



maximon

Don't stop me now!™



THE MAXIMON LONGEVITY COMPENDIUM

A PRACTICAL GUIDE TO EXTENDING YOUR HEALTHY LIFESPAN



At Maximon, we know that healthy aging is possible, and we know that it will be easier to stay healthy until high-age by each year passing. What we also know is that you should not wait with longevity interventions.

You can (and should) act today. With this compendium we want to show you what you can do - today and tomorrow. Enjoy reading and stay healthy.



TABLE OF **CONTENTS**

WHY DO WE AGE?	06
LONGEVITY FUNDAMENTALS	10
DIAGNOSTICS TO START YOUR LONGEVITY JOURNEY	30
LONGEVITY INTERVENTIONS	41
LONGEVITY SUPPLEMENTS	48
PRESCRIPTION DRUGS & GEROPROTECTORS	63
WHY AND HOW TO MEASURE THE THE SUCCESS OF YOUR LONGEVITY PRACTICES?	66
OUTLOOK	71
THE MAXIMON VENTURES PORTFOLIO	72
REFERENCES	75
ABOUT THE AUTHORS	80



LET US BE HONEST - WOULD IT NOT BE GREAT TO STAY YOUNG?

The experience and wisdom that may come with aging is positive, however, the cracking joints, backache, sagging skin and more serious issues such as age-related diseases like diabetes, Alzheimer's, Parkinson's, cancer, hypertension and cardiovascular disease are a burden.

These diseases are the leading cause for what makes the last years of life miserable for a lot of people and are the leading cause of death in old age. In Switzerland, the average lifespan is 83.4 years - earning us second place on the list of countries with the highest life expectancy, right behind Japan with 84.3 years [1].

Our "health span" - the time we live without any age-induced illnesses - is only 71 years on average, which leaves a gap of unpleasant 12 years. At Maximon and our ventures, we focus primarily on this 12-year gap - to help you avoid being miserable for about a decade. Instead, live those years healthy and in great shape - and in the best case, enjoy an active life for even a few more additional years. However, as stated on the front page, you must start preparing now, and this compendium will give you guidance.

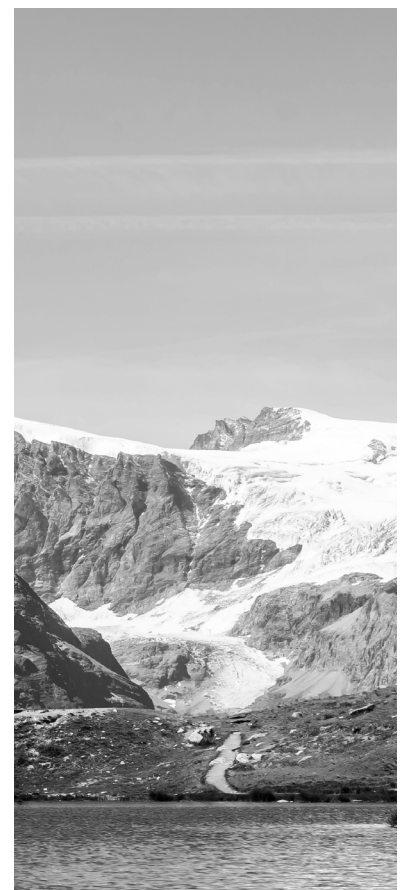


Please note that we are not talking about “sick care” here - we are not about treating diseases that could have been avoided in the first place. Instead, we want to prevent the actual underlying causes: we help you slow down aging, and, in some cases, even achieve a certain rejuvenation at the cellular and molecular level.

To achieve this goal, Maximon is continuously looking for the latest scientific research advancements and makes them available to as many people as possible through the companies we build. With our cutting-edge in-house research teams, which collaborate with leading researchers, scientists and doctors around the world, we have a second-to-none longevity know-how - and with this compendium, we want to share our insights with you.

While today, eternal life is not possible, there are many interventions to extend your health span by 5, 10 or even more years. A lot of the actions in this compendium will seem painfully obvious (hint: yes, it helps to stop smoking). Some interventions, however, are only about to become accepted science, and some topics are very promising, yet to be proven through larger scale scientific studies and human trials.

The goal of this compendium is to give you practical tips on how to live longer and healthier, which you can integrate in your life today!



WHY DO WE AGE?

Aging is something that we seem to accept without questioning it.

While the inevitability of aging is obvious to everyone, it was not long ago that we started understanding it.

About a decade ago, scientists identified the 9 reasons for aging. The rate of aging is controlled by genetic pathways and biochemical processes in cells at least to some extent - or in other words: we age, because our cells age and the body systems start to deteriorate. The scientific community described the mechanisms of aging in a seminal paper called “The Hallmarks of Aging” [2].

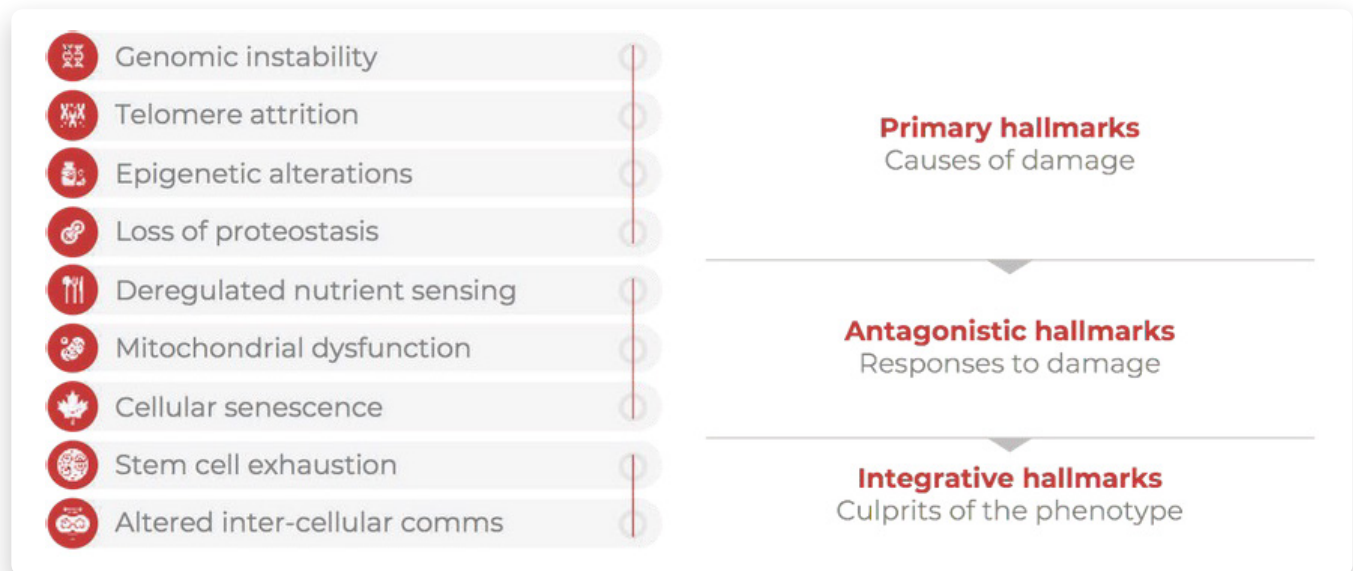


Figure 1. The 9 Hallmarks of Aging (image adapted from López-Otín C et al.)

After the problem has been formulated – which is always the first step in science - the good news is: Now that we know the reasons which lead to the problem, we also know some (potential) approaches to it and can start working on practical solutions.

Science has a good understanding of what needs to be done to tackle the major hallmarks of aging, as shown in the Figure 2. For each of them, there is a specific approach to address the impact on our bodies’ decline. However, while for every one of the hallmarks, theoretical interventions exist, practical interventions are not ready for all of them.

Furthermore, due to the ongoing research in the field of aging the scientist defined additional 3 hallmarks of aging: (i) disabled macroautophagy - over time macroautophagy activity declines and contributes to the accumulation of damaged cellular components, which lead to cellular dysfunction, thus leading to aging; (ii) Chronic inflammation - becomes more prevalent with age and can contribute to various age-related diseases; (iii) Microbial dysbiosis - closely related to inflammation, and it can disrupt the normal interactions between the microbiota and the host, leading to impaired immune function, altered metabolism, and other detrimental effects. Also, as we age the microbiota becomes imbalanced, with alterations in microbial diversity, abundance, or function.

At this point in time, some of the approaches shown in the Figure 2 have only been proven in the lab but are not yet ready for human trials. For others, a working solution is still being researched, and there is some discussion between scientists if “simply” tackling these hallmarks individually is really all we are going to need to fix aging, or if a more holistic approach is needed (at Maximon we are firm believers in the latter).

In this compendium, we will focus on what is possible and practical today.

As you can see from the Figure 3, it is not a single intervention that counts - it is a holistic approach to aging which includes lifestyle and diet changes, staying active, etc. while at the same time making use of the latest scientific discoveries in the form of supplements, senolytics and therapies.

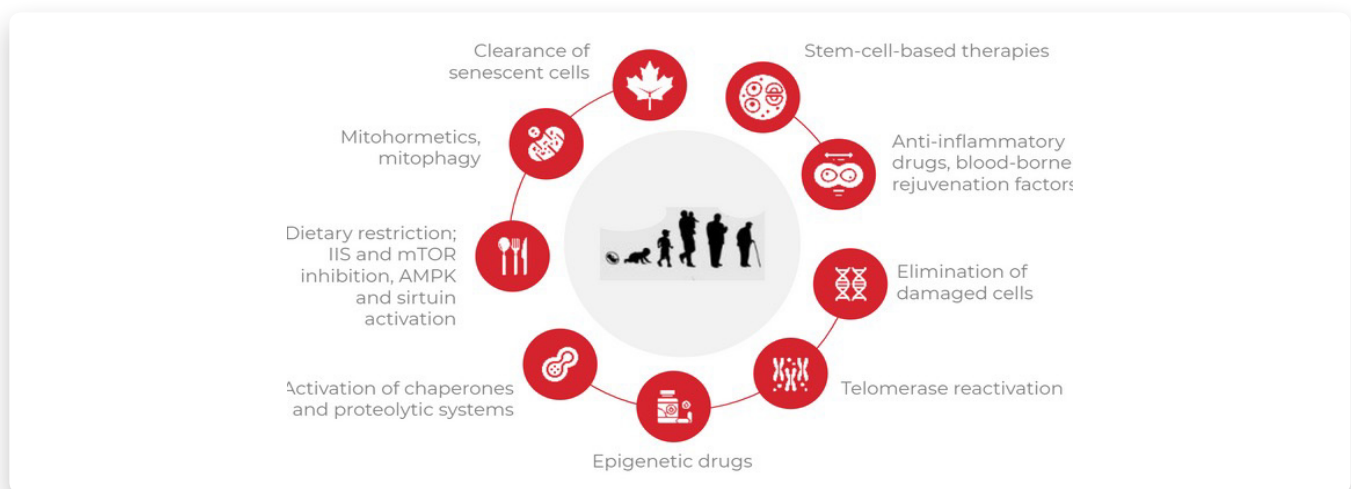


Figure 2. What needs to be done to fight aging?

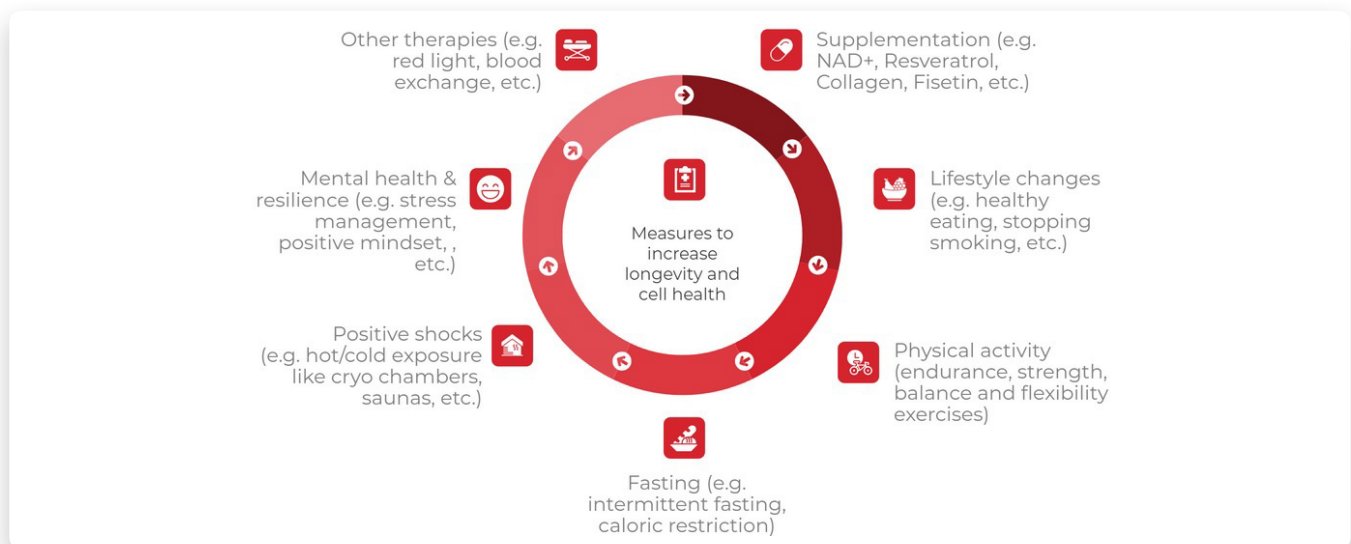


Figure 3. Interventions to tackle aging



BEFORE YOU START

Nobody likes disclaimers, but...

...any form of health intervention, no matter how harmless it may appear, must be carefully checked upon.

We can be allergic to almost anything you could imagine (including water [3], sunlight [4], cold temperatures [5] and - we are being serious here - exercise [6]).

What benefits one person could lead to life-threatening conditions for others

(for example, uncontrolled fasting for diabetics), and there are both foreseeable as well as unforeseeable interactions with medications, unknown health conditions that may be triggered, and some otherwise beneficial supplements may actually be dangerous (for example, for someone that suffers from cancer, some otherwise great supplements may speed up tumor growth).

Make sure to consult with a physician who knows your current health status before following any advice on health. This is particularly important in case you are pregnant, breastfeeding, have known pre-existing health conditions or currently do not feel well. If you are looking for hands-on support on your personal longevity through some of the leading experts in the field, our portfolio company Biolytica (www.biolytica.com) is offering tailor-made longevity programs backed by personalized health data analytics.



Also, the following is something we need to say:

None of the contents of this compendium should be considered medical advice – always consult a qualified healthcare professional for medical, health and dietary opinions, and any information within this document is intended for general guidance and information only and must never be considered a substitute for the advice provided by your qualified healthcare advisor, for professional medical advice, diagnosis, or treatment.

We can not and do not make any warranties or representations of any kind concerning the accuracy or suitability of the information contained, and to the extent permitted by mandatory law, neither Maximon, its portfolio companies, or any of the authors shall be liable for any direct, incidental, consequential, indirect, or punitive damages arising out of access to or use of any content available in this document, regardless of the accuracy or completeness of any such content.

Now that we have gotten that out of the way, let us get into it!

HOW YOUR JOURNEY TO LONGEVITY SHOULD BEGIN?

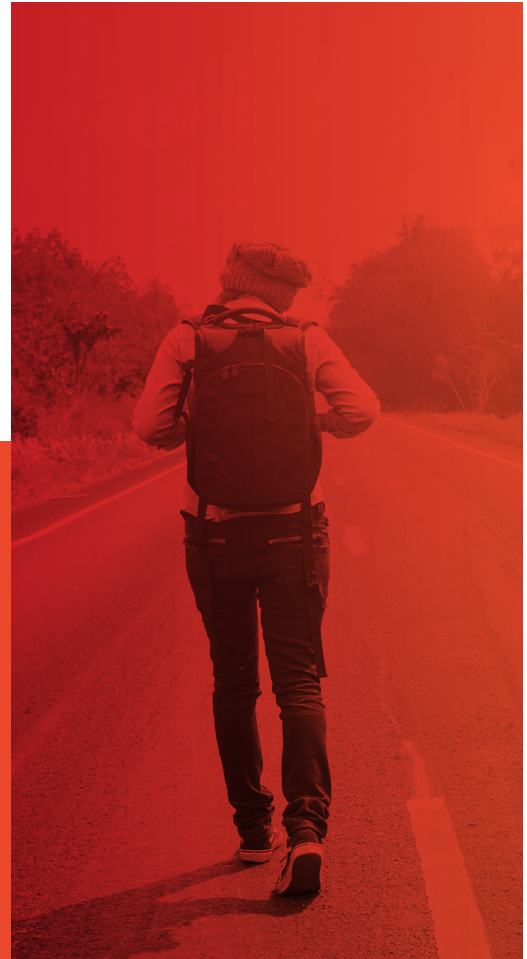
If your car is burning, then changing the brakes is not the highest priority, as important as it may otherwise be.

You want to make sure to put the fire out first and find the reason that caused it in order to prevent it from happening again.

Working with doctors on a daily basis, it is hard to put their frustration about how few people actually follow through on this very simple advice into words - actually, it is estimated that less than half of all people get regular check-ups, at all [7].

The same holds true for working on our longevity - before we start optimizing and trying to squeeze out some additional years of health span with highly specific optimizations, we must make sure that there is no acute (or chronic) condition that needs to be addressed first.

We do not want any bad surprises that stop you now that you chose to improve your longevity!



At the same time, 50% - 80% of premature deaths from heart attacks and strokes could be prevented [8].

LONGEVITY FUNDAMENTALS

In this chapter we are going to talk about actions of longevity fundamentals that you can practice for a longer and healthier life. The longevity fundamentals include:



SLEEP

"Sleep is the most important 'repair and restore' mechanism we have. It literally affects every aspect of our lives - from our mood to our ability to lose weight, from our immune system to our learning and memory"



PHYSICAL ACTIVITY

"Physical activity is an excellent stress-buster and mood-lifter. It releases endorphins, the feel-good chemicals, which make you feel happy and satisfied"



MIND

"A positive mindset can improve your health, relationships, and overall well-being"



NUTRITION

"Eating a balanced diet is one of the best things you can do for your body. It can help prevent chronic diseases, boost your immune system, and improve your overall health and well-being."