-process cocoa, refers to cocoa powder that has been treated with an alkalizing agent to reduce its natural acidity. **Natural cocoa** is rich in flavonoids, particularly epicatechin, which have strong antioxidant and anti-inflammatory properties, protecting cells from damage and reducing the risk of chronic diseases. These compounds also help improve heart health by lowering blood pressure, improving blood flow, and reducing LDL cholesterol. Some research suggests that cocoa's flavonoids may support brain health, enhancing cognition and potentially slowing age-related cognitive decline. Moreover, it may aid blood sugar regulation, an essential factor in managing diabetes.

[21] **Creatine** is primarily known for enhancing physical performance, aiding muscle growth, and improving strength, which can support an active lifestyle critical for long-term health. It may also play a role in brain health: research suggests creatine can support cognitive function and potentially slow neurodegenerative diseases. It assists in energy production, which can be crucial for sustaining many bodily functions. Additionally, some studies suggest creatine may help regulate blood sugar, a key aspect in managing diabetes. Importantly, while generally safe, creatine should be used responsibly and it's advisable to drink plenty of water to support kidney function while supplementing. Dosages: I use it not the full dosage in my longevity mix. If I need more, e.g. when going to the gym that day (the so called Loading Phase), I can add extra creatine to my smoothies. If not exercising, the body may simply excrete the excess creatine in urine, leading to wasted supplementation without added benefits.



[23] **Matcha powder**, a form of powdered green tea, is exceptionally rich in antioxidants, particularly a type of catechin called EGCG, known for its cancer-fighting

properties. The high antioxidant content also combats oxidative stress, reducing inflammation and the risk of chronic diseases. Matcha can boost metabolism and aid in weight management, which is crucial for overall health. Its L-theanine content promotes relaxation and mental alertness without the jittery effects of other stimulants, supporting mental health. Additionally, some research suggests that matcha may support heart health by improving cholesterol levels. As with any supplement, moderation is key, and it's crucial to choose high-quality, pure matcha to avoid potential contaminants.

[22] **Lecithin** is a source of choline, an essential nutrient that supports brain health, potentially improving memory and cognition and potentially slowing age-related cognitive decline. Lecithin also plays a key role in fat metabolism and transport, promoting heart health by helping maintain healthy cholesterol levels. Some evidence suggests it may support liver health by aiding fat digestion and detoxification processes. Furthermore, it contributes to cell membrane integrity, essential for overall cellular function. Lecithin may also offer benefits for skin health, offering hydration and protection.

[24] **Elderberry juice** is rich in vitamins A, B, and C, and potent antioxidants, offering several health benefits, although it is usually not known in the health/longevity community. I use it primarily because I just love the taste. However, it's been traditionally used for its immune-boosting properties, with research suggesting it can help shorten the duration and severity of colds and the flu. The high antioxidant content combats oxidative stress, reducing inflammation and the risk of chronic diseases. Elderberries also contain anthocyanins, which may support heart health by lowering blood pressure and reducing cholesterol. However, it's important to note that elderberry juice should always be cooked, as raw elderberries contain toxic compounds, so get it from the supermarket.



I LOVE ELDERBERRY JUICE !

[25] **Pomegranate juice** is a rich source of antioxidants, offering several health benefits that may enhance longevity. It contains punicalagins, potent antioxidants known to scavenge harmful free radicals, reducing oxidative stress and inflammation, linked to many chronic diseases. Studies suggest that pomegranate juice can help lower blood pressure, reducing the risk of heart disease. It may also slow the progression of prostate cancer and lower arthritis inflammation. Some research indicates it helps in memory and cognitive function preservation, which is crucial for aging health. Additionally, it could improve exercise performance by enhancing blood flow. However, it's high in natural sugars, so moderation is key. Always ensure to choose 100% pomegranate juice with no added sugars.

54 Gotu Kola (Centella asiatica) is a leafy green plant that has been used in traditional medicine for centuries. It is native to Southeast Asia and is also grown in other parts of the world, such as India and China. Gotu kola contains a number of active compounds, including triterpene saponins and flavonoids. These compounds have been shown to have a number of health benefits, including: Improved cognitive function: Gotu kola has been shown to improve memory, concentration, and overall cognitive function. Reduced anxiety and stress:

Gotu kola has adaptogenic properties, which means that it can help the body to adapt to stress. It has been shown to reduce anxiety and stress levels in both animals and humans. Improved wound healing: Gotu kola can help to improve wound healing by increasing the production of collagen and other healing factors. Reduced inflammation: Gotu kola has anti-inflammatory properties and may be helpful for treating inflammatory conditions such as arthritis and psoriasis. Improved heart health: Gotu kola may help to improve heart health by lowering cholesterol levels and blood pressure. Gotu kola has also been shown to have some potential benefits for longevity. One study found that gotu kola extended the lifespan of worms. Another study found that gotu kola improved cognitive function and memory in elderly people.

55 Ethyl maltol is a synthetic flavor enhancer that is commonly used in food and beverages. It has a sweet, caramel-like flavor that is often used to enhance the taste of fruits, chocolates, and baked goods. Ethyl maltol is also used in some perfumes and cosmetics. Some studies have highlighted maltol's potential anti-inflammatory properties, as seen in the context of Korean red ginseng where maltol has been identified as a molecule exhibiting the anti-inflammatory efficacy of this herbal medicine. Some research suggests that it may have some indirect but very significant effects on longevity. For example, one study found that ethyl maltol may help to improve insulin sensitivity. Insulin sensitivity is a measure of how well the body's cells respond to the hormone insulin. Insulin is responsible for regulating blood sugar levels. Improved insulin sensitivity has been linked to a number of health benefits, including a reduced risk of developing diabetes, heart disease, and cancer.

8:30pm: Stop drinking Coffee

While I drink a lot of coffee, currently, I started to stop drinking it late in the evening. The reason is simply to prepare for a better sleep. The time when you should stop drinking coffee depends a lot on your genotype, so you may want to test it. I am a fast metabolizer and have no problem drinking a 10x Espresso before I go to sleep. Most people can't do that!

Dinner (7–8pm)

The second full meal of the day. Sometimes, if I feel full, I skip dinner. I found that one meal plus the Nutty Smoothie give me more than enough energy for the day. In any case, the second meal can be anything you like, as long as it is healthy. I summarized a few healthy foods that I recommend in the Foods section. Generally, I advise to eat less in the evening.

After Dinner: Walk (10-15 min)

Walking post-dinner aids digestion by stimulating gastrointestinal motility, reducing blood sugar spikes, and enhancing metabolism. This low-intensity activity enhances insulin sensitivity, which helps in better glucose absorption. Moreover, exposure to natural light supports circadian rhythms and sleep regulation. This leisurely stroll also contributes to mental well-being by providing relaxation and stress relief.



10.000 Steps

Later in the evening, I check how much I walked during the day (I check my steps either with my Huawei GT4 watch or my Whoop 4). To be sure I get my 10.000 steps (most of the time I have less :-( ), I also have a treadmill under my desk. Sometimes I pull it out to walk while working. Walking 10,000 steps a day promotes cardiovascular health by improving heart rate and blood pressure. This activity level can aid weight management by increasing metabolic rate, thereby burning calories. Regular walking also strengthens muscles, enhances joint flexibility, and improves balance.

Furthermore, it boosts mental well-being, reducing stress and enhancing mood, largely due to the release of endorphins. Lastly, it contributes to better sleep and overall longevity.

Evening Longevity Drink

This is the third batch of longevity supplements. I aim at drinking about 250ml of the following drink:

- **1 Tbsp Lemon Juice**
- **50 ml of Beet Root Juice**[x]
- **10.1g of Longevity Powder (see supplements)**
- **Fill to 250 ml with water**

Of course, you can find your own drink you prefer. Overall, I aim at having at least a little bit of Sauerkraut, Carrot, and Beet Root juice over the day in my longevity drinks.

11:30pm Start using blue-light blocking eyeglasses

- Blue-light blocking glasses have lenses that filter out the blue light emitted by digital screens. This blue light, particularly the high-energy short-wavelength type, can strain the eyes and disrupt your sleep-wake cycle, as it suppresses the production of melatonin, a hormone that regulates sleep. Wearing blue-light blocking glasses can be especially beneficial in the evening and nighttime when exposure to blue light can interfere with your body's preparation for sleep. Regular use during these hours can improve sleep quality and help regulate your circadian rhythm, enhancing overall health and well-being.
- I also start switching on blue-light filter on my computer and on my mobile phone.

Nighttime Routine

My nighttime routine starts at **00:40am**. I have an alarm on my mobile phone to remind me about it. I try to finish everything within 35 min. From this point on, I stop working and just go through my routine to get me to sleep. **Everything is targeted at getting the best possible sleep during the night.** This is super important. People neglect good sleeping habits, but more and more research indicate that great sleep is probably the most important factor of all to help us live healthy and live longer! Aside from the unpleasant experience of sleep deprivation, numerous studies have linked lack of consistent quality sleep with higher rates of sickness and mortality. On the other hand, getting enough deep sleep every night seems to have a fortifying and supportive effect on the immune system, decreasing our odds of getting sick.

Avoid Bright Light (starting 2h before sleeep)

Avoid any artificial light, especially bright ones from the top. I start to wear blue light filtering eyglasses about two hour before I go to sleep. The rule: Dim the light wherever you go. Candlelight and moonlight are fine. for example when I go to the bedroom, I light a candle instead of using the bright lights above the mirror.

Evening Sleep Tea (30-40 min before sleep)

- see below subchapter -

Optional: Vagus Nerve Stimulation (Sleep program)

Very late at night, I use the Pulsetto Vagus Nerve Stimulator with its sleep program to prepare my parasympathetic nervous system for sleep. It works for 10 min.

After taht, I am also using the Amofit S with its CALM modus when going to bed (it works for 3 hours during sleep).

Optional: Take a warm shower (2 min)

A warm shower before bed can improve sleep quality by aiding the natural process of thermoregulation in the body. As your body cools down after the warm shower, it signals the brain that it's time for sleep. The warmth also relaxes muscles and eases tension, promoting relaxation. This combination of physiological responses can make it easier to fall asleep and enhance the overall quality of your sleep.

Floss & Dental Cleaning (3-4 min)

Before going to bed I make a more extensive tooth brushing session.

- **Brush teeth (2 min)**
- **Floss.** Regular flossing is also crucial, at least once a day, to remove plaque between teeth and along the gum line.
- **Cleaning the tongue.** By cleaning the tongue, you can remove these harmful bacteria and prevent their overgrowth. This not only helps in maintaining fresh breath but also reduces the risk of developing dental diseases. For efficient tongue cleaning, you can use a tongue scraper, or a toothbrush with a built-in tongue cleaner. It should be done gently to avoid causing damage to the taste buds or the tissue of the tongue.
- **Rinse with tea tree oil.** Finally, I rinse the mouth for about 30 sec with water and two drops of tea tree oil. Tea tree oil is known for its antimicrobial properties, which can help fight harmful bacteria, preventing tooth decay, gum disease, and bad breath. Furthermore, tea tree oil can help soothe inflammation and promote gum health. However, it's important to use it sparingly and never swallow it, as it can be toxic if ingested. Always dilute it with water (a few drops in a cup of water should suffice) and spit it out after swishing.
- **Optional:** I use an **ultrasonic tartar remover every two weeks**. This device is equipped with a special high-frequency vibration technology. It only operates upon contact with teeth or hard objects and stops working when it comes into contact with gums or soft objects. It is equipped with several cleaning modes, suitable for different gum sensitivities and tooth stains. With its cleaning heads, it is helpful in assisting you to clean tartar, coffee, wine, tea stains, plaque, stubborn tartar, and other dental problems.
- **Optional:** I use a **tablets with with Lactobacillus salivarius** for oral health from time to time. These tablets contain live bacteria that are beneficial to the oral cavity. They can help to: Reduce plaque buildup: Plaque is a sticky film of bacteria that can build up on teeth and gums. It is a major cause of tooth decay and gum disease. Lactobacillus salivarius and other strains can help to reduce plaque buildup by competing with harmful bacteria for space and nutrients. Prevent tooth decay: Tooth decay is caused by the bacteria in plaque that produce acids. These acids can eat away at the enamel of teeth, leading to cavities. Lactobacillus salivarius and other strains can help to prevent tooth decay by producing substances that neutralize acids. Treat gum disease: Gum disease is a serious condition that can damage the gums and bones that support teeth. Oral malodor, also known as bad breath, is caused by bacteria that produce volatile sulfur compounds. Lactobacillus salivarius and other strains can help to improve oral malodor by reducing the number of bacteria that produce these compounds. Strains: Lactobacillus salivarius, Lactobacillus reuteri, Streptococcus salivarius, Lactobacillus reuteri, Lactobacillus plantarum, and Bifidobacterium lactis.

Evening Skincare

In the evening, I also apply skin cream to my face, mostly **CeraVe cream or Mixa Ceramide Protect**. Once a week I also mix into it a retinol cream. **Retinol**, a form of Vitamin A, is a powerful skincare ingredient that stimulates cell turnover and collagen production. This process can help to reduce the appearance of fine lines, wrinkles, and uneven skin texture, resulting in smoother and more youthful-looking skin. It also aids in unclogging pores, thereby reducing acne outbreaks. Moreover,

retinol promotes a more balanced and radiant skin tone by accelerating the shedding of pigmented and damaged skin cells. It's important to use retinol cautiously due to potential skin sensitivity.

Optional: Sleep Meditation (±10 min)

Before I go to bed, I may mediate for about 10 min using my Muse S band. Over the years, neuroscientists have discovered that regular meditation practice has the ability to physically change and rewire the brain. When it comes to sleep in particular, meditation in combination with healthy lifestyle factors has the ability to create healthy changes in the pons region of the brain, which produces melatonin and also serves as the on and off switch to restorative REM sleep. Any weakness in the pons region can prevent the brain from getting deep, restful sleep, and building it up does the opposite. If you are a beginner to meditation, start with focused meditation. This calls for an object to be the center of your focus (or an anchor) to help drive all other thoughts away. Gently as your thoughts start to drift your anchor acts as a reminder to slowly bring your attention back. To get in the habit, try guided meditation sessions. I use the mediations in the Muse app, but you can use other apps like Calm as well. I prefer neurofeedback meditation that regulate and lower my heartbeat. The Muse meditation app also pairs with the Muse brain-sensing headbands that will analyze your brainwaves and your heartbeat to help you keep track of your progress. Research suggests that heart rate variability (HRV), which is the variation in the time interval between each heartbeat, could be more indicative of sleep quality than the actual heart rate itself. Higher HRV has been associated with better sleep quality and overall health. Practices that increase HRV, like mindfulness meditation, can be beneficial for sleep. A 2015 study published in JAMA Internal Medicine found that mindfulness meditation helped improve sleep quality. Meditation promotes relaxation and reduces stress, potentially leading to lower heart rates and increased HRV, both of which are conducive to restful sleep.

- Alternatively, if I have to calm down and not sleepy, I use a sleep program of the Muse app together with the Muse device (**sleep tracking**). The Muse headband can guide you into a deep, restful sleep by offering sleep journeys, soundscapes, guidance and bedtime stories designed to help you shut off your busy mind and prepare you for bed. It applies “smart-fade technology” to cue your brain to sleep, and fall back asleep if you wake up through the night. Plus, it tracks how deeply you sleep and the time you spend in different sleep stages and positions, so you can use these insights to build strong sleep habits that last.
- Currently, I use a sleep tracker, the **Whoop 4** device which is one of the best sleep and health trackers on the market, but there are others.

Preparing the sleeping room

There are a lot of important things to consider improving the likelihood of having a restful sleep. Consider whether you’re using the right bedding to support sleep. Personally, I do several things to have the best sleep environment:

- **Temperature control 1 (room):** I sleep in the basement. There it is cooler than in my other rooms. The ideal bedroom temperature for optimal sleep is around 15-19 degrees Celsius. This cooler setting aids in decreasing your core body temperature, a necessary process for deep sleep. However, individual comfort can vary, so personal adjustments might be needed. I do NOT recommend self-cooling sheets (with water circulating through the sheets). They are quite expensive and the pump they come with make sounds that hinder good, deep sleep.
- **Temperature control 2 (sheet):** Especially in the summer or if living in a hot area, I recommend using a mattress cover that assists in lowering body temperature. You can find certain types of these sheets that go onto the mattress on Amazon. While the temperature variation might not be significant, you could reduce the bed temperature by approximately 1-2 degrees Celsius.
- **Temperature control 3 (bed cover):** When it is extremely hot, I use a special bed cover (there are different brands, I use one from Elegar). The self-cooling blanket employs Japanese Arc-Chill cooling technology and Q-Max cooling fibers to absorb body heat. (The Q-Max* value is more than 0.34, whereas normal fibers only have a value of 0.2.) High-materials ensure continuous cooling, instantly lowering the body's surface temperature by 2℃ to create a cooling sensation. The non-toxic material of the summer blanket is completely safe for adults

and children. One side of the blanket is made of high-tech Arc-Chill cooling microfiber, making the cooling blanket feel very comfortable and breathable for the hot summer. The other side of the cooling blanket is made of 100% natural bamboo fiber, ensuring comfort.
    - *The Q-Max value is a measure to quantify the 'cool to touch' feeling you get from certain fabrics. It is a measure of the maximum heat flow (Q) through the material. In this context, a higher Q-Max value indicates a fabric's higher cooling capability. Specifically, it's measuring the amount of heat (in watts) transferred per square meter of the material, per degree of temperature difference between the two sides of the material (W/m^2K). So, if a fabric has a Q-Max value of 0.34, it means it can transfer 0.34 watts of heat per square meter per degree of temperature difference, which would be quite high compared to a "normal" fiber with a value of 0.2.
- **Light control I (room):** I use a completely darkened room, so that absolutely no light whatsoever enters the room. The sleep hormone, melatonin, is only produced in the absence of light. So when the brain picks up on light in the evening, it automatically assumes it's still daytime and therefore slows down the production of melatonin
- **Light control I (lamp):** In case I have to switch on the light in my bedroom, I use a low watt red lamp which doesn't disturb my wake – sleep cycle or circadian rhythm.
- **Neck support pillow:** I also use a memory foam pillow for neck pain, a neck support pillow, ideally with a thermoregulating cover. It makes a huge difference compared to a regular pillow! Memory foam pillows conform to the shape of your head and neck, providing personalized support. This can help maintain proper spinal alignment, reducing pressure points and potentially alleviating neck pain. They also tend to retain their shape longer than traditional pillows. Some studies suggest that memory foam pillows can improve sleep quality and reduce waking up during the night. However, personal comfort and preferences play a significant role, and what works best may vary from person to person.

01:15am Going to bed

- Here I take the time to finish my **AMORO ritual**, visualizing my most important item from my goal list. Ideally, make your quiet time the final activity of your day. Then, as you drift off to sleep, visualize the most crucial item on your list. This is powerful. Studies have shown that the moments immediately before sleep stay in your subconscious mind for hours as you slumber, providing your brain with ample time to digest and process this information.
- When I spent too much time on the screen, I also use an **eye massager**. Eye massager devices utilize various techniques such as heat therapy, air pressure, and vibration to stimulate the muscles around the eyes. They help relieve eye strain, dry eyes, sinus pressure, and headaches. These devices often have modes to promote better blood circulation, alleviate stress, and help induce sleep.
- When going to bed I spray a little bit of Lavender room aroma (I use a brand that is a pump spray) on my bed. There are several benefits of doing tis:
    - **Relaxation:** Certain aromas, like lavender and chamomile, are known for their calming and soothing effects. They can help in reducing anxiety and stress, which are common contributors to sleep disorders. Studies have shown that smelling lavender before bed can improve sleep quality.
    - **Improved Sleep Quality:** Aromatherapy is frequently used as a natural remedy for insomnia and other sleep disorders. Essential oils like lavender, valerian, and bergamot have been found in various studies to help improve sleep quality.
    - **Stimulation of the Limbic System:** Scents can influence the limbic system, the part of the brain that regulates emotions and memories, and plays a role in sleep and relaxation.
    - **Pavlovian Conditioning:** Just like with learning, a consistent smell used during your bedtime routine can condition your brain to associate that scent with sleep, thus helping you fall asleep faster.
    - **Deepening of Breathing:** Certain smells may encourage deeper, more rhythmic breathing, which is conducive to falling asleep.
- **White noise/Nature sounds:** I prefer to have white noise during the first hours of sleep. I play them via my mobile phone, sent to a stereo system (not from the mobile itself). This includes

sounds like static or hum sounds that provide a consistent auditory environment, helping to mask other disruptive noises. Some studies suggest it can improve sleep quality, especially in noisy environments. Research on sleep enhancement through white noise and soundscapes was still inconclusive, and the "ideal" sound for sleep largely depended on personal preferences. However, certain sound types have been found to be generally beneficial. I recommend trying different soundscapes you can find on YouTube and see what works for you.

  - **Nature Sounds:** Sounds like rain (with or without thunder; one of my favorites), ocean waves, crickets, or forest noises can be calming and help reduce sleep latency. A 2017 study in Scientific Reports found nature sounds are associated with a decrease in the body's sympathetic response ("fight or flight") and an increase in parasympathetic response ("rest and digest").
  - **Slow Music:** Slow-tempo music, around 60-80 beats per minute, can facilitate relaxation and sleep. In a 2019 study in the Journal of Sleep Disorders & Therapy, slow music showed positive effects on sleep quality.
  - **Pink Noise:** Similar to white noise but emphasizing lower frequencies (like steady rainfall or heartbeats), pink noise may potentially enhance deep sleep and memory, according to a 2017 study in Frontiers in Human Neuroscience.
  - **Binaural Beats:** These are perceived beats created by playing two tones of slightly different frequencies separately into each ear. Some research suggests listening to binaural beats in the delta/theta frequency may help induce sleep, though more robust research is needed.
- **Sleep mask.** I am using a sleep mask which keep all light away from your eyes.
- **Mouth tape**. Mouth taping is a practice of taping the mouth shut during sleep to prevent mouth breathing. Mouth breathing can disrupt sleep by drying out the mouth and throat, which can lead to snoring and sleep apnea. An alternative to a tape is a kind of mask that keeps the chin not moving during sleep, especially when lying on the back.

Supplements

Longevity Powder V.1.05

The idea behind my longevity powder is simply to combine a lot of supplements that enhance health and longevity in one drink. This is also largely convenience, as it is now unnecessary to eat hundreds of pills. Some supplements still need to be taken in pill form as they have to be protected from stomach fluids to be effective or because they are liquid (like oils) or need to be dissolved in an oily solution. Here is the preparation of the Longevity Powder that I do prepare every 3 months (90 daily doses, split into 270x servings [4x day]):

Longevity Powder [90d]	Amount [g]	per day
Quercetin	67.5	750mg
Fisetin	54.0	600mg
L-Theanine	18.0	200mg
AAKG	270.0	3g
Glucosamine	270.0	3g
Apigenin	8.1	90mg
Zink	7.3	81mg
Taurine	270.0	3g
Magnesium Mix	150.0	1.66g
Magnesiumbisglycinat	0.0	104.8mg
Trimagnesiumdicitrate	0.0	61.2mg
Magnesiumcarbonate	0.0	52.4mg
Magnesium-Citrate	180.0	2g (168mg)
Vit C	45.0	500mg
Creatine	225.0	2.5g
Chondroitin	126.0	1.4g

Lion's Mane Mushroom	90.0	1g
Collagen	360.0	4g
Nicotinamide mononucleotide (NMN)	54.0	600mg
Astaxanthin	45.0	500mg
Narigenin	45.0	500mg
Glycine	360.0	4g
Trimethylglycine (TMG)	135.0	1.5g
Methylsulfonmethane (MSM)	270.0	3g
Phosphatidylserine (PS)	36.0	400mg
Urolithin A	22.5	250
Alpha-lipoic acid	27.0	300mg
Astragalus membranaceus root	180.0	2g
Nicotinamide riboside (NR)	54.0	600mg
Lysine	180.0	2g
N-Acetyl-L-Cysteine	90.0	1g
L-Tyrosine	45.0	500mg
Hyaluronic Acid	90.0	1g
Nattokinase (NEW)	12	120mg
Sum	3786.4	42.1

Use it 4x times a day = 10.5g each serving (e.g. in smoothie)

29 **Quercetin** is a plant flavonoid found in many fruits and vegetables, and available as a dietary supplement. It is known for its potent antioxidant and anti-inflammatory properties, which can combat oxidative stress, a key factor in aging and chronic diseases. Research suggests quercetin may support heart health by reducing blood pressure and cholesterol levels. It also shows promise in enhancing immune function, potentially protecting against infections and allergies. Some evidence indicates it may have anti-cancer properties, though more research is needed.

30 **Fisetin** like other polyphenols such as resveratrol, is a sirtuin-activating compound and has been shown in laboratory studies to extend the life of simple organisms like yeast, worms, and flies. It has been shown to be an effective senolytic agent in wild-type mice, with effects of increased lifespan, reduced senescence markers in tissues, and reduced age-related effects. A clinical trial in the U.S. is currently underway to show effectiveness in humans. In studies conducted on cells in a laboratory, Fisetin inhibits the activity of many cytokines. It has also been shown in lab studies to upregulate glutathione, an endogenous antioxidant. Fisetin also has direct activity as a reducing agent, chemically reacting with reactive oxygen species to neutralize them. Based on lab studies, it appears that Fisetin lodges in cell membranes and prevents oxidative damage to lipids in the cell membrane.. Fisetin is able to scavenge free radicals as a result of its electron donating capacity, which is due to the presence of two hydroxyl groups on one ring and a hydroxyl group on another ring.

31 **L-Theanine** is a natural amino acid from Camellia sinesis that reduces mental stress and inflammation while improving cognition and protecting brain cells from ischemic or toxic injury. L-theanine alters novel longevity and neuronal genes identified in our genetic and machine-learning screens. Some of the targeted genes are trans-membrane proteins involved in the neuronal uptake of glutamate in the glutamatergic neurotransmitter signaling. Theanine is an analog of glutamine that can cross the blood-brain barrier, so it has direct effects on the brain. Among its psychoactive properties, L-Theanine is reported to reduce metal stress and improved cognition and mood via its expected binding to the GABA brain receptors in the parasympathetic nervous system. Thus L-Theanine appears to increase the overall level of the brain inhibitory transmitter GABA and is reported to promote alpha wave production in the brain. L-Theanine also affects the expression of Excitatory Amino Acid Transporters (EAATs), which are novel longevity and neuronal target genes. L-Theanine has significant affinities for the AMPA, Kainate, and NMDA receptors. The AMPA receptor is a non-NMDA trans-membrane receptor for glutamate that mediates fast synaptic transmission in the central nervous system. Kainate receptors are non-NMDA receptors that respond to the neurotransmitter glutamate, which have been implicated in inhibitory neurotransmission via promoting the release of the inhibitory neurotransmitter GABA. The NMDA receptor is a glutamate receptor and helps control memory and synaptic plasticity. L-Theanine may also have positive effects on serotonin levels. In rats, L-Theanine has been neuroprotective.

32 **Arginine Alpha-Ketoglutarate (AAKG)** is primarily used for enhancing athletic performance and muscle growth due to its role in synthesizing nitric oxide, a molecule that promotes blood vessel dilation. This increased blood flow can improve oxygen and nutrient delivery to muscles, supporting recovery and growth. AAKG may also improve overall stamina and reduce muscle soreness post-workout. In terms of longevity and overall health, improved blood flow may support cardiovascular health, though research in this area is limited. Some studies suggest potential benefits in wound healing and liver function.

33 **Glucosamine** is a natural compound found in healthy cartilage, particularly in the fluid around the joints. As a supplement, it's often used to treat symptoms of bone and joint disorders, like osteoarthritis. Research suggests it may slow the progression of osteoarthritis, particularly in the knee, reducing pain and improving function. This can help maintain mobility and quality of life as you age, which are essential for longevity. It may also have anti-inflammatory effects. However, the evidence is mixed, and some studies show little to no benefit.

34 **Apigenin** is a natural compound found in various fruits and vegetables, particularly in parsley, celery, and chamomile tea. It is recognized for its potent antioxidant and anti-inflammatory properties, which may support overall health and longevity. Some studies suggest that apigenin can reduce inflammation, prevent oxidative damage, and could potentially inhibit the growth of cancer cells. Additionally, apigenin may improve neuron formation and strengthen the connections between brain cells, offering potential benefits for memory and learning. Despite these promising qualities, research on apigenin is still in the early stages, and most of the current findings are based on animal or test-tube studies.

35 **Zinc** (as Zink-Hydrat-Tricitrate, 31% Zn,), is a crucial mineral involved in over 300 enzyme reactions in the body. It's vital for immune function, protein synthesis, wound healing, and DNA synthesis. Zinc deficiency can lead to a weakened immune response, which can increase susceptibility to infections. Supplementing with zinc has been found beneficial in reducing the duration and severity of colds. Additionally, zinc may help in managing age-related chronic diseases like age-related macular degeneration. However, more isn't always better; excessive zinc intake can lead to copper deficiency and can suppress immune function.

36 **Taurine** is an amino acid that's essential for many bodily functions. It helps regulate heart rhythm, maintain cell membrane stability, and prevent oxidative stress. Taurine is often used as a supplement for athletic performance because it's thought to improve endurance and reduce muscle damage. In terms of longevity and overall health, studies suggest that taurine can benefit cardiovascular health by reducing blood pressure and inflammation. It might also improve blood sugar control and insulin resistance, potentially beneficial for diabetes prevention. In the context of brain health, some research suggests it could help prevent age-related neurodegeneration. A 2023 study published in the journal Science reports that supplements of taurine slowed the aging process in monkeys, mice and worms and extended the healthy lifespan of mice in middle age by up to 12%. The mice that were given taurine had an increased lifespan of 12% in females and 10% in males. This equated to roughly seven to eight human years, or three to four months in mice years.

37 **Magnesium** is an essential mineral involved in various bodily functions, from muscle and nerve function to maintaining a healthy immune system. Different forms of magnesium have varying absorption rates and benefits. I use therefore a mixture of several different Mg-forms:

- **Magnesium Bisglycinate**: This chelated form is bound to the amino acid glycine. It is highly absorbable and gentle on the stomach. It's particularly beneficial for nerve health and relaxation.
- **Trimagnesium Dicitrate**: This is a highly soluble form of magnesium with high bioavailability. It can support bone health and muscle function.
- **Magnesium Carbonate**: It has antacid properties making it beneficial for digestive health. However, its bioavailability is less compared to other forms.
- **Magnesium Citrate**: This form is bound to citric acid, increasing its solubility and bioavailability. It's commonly used for its laxative properties and to support muscle function.

38 **Vitamin C** is an essential nutrient well-known for its potent antioxidant properties and role in supporting a healthy immune system. It aids in the production of collagen, crucial for skin, blood vessels, and bone health, making it important for overall longevity. Vitamin C can also enhance iron absorption, potentially preventing iron-deficiency anemia. Further, it can help reduce the duration and severity of common cold symptoms. However, while supplementing with vitamin C is popular, it's worth noting that it's a water-soluble vitamin, and any excess not used by the body is excreted. Therefore, mega-doses won't necessarily provide additional benefits and may cause digestive upset.

39 **Lion's Mane Mushroom**, or Hericium erinaceus, has been used in traditional Chinese medicine for centuries and is now popular as a dietary supplement due to its potential health benefits. Research suggests it may support brain health, including cognitive function and nerve growth, which could be beneficial for aging and neurodegenerative diseases. It's also known for its potent antioxidant and anti-inflammatory properties that could protect against oxidative stress, a factor in aging and many chronic diseases. Preliminary research even suggests potential benefits for mood and heart health. However, more human studies are needed to fully understand its effects.

40 **Nicotinamide mononucleotide (NMN)** is a compound that's gained interest in the field of aging due to its role as a precursor to nicotinamide adenine dinucleotide (NAD+), a crucial coenzyme present in all cells. NAD+ levels decline with age, potentially impacting various cellular processes including metabolism, DNA repair, and gene expression. Supplementing with NMN could theoretically boost NAD+ levels, improving these processes and possibly slowing age-related functional decline. Initial studies in rodents suggest potential benefits like improved metabolism, cardiovascular function, and lifespan extension. However, it's important to note that research is still in early stages, especially regarding human trials. More extensive studies are needed to fully understand NMN's effects on human health and longevity, as well as potential side effects and optimal dosing. Some other biohackers prefer NR instead of NMN, but it seems that they work similarly. I use both as it is always advisable to target certain biochemical pathways on several fronts, also to ensure an equilibrium in the pathway processes.

41 **Glycine** is an amino acid that plays a crucial role in the creation of other important compounds in the body, including proteins, creatine, and glutathione, a powerful antioxidant. Research suggests glycine supplementation may support skin health and wound healing due to its role in collagen production. Its anti-inflammatory and antioxidant properties could also support overall health and longevity. Additionally, glycine might improve sleep quality, which is vital for physical health and mental wellbeing. It's also been explored for potential neuroprotective effects and as an adjunct in the treatment of certain metabolic disorders.

42 **Trimethylglycine (TMG),** also known as betaine, is a compound derived from the amino acid choline. TMG plays a crucial role in methylation processes in the body, which are involved in DNA repair, liver function, detoxification, and cellular energy creation. By donating a methyl group in the process of homocysteine metabolism, it can help lower homocysteine levels, an amino acid associated with heart disease when present in high levels. Some research also suggests that TMG might improve physical performance by enhancing muscle endurance and power.

43 **Astragalus membranaceus**, a traditional Chinese medicine, has gained interest for its potential longevity benefits. The root contains active compounds like polysaccharides, saponins, and flavonoids that exhibit antioxidant, anti-inflammatory, and immunomodulatory effects. Research suggests Astragalus may enhance immune response, potentially reducing the risk of infections. It's also being studied for potential anti-aging effects, largely due to a component called cycloastragenol, which may activate telomerase, an enzyme linked with cellular aging. However, these findings are preliminary and based mainly on laboratory and animal studies.

44 **Nicotinamide Riboside (NR**) is a form of vitamin B3 and a precursor to Nicotinamide Adenine Dinucleotide (NAD+), a coenzyme found in all living cells, vital for energy metabolism and maintaining proper cell function. Supplementing with NR is seen as a strategy to boost NAD+ levels in the body, potentially mitigating some aspects of aging. Preliminary research shows promising results, with NR supplementation linked to improved mitochondrial function, increased neuroprotection, and potential benefits for metabolic health. However, these findings are largely based on animal studies. Human trials are less abundant, and results have been mixed. While some studies suggest improved cellular health and metabolism, others found no significant benefits. Some other biohackers prefer NMN instead of NR, but it

seems that they work similarly. I use both as it is always advisable to target certain biochemical pathways on several fronts, also to ensure an equilibrium in the pathway processes.

45 **Lysine** is an essential amino acid that plays a vital role in many bodily functions. It contributes to protein synthesis, making it crucial for maintaining skin, muscles, and connective tissues. Lysine also aids in calcium absorption, promoting bone health, and plays a role in producing hormones, enzymes, and antibodies. Lysine has been shown to have antiviral properties, particularly in the prevention and treatment of cold sores caused by the herpes simplex virus. Some evidence suggests that lysine can help with anxiety by blocking stress response receptors.

46 **N-Acetyl-L-Cysteine (NAC)** is a supplement form of the amino acid cysteine. It serves as a precursor to glutathione, a potent antioxidant that protects cells from oxidative stress, a key factor in aging and disease. NAC has been used in medicine to treat acetaminophen poisoning due to its liver-protective effects. It also shows promise in managing psychiatric disorders and addictive behaviors. NAC's mucolytic properties help break down mucus, making it beneficial for respiratory conditions like chronic obstructive pulmonary disease (COPD). However, recent research suggests high doses could potentially have adverse effects.

47 **L-Tyrosine** is an amino acid that serves as a precursor to several important neurotransmitters, including dopamine, norepinephrine, and epinephrine. These neurotransmitters play key roles in mood regulation, attention, and stress response. As a supplement, L-Tyrosine has been studied for its potential to improve cognitive function, especially in situations of acute stress or sleep deprivation. It may help maintain mental performance under these conditions. However, the evidence is not robust enough to draw solid conclusions. Its impact on longevity is unclear and further research is needed. Moreover, high doses can cause side effects like nausea and headaches.

48 **Hyaluronic Acid (HA),** a naturally occurring substance in the body, has gained interest as a supplement due to its critical role in skin hydration and elasticity, joint health, and tissue repair. Its moisturizing properties can potentially improve skin health, possibly slowing skin aging. Additionally, studies suggest that HA may alleviate symptoms of osteoarthritis by providing cushioning and lubrication to joints. Despite these benefits, there is limited evidence linking HA directly to increased lifespan or aging reversal. Moreover, while generally considered safe, oral HA's bioavailability and long-term effects are not fully understood.

52 Chondroitin sulfate is a natural substance found in the human body and is particularly prevalent in the cartilage that cushions joints. The benefits of chondroitin supplementation are primarily related to joint health, although they may extend to other areas of health as well. Here are some potential benefits: Joint Health: Chondroitin is most commonly used for osteoarthritis, a degenerative joint disease. Research suggests that chondroitin can help slow the progression of osteoarthritis and relieve associated pain and inflammation. The supplement may increase joint mobility and decrease the need for pain medication. Bone Health: Some studies indicate that chondroitin may promote bone health and might help with diseases like osteoporosis. However, more research is needed in this area. Skin Health: Chondroitin can also be found in the skin. Some preliminary research suggests it might play a role in wound healing and skin hydration, though further studies are needed. Heart Health: Early research has also suggested that chondroitin might help lower cholesterol and reduce the risk of heart disease, although more comprehensive studies are needed to confirm these benefits.

56 Naringenin is a flavorless, colorless flavanone, a subclass of flavonoids. It's predominantly found in grapefruit, but is also present in a variety of other fruits and herbs. This compound has been noted for its various health benefits including antioxidant, anti-inflammatory, and anticancer properties. The flavonoid structure of naringenin is responsible for its antioxidant activity, but it also has a broad range of biological effects beyond that such as analgesic, anti-inflammatory, nephroprotective, neuroprotective, and antimicrobial properties. Naringenin can be utilized in conjunction with other herbal preparations as a food supplement in various therapies. One paper listed it as one of the few substances with the strongest sign of longevity effects.

58 Methylsulfonylmethane (MSM) is an organic sulfur-containing compound that is naturally found in a variety of foods, such as vegetables, fruits, and grains. MSM has gained attention for its potential health benefits, including effects that may promote longevity. Joint and Bone Health: MSM is perhaps best known for its benefits in supporting joint and bone health. As we age, the risk of joint degeneration, osteoporosis, and arthritis increases. MSM provides a bioavailable source of sulfur, which is essential for the formation of collagen, the main structural protein in connective tissues like cartilage. By providing sulfur, MSM helps maintain the integrity of joints, tendons, and ligaments, reducing pain, stiffness, and inflammation associated with joint disorders, and promoting mobility and flexibility. Anti-Inflammatory Properties: MSM exhibits anti-inflammatory effects, which can have a significant impact on overall health and longevity. Chronic inflammation is a key contributor to many age-related diseases, including cardiovascular disease, Alzheimer's, and certain types of cancer. MSM can help inhibit the production of pro-inflammatory cytokines and reduce oxidative stress, thereby lowering the risk of these chronic conditions. Antioxidant Activity: MSM has been found to act as an antioxidant, scavenging free radicals and reducing oxidative stress. Oxidative damage to cells and DNA contributes to aging and the development of various diseases. By neutralizing these free radicals, MSM may help protect against age-related degeneration and support overall health. Detoxification and Liver Support: MSM plays a role in the body's detoxification processes. It can enhance the production of glutathione, a critical antioxidant involved in detoxifying harmful substances

in the liver. By supporting liver function and the body's natural detoxification pathways, MSM may help reduce the toxic burden on the body, promoting overall health, and potentially increasing lifespan. Skin Health and Wound Healing: MSM is often touted for its benefits to the skin. It can improve skin elasticity and collagen production, reducing the appearance of fine lines and wrinkles, and promoting a more youthful complexion. Additionally, MSM accelerates wound healing and can help protect against sun damage and skin cancer. Immune System Support: MSM has immunomodulatory effects, meaning it can help regulate and enhance immune function. It stimulates the production and activity of immune cells, such as lymphocytes and natural killer cells, improving the body's defense against pathogens and potentially reducing the risk of age-related immune system decline. Gut Health: A healthy gut is crucial for overall health and longevity. MSM can support gut health by reducing gut inflammation and promoting a balanced gut microbiota. It may also help alleviate gut-related issues like irritable bowel syndrome (IBS) and improve nutrient absorption. It is generally well-tolerated, but starting with a lower dose and gradually increasing it is recommended.

59 Phosphatidylserine (PS) is a natural phospholipid that supports cellular function, especially in the brain, improving memory, focus, and mental clarity. PS enhances neuron communication and provides neuroprotective effects, safeguarding brain cells from degeneration and cognitive decline. It also regulates mood and stress by controlling cortisol, contributing to overall brain health and plasticity. In terms of longevity, PS offers anti-aging benefits by maintaining cell membrane integrity, reducing chronic inflammation, and promoting cardiovascular and immune function. Natural sources include soy, beef, and fish, but supplements derived from soy or sunflower lecithin provide optimal PS intake.

60 Urolithin A is a natural compound that belongs to a class of substances known as ellagitannins, which are found in various plants, nuts, and fruits. It has gained significant attention in the field of longevity and aging due to its potential health benefits and unique ability to support cellular renewal processes. Its key mechanism of action involves inducing mitophagy, a process that recycles damaged mitochondria in cells, improving their energy production and reducing waste. By enhancing mitochondrial function and reducing oxidative stress, Urolithin A may slow down the aging process, improve muscle performance and metabolic health, and provide neuroprotective effects. It also exhibits anti-inflammatory properties, benefiting cardiovascular health and potentially reducing the risk of age-related diseases. Natural sources include nuts and certain fruits, but supplements are available for higher concentrations.

61 Alpha-lipoic acid (ALA) is a powerful antioxidant and a vital coenzyme that plays a crucial role in energy production and maintaining overall health. It is naturally produced in the body and can also be derived from certain foods or taken as a dietary supplement. ALA has gained attention for its potential benefits in promoting longevity and supporting various aspects of health. Health Benefits of Alpha-Lipoic Acid and Longevity:

- Antioxidant and Anti-Aging: ALA is a potent antioxidant, capable of scavenging and neutralizing free radicals in both water-based and fat-based environments in the body. This unique property allows ALA to provide wide-ranging antioxidant protection, reducing the oxidative stress and damage that contribute to aging and age-related diseases. By combating free radicals, ALA helps protect cells, DNA, and tissues, potentially slowing the aging process and enhancing longevity.
- Mitochondrial Function and Energy Production: ALA plays a critical role in mitochondrial function and energy metabolism. Mitochondria are often referred to as the "powerhouses" of cells, responsible for producing energy in the form of ATP. ALA enhances mitochondrial function, increasing ATP production and improving cellular energy levels. This boost in energy production can lead to improved physical and mental performance, contributing to a longer and more active lifespan.

62 Astaxanthin is a powerful carotenoid antioxidant that is naturally occurring and responsible for the red or pink color in certain organisms, such as salmon, trout, flamingos, and even some types of crustacean shells. It is produced by microalgae and yeast, and it plays a significant role in the health and longevity of various organisms, including humans. Astaxanthin is known for its strong antioxidant properties. It can neutralize free radicals, which are unstable molecules that can damage cells and contribute to aging and age-related diseases. By scavenging these free radicals, Astaxanthin reduces oxidative stress, protecting cells, DNA, and lipids from oxidation, and supporting overall health. Astaxanthin has been found to possess potent anti-inflammatory properties. It can inhibit the production of inflammatory molecules, such as prostaglandins and leukotrienes, helping to reduce the risk of chronic inflammatory conditions. Astaxanthin can promote cardiovascular health by lowering the risk factors associated with heart disease. It has been shown to reduce triglyceride and LDL ("bad") cholesterol levels while increasing HDL ("good") cholesterol. Additionally, Astaxanthin may help maintain healthy blood pressure and improve vascular function, reducing the risk of heart attacks and strokes. Astaxanthin's antioxidant and anti-inflammatory properties may provide benefits for brain health and cognitive function. Some studies suggest that it can protect neurons, improve memory, and potentially slow the progression of neurodegenerative diseases like Alzheimer's and Parkinson's. Astaxanthin can enhance immune function by increasing the number and activity of immune cells, such as T-cells and natural killer cells, which help fight off infections and diseases. Astaxanthin's anti-inflammatory properties can provide relief from joint pain and improve mobility. It may also help delay muscle fatigue and improve recovery after exercise, promoting an active lifestyle even in older age. Eye Health: Astaxanthin accumulates in the retina and can help protect the eyes from oxidative damage. It may reduce the risk of age-related eye diseases, such as cataracts and macular degeneration.

This is a recipe for a sleep tea, for those people who have difficulties reaching their 100% sleep goal. Also, I added some other tips to get you better and deeper sleep. Enjoy.

Evening Sleep Tea (30–40 min before sleep)

Take your sleep tea about 30–40 minutes before bed. That's the time it takes for some of the active ingredients to kick in. You can brew the tea fresh from leaves for each night or prepare a batch for the whole week and store it in the fridge.

While there are plenty of plants and herbs marketed as sleep aids, not all of them hold up under scrutiny. Some popular choices either lack solid clinical evidence or, worse, have been shown to disrupt your sleep. That's why **I don't recommend using lavender or magnolia bark** in your tea. Lavender, for instance, might help you fall asleep faster, but research shows it can shorten deep sleep phases for many people. The blend I use is grounded in clinical research, combining plants proven to enhance sleep.

Preparation

The stronger the clinical evidence, the higher the concentration I include in the tea. My ideal dose is about 200ml—just enough to be effective without risking a midnight trip to the bathroom. Here's the blend I rely on:

- **Freshly brewed tea (steep for about 7 min) from the following leaves:**
  - **Valerian Root (Valeriana officinalis) – 4/10 parts**
  - **Hop Flowers (Humulus lupulus) – 2/10 parts**
  - **Passionflower (Passiflora incarnata) – 2/10 parts**
  - **Melissa (Lemon Balm; Melissa Officinalis) – 1/10 part**
  - **Chamomile (Matricaria recutita) – 1/10 part**

Let cool down to drinking temperature.

Note: There is another plant, Apocynum venetum (Rafuma), that also helps sleeping. I did not include it here as it is difficult to obtain and usually needs to be imported from China (see more at the end of the document).

Optional:

- **Add 1 drop of Vitamin K2 oil (200 µg)**
- **Add 1 tsp of Axel's Sleep Powder** (see below)
  - **Contains Ashwagandha (400mg)**, Glycine (2,000mg)**, Magnesium L-Threonate (200mg*)**, L-Theanine (200mg)**, Apigenin (50mg), Tryptophan (500mg), and GABA**

In addition, I may add to the tea:

- **1 pill Melatonin (1mg; 3mg if jetlagged)**
- **1 pill Huperzine A (200 µg)**

Sleep Tea Powder (Optional)

Here is the preparation of the **Sleep Tea Powder** that I prepare every 3 months (90 daily doses). Store in a glass or jar. Use one teaspoon in your sleep tea, about 30-40 min before sleep:

Sleep-Tea supplement mix	daily	[g] 90x	
L-Theanine	0.2g	18	
Glycine	2g	180	
GABA	100 mg	9	
Tryptophan	500 mg	45	
Apigenin	50mg	4.5	
Mg Threonate	0.2g	18	
Ashwagandha	0.4g	36	
			--> take 1
	Sum	310.5g	**tsp/day**

*The dosage of Magnesium L-Threonate could be higher (1,500mg), however, it is expensive, so I use it in a low dose.
** I prepare a mix of Ashwagandha, L-Theanine, Glycine, and Magnesium Threonate, Apigenin, GABA and then just take a teaspoon of the mixture as it is much easier to dosage.

49 **Magnesium L-threonate (MgT)** is a form of magnesium that's been shown to cross the blood-brain barrier more effectively than other types. It's believed to enhance brain health by increasing brain magnesium levels, which may improve cognition and slow brain aging. In the context of sleep, magnesium is known to play a role in regulating the body's internal clock and sleep-wake cycles. Some evidence suggests that magnesium supplementation could improve sleep quality, particularly in those with poor sleep or insomnia. Magnesium L-threonate is the newest magnesium chelate. Magnesium supplements are often chelated, which means that the magnesium molecules are bonded to another molecule. It makes the magnesium supplement more bioavailable and stable. This newest chelate was developed by a team of researchers at MIT, who have patented it.. It has already been shown to help adults with sleep disorders, anxiety, and cognitive dysfunction. The reason this is such an exciting development is the discovery of a nine-year brain age reversal in people who were given the supplements!

Hop flowers (*Humulus lupulus*) are widely recognized for their sedative and sleep-enhancing properties, supported by various scientific studies. Here's how they help improve sleep:



1. **Sedative Compounds**: Hop flowers contain bioactive compounds like humulone, lupulone, and 2-methyl-3-buten-2-ol, which have mild sedative effects. These compounds work by calming the central nervous system, making it easier to relax and fall asleep.
2. **GABA Modulation**: Hops interact with gamma-aminobutyric acid (GABA) pathways in the brain, enhancing GABA's calming effects. This reduces neural activity, promoting relaxation and helping to initiate sleep.
3. **Anxiolytic Effects**: Hops have been shown to reduce anxiety and restlessness, two common barriers to quality sleep. Their calming properties create a mental state conducive to falling and staying asleep.
4. **Improved Sleep Quality**: Studies suggest that hops, particularly when combined with valerian root, enhance the duration and

depth of sleep, making rest more restorative. This is especially helpful for those with mild insomnia or stress-related sleep disruptions.

5. **Circadian Rhythm Support**: Hops may help regulate the body's sleep-wake cycle, partly due to their calming effects and their role in signaling the body to wind down in the evening.
6. **Non-Habit Forming**: Like other natural sleep aids, hops are non-addictive and generally well-tolerated, making them a safe alternative to pharmaceutical sleep medications.

In summary, hop flowers improve sleep by promoting relaxation, enhancing GABA activity, reducing anxiety, and supporting a natural sleep-wake cycle, making them an effective addition to sleep remedies.

Melissa (Lemon Balm, Melissa officinalis) has been shown in studies to improve sleep quality through several mechanisms:



- GABAergic Activity: Lemon balm contains compounds like rosmarinic acid that inhibit the enzyme GABA transaminase, which breaks down gamma-aminobutyric acid (GABA) in the brain. By increasing GABA levels, lemon balm promotes relaxation and reduces stress, both of which are crucial for better sleep.

- Anxiolytic Effects: Lemon balm is well-documented for its calming properties. Studies suggest it helps reduce anxiety, which is often a significant barrier to falling and staying asleep. This effect can create a more conducive mental state for sleep.

- Reduction of Stress Hormones: Some research indicates that lemon balm can lower levels of cortisol, a stress hormone. Elevated cortisol can interfere with the ability to relax and fall asleep, so its reduction supports improved sleep onset.

- Improvement in Sleep-Associated Disorders: Clinical trials have demonstrated that lemon balm, often combined with valerian root, can alleviate symptoms of insomnia and restlessness, making it a valuable component in natural sleep remedies.

In summary, lemon balm's ability to enhance GABA activity, reduce anxiety, and lower stress hormones makes it an effective, research-supported herb for improving sleep quality.

Valerian root (Valeriana officinalis) has been widely studied for its potential to improve sleep quality, and its effects are attributed to several key mechanisms:

GABA Modulation: Valerian root contains bioactive compounds like valerenic acid and valepotriates that interact with GABA receptors in the brain. GABA (gamma-aminobutyric acid) is a neurotransmitter that reduces brain activity, promoting relaxation and aiding in the transition to sleep.

Reduction of Anxiety: Valerian's anxiolytic properties help decrease anxiety, which is a common cause of sleep disturbances. Studies suggest it calms the central nervous system, making it easier to unwind and fall asleep.



Sleep Latency Improvement: Research indicates valerian can reduce the time it takes to fall asleep (sleep latency), particularly in people who have trouble with sleep onset.

Improved Sleep Quality: Valerian root may enhance slow-wave sleep (deep sleep) and overall sleep quality, making sleep more restorative. This effect is often reported in individuals with mild insomnia or stress-related sleep issues.

Non-Habit Forming: Unlike synthetic sedatives, valerian does not typically lead to dependence or morning grogginess, making it a safer, natural alternative for occasional sleep support.

In summary, valerian root aids sleep by enhancing GABA activity, reducing anxiety, and improving sleep onset and quality, making it a well-supported option for better rest.

Passionflower (*Passiflora incarnata*) has been studied for its sleep-enhancing properties, and its effects are supported by several mechanisms:

1. **Increased GABA Levels**: Passionflower contains compounds that increase gamma-aminobutyric acid (GABA) in the brain. GABA is a key neurotransmitter that reduces central nervous system activity, promoting relaxation and helping to prepare the body for sleep.
2. **Reduction of Anxiety and Stress**: Passionflower is well-known for its anxiolytic (anxiety-reducing) effects. By calming the mind and lowering stress levels, it addresses two major barriers to falling and staying asleep.
3. **Improved Sleep Quality**: Clinical studies have shown that passionflower can improve overall sleep quality, particularly when consumed as a tea or supplement before bedtime. It may enhance deep sleep phases, making rest more restorative.
4. **Mild Sedative Properties**: Some of the flavonoids and alkaloids in passionflower, such as apigenin and harmane, exhibit mild sedative effects, further aiding in relaxation and sleep induction.



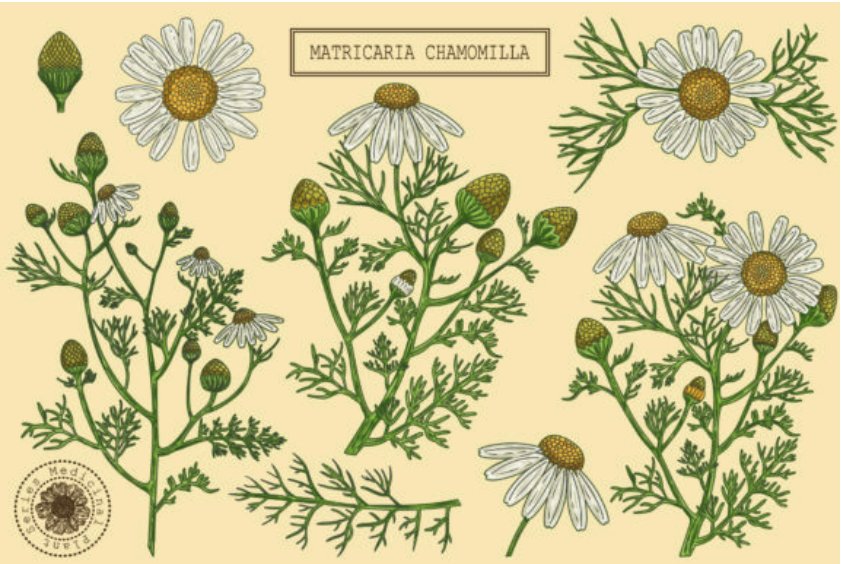
5. **Non-Addictive**: Passionflower is non-habit-forming and generally well-tolerated, making it a natural alternative to pharmaceutical sleep aids without the risk of dependence.

In summary, passionflower helps improve sleep by boosting GABA, reducing anxiety, and promoting relaxation, making it a natural, research-backed remedy for better sleep.

For choosing **chamomile**; there are three good variations. Both perennial common "Roman" chamomile (Chamaemelum nobile) and German chamomile (Matricaria recutita) produce aromatic flowers that can be used to make tea. The German variation has usually better quality due to the oils in it. Even better may be Egyptian chamomile native to the lush valley along the Nile River. This variety of chamomile produced is considered to be the highest-grade, best chamomile and has a warm, earthy flavor with a pleasant fruity aroma.

Chamomile (*Matricaria chamomilla*) has been extensively studied for its sleep-promoting effects, which are attributed to several mechanisms:

1. **GABA Receptor Binding**: Chamomile contains apigenin, a flavonoid that binds to GABA receptors in the brain. This interaction has a benzodiazepine-like effect, promoting relaxation and reducing neural activity to help you fall asleep more easily.
2. **Anxiolytic Effects**: Chamomile is well-known for its calming properties, helping to reduce anxiety and stress. These effects make it easier to relax and transition into sleep.
3. **Improved Sleep Quality**: Research suggests chamomile can enhance overall sleep quality, particularly in people with mild insomnia or disrupted sleep patterns. It's especially beneficial for improving the depth and restfulness of sleep.
4. **Reduction of Inflammation**: Chamomile has anti-inflammatory properties that may contribute to better sleep by alleviating physical discomfort, such as mild pain or gastrointestinal issues, that can interfere with rest.
5. **Regulation of Circadian Rhythm**: Chamomile tea, often consumed before bedtime, can act as a ritual that supports the body's natural sleep-wake cycle, signaling the brain that it's time to wind down.



In summary, chamomile promotes sleep by calming the mind, reducing anxiety, binding to GABA receptors, and alleviating inflammation, making it a natural and effective option for better rest.

Optional

Rafuma Extract as a Sleep Aid

Rafuma extract is derived from *Apocynum venetum*, a plant traditionally used in Chinese and Japanese medicine for its calming and health-promoting properties. Its potential as a natural sleep aid has gained interest due to its bioactive compounds.

Key Properties:

1. **Stress Reduction**: Rafuma contains flavonoids (e.g., quercetin, rutin) that help reduce stress by calming the nervous system, making it easier to fall asleep.
2. **Neurotransmitter Support**: Compounds in Rafuma may help regulate serotonin levels, a neurotransmitter essential for sleep regulation and mood stability.
3. **Mild Sedative Effect**: Its gentle sedative properties promote relaxation without causing grogginess, making it suitable for occasional or chronic sleep issues.
4. **Antioxidant Benefits**: Its antioxidant activity protects against oxidative stress, which may indirectly improve sleep quality by reducing the physiological impact of stress and inflammation.

Potential Benefits for Sleep:

- **Promotes Relaxation**: By reducing anxiety and calming the mind.
- **Improves Sleep Onset**: Helps individuals fall asleep more quickly.
- **Enhances Sleep Quality**: Supports deeper and more restorative sleep cycles.



The sleep-promoting effects of *Apocynum venetum* (Rafuma) can also be achieved by consuming tea made from the plant's leaves. This is because the calming and relaxing properties are primarily due to the bioactive compounds in the leaves, such as flavonoids (e.g., rutin and quercetin). These compounds are largely retained when the leaves are brewed as tea.

Mechanism of Action:

1. **Relaxation of the Nervous System:** The flavonoids present in the plant have a calming effect and can help reduce stress, indirectly improving sleep quality.
2. **Serotonin Regulation:** Some compounds support the regulation of neurotransmitters like serotonin, which can positively influence sleep depth.
3. **Mild Effects:** Tea generally has a gentler effect compared to highly concentrated extracts but is sufficient for many people to experience relaxation.

Usage:

- **Preparation:** Use 1–2 teaspoons of dried Rafuma leaves per cup of hot water (around 90°C / 194°F) and let the tea steep for about 5–10 minutes.
- **Consumption:** Drink the tea about 30–60 minutes before bedtime.

Limitations:

- **Milder Effect:** The effects of tea may be weaker than those of concentrated extracts, as the dosage of active compounds is lower.
- **Individual Responses:** The effects may vary depending on the individual, influenced by metabolism and sensitivity to the compounds.

If you have experience with this plant, please let me know

Other Longevity / Health Supplements I do take:

Here is the list of other supplements I take during the day that do not fit into my longevity powder. Please remember that this list is updated in case new science requires to change the supplement or dosage.

Alpha GPC [600mg] - Alpha-GPC (Alpha-glycerophosphocholine) is a choline-containing supplement known for its potential cognitive-enhancing properties. Choline is vital for brain health, serving as a precursor to acetylcholine, a neurotransmitter involved in memory and learning. Supplementing with Alpha-GPC can potentially boost choline levels in the brain, improving cognitive function, mental clarity, and memory. It has also been studied for its potential to slow cognitive decline in conditions like Alzheimer's disease.

Boron [3mg] – Boron is a trace mineral involved in bone health, wound healing, and magnesium absorption. It also influences the body's use of estrogen, testosterone, and vitamin D. Some research suggests it can reduce levels of inflammatory markers and improve arthritis symptoms. Most adults can get adequate boron from a balanced diet, but if supplementation is necessary, the tolerable upper intake level is 20 mg/day for adults.

Chromium Picolinate [200ug] - Chromium is a mineral that is essential for human health. It plays a role in blood sugar regulation, muscle growth, and weight loss. Chromium picolinate is a form of chromium that is bound to picolinic acid. This makes it more bioavailable, meaning that the body can absorb it more easily. There is some evidence that chromium picolinate may have benefits for longevity. A study in rats found that chromium picolinate supplementation increased lifespan by up to 20%. However, more research is needed to confirm these findings in humans. Chromium picolinate may help to improve blood sugar control in people with diabetes or prediabetes. It also may help to increase muscle mass in people who are trying to lose weight or build muscle.

DHEA [50mg] – Dehydroepiandrosterone (DHEA) is a hormone produced by the adrenal glands. It acts as a precursor to male and female sex hormones, including testosterone and estrogen. Levels of DHEA naturally decrease with age, leading to research into its potential anti-aging effects. Some studies suggest DHEA may improve skin health, bone density, and mood while potentially reducing the risk of heart disease. However, results are mixed and more research is needed. Currently skipping it due to unavailability in Germany and high costs.

[50] **Huperzine A [200ug]** – Before sleep. Huperzine A is a natural compound extracted from the Chinese club moss Huperzia serrata, and it's been studied for its potential benefits on cognitive function and sleep. It primarily works by inhibiting an enzyme that degrades acetylcholine, a neurotransmitter involved in learning, memory, and REM sleep. Emerging research suggests Huperzine A may promote more restful and restorative sleep, primarily by enhancing REM sleep duration and quality, which is associated with improved memory and mood. Moreover, it has shown potential in improving cognitive function and reducing symptoms in neurodegenerative conditions like Alzheimer's disease. Regarding overall health, Huperzine A's neuroprotective properties could potentially benefit general brain health and functionality. Its antioxidant and anti-inflammatory properties may also contribute to general health promotion.

[51] **Piperine [20mg]** – Piperine, a compound found in black pepper, has gained attention for its ability to enhance the absorption and effectiveness of other substances, notably curcumin, the active compound in turmeric. This synergistic effect is critical given curcumin's poor bioavailability. Curcumin is a potent anti-inflammatory and antioxidant agent that can potentially combat various age-related conditions, such as heart disease, cancer, and neurodegenerative diseases, thereby promoting longevity and overall health. However, without aid, most dietary curcumin is not absorbed and is rapidly eliminated from the body. Piperine can enhance curcumin absorption by up to 2000%, ensuring its beneficial compounds reach the bloodstream and tissues. Furthermore, piperine itself possesses antioxidant and anti-inflammatory properties, and preliminary studies suggest it may improve metabolism and support brain health.

Lithium Orotate [1.5mg] – Lithium (as Lithium orotate) is added as an important trace mineral. Lithium promotes several genetic pathways that are important for longevity and neuronal function. For example, lithium promotes NCS-1/Frequenin that codes a calcium-binding protein involved in neurotransmitter release. Other important neural pathways affected by lithium include autophagy, tau phosphorylation, and neural transmitter breakdown by acetylcholinesterase. These are very important pathways for neural function.

Lycopene [10mg] – Lycopene, a potent antioxidant found in tomatoes and other red fruits, has potential health benefits linked to longevity and overall health. It neutralizes harmful free radicals, protecting against oxidative stress and inflammation, major contributors to chronic diseases and aging. Evidence suggests lycopene may support cardiovascular health by reducing LDL cholesterol and blood pressure, thereby potentially decreasing the risk of heart disease. Its antioxidant property also shows potential in lowering the risk of certain cancers, particularly prostate cancer. Emerging research indicates lycopene may aid in bone health by preventing oxidative stress-related bone loss, contributing to longevity. Additionally, it could potentially improve skin health by protecting against UV-induced damage, which contributes to skin aging.

> **Tip:** If you don't want to take lycopene pills, you can try to use tomato mark. Lycopene is abundant in tomatoes and tomato products, including tomato paste or "mark" (often called "marc" or pomace). The process of cooking tomatoes, especially in oil, or processing them into paste, sauce, or juice, makes the lycopene more bioavailable. This means the body can absorb and utilize it more effectively compared to consuming raw tomatoes. So, eat some tomato marc with olive oil!

Metformin [2x 500mg] – Before meals. Metformin, a commonly used anti-diabetic medication, has shown promise in enhancing longevity and overall health in various scientific studies, primarily due to its ability to mimic some of the benefits of calorie restriction. The drug operates by improving insulin sensitivity and reducing glucose production in the liver, both key elements in managing type 2 diabetes. Additionally, metformin promotes healthy aging by reducing inflammation, oxidative stress, and cellular senescence. Emerging evidence suggests that metformin may protect against age-related diseases like cancer, cardiovascular diseases, and neurodegenerative diseases. Moreover, it appears to extend lifespan in some animal models.

Despite this, its usage as a general longevity-enhancing supplement in humans without diabetes is still under investigation.

Rapamycin [6ug once a week] – I think it is very valuable, maybe the best supplement for longevity, but it is simply not available to most as it is a prescription drug. Rapamycin works by inhibiting a protein called mTOR (mammalian target of rapamycin). mTOR is a key regulator of cell growth and metabolism. By inhibiting mTOR, rapamycin can slow down the growth of cells, including cancer cells. It can also help to improve insulin sensitivity and reduce inflammation. By forming a complex with FKBP12, is exquisitely selective of mTORC1; there are no "off-target" binding sites. The bioavailability of rapamycin is 14% as an oral solution. Also, if administrated orally in a form of a tablet, the bioavailability increases to 27%. In addition, the availability of rapamycin is also increased when eating high-fat food. Also, grapefruit juice increases its effectivity. Grapefruit juice can interact with rapamycin by inhibiting an enzyme called CYP3A4. CYP3A4 is responsible for breaking down many drugs, including rapamycin. When grapefruit juice inhibits CYP3A4, it can lead to higher levels of rapamycin in the blood. In one study, people who took 1000 milligrams of rapamycin with 200 milliliters of grapefruit juice had significantly higher levels of rapamycin in their blood than those who took rapamycin without grapefruit juice. It seems that the best time to take the grapefruit juice (or eat a grapefruit) is about 1 hour prior to taking rapamycin. If you have side effects with Rapamycin, do not drink grapefruit juice. If you have no problem with it, it can dramatically lower the costs of the supplement.

Rhodiola Rosea root [500mg]: Rhodiola rosea, also known as golden root or Arctic root, is a flowering plant native to the Arctic and alpine regions of Europe, Asia, and North America. It has been used in traditional medicine for centuries for its adaptogenic properties, which means it can help the body adapt to stress. Rhodiola rosea contains a number of bioactive compounds, including salidroside, rosavins, and tyrosol. These compounds have been shown to have a variety of benefits, including:

- improve physical endurance and performance by increasing oxygen uptake and reducing fatigue.
- nreduce stress and anxiety by regulating cortisol levels, the body's stress hormone.
- enhance cognitive function by improving memory, attention, and focus.
- can help to protect against oxidative damage by scavenging free radicals, which are unstable molecules that can damage cells and contribute to aging and disease.

Ubiquinol [200mg] – Ubiquinol, the active form of Coenzyme Q10 (CoQ10), is a vital antioxidant naturally produced by the body, essential for cellular energy production and overall health. Personally, I prefer ubiquinol as I have an allergy to CoQ10. It has several potential benefits linked to longevity. Ubiquinol is primarily known for its role in supporting mitochondrial function, the energy-producing units within cells. This is particularly important for organs with high energy demands, like the heart, liver, and kidneys, potentially supporting their optimal function as we age. Its potent antioxidant property helps combat oxidative stress, a key contributor to aging and chronic diseases. Moreover, ubiquinol may enhance immune system function and improve physical performance, further contributing to overall health. Additionally, ubiquinol may support cardiovascular health. Studies suggest it could help lower blood pressure and reduce LDL cholesterol oxidation, reducing the risk of heart disease.

Vitamin B Complex – (The Vitamin B complex I use, which I just buy in the supermarket, contains B1 3.3mg; B2 4.2mg; B6 4.2mg; B12 7.5ug; Niacin 48mg; Pantothenacid 18mg; Biotin 150ug; and Folic Acid 600ug). A Vitamin B complex supplement that includes all eight B vitamins - B1 (Thiamine), B2 (Riboflavin), B3 (Niacin), B5 (Pantothenic Acid), B6 (Pyridoxine), B7 (Biotin), B9 (Folic Acid), and B12 (Cobalamin) - can provide a range of health benefits. B vitamins are vital for cellular metabolism, converting food into energy, making them essential for maintaining energy levels. They also play

crucial roles in brain function, with B1, B6, B9, and B12 particularly involved in neurotransmitter synthesis and homocysteine metabolism, potentially supporting cognitive health and mood. B3, B6, B9, and B12 may improve heart health by managing homocysteine levels, high levels of which are associated with an increased risk of heart disease. B7 aids in maintaining healthy hair, skin, and nails. B9 and B12 are particularly important during pregnancy for fetal brain development and preventing neural tube defects.

Vitamin D [1000 IU] – This is a must supplement. Vitamin D, often referred to as the "sunshine vitamin," plays an essential role in many body processes, contributing to overall health and potentially to longevity. Vitamin D is primarily known for its role in calcium absorption, crucial for maintaining bone health and preventing osteoporosis. It also supports muscle function and reduces the risk of falls and fractures in older adults, promoting healthy aging. Emerging research indicates that adequate vitamin D levels may help protect against a variety of health conditions, including heart disease, certain cancers, diabetes, and multiple sclerosis. It also plays a vital role in immune function, potentially reducing the risk of infections and autoimmune diseases. Furthermore, there's growing evidence suggesting that vitamin D may be linked with mental health, with deficiency associated with a higher risk of mood disorders such as depression. he general guidelines from the Institute of Medicine (IOM) for most adults (ages 19-70) is 600 IU (International Units) or 15 mcg (micrograms) per day. For adults over the age of 70, the recommendation increases to 800 IU or 20 mcg per day. However, many longevity experts believe these recommendations are too low, particularly for those at risk of deficiency. Some suggest a higher daily intake of 1,000 to 2,000 IU for adults, and more in certain cases.

PQQ [20mg]: PQQ, which stands for pyrroloquinoline quinone, is a naturally occurring compound found in small amounts in some fruits and vegetables, such as green peas, kiwi fruit, and broccoli. It is also produced by certain bacteria and yeasts. PQQ is a redox cofactor, which means that it helps to transfer electrons between molecules. This can have a number of beneficial effects on cells, including:

- Protecting cells from damage: PQQ can neutralize free radicals, which are unstable molecules that can damage cells and contribute to aging.
- Boosting mitochondrial function: Mitochondria are the powerhouses of cells, and they produce most of the energy that cells need to function. PQQ can help to protect mitochondria from damage and improve their efficiency.
- Promoting nerve cell growth: PQQ can stimulate the growth of new nerve cells, which may help to improve cognitive function and memory.
- Reducing inflammation: Inflammation is a normal part of the body's immune response, but chronic inflammation can contribute to a number of diseases, including heart disease, cancer, and arthritis. PQQ can help to reduce inflammation by inhibiting the production of inflammatory molecules.

Berberine-Genistein-EGCG

Before meals. This is a mix of three supplements that I do mix into a pill. The reason is that Berberine and EGCG taste horrible, so I really do not advice taking them as a powder supplement. In addition, Genistein needs to be taken as pill to have any effect. Here are the exact components:

- **Berberine HCL (berberis aristate root)** – Berberine, a bioactive compound extracted from certain herbs, has been studied for its potential health benefits related to longevity and overall health. Its primary mechanism of action involves activation of an enzyme called AMP-activated protein kinase (AMPK), which plays a vital role in metabolism and cellular health. Berberine has demonstrated promising effects in managing blood glucose levels, which can be particularly beneficial for people with type 2 diabetes. It works in a manner similar to metformin, a commonly prescribed diabetes drug, improving insulin sensitivity and reducing glucose production in the liver. In addition, berberine may contribute to heart

health by reducing LDL cholesterol and triglyceride levels, potentially lowering the risk of cardiovascular diseases. Preliminary studies also suggest that berberine might have anti-inflammatory and antioxidant effects, which could help combat chronic diseases and support healthy aging. Berberine is one of the most promising interventions to slow the accumulation of senescent cells by inducing autophagy. Autophagy is an evolutionary self-preservation mechanism through which the body can remove dysfunctional cells and toxic proteins responsible for many age-related chronic diseases and recycle parts of them toward cellular repair and cleaning. Berberine's benefits extend beyond the induction of autophagy and include optimizing metabolic pathways and upregulating the molecules that maintain the epigenome. It has also been shown to increase NAD+ levels through its activation of the AMPK enzyme.

- **Genistein** – Genistein is a type of isoflavone, a class of phytoestrogens predominantly found in soy products, and has attracted interest for its potential health benefits relating to longevity and overall health. One of the key areas where genistein has shown promise is in bone health. Research suggests that it may help prevent bone loss and increase bone mineral density, which could reduce the risk of osteoporosis. Genistein has also demonstrated potential anti-cancer properties, specifically in hormone-dependent cancers like breast and prostate cancer. It's thought to modulate cell growth and apoptosis, and inhibit angiogenesis and metastasis. Moreover, genistein may contribute to cardiovascular health. Studies suggest it can improve arterial elasticity and reduce LDL cholesterol levels, potentially lowering the risk of heart disease. Some preliminary research also indicates genistein might have neuroprotective effects, potentially reducing the risk of neurodegenerative diseases.
- **Green Tea Flavanols (EGCG)** – Green tea flavanols, particularly epigallocatechin gallate (EGCG), have been studied for their potential health benefits relating to longevity and overall wellness. EGCG, a type of catechin, is a potent antioxidant that neutralizes harmful free radicals and reduces oxidative stress, a major contributor to aging and various chronic diseases. This could potentially improve longevity and overall health. Research suggests EGCG can support heart health by reducing LDL cholesterol and blood pressure, potentially lowering the risk of heart disease. Additionally, its anti-inflammatory properties may also contribute to cardiovascular health. EGCG shows promise in weight management, potentially aiding in fat loss and improving metabolic health, which could have significant impacts on overall health and lifespan. Preliminary studies indicate that EGCG may have neuroprotective effects, potentially reducing the risk of neurodegenerative diseases like Alzheimer's and Parkinson's. Moreover, some evidence suggests that EGCG might have anti-cancer properties, inhibiting tumor growth and proliferation.

How to prepare:

1000 Capsules GGBS*	daily [g]	[g total 90d]	
Genistein	0.08	**16**	
Green Tea Flavanols (EGCG)	1.5	**300**	
Berberine HCL (berberis aristata) (root)	1.5	**300**	
Sophora Root (KuShen) [57] New	0.3	**60**	
			take 3 pills a day
	Sum	**676**	

*I use gelatine capsules of the size '00'. I use a device, MAISON NATURELLE Kapselfüller Gr. 00, to fill the capsules with the powder. It would take too much time to do it manually.

57 Sophora Root (KuShen). Strong evidence for longevity effects. But it tastes super bitter, really horrible, so it needs to be taken in a capsule. The main compound in it is **Matrine**, an alkaloid found in plants from the genus Sophora. It's known for its variety of pharmacological effects. Matrine has been shown to extend lifespan in a number of animal studies. For example, one study found that matrine extended the lifespan of worms by 15%. Another study found that matrine extended the lifespan of flies by 10%. Matrine has been shown to improve cognitive function in a number of animal studies. For example, one study found that matrine improved memory and learning in rats with Alzheimer's disease. Another study found that matrine improved cognitive function in mice with Parkinson's disease. Matrine has been shown to inhibit the growth of cancer cells in a number of animal studies. For example, one study found that matrine inhibited the growth of lung cancer cells in mice. Another study found that matrine inhibited the growth of breast cancer cells in mice. KuShen (Radix Sophorae Flavescentis) is the Chinese name for the root of the Sophora flavescens plant. It is a traditional Chinese medicine (TCM) herb that has been used for centuries to treat a variety of conditions, including inflammation, infection, and cancer. In addition to matrine, KuShen also contains other beneficial compounds, such as oxymatrine, sophoridine, and flavonoids. These compounds have also been shown to have a variety of health benefits.

63 - Garcinia Cambogia [2000mg, 60 % HCA] is a small, pumpkin-shaped fruit that is native to Southeast Asia. It is also known as the Malabar tamarind. The fruit's rind is the source of hydroxycitric acid (HCA), which is a compound that has been studied for its potential health benefits. HCA is a natural inhibitor of citrate lyase, an enzyme that is involved in the production of fat. By blocking the activity of this enzyme, HCA can help to reduce fat production and promote weight loss. **Some studies have also shown that HCA may help to prevent the formation of kidney stones.** Kidney stones are hard deposits that can form in the kidneys and cause pain and discomfort. HCA may help to prevent kidney stones by reducing the amount of oxalate in the urine. Oxalate is a substance that can combine with calcium to form kidney stones.

64 -Methylene Blue - I microdose it (about 1-2 ml/day of a 1% Methylene Blue solution, added to a smoothie). Methylene Blue is a unique compound that has garnered interest in the field of longevity and aging due to its potential health benefits and impact on cellular function. Here's an overview of Methylene Blue and its effects on longevity:



- Mitochondrial Biogenesis and Function: Methylene Blue exerts a significant impact on mitochondrial health and function. Mitochondria are often referred to as the "powerhouses" of cells, as they produce energy in the form of ATP. Methylene Blue enhances mitochondrial biogenesis, which is the process of creating new mitochondria, and improves their overall function. This results in increased ATP production and improved cellular energy levels, promoting enhanced physical and cognitive performance.
- Anti-Aging and Longevity: The positive effects of Methylene Blue on mitochondria have implications for slowing the aging process and promoting longevity. By boosting mitochondrial function and biogenesis, Methylene Blue may help delay or reverse age-related declines in energy production and metabolic function. Healthy mitochondria are critical for maintaining cellular and systemic health, supporting organ function, and reducing the risk of age-related diseases.
- Neuroprotective and Cognitive Benefits: Methylene Blue has been studied for its neuroprotective properties. It can cross the blood-brain barrier and provide benefits to the brain and nervous system. Methylene Blue enhances cognitive function, improves memory, and may offer potential protection against neurodegenerative diseases like Alzheimer's and Parkinson's. It promotes neuronal health and supports overall brain function.
- Antioxidant and Anti-Inflammatory Properties: Methylene Blue acts as an antioxidant, scavenging free radicals and reducing oxidative stress. Oxidative damage to cells and DNA contributes to aging and the development of various diseases. By neutralizing free radicals, Methylene Blue helps protect

against age-related degeneration, especially in the brain and nervous system. Additionally, Methylene Blue exhibits anti-inflammatory effects, further contributing to its anti-aging properties.

- Cardiovascular Health: Methylene Blue has been found to benefit cardiovascular health. It improves vascular function, enhances blood flow, and supports healthy blood pressure levels. Methylene Blue may help reduce the risk of atherosclerosis and improve heart health, contributing to a longer and healthier lifespan.
- Wound Healing and Skin Health: Methylene Blue has a long history of use in wound care and skin health. It exhibits antimicrobial properties, aiding in wound healing and preventing infections. Methylene Blue can also improve skin elasticity and reduce the appearance of scars, supporting overall skin vitality and renewal.
- Experimental Applications: Methylene Blue has been explored in various experimental contexts, including its potential use in cancer treatment. Some studies suggest that it may have anticancer properties, although further research is needed. Methylene Blue has also been investigated for its role in protecting against hearing loss and improving eye health.

65 - Gluthadion (liposomal) - Rarely I also Liposomal Glutathione (as it is very expensive), a supplemental form of the powerful antioxidant glutathione, designed for enhanced absorption and bioavailability. Glutathione is critical for detoxification, immune function, and protecting cells from oxidative stress. Liposomal Glutathione boosts antioxidant protection, supports liver detoxification, strengthens the immune system, and promotes healthy brain function. By reducing oxidative stress and supporting cellular health, it may contribute to healthy aging and increased longevity. It also offers benefits for skin vitality and appearance. Consult a healthcare professional before supplementing to ensure it aligns with your individual needs and health goals.

Zeaxanthin – Zeaxanthin, a carotenoid pigment found in numerous fruits and vegetables, plays a crucial role in ocular health, potentially contributing to longevity and overall health. It's one of the primary pigments located in the macula, the central area of the retina, where it helps protect against harmful blue light and oxidative stress, thereby reducing the risk of age-related macular degeneration (AMD) and cataracts. Beyond eye health, emerging research suggests that zeaxanthin might have broader antioxidant and anti-inflammatory effects that could confer protection against various chronic diseases, such as heart disease and certain types of cancer. In addition, some studies suggest a potential role for zeaxanthin in cognitive function. Higher dietary intake and blood levels of zeaxanthin have been associated with improved memory and other cognitive measures in older adults.

What Longevity Supplements I do NOT take (currently):

Allicin – Useful but way too expensive. It is in garlic, so I try at least to get as much as possible from garlic.
Aspirin – It may have positive effects, but it also has side-effects. Currently, until better data is available, I am neutral to it, but that doesn't merit taking it as supplement.
Human Growth Hormone - I think it is very valuable, but it is simply not available to most as it is a prescription drug. I have no access to it and try to boost it naturally.
Coenzyme Q10 - Not much support that it works for longevity. Personally, I have a rare allergy to it, so I do not use it anyway.
Resveratrol – The latest studies indicate that there are no significant longevity benefits. Other people swear it is working, but for now, as it is not cheap, there is not enough data that supports using it for longevity.
Vitamin E – Too many potential side-effects. You get enough from foods. High doses of Vitamin E can thin the blood and increase the risk of bleeding. This effect can be especially problematic for

people taking anticoagulant or antiplatelet medications. Some people might experience gastrointestinal issues like nausea, diarrhea, or stomach cramps. In rare cases, overconsumption of Vitamin E can cause blurred vision, dizziness, or muscle weakness. Vitamin E can also interfere with certain medications, including statins, niacin, chemotherapy, and radiation.

Potential Supplements

Here is a list of supplements that also could be beneficial for longevity. Some of them are included in well-known longevity supplements. However, I have **not yet tested** and evaluated them or there is a lack of enough data to make rational decision to include them in your daily supplements or not.

Acarbose	**200mg**	
Alpha-lipoic acid		
Allicin	Expensive	
Angelica Sinensis (root)		
Bacoba monnieri root		
Biovaflex (eggshell membrane)		
Butcher's Bloom (root)		
Crataegus Oxyacantha (leaf),		
L-Citrullin		
Drynaria Rhizome (root)		
L-Ergothioneine		
Fadogia Agrestis	600mg	Huberman, improves Testosteron, Fadogia Agrestis is a plant native to Nigeria. There it is used for a variety of issues. Andrew describes Fadogia Agrestis's use to increase testosterone as a Luteinizing Hormone mimic. Studies have shown that Fadogia increases blood testosterone concentrations. It is believed that it produces more testosterone by stimulating the testes.
Gemfibrozil		
Ginseng-derived rhamnogalacturonan I (RG-I) pectin		promotes longevity via TOR signalling in Caenorhabditis elegans
Haematococcus Pluvialis (standardized to 3 mg Astaxanthin)		
He Shou Wu (root)		
Inositol		
Luteolin (from Sophora japonica L. Flower Extract)		Senolytic
NAM		
Milk Thistle Extract		
Nordihydroguaiaretic acid	50mg	Part of Bryan Johnsons Blueprint. Nordihydroguaiaretic acid, informally abbreviated NDGA in research articles, is a classic lignan, a phenylpropane

		dimer linked by a bond between positions C8 and C8′, as opposed to a neolignan. A 1986 study involved feeding female mosquitos NDGA to test the effect on their average life span. While the usual mosquito life span was 29 days, the NDGA-fed mosquitos lived an average of 45 days—an increase of 50 percent. A 2008 study reported that nordihydroguaiaretic acid lengthened the lifespan of male mice, but not of female mice.however, renal toxicity and hepatotoxicity are reported for chronic use of creosote bush and NDGA.
Olive Leaf Extract		Senolytic
Panax notoginseng Root Extract		Senolytic
Pine Bark OPC's (Bark)		
Piperlongumine (from Piper longum Root Extract)		Senolytic
Polygonum Multiforium (stem)		
Polypodium Leucotomos (leaf)		
Proferrin	10mg	
Pterocarpus marsupium extract	?	
Pterostilbene		Pterostilben is an effective antioxidant ; The structure of pterostilben is similar to resveratrol, but two of the hydroxl groups in resveratrol are replaced by methoxy groups. This decisive structural change makes pterostilben much more bioavailable than resveratrol.
Rubus Chingli fruit		
Schisandra chinensis (fruit)		
Scutellaria Baicalensis (root)		
Selenium Glycinate (70 mcg Selenium)		
Serin		
Silybum Marianum (seed)		
Tongkat Ali (Eurycoma longifolia)	400mg	Huberman, improves Testosteron, Tongkat Ali is derived from a Southeast Asian plant where it is treated as medicinal with various uses. Studies have found that it may, along with possibly increasing levels of testosterone, increase semen volumes and sperm count. It is also believed to enhance erectile function and overall sexual performance.
Tryptophan	1g	45 before sleep. The amino acid, L-tryptophan, a serotonin precursor, taken in amounts of 1 to 4 grams at bedtime, has been used successfully for people with insomnia in many studies,including double-blind trials.
Tulsi leaf		
Urolithin A		
Vaccinium Uliginosum fruit		
Withania Somnifera (root)		

Foods

I recommend certain foods that should be the basis of a healthy diet. Most meals should be based on them, but they can be combined with almost everything.



Black Lentils (part of Hyperveggy) : Black lentils, also known as beluga lentils, are a nutrient-dense food that can contribute to overall health and longevity. High in fiber, they support gut health and aid in regulating blood sugar levels, potentially reducing the risk of type 2 diabetes. This dietary fiber also promotes satiety, contributing to weight management. Lentils are a plant-based source of protein, essential for muscle health and growth. They're rich in polyphenols, powerful antioxidants that combat oxidative stress and inflammation. Black lentils also provide a variety of essential micronutrients, including iron, folate, and magnesium, supporting diverse bodily functions. Folate promotes heart health by managing homocysteine levels, reducing cardiovascular disease risk. Iron supports hemoglobin production, ensuring efficient oxygen transport. Regular consumption of black lentils, as part of a balanced diet, can therefore offer several health benefits that may support longevity.

Broccoli (part of Hyperveggy): Broccoli, a cruciferous vegetable, is rich in nutrients that can contribute to longevity and overall health. It's packed with fiber, supporting digestive health, blood sugar regulation, and satiety. Broccoli is high in antioxidants, including vitamin C and flavonoids, combating oxidative stress and potentially reducing chronic disease risk. It's also a source of vitamin K, necessary for bone health and proper blood clotting. Significantly, broccoli contains sulforaphane, a compound with potent anti-inflammatory and cancer-fighting properties. Research suggests sulforaphane may inhibit cancer cell growth, reduce heart disease risk, and provide neuroprotective effects. Moreover, broccoli contains lutein and zeaxanthin, antioxidants linked to eye health, potentially reducing age-related macular degeneration risk.

Cauliflower (part of Hyperveggy): Cauliflower is an excellent source of dietary fiber, supporting digestive health, blood sugar control, and a sense of fullness which aids weight management. Cauliflower is high in antioxidants such as vitamin C, beta-carotene, kaempferol, and quercetin, which combat oxidative stress and inflammation, potentially reducing the risk of chronic diseases. Significantly, cauliflower belongs to the cruciferous family and contains glucosinolates, sulfur-containing compounds that have been researched for their potential anti-cancer properties. It's also rich in choline, a nutrient important for brain health, supporting neurotransmitter synthesis and maintaining the integrity of cell membranes. Moreover, cauliflower provides a low-calorie, low-carb alternative to grains and legumes, beneficial for those following certain dietary patterns.

Spinach (part of Hyperveggy): Spinach is an excellent source of dietary fiber, promoting digestive health and aiding in blood sugar control. Spinach is rich in antioxidants such as vitamin C, beta-carotene, lutein, and zeaxanthin, which combat oxidative stress, potentially reducing chronic disease risk. Notably, spinach is one of the best dietary sources of magnesium, essential for muscle and nerve function, blood sugar control, and bone health. It also provides a substantial amount of

vitamin K, crucial for blood clotting and bone health. Spinach is high in lutein and zeaxanthin, carotenoids linked to eye health. Regular intake could potentially reduce the risk of age-related macular degeneration.

Mushrooms (part of Hyperveggy): I love mushrooms. I love them so much, I want to build a massive underground, vertical mushroom farm one day. Mushrooms, due to their unique nutrient profile, can be beneficial for longevity and overall health, especially when used as a meat substitute in a plant-based diet. They are low in calories, fat, and sodium, yet high in fiber and protein, providing satiety without contributing excessive calories or unhealthy fats, which can support weight management. Mushrooms are rich in B vitamins, like riboflavin, niacin, and pantothenic acid, essential for energy production and red blood cell formation. They also provide minerals like selenium, a potent antioxidant that fights oxidative stress and inflammation, and potassium, which helps control blood pressure. Mushrooms contain ergosterol, a provitamin that converts into vitamin D when exposed to sunlight, aiding bone health. They also offer unique compounds, like ergothioneine and beta-glucans, with potential anti-inflammatory, immune-boosting, and anticancer properties. As a meat substitute, mushrooms offer umami flavor and hearty texture. Their high protein content can also help meet nutritional needs traditionally fulfilled by meat. The healthiest mushrooms, according to various research, include:



- **Shiitake**: Known for immune-boosting and anticancer properties, largely due to a compound called lentinan.
- **Maitake**: Rich in beta-glucans, these are studied for their immune-boosting and anticancer effects.
- **Reishi**: Often used in traditional medicine, reishi may boost immune health and has been studied for anticancer properties.
- **Cordyceps**: Traditionally used in Chinese medicine, they may improve immunity and could have anti-aging and anticancer effects.
- **Cremini/White Button**: These common mushrooms are high in antioxidants, including selenium. (The German term for "Cremini" mushrooms is "Braune Champignons", while "White Button" mushrooms are referred to as "Weiße Champignons".)
- **Oyster**: They contain high levels of antioxidants and are researched for potential cholesterol-lowering properties.

Garlic (Allicin) (part of Hyperveggy): Garlic, a widely used aromatic and medicinal plant, has several health benefits that could contribute to longevity. Garlic is known for its cardiovascular benefits - it may lower blood pressure and cholesterol levels, reducing the risk of heart disease. The compound allicin, released when garlic is crushed or chopped, is largely responsible for these effects. Garlic also has potent anti-inflammatory and antioxidant properties, thanks to its sulfur compounds and flavonoids, which can combat oxidative stress and potentially reduce the risk of chronic diseases. Moreover, garlic possesses antimicrobial properties that may bolster immune health. Additionally, some studies suggest that garlic may have cancer-preventive properties, although more research is needed in this area. Including garlic in a balanced diet can offer a variety of health benefits, promoting overall health and longevity. As always, individual nutritional needs and health considerations can vary, so consult a healthcare provider for personalized advice.

Curcuma (part of Hyperveggy): Curcuma, commonly known as turmeric, contains curcumin, a bioactive compound with significant health benefits that may promote longevity and overall health. Curcumin is a potent antioxidant that helps combat oxidative stress, a key factor in aging and many chronic diseases. It also has strong anti-inflammatory properties, which can help fight chronic inflammation, a root cause of conditions like heart disease, cancer, and Alzheimer's. Research

suggests curcumin may improve brain function and lower the risk of brain diseases by increasing levels of brain-derived neurotrophic factor (BDNF), a growth hormone that functions in the brain. Additionally, curcumin may reduce the risk of heart disease by improving the function of the endothelium, the lining of blood vessels. Some studies suggest it's as effective as exercise or certain drugs in this respect.



Coffee: Opposite to what most people believe, coffee, when consumed in moderation, can contribute to longevity and overall health due to its rich array of bioactive compounds. These include caffeine, which can enhance brain function and metabolism, and antioxidants like chlorogenic acid, which combat oxidative stress. Studies suggest coffee consumption is associated with reduced risk of several chronic diseases. It may lower the risk of type 2 diabetes, potentially due to effects on insulin sensitivity. Coffee is also linked to a reduced risk of Parkinson's and Alzheimer's disease, possibly due to caffeine's neuroprotective properties. The potential protective effects of coffee extend to liver health, with research indicating lower rates of liver cirrhosis and cancer in coffee drinkers. Additionally, some studies find an inverse relationship between coffee consumption and heart disease, although the relationship is complex.

Other Nutrient Rich Foods

Powerhouse fruits and vegetables (PFV), foods most strongly associated with reduced chronic disease risk, are described as green leafy, yellow/orange, citrus, and cruciferous items. The most nutrient foods are the following:

The clear number 1, meaning the most nutrient-rich food in the world is:

1.) **Watercress** is a leafy green vegetable that is native to Europe and Asia. It is a member of the cruciferous vegetable family, which also includes broccoli, Brussels sprouts, and kale. Watercress has a peppery, slightly spicy flavor and is often used in salads, sandwiches, and soups. Watercress contains antioxidants that can help protect cells from damage. Some studies have shown that eating watercress may help reduce the risk of certain types of cancer, such as stomach cancer. (Nutrient Density Scores = 100).





2.) **Chinese cabbage**, comes in second, is a type of leafy green vegetable that is native to China. It is also known as napa cabbage, celery cabbage, or bok choy. Chinese cabbage has a long, cylindrical shape and is light green in color. The leaves are crisp and tender, and have a mild, slightly sweet flavor. (Nutrient Density Scores = 92).

3.) **Chard** is a leafy green vegetable that is related to beets and spinach. It has large, crinkly leaves that are attached to a thick, crunchy stem. The leaves can be green, red, or yellow, and the stems can be white, yellow, or red. Chard has a slightly bitter flavor that is similar to spinach. (Nutrient Density Scores = 89).

4.) **Beet greens** are the leafy green tops of beets. They are a good source of vitamins A, C, and K, as well as fiber. They have a mild, slightly sweet flavor and can be eaten raw or cooked. Beet greens are often discarded, but they are actually a very nutritious part of the beet plant. (Nutrient Density Scores = 87).

Other foods

Cocoa [13]: - see in previous chapter -
Ginger Root [7] (part of Hyperveggy): - see in previous chapter -
Kimchi [26]: - see in previous chapter -
Olive Oil [27] (part of Hyperveggy): - see in previous chapter -
MCT oil [11]**:** - see in previous chapter -
Kefir [15]**:** - see in previous chapter -

I recommend using these foods as basis. They should make up most of what you eat and can be supplemented with other diets, for example, those known for the blue zones:

1. **Mediterranean Diet:** This diet, common in blue zones like Sardinia and Ikaria, emphasizes fruits, vegetables, whole grains, legumes, olive oil, and moderate amounts of fish and poultry. It's rich in healthy fats, fiber, and antioxidants, and has been associated with longevity, lower risk of heart disease, improved cognitive health, and reduced cancer risk.
2. **Okinawan Diet:** Inspired by the long-lived people of Okinawa, Japan, this diet is abundant in sweet potatoes, soy-based foods like tofu and edamame, a variety of colorful vegetables, and moderate amounts of fish. It's low in calories but high in nutrients, particularly antioxidants, which might contribute to their lower risk of age-related diseases and longer lifespans.
3. **Plant-based diets:** In many blue zones, like Loma Linda, California, people consume diets that are largely plant-based, including significant amounts of legumes, whole grains, fruits, vegetables, nuts, and seeds. These diets are rich in fiber, antioxidants, and healthy fats, and are associated with lower risks of chronic diseases and improved longevity.



Final note. I also recommend getting rid of eating meat as much as possible. I do not say to completely switch to vegan diet, I also still eat meat, however in moderation. 95%+ of my food is plant-based. Scientifically, the production of meat, especially red meat from ruminant animals (e.g., beef), contributes significantly to greenhouse gas emissions, a primary driver of climate change. The reasons are multi-faceted:

- **Methane Production:** Ruminants generate methane, a potent greenhouse gas, during their digestive process in a phenomenon known as enteric fermentation. Methane has a warming potential 28 times greater than carbon dioxide.
- **Land Use:** Livestock farming requires vast amounts of land, leading to deforestation and habitat destruction. Forests are vital carbon sinks, meaning they absorb more carbon dioxide than they release. Removing forests therefore accelerates climate change.
- **Resource Intensity:** Producing animal-based proteins generally requires more water, energy, and food crops (used for animal feed) than generating plant-based proteins. This resource inefficiency is environmentally challenging, especially given global water scarcity issues.
- **Waste Management:** Animal waste from livestock farming can pollute water sources and produce harmful gases.

By reducing meat consumption, demand for these environmentally detrimental practices decreases. Shifting towards a more plant-based diet can help mitigate climate change and promote a more sustainable food system. However, it's essential to consider nutritional needs and the sustainability of all food types consumed.

Fatty Acids & Lifespan

A new study investigated the relationship between fatty acids and lifespan. The study found that men (not so much women) with higher levels of long-chain omega-3 fatty acids (LC-omega-3) had a longer lifespan than men with lower levels of LC-omega-3.

The study also found that men with higher levels of saturated fatty acids (SFAs) had a shorter lifespan than men with lower levels of SFAs. However, the study did not find a significant

association between lifespan and monounsaturated fatty acids (MUFAs) or polyunsaturated fatty acids (PUFAs) other than LC-omega-3.
The study's findings suggest that LC-omega-3 fatty acids may have a protective effect against mortality in men. This is consistent with previous research that has shown that LC-omega-3 fatty acids can reduce the risk of heart disease, stroke, and some types of cancer. The study's findings also suggest that SFAs may have a detrimental effect on lifespan. This is consistent with previous research that has shown that SFAs can increase the risk of heart disease, stroke, and some types of cancer.

Advise: Increasing LC-omega-3 fatty acid intake and decreasing SFA intake may help to prolong lifespan in men.



What to do: Long-chain omega-3 fatty acids (LC-omega-3) are a type of polyunsaturated fatty acid (PUFA). They are essential fatty acids, which means that the body cannot produce them on its own and must get them from food. The two most important LC-omega-3 fatty acids are eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). EPA and DHA are found in high concentrations in fatty fish, such as salmon, tuna, mackerel, herring, and sardines. They are also found in smaller amounts in some plant sources, such as flaxseed, chia seeds, and walnuts.
There are a few ways to increase your intake of LC-omega-3 fatty acids:

- Eat fatty fish two to three times per week. This is the best way to get EPA and DHA from food. To protect wildlife, I do not recommend Tuna. I would switch between the other fish:
    - Salmon: $10-20 per pound
    - Mackerel: $5-10 per pound
    - Herring: $3-5 per pound
    - Sardines: $2-4 per pound
- Add flaxseed, chia seeds, or walnuts to your diet. These plant sources contain alpha-linolenic acid (ALA), which can be converted to EPA and DHA by the body.
- Lower intake of Red meat, such as beef, pork, lamb, and Poultry (especially the skin), and Dairy products, such as whole milk, cheese, and butter (which are high in SFAs)
- Avoid Tropical oils, such as palm oil. Instead, cook with healthier fats, such as olive oil or avocado oil.

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