

Healthspan Framework v1.2

At [No False Summit](#), one of our primary goals is for our members to be the best versions of themselves that they can be. Our individual health is one of the primary pillars of our ability to perform at our peak at work, for our families and community. As we enter the back half of our lives (age 45+), our bodies, brains and health goals continue to evolve. We want our members to be proactive about measuring and monitoring those changes to be able to live their best and longest lives.

There is more and more data and research published on the subject of longevity, where the focus should be on **Healthspan** over Lifespan. How can we add 10, 20 or even 30 more years to not just our overall lifespan, but to living those years healthily. What does living healthily mean? It means being able to do all the things you do today, without ill health impacting them. Like biking, hiking, shoveling the snow, driving at night in a storm, playing soccer with your kids (or grandkids), having sex, all “pain” free.

At our first [longevity event](#) in the Spring of 2023, 50+ NFS members got together with a great panel of local experts from performance to sleep to medical best practice. For those that missed this event, the full video of the panel can be found [here](#). Many of our attendees completed a post event survey, where 94% expressed an interest in taking a deeper dive into the topic of Healthspan.

We followed this up with a second longevity event in the Fall of 2023 with another 50+ NFS members. We challenged our audience to think about, and establish a longevity goal. Mine is to play tennis and ski on my 100th birthday. Many attendees were surprised at how difficult it was to create a goal for themselves. The full event was filmed and a link is [here](#).

Given all the feedback from these two workshops I have been working with a number of national experts (many living in Park City) to provide a framework and blueprint for thinking about your healthspan. This includes three main components:

1. How to get an accurate baseline of your healthspan and track changes over time
2. What are your goals driving the desire for a longer, healthier life
3. How can you understand what resources and lifestyle changes are needed to achieve your goals, based on your current baseline

The purpose of this whitepaper is to provide you with a framework with some best practices & resources to kick-start your healthspan journey. Also, through NFS we want to provide a community of others you can lean on for support as and when you need it.

This work may take months, years and even decades to perfect. But we all need to start somewhere on the journey, so my hope is that the information below will help you take that next step, and our community will help to keep you accountable to your own goals along the way.

Section One: Healthspan Baseline

Wouldn't it be amazing if we could wake up, check our phones and see a color coded representation of our body and its core components (heart, brain, bones, gut, nervous system etc..) illustrating their current status, and what things we need to act on to improve or reverse signs of aging.

Well this fantasy is maybe not more than a few years away, with advancements in AI, data tracking tools, and medical research. There are already a number of apps and services out there that you can tap into, and many of you might have already started doing that. However, from the interviews and research I have done with some of you, it's still a very daunting topic, complex and with limited support resources to access.

The goal of this whitepaper is to break things down into simpler language and blocks that make it easier to understand and therefore action improvement. I do want to add a disclaimer here that I am not a medical doctor, and while I have done a lot of reading, research and interviews, none of this material should replace advice from medical experts you might have chosen to work with. This model is something I am building for myself, as a 50 years old, reasonably fit guy who wants to live a long, healthy and happy life. I have a more specific goal of being able to play tennis & ski on my 100th birthday and so I am creating my healthspan plan to achieve that. Your goals might be different, but the ability to have a baseline and track it regularly should be done by everyone who wants to maximize their health in their “back 9” years.

Let's start by identifying the five core areas that you need to think about when creating a baseline of your healthspan.

1. Physical Functional Testing - how your body is working today, essentially how fit are you
2. Metabolic/Biological profile - what's going on inside your body
3. Genetic testing - what your genes can tell you about areas of concern
4. Cognitive Testing - how your brain is working, are you still sharp?
5. Vitality - your managing stress, maximizing sleep, connecting with your soul and having a clear purpose

1.1 Physical Functional Testing

The headlines are always full of “magical” pills and powders that promise increased health. Some of these can of course be helpful, but at the core of everybody's desire for a healthy life has to be regular exercise. To understand your baseline on your physical fitness, there are a series of functional tests that you should consider building into your routine. Many of these can be done at home, and should be on a regular (quarterly) basis and noted down in your healthspan tracking sheet (draft version here). Some do require you to visit a 3rd party, and where that is the case, I have listed a few recommendations.

Test Type	Why	Where	Frequency	Goal
VO2 Max - takes about 30 mins, approx \$100	VO2 max, or maximal oxygen consumption, refers to the maximum amount of oxygen that an individual can utilize during intense or maximal exercise. This measurement is generally considered the best indicator of cardiovascular fitness and aerobic endurance.	E4L (PC) LiveWell (PC) Dexa Body (SLC)	Annual (basic) Quarterly (advanced)	35+ (the higher the better)
Dexa Scan Takes about 30 mins \$75-\$100	Dexa Scan provides you with an in-depth analysis of your fat tissue, lean mass and bone density.	Dexa Body (SLC)	Every two years (basic) Annually (advanced)	T Score should be -1 or above. 50% of people are above 0. Only 2% of people are above +2.0
Grip Strength	Researchers say grip strength can predict your overall strength and health, as well as your risk of cardiovascular disease. As you age, the stronger your grip, the more likely you are to survive diseases like cancer. Maintaining muscle mass (and, as part of that, grip strength) is important for mobility and strength.	At Home or gym.	Quarterly (basic)	2 minutes is a good target for hang time from a bar, or use this grid for a grip strength machine.
Muscle & Joint Flexibility	As we age, often the first thing to go is a joint as it connects the muscles.	At Home or gym.	Quarterly (basic)	Tracking your injuries is a good metric. 0 = no injuries, 10 = major injury in one or more body parts
Resting Heart Rate	Resting heart rate can predict cardiovascular morbidity and mortality. Measurements are easy to obtain, and monitoring heart rate can help in cardiovascular	Use a fitness tracking device, or manually	Weekly (basic)	40-60

	disease prevention and management.	at home		
Waist Circ	Waist circumference is a good measure of fat around your middle. This type of fat builds up around your organs, and is linked to high blood fat levels, high blood pressure and diabetes. A larger waist usually also means there is excess fat inside your organs.	At home using a tape measure	Quarterly (basic)	Under 35inch
Macular Degeneration Exam (<\$80)	In the early stages, macular degeneration may not present with noticeable symptoms— a comprehensive eye exam is the only way to detect this serious condition.	Needs a special machine to scan the back of the retina. Check with your local doctor	Annual (basic)	None or a few small drusen (< 63 micrometers in diameter)
Hearing Test	A regular hearing examination will allow you and your hearing care provider to: Diagnose medical conditions. While most hearing loss is caused by aging, some losses are a result of an underlying medical condition.	Simple online test		
Smell Test	Poor sense of smell is known as an early sign for Parkinson's disease and dementia and is associated with weight loss.	Check for Garlic, Coffee and Coconut smells at home		

1.2 Metabolic/Biological Profile

Once you have established your functional tests, then you are ready to move onto the next level of Healthspan by checking your metabolic profile. This can be handled via blood tests. These can be done locally with your doctor (Intermountain offers these), or via a growing list of national providers who send you a blood test and home and mail the results to you. For this level, it is highly recommended to engage a medical doctor or a longevity coach who can help you figure out what all the data means that you can get back from these tests. The cost of getting these tests on an annual basis is between \$500 and \$2,000 per year depending on the frequency you want. The more frequent you get the tests, the easier it will be to see how lifestyle changes are impacting your Healthspan.

Test Type	Details	How	Frequency	Where
Cardio	VO2 Max above is all that is needed	Exercise machine	Quarterly	As above.
Hormone Testing	- Steroids (Testosterone) - Thyroid - Endocrine (Insulin) - Cortisol	Blood test	Annual	E4L (PC) LiveWell (PC) Function Health Inside Tracker
Blood Sugars	- A1C - Fasting insulin - LP(a)	Blood Test Continuous Glucose Monitor	Quarterly 1 month to understand your body	LiveWell (PC) Function Health Inside Tracker
Cholesterol	- Lipids (LDLs, HDL and triglycerides) -	Blood test	Quarterly	LiveWell (PC) Function Health Inside Tracker
Nutrients	- Calcium - Magnesium - Vitamin D	Blood test	Quarterly	LiveWell (PC) Function Health Inside Tracker
Liver & Kidney		Blood test	Quarterly	LiveWell (PC) Function Health

				Inside Tracker
Inflammatory Markers	- C-reactive protein (HS-CRP)	Blood test	Quarterly	LiveWell (PC) Function Health Inside Tracker
Food Allergies		Skin or blood test	One Off	Precision Food Works (PC) - Chris Tally \$1,300 for all tests. Will show you want food groups to focus on for your metabolism Function Health \$149 add on
-Lyme Disease -Celiac Disease -Heavy Metals -Allergen Test - IGF-1				Function Health

1.3 Non Blood Testing

There is a healthy debate in the longevity industry about how much your genes impact your health “destiny” vs [epigenetics](#). Epigenetics is what changes in your diet and lifestyle can do to change your cells (but not your DNA).

The table below shows different types of genetic testing you might want to look into. Again, all these forms of testing should be done in partnership with some kind of medical professional.

Test Type	Details	How	Frequency	Where
Cancer Screening	Some tests are specific to one type of cancer, others can screen for multiple cancer types, without doctors orders	- MRI full body - Blood test	Annual	Ezra (NY/LA) Galleri (PC) Prenuvo (NY/CA) Function Health add on
Prostate and Colonoscopy	Typically a physical exam, but blood test (PSA) can now be used for early detection. But a physical exam is still recommended	- In person	At 50, then every 5 years	Local primary care doctor
DNA	DNA tests can give you lots of information about the genes that make up who you are. They can confirm if you have or don't have a specific disease. They can determine if you have a higher risk of developing certain conditions.	- Cheek swab	One off. No age restrictions	3x4 Genetics
Drug Efficacy	These tests can help identify what type of medications work more (or less) effectively for your body. Essentially, how	- Pharmaco genetic testing (PGx)	One off - if you take medication and its not working	Quest Diagnostics

	the body metabolizes the medication.			
Heart Health	A heart scan - A cardiac CT calcium score, also known as a coronary calcium scan, is a quick, convenient and noninvasive way of evaluating the amount of calcified (hard) plaque in your heart vessels. The level of calcium equates to the extent of plaque build-up in your arteries. Plaque in the arteries can cause heart attacks.	- Cardiac CT Calcium scan	After age 45 - annual	Mountain Star (\$69) (SLC) Intermountain
Biological Age Testing	This is a relatively new concept and there are a few competing standards out there. Best to pick one and stick with it. These tests use a few different methods to see how quickly your body is aging. So does 1 chronological year = 1 biological year of body system aging	These markers may include telomere length, DNA methylation patterns, epigenetic age clocks, hormone levels, and markers of inflammation or oxidative stress measured from samples other than blood (e.g., saliva, urine, hair)	Annual	TruDiagnostics \$499 Generation Labs \$499 Function Health Novos DNage Elysium Health
MRI Scan	Full body (and often brain) scan to give you detailed 3D imagery on your body	Can be used for early detection of cancer growth, identification of muscle and bone issue, along with other health markers	1-5 years	Prenuvo \$2,500 - 4,000 Local Hospital \$500 - \$1000

1.4 Cognitive Testing

As we age, the brain constantly evolves. Although the brain stops growing in size by early adolescence, the teen years are all about fine-tuning how the brain works. The brain finishes developing and maturing in the mid-to-late 20s. The part of the brain behind the forehead, called the prefrontal cortex, is one of the last parts to mature.

Then, in our 30s and 40s, the brain starts to shrink in size, with the shrinkage rate increasing even more by age 60. As the brain ages, neurons also begin to die, and the cells also produce a compound called amyloid-beta. Amyloid beta is what is typically associated with Alzheimer's.

Even though our brain is shrinking during our 40s and 50s, Our general cognitive function should **not** [materially decline](#) until into our 60s or even 70s.

If we are feeling that our decision making and reactions are slowing down, this is more likely a factor of experience telling us to take longer to make decisions, or the body itself slower to react, than the mind itself.

Keeping our brain healthy is a combination of learning new things or doing brain puzzles to keep the brain stimulated. It also means maintaining a healthy diet to support our brain health and our overall physical health, exercising regularly, quitting smoking, and controlling cholesterol levels to maintain good blood flow to the brain. When was the last time you did something new for the first time? If you can't quickly think of recent answers, then it may be time to start adding some "newness" to your life to help flex your brain.

The way our brain works and processes information also changes as we age. [This](#) is a great 30min podcast to listen to in order to understand some of the changes that happen that we might not realize as they happen very slowly over time.

So with all these brain changes, how do we get a baseline that can be measured for our brains? It's not easy, and science is still being worked on in this area. But there are a few proactive steps we can take to keep a close eye on any changes to our mental abilities. These are likely to be more and more important for those in their 60s and 70s.

Test Type	Details	How	Frequency	Where
Cognitive testing	Checking for early signs of Alzheimer's is a key test for those who sense changes in brain function	General Practitioner Assessment of Cognition (GPCOG)	Test (Annual) Only if a doctor recommends	GPCOG Brain HQ Mountain Medical

		A full CT brainscan		
		EEG skull cap		
Tracking “newness”	Lifting weights strengthens our muscles, while strengthening our mental “muscles” improves our memory, attention, brain speed, people skills, intelligence and navigation. The key is variety. Similarly when we exercise our body, if doing something becomes too easy, it's time to make a change to build brain power.	Tracking how many new things you have done each week, or month or year. From relationships, to hobbies, to food, travel etc...	Ongoing - keep a log of newness “How many things have you done for the 1st time”	Custom NFS Healthspan Journal - if you need one, contact me, I have extras

1.5 Vitality & Emotional Health

This category of health and input into your Healthspan is critical, but traditionally very hard for you and health practitioners to measure. This area has a huge impact on Healthspan, so it's something we must add to our framework of measurement. The combination of how we deal with stress, how much sleep we get, how connected to your life's purpose and community around you are all critical dimensions in this area. Much of this can be tracked by yourself and shared with your partner or close friends.

Test Type	Details	How	Frequency	Where
Sleep Quality	Sleep is a critical component of health. Both consistency of hours and also 7-8 hours target if possible.	Sleep tracking tools are becoming more effective.	Daily	Oura Ring Whoop Band Apple Watch
Stress Level	The better we treat our body and mind, the faster we can recover from stress, and minimize its impact on reducing our Health Spans	Cortisol level (blood, urine or saliva test) Some new stress and emotion sensing devices you wear can give you real-time data	Results will vary greatly on the time of day it's taken for labs. So continuous monitoring is more accurate, but devices are still in R&D	LetsGetChecked (\$99) MyLabBox (\$149) Function Health NoWatch
Purpose	Do you feel you know it? Is it documented? Do you have a plan to do more of it?	Work with a life coach or with a partner or friends to discuss in detail. Some folks have explored the use of psychedelics to help open up the soul to new ideas and opportunities	Ongoing	Purpose measurement tool & survey
Community	In the recent Netflix documentary and	How many close friends do you	Annual	Research data and practical

	many other pieces of literature, the important of community and connection to longevity are key	have? How different people do you interact with for more than 15 mins per interaction.		ways to measure are still being developed
--	---	--	--	---

Summary

The challenge for all of us is that there is no single venue, app or dashboard to collect, organize and consolidate all this data above. You will find that you have to use multiple services, some local, some national, and basically compile the data yourself into a google spreadsheet. I personally know of a bunch of companies, some using AI, that plan to make this a little easier over the coming years, but there is still a big white space to solve this. Both from the collection of all this data, and converting the data into recommendations, delivered through a personalized care plan created just for you! Until then, you are stuck with multiple health portals and your own spreadsheets!

Section 2: Healthspan Goals

Most of us have lived our 20s, 30s and even 40s without a specific healthspan goal. Maybe we wanted to minimize risk of injury, or increase performance in a given sport. Some of us less fortunate may have been hit with an injury, disease or health issue that impacted our everyday living. But for most of us, these things don't really hit us until our 40s, 50s and 60s. Then we suddenly wake up with an aha and a goal to want to live forever!

While living forever is very very unlikely in our lifetime, many advocates of the biohacking and longevity research are saying living at least another 30 or 40 healthy years is entirely possible, and in fact, if you follow the [rejuvenation olympics](#), there are folks already planning on living to 150 and beyond.

So now let's think about you. What is your goal for your health span? I think it's helpful to be as specific as possible and make it a [SMART](#) goal.

For me, my goal as stated earlier in this document is to ski and play tennis on my 100th birthday. Well maybe not exactly both on March 17th 2073, but I will be able to play both sports at some level after my 100th birthday. To be able to do this, I will need specific muscle strength, joint mobility and stamina. While it's not easy yet to understand exactly what the exact bone density, muscle strength I will need, we are getting closer to mapping that. Then I will be able to compare my current baselines, and map out a plan to ensure I meet my body's needs at 100 and support these activities.

This of course is my goal, and personal to you. Why don't you take a few minutes now to think about what your longevity goal could be. Some examples are listed below to help you get started!

- Be alive for my grandkid's weddings
- To live healthily 10 years longer than my parents
- To be able to travel the world in my 90s
- To avoid getting heart disease like my uncle
- To live to healthily to 120
- To be healthily enough to continue to work like I do today until I am 80
- To be able to have sex as a 90 year old
- To avoid a family history of brain disease before I am 100

The goal might change over time, but it will start you on a path forward. Also, by having a goal, you can meet others in the group that have a similar goal, and therefore share ideas and motivate each other to keep moving forward!

Section 3: How To Make It Happen

Ok, so once you have your health baseline and your longevity goals, what can you do to make them become a reality?

There is a growing “buzz” in the health world about biohacking, longevity treatments and other often expensive and still “nascent” ways to increase your healthspan. We will touch on some of that later, but before thinking about experimenting with very new science, drugs and treatments, there is a base level of health improvement that should be implemented first.

The base level for everyone’s longevity plan should include these five core pillars to your health, as they all work together to give you the best foundation to build on.

1. **Movement/Exercise** - clearly a fundamental component of any longevity routine is exercise. There are a few sub categories within exercise, which should all be integrated:
 - a. Cardio - helps your heart, brain, burns calories to reduce weight and can also help with stress and improve sleep. Aim for an hour of two of vigorous exercise (70-85% max HRT or moderate (50-70% max HRT) intensity per week
 - b. Walking - yes simple walking is a key piece of any exercise program, so get out there on a hike, walk the dog and just replace a trip in the car with a walk to town. You can’t go wrong with the 10,000 daily step goal
 - c. Strength training - the importance of muscle and bone strength is key to longevity. Our bodies will inevitably decline at some point, and so increasing your strength while you can means you are putting off the decline. Good exercises include squats, push ups, pull ups, planks and deadlifts.
 - d. Stretching and balance - mobility of muscles and joint strength is critical to ensure sports and activities can be enjoyed in our later years. Your range of motion in core muscles will decline as you age, so keeping limber and tracking your range of movement is key. Yoga is a great practice to help, along with other core moves like squats and lunges. Proper form and progression is key for this area to avoid early injury.

The amount of exercise needed will of course vary depending on your goals and current condition, however, all these 4 areas should be integrated into your daily routines.

2. **Nutrition** - what you put in your body is almost as important as what you do with your body (exercise). There is so much conflicting information when it comes to food, and diet that it seems overwhelming. Everyone’s bodies are unique, but there are some golden rules that serve as the bedrock of any nutrition program. These fundamentals can then be augmented with appropriate testing and customizing nutrients, macros and supplements.

The fundamentals include:

- a. Drink lots of water. At least half your bodyweight in ounces of water each day. So if you weigh 200lbs, then 100oz of water, which is 10+ glasses, or 3 or 4 large water bottles worth. It's more than you think. Our bodies are 60%+ water and we need it for hydration, cell production, skin health, digestion and much more! If you find it hard to keep track of how many bottles you drink, then place the number of rubber bands at the top, and move one down each time you drain the bottle. When you have all the bands at the bottom, you are done! Try to drink one as soon as you wake up, and stop drinking a few hours before bedtime to avoid impacting your sleep with unwanted bathroom trips! Also include sugar-free electrolytes in your water, to get the minerals that often tap water (dead water) strips out.
- b. Avoid Sugar, especially refined/processed sugar. Sugar is in almost everything we eat from a package. There are also 100+s names of sugar substitutes so it gets harder and harder to spot. If you are a regular drinker of alcohol, try avoiding it for 30 days and you will quickly see the impact of that one, simple (but hard) lifestyle change. Try to look at the ingredients of any meals or products you buy. If sugar (or any of its [name sakes](#)) is listed in the first 5 ingredients, then try to skip it, or find an alternative.
- c. Increase vegetables. In our diets the meat (protein) and potatoes (starch/carbs) have taken over our plates, with vegetables being often left out. By simply increasing the % of each meal with vegetables, this will reduce consumption of things we need less, and increase more of what we do. Vegetables are rich in essential nutrients such as vitamins, minerals, and antioxidants, which are vital for maintaining overall health and well-being. Different vegetables offer various nutrients, so including a variety of vegetables in your diet ensures that you get a wide range of essential nutrients. This is why people say a vegetarian or vegan diet is healthy. However, often vegans load up on sugars and carbs which can have a negative impact on their diet.
- d. Minimize dairy. The human body was not designed to process dairy, and many people are lactose intolerant, even if they don't know it. Dairy does contain some essential nutrients, but the reality is many vegetables contain more vitamins and minerals than milk. Kale, broccoli and spinach all have way more calcium per serving than milk for example. So try to skip the dairy aisle when grocery shopping.
- e. Healthy grains. Whole grains are essential in a diet, but we often eat refined grains like white bread, white rice, pasta, pastries, and most breakfast cereals. Whole grains are quinoa, brown rice, oats, barley, bulgur, whole wheat, and millet. So when thinking about pasta, reach for the whole wheat variety, and pick brown rice over white rice every time you can! Your body will thank you.

- f. Supplement only where you need to. Often people buy and use supplements before they know what their body is lacking, assuming you can't overdose on Vitamins. While that is true, why waste the money on things your body is already getting enough of. Take that money and spend it on real, whole foods if you can. Once you have looked at your blood work, you can see if you need to supplement the body with things you are lacking in. Some of the most popular supplements for almost everyone are multi-vitamins, Omega 3 Fatty Acids, Vitamin D, Calcium and Magnesium.

A lot of attention is not being placed on the power or importance of intermittent fasting for our bodies. This research suggests that our bodies' evolution has for the most part developed on a feast and famine approach. Having small amounts of food for a while, then feasting on the kill when it infrequently happened. We have now replaced that approach with an abundance of food, with high calorific meals 2- 3 times a day, 7 days a week. Given this, our digestive systems do not have the rest time they are used to and so we are missing tapping into the body's natural way to stay healthy. There are a number of frameworks around intermittent fasting including:

- One common approach is the 16/8 method, where you fast for 16 hours each day and consume all your meals within an 8-hour window. For example, you might eat between 12:00 pm and 8:00 pm and fast from 8:00 pm until 12:00 pm the next day.
- The 5:2 diet involves eating normally for five days of the week and restricting calorie intake to 500-600 calories on two non-consecutive "fasting" days
- Q4 fasting is done once every quarter, meaning four times per year, typically aligned with the change of seasons or other significant intervals. The fasting period can vary depending on individual preferences and health goals. Some people may choose to fast for 3-5 days, while others may opt for a longer fast of 7-10 days. The duration of the fast can be tailored to individual needs and preferences, taking into account factors such as health status, fasting experience, and lifestyle factors.

Regardless of the type of fasting the generally accepted benefits can include:

- **Weight Loss and Fat Loss:** Intermittent fasting can help promote weight loss and fat loss by reducing overall calorie intake and improving metabolic health. By limiting the window of time available for eating, intermittent fasting can lead to spontaneous reductions in calorie consumption, which may result in weight loss over time. Additionally, fasting periods can promote fat burning and metabolic flexibility, making it easier for the body to access stored fat for energy.
- **Improved Metabolic Health:** Intermittent fasting has been shown to improve various markers of metabolic health, including insulin sensitivity, blood sugar control, and cholesterol levels. Fasting periods can help regulate blood glucose

levels, reduce insulin resistance, and promote fat metabolism, which may lower the risk of type 2 diabetes, metabolic syndrome, and cardiovascular disease.

- **Enhanced Cellular Repair and Autophagy:** Fasting triggers cellular repair processes such as autophagy, the body's natural mechanism for cleaning out damaged cells and recycling cellular components. During fasting, cells undergo a process of self-repair and regeneration, which may help protect against age-related diseases, improve immune function, and enhance longevity.
- **Increased Growth Hormone Secretion:** Intermittent fasting has been shown to increase the secretion of growth hormone, a key hormone involved in growth, repair, and metabolism. Higher levels of growth hormone can promote fat burning, muscle growth, and tissue repair, leading to improvements in body composition and overall health.
- **Brain Health and Cognitive Function:** Fasting has been associated with various cognitive benefits, including improved focus, mental clarity, and brain function. Intermittent fasting may stimulate the production of brain-derived neurotrophic factor (BDNF), a protein that supports the growth and maintenance of neurons, leading to enhancements in learning, memory, and cognitive function.
- **Longevity and Aging:** Some research suggests that intermittent fasting may have anti-aging effects and promote longevity by activating longevity-related pathways such as sirtuins and AMPK. Fasting-induced metabolic changes and cellular repair processes may help protect against age-related diseases and extend lifespan in animal studies.

Overall, the purpose of intermittent fasting is to harness the body's natural adaptive responses to fasting to promote health, longevity, and well-being. While intermittent fasting may offer various potential benefits, it's essential to approach fasting with caution and consider individual needs, preferences, and health goals. Note that there is growing evidence that there are some "supplements" that can mimic the fasting process. These include Metformin (AMPK), Rapamycin (MTOR) and Resveratrol. Before starting an intermittent fasting regimen or taking any supplements, consult with a healthcare professional to ensure it's safe and appropriate for your specific circumstances.

3. **Sleep** - this is another area with lots of conflicting science and urban myths - like UK prime minister - Margaret Thatcher only needed 4 hours of sleep a night! It's important to recognize that while some individuals may thrive on minimal sleep, consistently getting inadequate sleep can have negative consequences for health, well-being, and cognitive function. The general recommendation for adults is to aim for 7-9 hours of sleep per night to support overall health and optimal functioning. Recent studies have also suggested that it's not just the duration, but also the regularity of sleep that is critical. So getting less sleep during the week and then trying to catch-up at the weekends is not a great strategy. Better to have consistent wake-up and bedtime schedules.

Why is sleep so important:

- a. During sleep, the body undergoes essential processes of repair, regeneration, and detoxification at the cellular level. Sleep allows tissues to repair themselves, muscles to grow and repair, and the immune system to strengthen. Adequate sleep supports optimal functioning of various physiological systems, contributing to overall health and longevity.
- b. Sleep is essential for brain health and cognitive function. During sleep, the brain consolidates memories, processes information, and clears out toxins that accumulate throughout the day. Sufficient sleep is associated with improved cognitive function, memory retention, problem-solving abilities, and overall mental well-being.
- c. Sleep plays a crucial role in regulating hormone levels, immune function, heart health, stress and mood too!

There are many sleep trackers and devices on the market to assess your current sleep habits and patterns. If you don't want to spend on a device, or feel uncomfortable wearing one, simply keep a journal next to the bed and make a note of how you slept and what your pre-sleep circumstances were (alcohol, meals, tech). You will quickly see the connection between your habits and your sleep.

How to get a good night's sleep is of course of great debate and individual preference. However, a few golden rules include:

- Limit screen time, alcohol, caffeine and big meals before bed - try the 3-2-1 approach (no food 3 hrs before, no alcohol 2 hours before, no tech 1 hour before bed)
- Give your body a pre-sleep routine to relax, at least 30 mins before trying to fall asleep - reading, shower, music etc..
- Comfortable sleep set-up - cool, dark and quiet

So now you know all this, stop reading this whitepaper and get some good quality sleep!

4. **Stress Management** - Or more specifically mental stress and its impact on the body should not be underestimated. Our bodies are designed to handle short term stress very well, often called our fight or flight response. The "fight or flight" response, also known as the acute stress response, is a physiological reaction that occurs in response to a perceived threat or stressor. When faced with a stressful situation, the body releases hormones such as adrenaline and cortisol, which trigger a cascade of physiological changes to prepare the body to either confront the threat (fight) or flee from it (flight). These changes are part of the body's natural defense mechanism and are designed to help you respond quickly and effectively to a perceived danger.

The problem we are facing as a generation is our lives are getting more and more stressful and so our bodies are living in long term (chronic) stress, way beyond the short-term stress they are designed to handle.

Long-term or chronic stress can have profound and far-reaching effects on the body, impacting both physical and mental health. When the stress response is activated over an extended period, it can lead to a variety of physiological changes and contribute to the development or exacerbation of various health problems. This can include high blood pressure, heart disease and stroke - the no1 killer in the US. Beyond this it can also affect our immune system, digestive system, endocrine system and much more.

It's hard to avoid situations that can cause stress as they are all around us, from our work demands, to family, travel, self-expectations and even our physical environment. It's how we deal with these situations and minimize their impact on our bodies that is critical. There are many ways to develop stress reduction techniques that can be implemented into your longevity plan that should have a material impact on your cortisol levels, high blood pressure and other metrics of a stressful lifestyle.

Popular techniques that can be implemented to reduce stress include:

- Healthy lifestyle habits like regular exercise, sleep and nutrition
- Breathwork and/or progressive muscle relaxation
- Mindful meditation and/or Yoga
- Cold/Heat exposure
- Music and/or guided imagery
- Journaling
- Social support (aka men's groups)
- Spending time in nature

What is important is to find modalities that work for you, and make sure they become habits in your daily routines. Ignoring these and letting stress build up long term in the body is a recipe for disaster and a shortened lifespan.

I want to also address that not all stress is bad for the body. There is a growing body of research suggesting that some short-term "physical" stress can build resilience and other longevity promoting benefits. Engaging in short-term physical stressors, also known as hormetic stressors, can stimulate adaptive responses in the body that promote overall health and longevity. These stressors activate various physiological pathways, leading to improvements in resilience, metabolic function, and cellular repair mechanisms. Examples of this are exercise, intermittent fasting, cold exposure/plunging, heat exposure/saunas and breathwork. It's important to note that while short-term physical stressors can confer numerous health benefits and improve longevity, moderation is key. It's essential to gradually introduce stressors, listen to your body's signals, and prioritize recovery and rest between stress-inducing activities. Additionally, individuals with pre-existing health conditions or medical concerns should consult with a healthcare professional before engaging in any new stress-inducing practices.

5. **Purpose and Community** - This fifth and final pillar of longevity and often one that is least understood, tracked and implemented. As we age and get into the back 9 of our lives, often our purpose becomes less clear. Earlier in life it was about growing up, getting an education, often starting a family and then building a career. As many of these milestones get ticked off, the goals and purpose for the back half of life are less obvious and need more work to uncover and shape.

Retirement likely used to be the biggest goal for many men in their 50s and 60s. Looking forward to it, planning it and then enjoying it. However, many people don't get to enjoy it, as the body and mind can both slow down in retirement as they are no longer being challenged. This can lead to the inevitable and often rapid decline of our health, and shortening of our lifespan. I love the quote from Albert Einstein - "if you're not growing, you're dying".

So having a purpose and a community around you to support that purpose is a critical component of our longevity plans. This can often be more difficult than we think. There are many books, frameworks, groups and coaches that can provide some clarity on this. If you look at the data and experience coming from the [Blue Zone](#) documentaries, many of the 90 and 100 year olds still have not fully retired and have important roles in the community, even if it's just watching the kids of the next generation.

A goal of NFS is to provide some of this understanding, coaching and community to us as we go through these phases and develop more of a need around our future purpose. Measuring, tracking and improving our purpose and community is no easy task, but one we want to take on together!

6. **Environment and Toxins** - In the modern world we have introduced thousands of new chemicals, compounds and materials that did not exist over the past few hundred thousand years of our DNAs evolution. From [glyphosate](#), to forever chemicals, [microplastics](#) and even our food supply with heavy metals in our fish. There is more and more data showing us the harm these chemicals and products are doing to us. Also, a rising issue is the effects of foreign objects in our bodies from metal root canals to medical implants. This book, [a mouth full of poison](#), is a great read to understand what metal in your mouth can do, and the long term health effects. These metals and chemicals are everywhere in our homes and transmitted to our bodies via the skin, our largest organ.

If you have been suffering with a health concern that has been hard to pin down, it may well come from exposure to heavy metals and toxins. It's worth getting a heavy metal test and seeing if there is anything you need to remove from your body that you might not realize is there.

Other toxins that we might knowingly introduce into our bodies are tobacco, drugs and alcohol. These are all things that can affect our systems and should be reduced as much as possible to avoid the negative effects.

Once you think you have done everything you can to master these six core pillars for longevity, you are ready to move on to more advanced longevity tools, treatments and biohacks. Biohacker and longevity expert Brian Johnson has been spending up to \$3M a year to research many of these items. I was lucky enough to meet and hear from him a few months ago at a longevity retreat I attended.

I plan to cover these more in future versions of this blueprint, but for now I will include just the high level terms so you can do your own research if they sound interesting to you!

1. Age Reversal and regenerative medicine options **available today**
 - a. Fasting Mimetics including Metformin (AMPK), Rapamycin (MTOR) and Resveratrol
 - b. Skin rejuvenation
 - c. Hormone Replacement
 - d. Plasmapheresis and senolytic drugs (diluting senescent cells)
 - e. Gut microbiome
 - f. Brain reprogramming and memory enhancement
 - g. Advanced imaging and detection
 - h. Exosomes and Stem cells
 - i. Peptides (naturally occurring amino acids)
2. Age Reversal and regenerative medicine options being **researched/developed**
 - a. Digital twinning (creating a lab based version of your body to see how it reacts)
 - b. Organ regeneration
 - c. Advanced Imaging
 - d. Refortifying aging body parts (e.g. tooth enamel)
 - e. Dysbiosis
 - f. Genomic Instability
 - g. Stem cell exhaustion
 - h. Disabled macroautophagy
 - i. Deregulated nutrient sensing

Summary

So there you have it, pretty simple right? Certainly way more complicated than it should be to stay healthy and postpone the onset of disease. The simplest way to think about how to stay as healthy as you can, and build strength when it's easier to do it (in your 50s and 60s) because each decade it will get harder, and ultimately things will decline. So the stronger and healthier you are, the longer you will be able to put off the inevitable.

White Paper Author: Ashley John Heather, (not an MD), but a longevity enthusiast and co-founder of [Argentis Haus](#) (a Park City based health social club), Lumati (a San Diego based longevity clinic) and [Off The Scale](#) (an award winning health program proven to reverse chronic and lifestyle diseases). Also co-founder of [Honest Plate](#), a health meal delivery service transforming personalized healthy eating.

Appendix: Some Local and National Resources (Draft and work in progress)

Vendor	Type	Cost	Payment
Energy4Life Center in PC	Blood Test / Metabolic / Cancer / Brain	\$5,000+	Cash Pay
Intermountain Health in PC	Blood and Functional testing	\$2,000+	Cash Pay
100yearAthlete in PC	Fitness and mobility testing	\$100	Cash Pay
Cenegenics in PC	Blood Test / Genetics	\$2,000+	Cash Pay
Function Health App	Blood Test / Metabolic	\$499+	Cash Pay
Insider Tracker App	Blood Test / Metabolic	\$250-700	Cash Pay
Taylor MD	Genetics/Cancer MRI	\$999	Cash Pay
Galleri (can add to Function Health)	Genetics/Cancer Blood Test	\$1,250	Cash Pay
Dexa Scan in SLC	Functional/Bone Scan	\$100+	Cash Pay
Fountain Life	Rejuvenation Services	\$100,000+	Cash Pay