

**When Aging Becomes Optional**  
An Ethnographic Study of Anti-Aging Practices in  
London



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Spring 2024



## Abstract

This thesis is inspired by how technological innovation has spurred a “war on death”. By this, I refer to how aging has become an ‘optional’ process, rather than an unavoidable part of life. This thesis is a result of a five-month fieldwork in London, whereas the data is gathered by participant observation and interviews. My findings present an idea of aging being a disease, in which needs to be cured. However, I have found that this war is generally shaped by economic capacity, lifestyle, and gender. To take care of one’s aging body, now implies a responsibility of maintaining both a youthful exterior and a healthy interior. Interlocutors with different understandings of what aging ‘well’ means, do so by engaging in different anti-aging practices. These anti-aging practices includes slowing down, reversing or even stopping the aging process altogether.



## Acknowledgements

When I was writing my bachelor's thesis, I was part of a student-driven anthropology podcast with some of my fellow students. In one episode, we interviewed two PhD students from our department who discussed their projects on life and death in meeting with technology. One of them was part of a research project at the department called: Human Futures: A Study of Technoscientific Immortality, which inspired the idea for my own master's project that I would start the following semester. In the first semester of my master's program, I met with the leader of this project, Annelin Eriksen. I joined the research project, and Annelin became the supervisor for my Master's thesis.

First, I want to thank my supervisor Annelin Eriksen for always being encouraging and for giving me guidance along the way, for calming me down and reassuring me when I felt like my fieldwork did not go very well, for introducing me to new ideas and to people in the field, which helped me a lot during my fieldwork. I also want to thank the others involved in the Human Futures project: William Dawley, Fartein Hauan Nilsen, and Sigrid Torsnes. Thank you for giving me advice during my fieldwork, for helping me with interview questions, for the discussions and for useful tips along the way.

Thank you to my "colleagues" at the beauty clinic where I conducted parts of my fieldwork, for welcoming me with open arms. Thank you to all my interlocutors for sharing insights, participating in interviews and introducing me to people to talk to and ideas to explore. To my fellow Master's students, thank you so much for all the long lunch breaks, for making me laugh for the discussions and for the support. It has been two very memorable years, which I am very grateful for. Lastly, I want to thank my dad, Arve, for always cheering on me, and for all our interesting conversations.



## Table of contents

Abstract .....	III
Acknowledgements .....	V
<b>CHAPTER ONE An introduction to the anti-aging field in London .....</b>	<b>1</b>
<i>Setting the scene</i> .....	1
<i>The anti-aging field</i> .....	3
<i>The war on death</i> .....	7
Technoscientific Immortality.....	8
<i>Methodology and ethics</i> .....	9
Online ethnography .....	11
Anonymization.....	11
<i>Thesis structure</i> .....	12
Human futures: A study of technoscientific immortality.....	13
<b>CHAPTER TWO Freezing time .....</b>	<b>15</b>
<i>Scientific history: cryogenic culture</i> .....	17
Cryopreserving of human biological matter.....	18
<i>Cold technologies as a therapeutic agent: man’s earliest remedies</i> .....	19
<i>Cryonics: the taboo science</i> .....	21
<i>When time stands still: cryotherapy and cold plunges</i> .....	22
Cryotherapy .....	23
Cold plunges.....	25
<i>Time is money</i> .....	29
<b>CHAPTER THREE Transhumanism and the abolition of death.....</b>	<b>31</b>
<i>Our superhuman future</i> .....	33
<i>Explicit and implicit transhumanism</i> .....	36
<i>David Wood: The abolition of death</i> .....	36
The dog aging project .....	37
The “I-word” and the “T-word” .....	38
Bryan Johnson: project blueprint .....	40
<i>“We have come to take aging as a given”</i> .....	41
The war on death: a cultural connection.....	42
<b>CHAPTER FOUR Biohacking: aging, gender and individualism.....</b>	<b>45</b>
<i>The Health Optimisation summit: first encounter</i> .....	47
Tim Gray: “the prescription for optimal health” .....	48
<i>The market: natural- and technoscientific biohacking</i> .....	49
Natural biohacking .....	50
“Test, don’t guess”.....	51
Technoscientific biohacking.....	53
<i>Hacking hormones: “how to work with it”</i> .....	54
Performing gender .....	56
<b>CHAPTER FIVE Aging and economic capital.....</b>	<b>59</b>

External signs of aging: beauty is youth.....	61
The beauty clinic .....	63
Internal signs of aging: healthy and successful aging.....	65
Cold plunges and the loss of time .....	66
<i>How economic capital shapes understandings of- and the process of aging</i> .....	67
<i>Concluding remarks</i> .....	68
<i>Works cited</i> .....	71



## CHAPTER ONE

### **An introduction to the anti-aging field in London**

*“Five, four, three, two, one. Well done darling!”. I look over my shoulder to my left, and a cloud of cold air comes out of the cryochamber, a woman appears behind the cold air and breathes out in relief. “Well done my love” says Veronica, the manager of the clinic, and hands her a cup of warm tea. The woman is wearing a skirt and a top with the clinic’s logo on it, slippers, mittens, a headband, and a facemask. She wraps herself in a robe and sits down beside me in the pink velour sofa. I feel the cold air hitting my legs, and a shiver goes through my body. The woman is breathing deeply and smiling with her eyes closed. She seems very content. Sophia comes back to me with a cup of coffee for me and sits down beside me and says “so, tell me more about your project!”.*

#### **Setting the scene**

I am in one of the wealthy parts of London, working in a beauty clinic offering high-cost anti-aging therapies, to conduct parts of my fieldwork. My daily route to the clinic takes me through streets with beautiful, big, white houses with expensive parked cars. As I get nearer to the clinic, I also pass by fancy shops, cafés and a wide variety of beauty clinics, each with their own “approach” to beauty and anti-aging treatments: some offer invasive treatments like cosmetic injections, and some of them offer non-invasive treatments like facial masks and massages, while others call for more “natural” and “holistic” treatments. One can immediately sense that this is an upper-class area, the “poshness” is everywhere. I even walk past a dog café, where you can buy a “puppyccino” for your dog and a cappuccino for yourself. The people here look as wealthy as their surroundings. They are all well dressed, carrying bags from expensive stores, or walking their equally well-dressed dogs. People walking the street seem to be on the run, maybe late for a meeting or running errands. I am also struck by the constant buzzing sound from the city, even in the early hours.

The first time I visited the beauty clinic, I asked the manager if I could conduct parts of my fieldwork there; In the beauty clinic there is a big glass door and window at the entrance. On sunny days like this one, the sun would shine through the entrance leaving a warm and bright atmosphere in the reception. The walls are pink, and the reception is decorated with flowers, gold details, and artwork of women. The reception desk is covered in marble, and behind it is a bar area with a big coffee machine and a huge collection of different sorts of tea,

of the expensive kind. Customers are offered these refreshments after their treatments, in glasses and mugs inscribed with the clinic's logo. I immediately got the impression that there was a lot of money in this business. When I first I entered, I was greeted by a smiling woman, who introduced herself as Veronica. She is the manager of the clinic. She has long brown hair, tan skin and do not wear any makeup – only the skincare products sold in this clinic, she later told me, adding that she swore to these products. After introducing myself, I explained to her that I was not a customer but that I was in London to conduct fieldwork for my Master's thesis, and that my main interest was practices related to anti-aging, and that I wanted to understand how attitudes towards aging might be changing. She smiled and nodded as I explained, and she was very positive to the idea of me doing research in the clinic. Anthropology interested her, and she said that the clinic would be a perfect place for anthropological research. "Our clients are from all corners of the world, with different backgrounds, ages and with different problems and wishes" she said. And so, I started my observation of how aging is kept at bay.

One of the reasons why I wanted to do my fieldwork in this specific clinic was the cryotherapy they offered. Cryotherapy is an increasingly popular, and extremely expensive anti-aging treatment. There are other benefits from this therapy as well, I was told, but it is offered as an anti-aging treatment in this clinic. Whole-body cryotherapy can be done in two ways: a cylinder you step into (excluding the head) where liquid nitrogen is used to cool down the body. The other way, which was the one used (and preferred by many because it benefited the skin on their face) in the beauty clinic, is a chamber you step into with the same technology as a refrigerator: cold, dry air. When I started working there, I was handed a lot of pamphlets with information about the different treatments. This stated that cryotherapy reduces the skins temperature quickly and evenly, which allows for a different physiological response, compared to cold plunges, increasing your speed of recovery and accelerate healing. Because of the dry environment inside the cryochamber, the skin is not damaged, but the body responds to the low temperatures on a deeper level and improves the skin's overall condition.

I was curious about the cryo chamber in this clinic because this one did not use liquid nitrogen like most of the other clinics in London. I asked Veronica if she could tell me more about it and we walked over to chamber. There were two rooms inside this huge machine, the first room had a big glass door and another door inside that led into the second room – the cryochamber. In the first room the temperature is at  $-60^{\circ}\text{C}$ , and the big glass door works as a refrigerator, it keeps the temperature in the cryochamber at a stable  $-110^{\circ}\text{C}$ . The cryochamber looks like a sauna, with wooden walls and a big window facing the sofa I just sat in.

“They wait in there for one minute (the first room). After one minute I give them a thumbs up, to let them know that they are clear to enter the cryochamber and start their treatment”. On the outside of the chamber, right by the window, there is a panel. This panel controls the light and the music inside the chamber, and it displays the temperature in both rooms. Each client gets to choose a song that plays inside the cryochamber, Veronica said, to make the treatment more endurable. There is a microphone connected to the panel as well, which is used to communicate with the clients during their treatment. At the end of each treatment, Veronica use this to count down the last five seconds to let the clients know when they are done. This was to become my job at the clinic. Beneath the window, there is an Ipad displaying a countdown, facing the cryochamber. “What is this for?”, I asked. “So, the treatment lasts for three minutes. When they go in, I put on a countdown, so they have control over how long they have been in there”. In other words, it is very, very cold inside, and very unpleasant. Clients pay 90 pounds, for three very uncomfortable minutes. This is not your average spa.

I asked Veronica about the benefits of doing cryotherapy. “Cryo has a lot of benefits! It is anti-aging, it boosts your immune system, it helps with recovery after a workout or injury, it is good for stress relief, it improves sleep, and our clients tell us that it improves their mood as well”, she said. She gave me a pamphlet with all the benefits listed and more information about the treatment. At the first page it said, “backed by science and used for centuries, cryotherapy encourages regeneration at a cellular level as the body heals and rejuvenates from within [...]. Just three minutes will release endorphins, get the blood pumping, boost the metabolism, and will leave you coming back for more”. I asked if people come back for more, and she said that most of their clients are regulars, meaning that they come in every day – often twice a day. A woman came up the stairs leading to the changing rooms, she had just finished a treatment in the infrared sauna, to warm up after her cryo treatment. She was smiling and said, “Thank you so much, see you tomorrow!”, and walked out of the clinic where her private driver was waiting for her. I would get to know this woman, Sarah, very well during my fieldwork in this clinic, and I will return to her and the beauty clinic in the next chapters.

### **The anti-aging field**

Human lifespan has increased greatly in recent years. Along with increased life expectancy, a new understanding of death is developing, even a denial of death (Becker 1972). With the breakthroughs in science and technology, especially in genetic engineering, and the expectations that advancements of science will provide cures for increasing number of diseases, aging itself has become a disease to be cured (see also Eriksen 2023). Death is not only unfair

and brutal, but also, increasingly seen as something to be conquered. In my fieldwork, which I conducted in London from January to July in 2023, I researched how anti-aging was practiced in London today. I was looking at technologies (of very different kinds) people engaged with to slow down, reverse or even stop the aging process, and to understand how people make sense of what aging is, and how they navigate the process of (not) getting older.

In recent years anti-aging has become a part of our pop-culture. There are books that teaches you how to increase longevity, which were sold in any regular book shop in London. For example, Dr. Peter Attia's book, *Outlive* (2023), which promises to be the "ultimate manual for living better and longer". Dr. Peter Attia is a longevity expert, and in his book, he addresses the diseases of aging that lead to death (heart diseases, cancer, Alzheimer's disease, and type 2 diabetes), which he claims mainstream medicine has failed to make progress against. His book is a guide to how you can extend your lifespan, while improving your physical, cognitive, and emotional health. Similarly, Dr. David Sinclair, shares the "secret" to living longer in his book *Lifespan* (2019). His approach is that everything we think we know about aging is wrong and serves the reader methods that might increase your lifespan. Aging, according to Sinclair, is a disease – which is curable. There are numerous books claiming to have found the fountain of youth, and TV-series as well. Netflix launched a series in 2023 called *Live to 100: Secrets of the Blue Zones*. This series explore the "blue zones", which are regions around the world where people have the highest life expectancy, compared to the global average. It addresses the lifestyle, diets, and habits of people living in these blue zones to discover the secret behind their longevity. In *Limitless*, a series by National Geographic, the viewer gets to follow Chris Hemsworth on "epic challenges" in the search for a longer life. With the help from experts around the world, he takes on challenges to stop the diseases of aging before they get to him. In episode three of this show, Dr. Peter Attia helps Chris Hemsworth to find out how changing his eating habits can increase his lifespan.

With the emergence of new understandings of death and aging, as well as the emergence of individualism a key value and system of meaning in the West (Dumont 1986), age (and gender) becomes assets of the individual, and the biological body is increasingly also becoming an expression of the value of individualism (see also Eriksen 2016). Similarly, "possessive individualism", a concept lunched by Macpherson (1962), describes a specific version of cultures of individualism. The individual not only "own" things, as an aspect of legal and political cultures, but also "owns" their own bodies: as possessions. Thus, my initial interest in this project stems from my curiosity about how people with different social backgrounds, make sense of aging, when aging is no longer "necessary" or "natural" or "unavoidable", but

increasingly something to be avoided, and even turned into an *individual responsibility* of how to master “nature”. The idea that the aging body is turned into an individual responsibility, I argue, is what unifies the (very) different groups in my ethnography, which I will elaborate below.

With my fieldwork, I wanted to understand the concrete ways in which people in a metropolis like London, having access to the newest and most fashionable anti-aging treatments and ideas, made sense of what aging was, and their perceptions of, and engagement with, practices that were (not only, most importantly) geared towards avoiding aging as a process that leads to death. To achieve this, I spent time with different groups within the anti-aging field: a beauty clinic, cold plungers, biohackers and transhumanists. Based on my ethnography I will show how these groups can be divided into more mundane anti-aging projects that we all participate in some way, and more extreme practices that most people do not participate in.

In the beauty clinic where I worked, youth is the explicit and ultimate achievement. Here, beauty is youth. This reflects a major feature in the anti-aging industry. Beauty and youth become a lifestyle to be maintained every day, which brings me to the next group: the cold plungers. Cold plungers similarly lead a lifestyle where they swim in cold water (amongst other methods e.g. a healthy diet, natural products) to keep their youth, but on a more internal level, more worried with loss of time and function rather than looks. I will come back to this distinction, between the external and internal signs of aging, in chapter five. Some of the people in my ethnography might just be jumping on the most recent trend, as cold plunging has become more popular in recent years. But what became clear to me as I compared ethnography from the beauty clinic and the cold plungers, was these practices are shaped by the individual’s possession of economic capital (as I discuss in chapter five). When painting a picture here of these two groups, I should emphasize that these are not self-identified groups or categories. These are people who do not categorize themselves as a member of something, in contrast to biohackers and transhumanist where these titles are explicit parts of their own projects, and the terms are their own.

Biohacking can be described as a do-it-yourself biology (Grewe-Salfeld 2022). Over the last decade biohacking has developed into a transnational movement, and most biohackers are to be found in Europe and the US. Half of these groups have physical rooms where they meet, for example biohacking summits (Meyer and Vergnaus 2020, 1). There is an endless amount of “biohacks”. What I discovered during my fieldwork, is that there is a hack for everything: you can hack your sleep, immune system, movements, mind, energy levels, workouts, skin, breath, hormones, any illness, and so on.

Biohackers “take it up a nudge” when it comes to anti-aging: they go some extra distance and spend some extra time and money to be able to slow down aging a bit more than in the two groups described above. But this distinction is gradual, not absolute – as cold plunging or cryotherapy, for example, is practiced by biohackers as well. There are of course clear differences in the amount of time and money spent by people who take cold baths in a pond, and those who spend a lot of time taking supplements and treatments promising a slowdown of the aging process, but there is also a continuity. Even though not all the biohacks are directed towards anti-aging, biohacking is a lifestyle that focuses on optimizing your health, and they claim that the results of biohacking will affect healthspan (how healthy you live) and lifespan (how long your live).

The key person within biohacking in the UK is Tim Gray: a health optimizing biohacker who is known as the leading biohacker in the UK. He was chronically ill for a long time, and the treatments and medicines he received from his doctors did not seem to work. Because of his situation, he decided to start his biohacking journey to “self-heal” his body, which I learned is a common reason for people to start biohacking. Tim spent several years trying to get to know his body and health, through biohacking, and he was successful in doing so and claims to have reversed his biological age. After his success of healing himself, he wanted to “educate and empower the masses” (Health Optimisation Summit, 2023a). This is how, in 2017, “The Health Optimisation Summit”, which I will describe in chapter four, came to be. The summit’s goal is to provide people with knowledge, tools, and resources to be able to take their health and performance to the next level. This summit is now a yearly gathering for biohackers, and one of the largest ones in Europe, which I attended during my fieldwork (Health Optimisation Summit, 2023b).

Biohacking is also very present in social media. There is a Facebook group created by Tim Gray, where his “biohacking family” shares, and asks questions related to biohacking. This group has as of June 2024, 3600 members. Tim Gray also has an Instagram account where he posts biohacks and shares from his own journey. His posts are informative, and many of them play on a language based on fear and shock. These are some of the titles of his posts, both videos and pictures: “Are our supermarkets poisoning us?”, “This reduces life expectancy by 50%!”, “If I was a girl, I’d never touch the pill”, “Stop eating these 3 things”, “23 free biohacks to start the year strong”, “Warning! Do not drink from plastic lids!”, “Tap water vs. proper water”, “The dirty truth about oat milk”, “Are mattresses to blame for your health problems?”, “Why I refuse to touch hand sanitizer” and “How to tan safely without sunscreen”.

Transhumanists, who are really at war with death, argues that science and technology will make it possible for humans to overcome our biological obstacles, both mental and physical, and they want to make the humankind radically enhanced (Huberman 2020, 4). The transhumanists have several projects, but their main goal is to defeat death. London Futurists is an organization for transhumanists based in London. David Wood, the chair of London Futurists, is the key person in the UK transhumanist community. I met with and interviewed David, and I attended one of their events during my fieldwork. I will come back to David Wood and his projects in chapter three.

Cryonics, or cryopreservation, is one of the technologies that transhumanists hope will enable physical immortality. Cryopreservation implies that a human is frozen in liquid nitrogen after declared clinical death, with the hope of one day being revived when and *if* the technology makes this a possibility. In the UK there is an organization, Cryonics UK, that helps people who want to be cryopreserved. Their website states that science is constantly moving the boundary of what death is and when death occurs. They write that just a couple of hundred years ago humans would be buried if we stopped breathing, in the 1950's you would be cremated if your heart stopped, while in our time, they write, it is more likely that you will be revived if your heart stops. They describe themselves as “an ambulance to the future” and claim that the chances are fair that the technology required for reviving the cryopreserved will be available in the future (Cryonics UK 2023).

### **The war on death**

“The war on death” is a concept brought to my attention by Jacob Boss (2021). He writes:

*“The war on death is a response to the fact that human lives end and human bodies end. It is a call to action by those whose response to mortality was to seek to conquer death. The war on death is informed by nationalist imperatives, self-help movements, and dreams of technologically facilitated embodied salvation”* (2021, 136).

Although my thesis focuses mainly on aging, this is an analytical “entry point” I find useful, and a concept which brings into focus the more overarching, cultural questions: what is the relation between anti-aging practices (of varied kinds) and the more extreme idea of never dying? The war on death is also a war on aging. As I pointed out above; from popular culture (self-help books etc.) we observe how aging is seen as a process to be managed, as if it is, to a certain degree, voluntary. Aging is not “unavoidable”. A common phrase in the longevity and

biohacking community reflects this: “there is a difference between correlation and causation”. In other words: signs of aging are not necessarily caused by age (causation) but rather a parallel process. Age does not cause aging. You can avoid aging. Aging is a disease that can be cured, which is how many of my interlocutors phrased it.

### Technoscientific Immortality

The specific cultural idea of avoiding death by the help of technology and science can be described as “technoscientific immortality” (Eriksen 2023). Eriksen (2023, 142) argues that technoscientific immortality, i.e. the work on and for new technologies and science that can extend life and fight death, comes in a variety of forms on a scale from the ordinary (all modern science, from antibiotics to cancer medicine, are in some sense a technoscientific form of immortality), to the more extreme (cryonics). In this thesis I argue that the work on anti-aging is an integral part of this cultural phenomena I, with reference to the definition Eriksen (2023) gives, call technoscientific immortality. Anti-aging discourses and practices similarly occur on a scale where immortality and reversal of aging is at the one end and practices like cold plunges on the other.

To understand the war on death and the technoscientific immortality phenomena, I will use literature from the anthropology of death as well as medical anthropology. As Engelke (2019, 30) states, the classic works on death in anthropology have mostly focused on funerary rites and mourning. Today the anthropology of death has become a capacious field, linking to broader debates on violence, suffering, medicine, subjectivity, race, gender, faith, modernity, and secularity (Engelke 2019, 29). Although death is not a new field within anthropology, the war on death is a relatively new research field, and there is not a lot of analysis on this yet. The idea of using technology to overcome death and “cure” aging however has been around as a transhumanist idea for a long time. The first anthropological publications on transhumanist movements were (amongst others) written by Abou Farman (2013 & 2020) and Jenny Huberman (2015 & 2017), who did their research in the US. Anya Bernstein (2019) contributed with her research on transhumanist movements and cryonics in Russia.

The war on death has a lot of branches. Existing literature focuses mainly on transhumanism and biohacking, and shows that these blend into each other, while still being heterogeneous. But there is diversity within these groups. As Boss (2021, 137) shows, there are different subcultures within biohacking. He distinguishes between “punks”, “profiteers” and “grinders” who all take on different approaches to biohacking. I will return to this in chapter four. Boss stresses that subcultures are good to think with, and that they are not binaries that



restricts actors from being either this or that. It just helps, he claims, to navigate how identity is established and contested among biohackers (Boss 2021, 137). This idea of subcultures is good to think with, for this thesis as well, as the different groups I did research on are in many respects subcultures. They are different but they are part of a general cultural trend; where aging and death gain new significance in a context where science and technology promise endless breakthroughs and cures. On the one hand there is a scale of such technoscientific immortality projects, who all aim, in some way to conquer aging (or death). On the other hand, there are differences within these projects. I argue in chapter four and five that some of these differences are linked to money, lifestyle, and gender.

### **Methodology and ethics**

Anthropological research operates with qualitative methods and approaches (Zahle 2012). Prior to my fieldwork I was told, jokingly, that participant observation would be hard to do when studying people who do not want to age and especially those who never wants to die. And there is some truth to this, a fieldworker's participation in the informants' everyday life is after all a significant part of the qualitative method participant observation, which allows for both informal conversations, formal interviews as well as the opportunity to capture tacit knowledge (Zahle 2012, 54-55). Thus, when I arrived in London my plan was to first find a beauty clinic that I could work with, to be able to get to know the people who practice anti-aging, as well as being able to observe.

It took me a month to finally get access to a clinic, after a great deal of unanswered emails. When I finally found the clinic I would work in, as an unpaid intern, we agreed that I would work as a receptionist three times a week, while collecting data for my research. I got proper shifts trials and was well received by the clients, and the other employees: four lovely ladies that taught me everything I needed to know, and with whom I had interesting conversations about aging. I worked as a receptionist from February to April, and during this period I did observation, I had both formal and informal conversations with clients and the employees, which came to be some of the most interesting ethnographic points in this thesis. As for the participating part of the fieldwork, I got to do cryotherapy myself a couple of times, which allowed me to feel and experience what my interlocutors explained to me. Although I did not follow my interlocutors in their everyday life, I was present where they spent time every day, and learned a lot about them, their stories, and the technologies they used to combat aging. The clients, who came by every day, were informed when I was introduced to them that I would

do observation there and use the data for my Master's thesis, and I made sure that I received an informed consent from everyone I have written about in this thesis, not just the clinic.

Researching in the biohacking- and transhumanism field faced the same "problem" as described above, therefore I had to meet them out in the public, where they gathered and talked about these topics. My plan then, was to observe at events and to conduct formal and informal interviews with the people I got in touch with there. To be able to find these gatherings I joined Facebook groups and signed up for newsletters to be notified when a biohacking- or transhumanist event was happening. I quickly learned that the biohacking events were very popular. There were two events (besides the one I attended in June) during my fieldwork, and they were both sold out before I got the chance to click "buy tickets". So, I had to figure out a new way to meet biohackers.

Eventually I posted in one of the Facebook groups, administrated by Tim Gray, informing about my project, and asked if anyone was interested in being interviewed/have a chat about their biohacking journey. I got a lot of messages in the beginning from people telling me about their stories on how they got started with biohacking, and some of them expressed that they wanted to meet me. Unfortunately, most of them never replied again when I suggested a time for an interview. As they never replied, I did not figure out the reason to why they did not want to meet, but maybe they were reluctant to meeting me in person and thought that the meeting would be over chat or video call. I got some interviews, which were very useful, in addition to informal and formal conversations at the biohacking summit.

Prior to my arrival I had established contact with one of the figures in the transhumanist movement in London, the leader of the London Futurists; David Wood. We planned our first meeting to take place once I was settled in London. When I contacted him again in January, he was worried about the corona virus and did not want to expose himself to the chance of getting ill. There was no lockdown in London during this period, and the cases of corona viruses were low, but I learned that it was not unusual for transhumanists to worry about catching an illness. Hence, my first interview with David Wood was conducted via Zoom. In the middle of February, the fear of getting ill seemed to fade, and I was invited to an event by David Wood. At this event I started seeing the effect of the snowball sampling method (O'Reilly 2011, 44), because David introduced me to other transhumanists whom I spoke to, which led me to new people to interview and new ideas to explore.

After a while it became clear to me how encompassing and impactful the war on aging (and death) is, and how many branches it has, as the groups I have outlined above reflects. There were days when not much happened, but I searched for people to talk to online, ideas to

explore, as well as events, groups or companies to look further into. What I found was several online communities working towards making longevity and anti-aging more accepted by the public and to make it available for everyone – not just millionaires. While looking for more information about cryotherapy, I stumbled upon a website that suggested doing cold plunges instead of expensive treatments in beauty clinics. This is when I was made aware of a pond in the outskirts of London, where cold plungers plunge all year around. A quick Instagram search for this specific pond led me to a woman who did photography of the cold plungers. I messaged her, and it turned out that she was a cold plunger herself. I joined her for a morning swim in late February and got to participate in her daily ritual: from getting in her car, driving to the pond, going for a plunge, and then sitting down with a cup of tea afterwards. We spent the whole time talking about her routine, her friends at the pond and afterwards when we had our tea, and I did a more formal interview.

### Online ethnography

In May I had to travel back to Norway, one month earlier than I had planned (I did travel back to London to attend the biohacking summit in June). This was due to my living situation not working out anymore, and I was not able to find a new place to rent for such a short period. At first, I was worried that I would not get enough ethnography by doing the rest of my fieldwork online, but that was not the case. I did interviews online with people I found on social media, and I attended several online meetings and online events. Doing research online makes it harder to state your position as a researcher: e.g. in the Facebook group for biohackers, I had to send a request to become a member, since it was a group for members only. In my request I stated my position and intent as a researcher, but this information only reaches the administrators. As there were a lot of personal stories in this specific group, I posted an introduction of me and my project, stating that I would not use any of their personal stories or information without their consent. I did this wherever it was possible, but some of the online events did not have a chat function which made it impossible for me to inform the participants about this. However, at many of the events the only people speaking were the hosts and they were public and open for anyone, which means that this would be the same as attending a public event in the physical world, and therefore I use the same ethics here as I did at the physical events I attended, which I reflect over below.

### Anonymization

There are two persons I will mention by their full, real name. One of them are my interlocutor, David Wood. He is a public figure and the spokesperson of the transhumanist community in the

UK, and he is often seen in media and social media, and I did receive an informed consent from him to do so. The other one, even though he is not my interlocutor, is Tim Gray. Tim Gray will be a part of my thesis in the parts where I attend to biohacking, since he is the founder of The Health Optimisation Summit and like David Wood, he is also the spokesperson for the community. I will also use the full names on people who are presenting at public events. The rest of my interlocutors are anonymized with pseudonyms. The places I have conducted fieldwork, like the beauty clinic and the pond, are anonymized as well. I will only describe these areas, without naming the streets, areas, or ponds. The beauty clinic I worked in will be referred to as “the beauty clinic” and the other places where I did in-person I always asked for informed consent.

### **Thesis structure**

The next chapter will focus on using cold temperatures as therapy. The point of this chapter will be to show how my interlocutors “freeze time”, both biologically as in the practices I will describe (cryotherapy and cold plunges), but also mentally. This was a rather surprising find, which made me look at how the experience of time, and the pace of time, is changed when people use very low temperatures as therapy. This was very important for my interlocutors and seemed like a response to living in a busy city like London. First, I will include the scientific history to show how cold temperatures have been used by science and technology to develop medicine, and cures, to benefit humans throughout history, and then show how artificial coldness eventually ended up being a way to control life itself by freezing human biological matter, as well as the more extreme method of freezing oneself after you die – called cryopreservation. Even though I do not have ethnography of cryonics, I will draw on the work by Tiffany Romain (2010) to explain the continuities and compare this to my ethnography, as well as literature about the experience of time.

In chapter three I examine transhumanism in London, which is at the more extreme end of the war on death. My ethnography includes interviews with David Wood and other transhumanists, a transhumanist event in London, as well as some online ethnography. I will show how transhumanists do not take on the individual responsibility fight aging in the same sense as the others in my ethnography, thus I want to show how their individual responsibility is to try to make their projects appeal to the mainstream, general public.

Chapter four will examine the biohacking field, which is a broad field, where the main goal is to expand both your lifespan (how long you live) and your healthspan (how healthy you live). Biohacking is also a global movement and is not limited to the London scene where I did

fieldwork. Thus, what I observed at the biohacking scene in London might be specific for the UK in comparison to the US, which I will show by comparing my ethnography with Boss' (2021) ethnography from the US. In my analysis I will use gender as an analytical entry point, to show how the war on death takes on a gendered form, and how anti-aging through biohacking is shaped by gender, and how it can be seen as an extreme way of performing gender (Butler 2006). The biohacking summit I attended in London, as I will show, can be viewed as a marketplace where commodities allow and create an expectation for individuals to manage the aging- and gendered body.

Finally, chapter five will focus on the socioeconomical aspect of the war on death, specifically economic class. In this chapter I will elaborate on who the people from the different sites of my ethnography are. I will analyze how their economical class and background shape the way they make sense of aging. To do so I draw on theories of biopolitics and aesthetic capital, to gain an understanding of how my interlocutors engage in anti-aging practices of various kind, or as themselves phrase it: their anti-aging journey. The main point of this chapter is to show how there are intersecting factors that contribute to these understandings, but that economic class is still crucial.

#### Human futures: A study of technoscientific immortality

Prior to, and during, my fieldwork I have been part of a project at the Department of Social Anthropology at The University of Bergen: Human futures: a study of technoscientific immortality.<sup>1</sup> Through this group I got to attend seminars and meetings: we had a meeting every other week while I was in London, online, and discussed our field notes as well as articles. I got a grant for my travel expenses as well as participation at the biohacking summit. Throughout this thesis I will draw on the general discussions and ethnography that we have discussed at our meetings.

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<sup>1</sup> Human Futures: A study of technoscientific immortality: <https://www.uib.no/en/humanfutures>



## CHAPTER TWO

### Freezing time

*It's an early, cold morning in the end of February. The cars parked beside the pavement are covered in frost, and the sun hasn't quite risen yet. There isn't a cloud in sight. I'm in the outskirts of London, in a cozy area where the houses look like little cottages. I can see some people getting ready for work, but it's still early, I recon most of the people here are inside their homes drinking their coffee and getting ready for a new day. There are some cafés in this area, and a park. It's nice to get a break from the busy streets of Central London, where I spend most of my time. It's almost like the people never sleep there; the streets are always filled with people walking at a pace I hardly can keep up with. There is also the constant buzzing sound, that is made up from buses, cars and taxies honking, people talking (or shouting) and music playing from buskers at every corner. Here it is calm and quiet. I sit down on a bench beside the tube station I came from, while I wait for Evelyn to pick me up. Evelyn is a photographer and a "cold plunger". Today, she is going to take me for a cold plunge. She goes plunging three to four times a week with a group of cold plunge enthusiasts, before heading to work in the morning. I want to learn about why she does this, how it makes her feel and experience it myself as well. Looking at the frost on the cars and the cold air coming out of my mouth, I can't say that I am excited to enter the freezing water.*

In this chapter I look at the use of cold temperatures as therapy; both physical- and mental therapy. First, I want to take you through the scientific history of this phenomenon. I am going to start wide, by looking at where the idea of using cold temperatures to our benefit first started; cryogenic culture and the emergence of refrigeration technology, which made it possible for humans to preserve food and other biological matters (Friedrich and Höhne 2016). The relations between organic material and cold temperatures are not restricted to edibles but is also vital for medical history, and the human body. I will look at the development of the phenomenon of medical hypothermia, which dates all the way back to 3500 B.C. – and as we shall see, this long history of “frozen bodies” contains clues to how and why cold temperatures are used as a therapeutic agent today (Wang et.al 2006). I will offer a more detailed analysis of contemporary cryonics technology applied in the operation of cryopreserving humans, which has its own scientific history too (Farman 2020).

Cryonics entails the freezing of human bodies declared legally dead, in large tanks containing liquid nitrogen at *very* low temperatures, with the hope that future technology will enable new (or the continuation of) life. The practice was first established in the US in the late 1960's (Farman 2020, 35) and has been viewed as a slightly morbid phenomenon by the larger public, but recently gained more traction in the context of anti-aging and longevity discourses (Dawley et.al 2024). One of the first to write ethnographically on this phenomenon was Tiffany Romain (2010), who writes about how Americans engage in practices of speculating about, protecting against, and planning for the future in many ways, because “the future is an unknown entity”, which opens for several outcomes (Romain 2010, 195). Romain's ethnography explores how cryonics, one of the rather extreme practices some Americans do, is an investment to fend off disease, aging, and death, which she argues follows a specific American insurance logic. Her argument is that cryonics is an attempt to gain sovereignty over the limits of biological time (Romain 2010, 196). Stopping time through cold technology thus becomes an investment in future life. In my own ethnography I have found that the use of cold technologies extends to well-being and anti-aging. Although cryonics is significantly different from some of the cold-technologies I will discuss in this chapter, I think a comparison can reveal interesting similarities to do with the relation between time and the body. The focus of this chapter is thus the application of different kinds of cold technologies that stops time to heal bodies.

Thomas Hylland Eriksen (2016) reminds us that the economic development and the search for more profit has significantly influenced the idea of time, and of speed. Our world, in a global sense, is increasing in speed and in heat. Not just our world, but individuals as well. The idea of slowing down is becoming widespread, which I want to highlight in my analysis of why people use cold technology as therapy and I thus look particularly at the relationship between the different concepts of time, and the idea that “time is money” in a modern capitalist society. Thus, stopping time, by cooling down, becomes not only a means of stopping the biological developments but also a way of escaping a specific capitalist notion of time, of productive time. The main argument of this chapter is, using cold technologies as therapy is not just about taking control of the biological time (anti-aging), but also about stopping time at a mental level as a technique to handle, or step out of, productive time. My interlocutors cool down as a reaction to our “overheated world” (Hylland Eriksen 2016); the experience of time moving rapidly and the hustle and bustle of everyday life in the city of London. Cooling down is experienced as the opposite of their busy, demanding, and overheated world, and for a brief moment they experience that time stands still. Although this chapter is not specifically about anti-aging, my ethnography is based on technologies and practices that are promoted and



described as anti-aging. What I found during my fieldwork was that there was a common, and very important part of these different practices that was about the experience of time being changed by being in contact with very low temperatures – in chapter five will focus on these practices and look at how they are used to control biological time as well.

### **Scientific history: cryogenic culture**

Cryogenic culture, meaning “the ways of producing, distributing, maintaining and dispositioning organic matter via cooling, chilling and freezing” has been around since the late nineteenth century (Friedrich and Höhne 2016, 120). Cryogenes stems from the Greek word *kryos* (cold) and the Latin word *generare* (production). Friedrich and Höhne traces the history of cryogenic culture in western society, and state that in our present time, nearly every aspect of life is affected by cryogenic technologies:

*“Since the emergence of industrial refrigeration technology and the expansion of cold chains (temperature-controlled supply chain) in the second half of the nineteenth century, these processes have become a constitutive element of western societies. Presently, cryogenic technologies permeate nearly every aspect of daily life: we refrigerate our food, environment, medicines, organs, eggs, milk, sperm, tissue, blood, and much more”* (Friedrich and Höhne 2016, 121).

To gain an understanding of this development, I will take you through the scientific history of the emergence of cryogenic culture below, drawing on the work by Friedrich and Höhne (2016).

In 1806, the global pioneer of the natural ice trade, Frederic Tudor, successfully shipped a load of natural ice from Boston in the US all the way to the Caribbean. This was the first time anything like this had been done successfully in the Western society, which eventually led to the emergence of an entire network of ice houses across the globe (Friedrich and Höhne 2016, 124). Along with the expansion of the natural ice industry, came the previously unthinkable mechanization of mass slaughter of farm animals. Farmers and butchers were now able to use natural ice to refrigerate and transport their meat. In 1859 the slaughterhouses of Chicago began to store their meat products in cooled storage halls, and they also emancipated their trade from the seasonal rhythms that had determined animal butchery and the food culture earlier (Friedrich and Höhne 2016, 122-125). This led to a development of mass-production of meat, which transformed animal carcasses into mass-produced goods. The new refrigeration technology, enabled by the natural ice industry, made it possible to delay the natural

decomposition of animal meat, and other organic substances, which led to a new form of biological existence that changed the previous conceptions of life and death (Friedrich and Höhne 2016 [Cronon 1992], 125).

In 1880 the refrigeration technology developed rapidly due to a breakthrough in the industry. A mechanically refrigerated train, with artificial ice, was developed and implemented, which made it possible to ship even more fresh meat over large distances, as well as in the summer months. With this new possibility of shipping the meat over larger distances, the cold chain spread outside of Chicago. It stretched all the way across the entire North American continent, and at last England. Even though the artificial ice technology spread wide and fast there was a public mistrust growing, those in support of the traditional butchery claimed that it was unnatural and even hazardous to humans (Friedrich and Höhne 2016 [Cronon 1992] 126).

In the 1920's the first electrical refrigerators were introduced, and they soon became a standard article in households. Now that the cold chain had entered the households, a new economy of cold technologies enabled an effortless continuation of storage and provided fresh food for the middle-class. At this point, brand new trade opportunities and topologies emerged with the expansion of the global cooling networks, which enabled an availability of organic materials, kept fresh by refrigeration, that could be used for preserving food or medicine (Friedrich and Höhne 2016, 128-129).

#### Cryopreserving of human biological matter

A process for cryopreservation of vaccines were announced at the fourth International Congress of Refrigeration in 1924, and at this time there was a rapid pace of progress in the refrigeration-technology research. The public were fascinated by the refrigeration technology, and posed questions like: “to what extent was it possible to freeze and defrost organisms without harming or destroying their elementary vitality?” (Friedrich and Höhne 2016, 139). They would soon learn that it was possible to cryopreserve animal sperm, human cells, blood and entire organs and creatures (Friedrich and Höhne 2016, 143).

Fast forward to 1954, the first human was born after artificial insemination with cryopreserved sperm. This was possible due to a revolution in the cryogenic reproductive technology when scientists made improvements in the vitrification process; a method where biological matter is frozen and at the same time antifreeze agents are used to suppress the crystallization of freezing water within the cells, to prevent damage. Later, in the 2000s, a cryobiological archive was formed. The archive held and preserved animal, human and vegetable materials. (Friedrich and Höhne 2016, 144). These archives were called *cryo-banks*,

and one of the cryo-banks in Germany stated, “Cryo-banks preserve the fundamental national bio-resources for the future” (Friedrich and Höhne 2016, 145).

As we have seen, humans have used cooling- and freezing technologies since the nineteenth century. Refrigeration and freezing started with animal and food products, to keep the organisms fresh, to be able to nourish the living (Friedrich and Höhne 2016, 146). As the technology advanced, humans were able to use artificial coldness to freeze and preserve human organisms like blood, semen, eggs, or cells – the cryogenic culture gained a hold over life itself; “Thus, we can call the entirety of life made possible by cold-technological interventions “cryogenic life”. Insofar as the ultimate goal of cryogenic life is to maintain life at its freshest – meaning, its best, most usable, most valuable form [...]” (Friedrich and Höhne 2016, 146).

### **Cold technologies as a therapeutic agent: man’s earliest remedies**

Although cold technologies are deeply entangled with the rise of modern industrialization, and specifically food production, the use of cold technologies as a therapeutic agent has also been around for centuries. Wang et.al refers to this method as an ancient therapeutic remedy; “Cold, as a simple and easily accessible element, is among man’s earliest remedies” (Wang et.al 2006, 565). The authors trace the history of this phenomenon, and states that the first ever reference to the use of cold as therapy known to man is the Edwin Smith Papyrus, dated 3500 B.C. I will list some of the examples they give in their article below.

During the fourth and fifth centuries B.C., there are reports of total body cooling for tetanus treatment by The Hippocratic School of Medicine (Wang et.al 2006, 565). In the eighteenth century, the physician Philippe Pinel recorded the effects of hypothermia on mental illnesses. He reported that a patient escaped from an asylum in Pyrenees, France, and roamed around in the wintery forest. After a while out in the cold, he supposedly became gradually dispossessed of his mania. At the same time, in Liverpool, James Currie employed cooling techniques for the treatments of numerous clinical disorders and documented the first records of human temperatures in health, disease, and experimental conditions. In the 1800s when Napoleons Grand Army was active, the surgeon Baron Larrey used ice and snow to perform painless amputations and other operations on soldiers. At the John Hopkins Hospital in the US in the late 1800s, William Osler brought the average mortality from typhoid from 24,2 percent down to 7,1 percent by using a body cooling regimen. Despite of all these explorations (and more), clinical hypothermia never gained recognition in medicine or in public at this point of time (Wang et.al 2006, 566).

In 1938, a neurosurgeon introduced whole body hypothermia as a treatment for head injuries and malignancies (cancerous cells). The neurosurgeon, named Temple Fay, carried out the procedure on a patient after several weeks of doubt. The physiological teachings of the past indicated that humans could not survive at such low temperatures. When he made up his mind to go through with the procedure, he prepared 70 kilograms of cracked ice for his patient to lay in. The patient's body temperature remained in a state of 32°C for 18 hours, within a few hours after being removed from the ice bath she gained consciousness. The nurses at this time refused to take part in such experimental treatments, therefore a state of mutiny was prevailing. As the time passed Fay developed a cooling blanket to use in his treatments, and he conducted 169 episodes of total human refrigeration on cancer patients suffering with chronic pain. Fays treatments had a high success rate of pain relief (Wang et.al. 2006, 566).

After Fays success with whole body refrigeration, he developed a medical instrument that made it possible to use localized hypothermia, which was routinely applied to patients with severe head injuries and diseases. These treatments too had a high success rate, and Fays work, presented as the "Human Refrigeration Program" was eventually presented at the Third International Cancer Congress in 1939. Unfortunately, the Human Refrigeration Program and the benefit of clinical hypothermia was set back for decades after the Nazis got their hands on this research. In the Nazi concentration camps, hypothermia techniques were brutally applied to prisoners without the benefit of anesthesia. These atrocities were exposed in the Nürnberg trials, which resulted in researchers and doctors not wanting to be associated with the horrible acts of the Nazis (Wang et.al. 2006, 567).

Wang et.al. explain how research on whole-body hypothermia stopped for a while, but using instruments like the ones Fay had developed did continue. The first cryoprobe system cooled by liquid nitrogen, with a temperature at -169°C, was developed by the neurosurgeon Irving Cooper in 1961. He designed his apparatus with treatment of parkinsonism in mind, but he also developed an interest in clinical cryosurgery after its development. As time went on, his apparatus was used in treatment of patients with advanced cancer (Wang et.al. 2006, 567). From 1963 to 1970, 8000 patients with parkinsonism got his treatment, and benefits were evident in 85-90% of the patients. After a while, new treatments were developed by others and the cryosurgery fell into disfavor. In the 1990's the interest in such methods were revived and were once again used in medical procedures and operations (Wang et.al. 2006, 568).

Treating various diseases, both psychical and physical, by using cold technologies is described as "man's earliest remedy" (Wang et.al 2006, 565). Cold technology has developed

into many new paths since the 1990's and can be viewed as part of technoscientific immortality projects. One of them has made it possible to stop time at a biological level.

### **Cryonics: the taboo science**

Cryonics is seen as a technology for extending your life into the far future and in principle making you immortal. In her study of cryonics in America, which is the first ethnographic portrait of these practices in anthropology, Romain (2010) traces the beginning of cryonics back to 1962, when Robert Ettinger published his manifesto *The Prospect of Immortality*. The manifesto proposed that people should engage in great “freezer programs”, and by 1967 the first two people were frozen in liquid nitrogen (Romain 2010, 195). The scientific history behind cryonics shows a history fraught with stigmatization, which was also the case when artificial cooling systems emerged in Chicago, as well as with medical hypothermia that was stigmatized before and especially after the Nazis used these techniques, which is a fact the cryonicists themselves frequently refer to when they make sense of the lack of interest from general public and mainstream science (Dawley et.al 2024). There has been, and still is, a tension between cryobiology (cold science) and cryonics, which has been marginalized as a “taboo science” (Farman 2020, 69). Farman states that the boundary work of science has remained vigilant around immortality, he writes:

*“Immortality as a concept and research object has had a fraught contemporary history – at times being stigmatized, at others carrying fourth a central hope, at times denoting primitive error, at others carrying modern promises, at times bearing a secular promise, at others threatening it with atavism”* (Farman 2020, 69).

Cooling and freezing technologies used to preserve food and other biological materials paved way for the idea of cryonics (Farman 2020, 69), and even more so the freezing of living, human and animal organisms like semen, eggs, and embryos. Henry Power, for instance, in the 1600's, successfully froze and revived vinegar eels. This inspired Robert Boyle a decade later, who did similar experiments with fish and frogs. At this early state of freezing and reviving, scientists like Power and Boyle had problems with damage after thawing. Experiments like these continued into the twentieth century and was formalized in the 1903s (Farman 2020, 70).

The history of how humans have used cold temperatures to our benefit is long. As I have shown, artificial coldness is an essential part of our daily lives and have gained a hold on life itself. We use it to preserve food, medicine, or biological material. Artificial coldness also plays

a big role in medical and aesthetic treatments, surgeries or at the very edge – extreme life extension (Romain 2010). The emergence of medical hypothermia shows similarities to how the cold technology is used as a therapeutic agent for chronic pain and mental health today. Cryogenic cultures and refrigeration taught humans to control life and death; first by preserving food with refrigeration, then cryopreserving human tissue, succeeding in cryogenic reproductive technology, and at last preserving human bodies that eventually (they hope) will be revived in the future to enable eternal life. Although cryonics have been tabooed both in science and the public, it is a slightly different version of the same idea (extending life through the use of cold technology) emerging in the context of health, well-being and lifestyle. With my ethnography from London, I will show how using cold technologies in anti-aging treatments is gaining increased popularity in the world of health and well-being, not just in the scientific- and medical world.

### **When time stands still: cryotherapy and cold plunges**

During my first days of working in the beauty clinic, I discovered the varieties in people's reasons for doing cryotherapy, which became more prominent during my fieldwork as well. Before I started working there, I assumed that the motivation for most of the clients were to discipline their looks and control signs of aging. First, because of how the treatments were advertised, with words as “anti-aging”, “natural beauty”, “weight loss” etc. But also, because of how the clinic looked – clean surfaces, pink and gold interior, and pictures of “flawless” women. It gave me the impression that this is a place you go to if you want to improve your looks by maintaining your youth. But my first encounter with one of the clients opened my eyes for other reasons than just aesthetics.

This client was a man from London in his forties. He was doing cryotherapy in this clinic every day, if he was not travelling for work. During the whole session he stood in the cryo chamber with his arms raised above his head and his legs wide apart. To remind you, the temperature inside of the cryo chamber is at a negative 110°C, and the sessions lasts for three minutes. Veronica, the manager, told me that it is very hard to stand like that for three minutes, because when you expose more skin, opposed to standing with your arms around your body, the cold temperature feels more intense, and the session gets harder to endure. I did the treatment a couple of times during my fieldwork, and I cannot say that it was comfortable. I did not understand why he would want to make the session harder than it already is. So, when he was done, I asked him about it. He told me that he had done cryotherapy for several years and had become used to the feeling, which is why he wanted to challenge himself even more by

standing in a difficult position. For him, cryotherapy was not just about health and aesthetics, he told me. His motivator was mainly mental training and disciplining his body. “If you decide to endure the cold for three minutes and are able to complete it, you train your brain to endure other unpleasant or difficult situations in life”.

During my fieldwork I detected four reasons for using cold temperatures as therapy, both for individuals doing cryotherapy and for those who did cold plunges: 1) Disciplining the mind and body. 2) Anti-aging and aesthetics. 3) Mental health. 4) Chronic pain and inflammation. The first two speak more to the literature about temporality and time. Anti-aging and aesthetics (which I will attend to in chapter five), and the last two reasons speak more to the medical anthropology literature. Thus, in this chapter I will focus on the first reason, disciplining the mind and body, based on my ethnography. As we shall see, disciplining the mind and body can be seen as a way of stopping or slowing down time at a mental level, and I will discuss how my ethnography speaks to a way of thinking about time as money, in a modern, capitalist society.

### Cryotherapy

Michael, one of the clients I got to know quite well during my work in the clinic, is one of the people who do cryotherapy to discipline his mind and body. He is a charismatic man in his fifties, from London. Michael cares a lot about his looks. He has undergone cosmetic injections and gotten fillers in his face and lips, he has gotten a new set of teeth, a new hairline and eyelid surgery. Michael always had a big smile on his face, and he would always stay for a couple of minutes after his sessions to have a little chat, before he continued with his busy life. Even though he has undergone all these cosmetic procedures to look better, his main reason for doing cryotherapy is not to improve his looks. It is just a bonus that the treatment minimizes his wrinkles and makes his skin glow, he told me.

The first time I met Michael, he walked up to the reception, dressed in the cryo-uniform, and pointed at me “you’re new here!”. He asked me for my name and shook my hand, “nice to meet you, Rebekka!”. I told him about my research in the clinic and that I was interested in learning more about cryotherapy and what motivates people to undertake this rather extreme procedure, Michael told me that he would love to contribute. “Have you tried it yet?” he asked. “No, but I am trying it later this week”, I answered. “You’re going to love it. It will change your life, I promise!” he shouted with a big smile, as he walked over to the cryo chamber. Clients chose a song for their session, and Michael always chose “Starman” by David Bowie. As I heard

Starman playing from the cryo chamber, I wondered how cryotherapy could change my (or anyone's) life.

I talked to Michael again later that week, the same day as I was going to try cryotherapy myself. He walked up to the reception, "did you try it?" he asked enthusiastically. "I am actually trying it this evening!" I answered. I could see him light up, with a big smile on his face. He told me that he was envious because I got to experience it for the first time. "Nothing can compare to the first time. It's never as magical as the first time, even though it is wonderful every time". I asked him what he meant by that, he then told me a story from when he was young, to compare the feeling of the first time. When he was twenty years old, he travelled around Greece with just a backpack. At this time, he did not have any money, but he still remembers the feeling of getting onto the boat from the mainland and out to an island. "It was magical! The crystal clear, blue sea, the rich people going by in their yachts and new cultures". He told me that when he went back later in life, after he had become a successful businessman, it did not feel as good as that first time. "It was strange, suddenly I was the rich man on the yacht in Greece, but the feeling was not there". I thought it was an interesting comparison, but it was still not clear to me why he does the treatment and how it is life changing, so I asked him. For him the treatment changed his life because it taught him to slow down – it was disciplining his mind. As a man with a busy schedule, a lot of travelling as well as living in a city that never sleeps this was his way of slowing down and letting his mind rest. He told me that when he is in the cryo chamber, he does not think for three minutes. This does not seem like a long time, but inside the cryo chamber, as I experienced myself, it feels much longer. "When I do cryo I don't think, I don't feel... I just am. Everything is quiet", he told me with a more serious tone to his voice.

Considering Michael's reasons for doing cryotherapy, I want to suggest that disciplining the mind and body in this manner is a form of what Laura Bear (2016) calls *time-tricking*. Time-tricking is a method of outmaneuvering, overcoming, or manipulating time. Bear writes, "in this mode, we imagine an amplified power for ourselves unaided by gods or spirits" (Bear 2016, 493), which speaks to how Michael finds inner peace and total silence when he is doing cryotherapy, without ever mentioning any God or higher power. He only spoke about his mind, and how to make it go quiet by doing cryotherapy. Further, Bear goes on, "We also attempt to reorient the passage of capitalist time toward our control. And in an entrepreneurial hope, we imagine that we can draw flows of capital toward ourselves if only we can act skillfully (Bear 2016 [Miyazaki 2006], 493). To buy a service like cryotherapy, might be translated to buying time. The time that Michael purchases gives him the opportunity to step out of the chaotic,



productive time he experiences every day. This, he told me, made him perform better in other aspects of life, especially his work. Michael told me several times that if he did not have those three minutes of silence every day, he would not be able to perform as good in work as well as handling the everyday stress. Hence, I suggest, like Bear does, that he reorients the passage of capitalistic time towards his control (Bear 2016, 493), which allows him to step out of productive time and thus being able to perform more productively afterwards.

In addition to Michael being able to perform better at work, how does Michael experience the difference between regular time and “cold time” in the cryochamber? Michael knows that when he goes in for a treatment, he will stand there for three minutes without thinking, which keeps his mind “fresh” and separated from the daily hustle and bustle of London. This brings me back to Hylland Eriksen’s analysis of *overheating* (2016); in addition to our world literally overheating with global problems such as climate change, loss of biodiversity or war, human individuals are also overheating. Hylland Eriksen describes a world full of interconnected people and projects, and people who are aware of each other in ways that were not imaginable just a century ago: People build relationships that are transnational rather than local, and we are all connected through the increasingly integrated economy. Despite threatening climate change, consumerism is growing as never before (Hylland Eriksen 2016, 3). Receiving information like this constantly, literally in the palms of our hands, you can easily feel overwhelmed or overheated. London might be an extreme version of this overheated and (over-) connected place. The metropolis, that never sleeps, the busy life that never slows down. There is not a lot of room to breathe and make it all go quiet, as Michael pointed out. This is why cooling down in this manner can be seen as a reaction or a technique for cooling down the mind and manipulate time to “freeze” for a moment. However, Micheal is not your average Londoner, he has more money than most. He can afford his daily cryo-routine. For him (and others like him), spending up to thousand pounds a week to cool down, is a possibility. This idea of cooling down is nevertheless not limited to those with excess of money. There are other ways of “freezing time”, as I will elaborate below: cold plunges.

### Cold plunges

Returning to where I started this chapter, I will take you back to the outskirts of London where I was getting ready for a cold plunge with Evelyn. Evelyn is a 56-year-old woman from London, a photographer and a cold plunge enthusiast that goes plunging three to four times a week, in the morning before work. She picked me up in her car an early morning in February, to take me to the pond. She was dressed in earthly colors, wearing home-knitted wrist warmers, she had

brown, loose pants, boots and a chunky, knitted sweater. Her hair was long and wavy, and since I was in an “anti-aging” mode of thinking, I noticed that she had grey hair peeking out in-between her brown hair. She did not wear any makeup, because she did not feel the need to, and trusted only “natural” and vegan skincare-products. After a while of talking about aging, amongst other topics, she said “I don’t think I’m doing too badly if I’m honest, like I said, I’m fearful that I have less time left than I’ve had. But in terms of how I’m aging, it’s not so bad”, and laughed. She had lots of silver rings on her fingers, and long necklaces around her neck, making a clinking sound as she turned the steering wheel.

After fifteen minutes of driving, we arrived at the park where pond was. Evelyn reached for her bag in the backseat, in this she carried towels, a big poncho that was made for cold plungers, mittens, and a woolen hat – she brought a woolen hat for me as well. We started walking towards the pond, and the sight was beautiful. There were big trees all around the gravel paths, birds were starting to chirp, and the busy life of London seemed very distant all the sudden. As we walked Evelyn explained her morning ritual to me:

*“Walking here at dawn with my group is a nice little part of the ritual. We walk through the park, and in the winter it’s dark, but you can still see the landmarks from London. They are all lit up. It’s really nice. So, we just walk down to the pond and as you are getting there it’s getting a little bit lighter. By the time you’re out of the water it’s light. It’s pretty magical. There is an anticipation as you go through the gates, and I look forward to it. Right at the beginning I was scared of getting in the water, the cold water. That first year I was not sure if the temperature that day was going to be the one to make me stop. Now, it’s fine. I have swum at 1,8 C° without problem”.*

We walked for twenty minutes, and when we arrived at the pond, I saw a little, wooden hut. That’s where the showers and changing rooms were. The area around me was covered with green plants and trees. The landmarks from London that we saw on our walk were nowhere to be seen anymore. The pond was quite small, but it looked like it was deep as I could not see the bottom of it. In the water there were some ducks swimming around, and on the other side of the pond there was a heron sitting completely still. This pond was for women, Evelyn told me. They had a pond for men further down. I paid four pounds to a woman sitting in a hut at the entrance, Evelyn had a membership, so she just showed her pass to the woman. I thought that four pounds was a small price to pay compared to the price of cryotherapy. As we walked towards the hut, I asked Evelyn if she had heard of cryotherapy.

*“I have heard of it, but there’s not a lot of talk about it amongst my friends. I think those treatments are for those who have money. As you said ninety pounds for three minutes of cryotherapy. That’s just... no way I would do that. I can imagine there are loads of them in London, but I think plunging is about nature. The ducks, the moorhens, fishes, trees... the water kind of hugs you in a cold way. You feel kind of nurtured I think, sitting in a box just wouldn’t do it for me”, she said.*

In the changing room I got ready and changed into my swimsuit, I listened to the chatting around me. There were about ten women in there. One woman said that this was her first time and that she felt nervous, other women replied and told her how amazing she would feel. The mood in the changing room was good, they were chatting, laughing, and were mostly talking about plunging and sharing their experiences. As I went out Evelyn stood at the wooden dock beside the ladder that led to the cold water. There were two ladders, one for going in and one for going out. I was nervous, but the environment around me eased me. I could not hear any chaos from the city of London. No cars, no sirens, no shouting, no honking – just the birds chirping, water splashing gently and women talking softly. It was truly idyllic. Evelyn was the first to enter the water, “try not to take too much time getting in, you just have to glide in and take a couple of deep breaths to regulate your breathing, because it does take your breath away” she told me as she slowly but steadily glided into the freezing water. And then it was my turn. It took a while to get in, as the water was only at 5 C°, it felt like I was stung all over by body and a feeling of panic rushed through me. When I finally caught my breath and swam, it was lovely. And it was just as Evelyn had described:

*“I am not religious, but there is something spiritual about swimming for sure [...] When you live in London where life is really busy, it’s so nice to come to the pond and just kind of... you just... it’s a weird thing really. Because I think being in the pond has taught me to be in the moment, because when you get in you don’t think of anything else besides how your body is responding to the water. And once you get used to swimming around you are literally just thinking about your body and what’s around you, the nature, the moorhens, there is a heron that comes... You are literally just in the moment, and I think that’s the major thing that the plunging has done for me. It’s such a little sanctuary in a really big city”.*

After the plunge we got changed and walked to a café further into the park. As we were walking my body started warming up with a tingling sensation. I felt energetic. I asked if she felt the same way afterwards, “Yes totally! It’s a great feeling afterwards, your body is on fire, and it releases an energy through the day. It will benefit you throughout the whole day. And you kind of feel like if you get in the water at that temperature... if you can do that, you can do anything really”. When we got to the café, we bought tea – which was also a part of her group’s “ritual”, to go for a swim and chat over a warm tea afterwards. Evelyn and her group started plunging during lockdown in the pandemic, and they all did it for various reasons, just like the clients in the clinic. One woman in the plunge group had severe depression, and she “absolutely loves it”, and it had helped her a great deal, Evelyn told me. There was another woman who had multiple sclerosis (MS) who swam twice a day and sometimes more. Evelyn told me that the cold water really helped her friends, no matter what problem or wish they might have. When I asked her why she started, she told me that she had always swum, but never during the winter until the pandemic hit:

*“Everyone were couped up in our houses, and as I said I have always swum, so I thought this is what I have to do now. I need to swim, and I need to be in nature (...). I don’t think I planned on swimming through the winter but the group of us grew and it started to become such a lovely group of women. We started to get up early, a lot of us live around where I live, so we drove together, walked to the pond, went in, and then had a cup of tea afterwards. So, it was also a sort of connection with women that I swim with as well as the cold water”.*

Evelyn explained what happens to her body and mind when she enters the water, and she talked a lot about being in the moment and mindfulness. As I mentioned above, to her it feels like all the thoughts in her mind disappear. Then she said something that interested me, which I had heard in the clinic as well. “It does not happen quite as much now, but it was kind of like, a pain comes in the back of the neck and travels to the back of my head. It’s quite intense, it happens to some people, but then it releases as you go in for the swim. And then it’s like okay, that’s all the pressure from the last time I came. Just gone”. She went on explaining, “and then you swim around, I love it” she smiled, “sometimes I chat with friends and sometimes I’m just on my own just listening. It’s such a quiet, peaceful time. I don’t really think about what happened yesterday or what I have to do today. I just swim, in the moment”. When she talked about plunging, she was very enthusiastic, and I could tell that it meant a lot to her. What

she told me about cold plunging and mindfulness is very similar to what I was told by Michael, about being in the moment. Evelyn had tried to be mindful at home, but she told me it didn't work:

*“I have thought I am just going to be in this moment now, but I can't do it... My mind is thinking about everything else. The only place I can do it is in the pond. The minute you get in the water you kind of feel like you are reset for the day, you start again. And being in nature makes me feel good. So, the main reason I do it is for my well-being”.*

### **Time is money**

Evelyn's reasons for doing cold plunges appear to be of the same kind as Michael's, to discipline the mind and body and with that manipulate their experience of time – to make it stand still for a moment. Romain (2010) argues that cryonics is an attempt at gaining sovereignty over the limits of biological time. I want to argue that what Michael and Evelyn are doing, can be seen as an extension of what Romain argues, to gain sovereignty over their time at a mental level. My ethnography shows examples of time-tricking (Bear 2016), using cold technologies, thus under different circumstances: in a clinic and out in nature. Evelyn was more concerned about being in nature and would not have done cryotherapy even if she had the money. Michael on the other hand preferred cryotherapy, he had the money, and there is less of a “hassle”, he told me. You go in for three minutes and then you are all done, dry and ready to go back to work. To go for a plunge takes more of an effort, which I heard as an argument from several clients in the clinic. Evelyn paid an annual membership at the pond, and Michael paid for every cryo session, and I argue that what they are buying is essentially time. Romain argues that cryonics links time and money, and that it “offers the possibility that “more time” can be bought and sold in the distant, abstract, unknown future [...]. The return of the investment is time (Romain 2010, 212). Even though the investment in cryotherapy and cold plunges are not in the distant, abstract, and unknown future in the same sense, it does buy them time – in the moment.



### CHAPTER THREE **Transhumanism and the abolition of death**

*A man that gained a lot of attention in media and online during my fieldwork was Bryan Johnson. He is a 45-year-old man, who claims he has managed to reverse his biological age down to 18 years, and his only objective is to “don’t die”. Bryan spends two million dollars each year to reverse his aging process. At one of many online meetings I attended, hosted by Oxford Society of Aging and Longevity, Bryan Johnson was speaking about his journey. Bryan stated in the beginning that there is a turning point happening withing longevity: “it is becoming more and more mainstream and is getting more understanding in the public. It’s not just science fiction” he said. In an article in The Guardian, he was described as “the tech entrepreneur that is waging a one-man war against ageing. But is taking 100 pills a day, finishing your meals by 11am, giving up both alcohol and a social life, really worth it?” (Snape 2023). The article goes on describing how he rises at four in the morning, eats all his meals before 11am, goes to bed before nine at night – without exception. Bryan’s daily routine exists of ingesting more than 100 pills, LED-light therapy, and he uses an electromagnetic device to strengthen his pelvic floor. He does this to slow down the aging process until “one year of chronical time can pass while his biological age stays the same” (Snape 2023). In addition, he has stated that he wants as many people as possible to join him on the quest to never die. During my fieldwork there was an increasing interest in Bryans journey. The comments on his content on social media showed different reactions: a lot of people made fun of him, saying that he does not look like an 18-year-old. Some comments displayed a concern for the future, that we should not try to reverse aging, because that would result in the rich population becoming immortal. Others seemed to be curious about him, stating that this could be the next step in fighting age-related diseases like Alzheimer’s.*

In this chapter I will look at the war on death (Boss 2021) in the context of transhumanism. Eriksen (2023, 142) argues that the phenomenon we can call “technoscientific immortality”, the work for new technologies and science that can extend life and fight death, comes in a variety of forms, and on the more extreme end of this scale we find transhumanism. I argue that there is a cultural connection, or continuum, between the groups in my ethnography: the clients in the beauty clinic, the cold plungers, biohackers (I will attend to biohacking in the next

chapter) and transhumanists. They each have the value and idea of control of the aging process in common. As Eriksen (2023,142) points out, they are numerically marginal but not culturally marginal. The technoscientific immortality projects that the transhumanist movement shape, and their discourse on anti-aging and age-reversal, are on the one hand picking up on key discourses in the life-sciences and in public discourse, but, on the other hand, articulating these projects in more extreme terms. The fight against the de-generative diseases (e.g. Alzheimer's disease) of aging becomes the "the war on death" (Boss 2021) itself, in the transhumanist discourses. Exactly because these discourses are so articulate, they are also analytically interesting. Thus, it is important to point out that I look at these, not because they are representative, but because they are explicit on issues that are often implicit in the more general health-discourses (see also Eriksen 2023).

During my fieldwork I learned that most transhumanists does not manage their aging body in the same sense as the others in my ethnography, but they are afraid of catching an illness, like for example the corona virus, which is why a lot of them meet online. There are some transhumanists that takes on this individual responsibility to manage their aging body, which resembles what Bryan Johnson is doing: Farman describes a meeting at a restaurant with a woman who had signed up for cryopreserving her body after being declared legally dead, she laid out "a dozen or more" pills on the table in front of him, and each pill had a purpose and function that would increase her health-and lifespan (Farman 2020, XI). Thus, in my ethnography I did not encounter transhumanists who did this.

I found that transhumanists do not focus on the physical body in the same sense as we saw in the previous chapter, they are more concerned with their mind, which they argue can enable eternal life in other non-human bodies through "mind uploading" (Farman 2020, 112). Mind uploading entails disembodiment and separating the brain from the original biological body, the brain (or the whole body) is then cryopreserved, and the fine structures of the brain (which makes the self) can then be copied when and *if* technology advances to this point. When the brain structures are copied, they can be placed in a non-human body, and the individual lives on (Eriksen 2023, 82-83; Farman 2020, 14). In this sense, the mind is "trapped" in a body that can (and eventually will) die, which transhumanist ideas and technologies like cryonics can (they hope) fix. For instance, one of my interlocutors told me that he would like to live forever in five different robots: one for each task and hobby he wants to continue pursuing – this would be done by mind uploading. This shows how they rather focus on what *could* happen in the far-future if technology advances in the way they hope, and thus the original biological body is not as important because the mind (the self) is what will live on forever.



This chapter does not have thick ethnography, as it was difficult to gain access to the group who lives very dispersed and usually just meet online and at major events. My ethnography is based on a transhumanist event I attended, interviews with David Wood (leader of the transhumanist movement “London Futurists”), as well as some in-person and online meetings and interviews. Thus, I will show how there is some sense of individual responsibility in the way transhumanist are, and have been for a long time, changing the way they lead their projects to be able to approach and appeal to a broader public (see also Dawley et.al 2024).

### **Our superhuman future**

In February I got an email from David Wood, where he invited me to an event. “A real life gathering of transhumanists”, he called it. This was a live podcast that revolved around the topic of “our superhuman future”. A few days later I was on the tube on my way to the event. I arrived at the tube station in Saint Pancras in the evening, and the event was held in a venue called Kings Place. I made my way to the venue, which was only a five-minute walk over the canal. It was dark outside, and when I crossed the bridge over the canal, I saw a big, glass building with a lit-up sign that said, “Kings Place”. I went inside and followed the stream of people down the escalator. When I got down to the basement, I could see that the entrance to the room where the event would take place was still shut, as there were still thirty minutes left until the event was supposed to start. I sat down in a couch, there were a few people mingling by the bar and more and more people were coming down the escalator. Suddenly a man appeared in front of me. “Rebekka?”, he said. I did not recognize him at first, because he was wearing a medical facemask, covering half his face, but I recognized his Scottish accent. It was David Wood. Until now I had only met him online via Zoom, so we introduced ourselves properly. We talked for a bit, and he introduced me to some of his transhumanist-friends.

When the doors finally opened, we walked in together, and I sat down with two of the people David Wood introduced me to in a row in the back of the room. A married couple in their fifties, who had created a podcast about transhumanism themselves. David Wood disappeared in the crowd and sat down in one of the seats right in front of the stage. The charismatic host (and creator of this podcast) entered the stage and said enthusiastically, “Humans and non-humans, transhumanists and neo-luddites, please put your hands together and welcome the host for the evening, me!”. People clapped their hands, while futuristic music was playing in the background. There were about 30 people present, and three people in the panel: Anders Sandberg, a transhumanist and senior research fellow at Oxford University at the Future of Humanity Institute (FHI), Steve Fuller, professor of Social Epistemology at the

University of Warwick, and Elise Bohan a transhumanist academic and senior research scholar at the University of Oxford at FHI.

When the audience settled, the host went on introducing the theme for the evening: “On this show we meet the scientists, technologists, artists, and philosophers who are working to imagine the developments that might dramatically alter what it means to be human. Some predictions will be preferable, some of them might seem impossible. But none of them are inevitable”. He then asked the audience (and also of course talking to the non-transhumanists that might listen online) “are you tired of just being plain old homo sapiens? [...] Well, do I have the ideology for you, transhumanism!”. He then introduced the panel, and as they walked up on the stage people cheered and clapped their hands.

The discussion between the three was mainly about how transhumanist ideas might change the concept of humanity itself. This was stated by Elise Bohan in the beginning of the discussion, she said that the 21<sup>st</sup> century will be the make-or-break century: “It’s always, with human beings, too little too late”, she said. “We can sort of recognize the slow-moving thread on the horizon, and we tell ourselves: okay right, but fundamentally I have a mortgage to pay, I have kids to worry about, I have to make ends meet here and now. And when it comes to really thinking about the consequences of where our kids and where our grandkids are going to be, generations down the line are not really well built to juggle the many novel threats that we have”. The threats she pointed to were climate change, bioengineered pathogens than can unleash pandemics, nuclear war, the emergent threat of artificial intelligence (she was positive about artificial intelligence but acknowledges that it can create a lot of misinformation). “Potentially, if we make it through this century, it could be the start of consciousness emerging into something new, bigger, and more sustainable that goes beyond this planet... *If we get it right. And if we don’t, it could be the end of a cosmic endowment*”. There was a worry in her voice, and she said that humans need more time to figure out solutions to be able to imagine a far-far future, which is why reversing or slowing down aging is not a bad idea. Steve Fuller, who during the whole discussion was not afraid to say things that stirred up the conversation, pointed to the transhumanist goals that have not changed since 2006:

*“The trajectory has not changed in over what is close to a generation now, but nevertheless, the ideology, the belief is there. And I don’t want to deny that, okay? But the point is, it is a kind of faith. Because we have a generation now where these ideas have been put forward and will continue to be put forward by the same people who are still alive. Because guys like Sandberg and Boström (philosopher and transhumanist) were*

*teenagers, not teenagers exactly but close to it, when they first put out this stuff in the nineties. If you look at what they wrote back then, it's pretty much the same thing as you hear now", he said with a raised voice. "Now of course technology has changed, and things have become more fine-grained, and all the rest of it. And this is not to say that I deny any of this, that the trajectory is right, I actually think we are going to a situation where people will be able to live longer, right. And we will be able to upload ourselves into AI (artificial intelligence) in a way that we find acceptable. I believe in the cyborg future. I believe in all of that! But in terms of the kinds of promises that are being made at the moment, and the short-term focus that is surrounding it? No! You are in it for the long haul, right? And the people who are likely to benefit from this kind of belief are none of you", he said and pointed to the audience, "that's the bottom line".*

The room went silent, and I could see people looking at each other wide-eyed. Anders Sandberg replied to Steve's critique and spoke in terms of a "grand future", arguing that humans are merely at the start of history. This grand future, he said, is about "just how good *could* the future be. How long could it be, how long could we survive, how far could we go". Mapping out this grand future is interesting, he added, "because we want to know just how good the future could be, because if the future is pretty "meh", maybe we shouldn't try to get there. And in particular, if we think the future could be very long and very good, we have a very strong reason to try to avoid flobbering it right now" and pointed to threats like climate change, nuclear war or "accidentally engineering ourselves into a dead end that would devastate things". It is important to have flexibility, he said, in a sense that we can zoom in on what is here right now, and in the case of for example climate change it is good to be able to zoom out. This flexibility, he explained, is especially important for transhumanists: "transhumanists are flexible, and it is important to be flexible when imagining the far future".

What Anders said, shows, in addition to the hope and goal of living forever, is the hope and will to be able to map out a grand future. To do so, Anders argued, there must be taken individual risks. "If some people try out a weird lifestyle or try out a weird enhancement, that's great! We should approve of that, even if it ends badly. It is worthwhile taking these risks and these experimentations", he said. But what interested me the most about this discussion, was that to be able to imagine a grand future, there were other issues that needed attention, besides the threat of aging and death: climate change, war, pandemics and so on – which eventually can lead to death for all of humanity. Thus, transhumanists goals are not just the idea of individuals

living longer, but rather the idea of individuals living longer *together*, on a planet (not necessarily earth) that is sustainable for us.

### **Explicit and implicit transhumanism**

This event portrayed a form of “explicit transhumanism” (Dawley et.al 2024). Dawley et.al describes an “explicit transhumanism” and an “implicit transhumanism” in their work on how cryonics and other technoscientific immortality projects are being mainstreamed in the US and in Europe. They describe transhumanist movements that embraces science and technology as a path to create a new post-human species and condition, as the “explicit” kind:

“Explicit transhumanism thus often tends towards a vision of the far future, of space exploration and colonization, of radically different forms of life, and of the mind’s substance-independence (it’s transferability to other bodies and mediums)” (Dawley et.al 2024, 4). The implicit transhumanism on the other hand, take form as people and movements that distance themselves and mute immortalist, posthuman, and post-biological visions, like the ones discussed at the event I described above (Dawley et.al 2024, 9). Thus, their research suggests that this shift amongst cryonicists and transhumanist movements, which they call Cryonics 2.0, is not only a mainstreaming effort to align cryonics with anti-aging medicine and techno optimism and depart from immortalism found in the explicit transhumanism. They argue that it is a “rationalist turn”, and a turn toward rationalist-adjacent movement: “Cryonics has moved toward he mainstream, the mainstream has moved towards cryonics and goals once confined to the explicit transhumanism” (Dawley et.al 2024, 23).

At the event described above, the host and the people in the panel were not hesitant to discuss immortality, space colonization, transhumanism, the future of humanity beyond homo sapiens, and so on. Criticism aimed at transhumanist views, that it is labeled as something dangerous because of the goal to alter human nature fundamentally, were also addressed. This criticism is what some transhumanists, David Wood told me, try to deal with to (hopefully) appeal to the general public. This new way of leading their projects, fit more into the “implicit transhumanism” that Dawley et.al (2024) describes, and is how the individual responsibility, when it comes to aging, appear in this context.

### **David Wood: The abolition of death**

Prior to my first meeting with David Wood, I read in his book *The Abolition of Aging* (2016). Here, he tells the story of the skepticism his project of “abolishing aging” encounters. People told him that it would not be possible to conquer death, and that it should not be done. But David Wood does have a group, London Futurists, where these ideas are accepted. They

regularly meet up a few times a month to discuss transhumanist ideas. Unfortunately, when I was in London there were not many meetings, due to the fear of catching corona virus. This is also why I met David Wood on Zoom, to conduct the interview.

I looked at my screen, waiting for him to show up. When he finally did, he smiled and greeted me “good afternoon, Rebekka”. He was sat at a table, just as I had seen when doing research prior to my fieldwork, with a stack of books placed beside him. He wore a checkered shirt and a headset with a microphone attached to it. My first question was based on the public mistrust and skepticism presented in his book. I asked, “does this still happen, or are people more open to the idea of the abolition of death?”. He told me that it is still the same, even though there are more experiments going on and more evidence. “There are lots of people that still say it can’t be done, and there are lots of people who say that it can be done but we shouldn’t do it”.

The greatest obstacle when developing a public interest in radical life extension, David told me, was to show sufficient evidence. “When people see this evidence, they may allow themselves of imagining things differently”, he said. He pointed out that evidence that comes from research on lab mice might not be sufficient. Dogs, on the other hand, might be the path to a public interest in the matter. “Most families that have dogs see their dogs grow old and dying before they do... and it’s heartbreaking” he said. “But, because these animals live less longer than us, it is also easy to give an experimental validation that these treatments can extend their healthy lifespan”, he said, and pointed out that most people use a lot of money on their dogs – as I have seen myself in the wealthy neighborhoods of London. David did not randomly bring up dogs. There are projects going on that try to break through with longevity- and anti-aging research on dogs. This, they hope, will engage the public – and eventually lead to engaging the public in similar anti-aging research for humans.

### [The dog aging project](#)

During my fieldwork, I attended several online meetings led by Oxford Society of Ageing and Longevity. A student-led organization that wishes to accelerate “the process of bringing aging under medical control by galvanizing widespread support for the up-and-coming field of rejuvenation biotechnology” (Oxford Society of Ageing and Longevity, 2023). They lead with the idea that humans treat cancer, heart diseases and so on, but what if we could *cure* aging itself – the root cause of nearly all diseases? One of the meetings I attended was called “The Dog Aging Project”. Matt Kaeberlein, a world leading biogerontologist, was the keynote speaker of this meeting. He introduced himself as a biogerontologist on a quest to rewrite

canine- and human aging. He started the conversation by asking, “how do we bring aging research out of the laboratory?”. His approach to finding a solution to this problem, was the idea that pet dogs, provide a unique path to understanding aging better into the mainstream world. Hence, the dog aging project has two main goals: First, a longitudinal study of aging to understand the biology of aging. And second, intervention trials to be able to slow down dog’s aging processes and to increase healthy longevity.

When Matt was asked “why dogs?”, his response carried some of the same arguments as David Wood gave in the interview. He explained how dogs age similarly to humans, but more rapidly. This, he believed, would give them the opportunity to study, understand, and maybe intervene with the aging process – and eventually do the same with humans. He also pointed out that dogs share our environment. Unlike mice in a laboratory, dogs breathe the same air, drink the same water and they are exposed to the same pollution as humans are in their daily life. Lastly, he argued that the project engages the public, because it is more accepted to use dogs, our beloved companions, because it might improve their life quality and we get to keep them around for a longer time. Alcor Life Extension Foundation, who cryopreserve humans, also cryopreserves pets – if you are an active cryopreservation member.

#### The “I-word” and the “T-word”

To “bring aging research out of the laboratory”, or to engage the public and gain acceptance, is a problem that transhumanist and other life extension projects are concerned with. Research on dogs might pave way for a public interest, but there is also a need to adapt the language of such “immortality” or life-extension projects. Farman (2020, 43) points out that rebranding or name changes within transhumanist movements and political parties traces back to 2008, when the online forum Immortality Institute initiated to discuss the possibility of a name change. The dilemma was the word “immortality”. Farman states that there were two ways to look at the word: one connected it to an “ancient human dream” which gave it universal appeal, and it appealed to the cautious world of science. The other “evoked false religious promises of existence after death”. The idea of immortality seemed to float outside of acceptable scientific and secular parameters, according to Farman, and that it “indicated possibilities about the self, consciousness, personhood, matter, and humans that seemed to have become irrevocably bound up with that thing called religion” (Farman 2020, 43). When Alcor was formed they stated that they did not want to use “immortality” in their name. Hence, they became “Alcor Life Extension Foundation” (Farman 2020, 44).

Similarly, Dawley et.al (2024, 23) argues that there is a mainstreaming of transhumanist goals which is owed partly to the new popularity of anti-aging medicine and hopes for extending one's lives. The authors have conducted research at anti-aging conferences, cryonics organizations and online movements like Effective Altruism. Their ethnography shows how cryonics, a key part of the transhumanist movement, is "undergoing significant changes in form and presentation, associating itself with more mainstream, experimental sciences, and endeavors like anti-aging". They argue that the mainstreaming of cryonics comes from the popularity of anti-aging, elite ideologies like the Fourth Industrial Revolution, and the rise of long-term focused movements (Dawley et. al 2024, 1).

When I talked with David Wood about engaging the public, he told me that in addition to providing sufficient evidence to the public, there was also a need to lead with other discourses than what transhumanists have done in the past. David has been told several times not to use the "T-word" (transhumanism) and the "I-word" (immortality) when speaking about life extension. I was a bit confused, as he does call himself a transhumanist. "See the view here is that the word (transhumanism) has got lots of other connotations these days. If you ask people in the street, they might tie it up in their minds with conspiracy theories, all kinds of bad ideas". He then gave an example from the US, which made transhumanists in the UK decide to not lead with the "T-word". In 2015, David told me, Zoltan Istvan created a US transhumanist party and was going to run for president on the promise of immortality. Zoltan drove around in America, campaigning in a bus which he had converted into the design of a coffin. This resulted in a lot of publicity, which "stirred things up", David said. He went on explain how the transhumanists in the UK reacted to this: "we don't want an even crazier version of Zoltan in the UK to come out of the woodwork", he said. This is why they, as many others, rebranded the UK Transhumanist Party to its present name: London Futurists.

This name change was motivated by what happened in the US and the fright for being associated with "whackadoo" science (Farman 2020, 69), as well as skepticism from the general public. David has stopped using the "T-word" and the "I-word" when talking to people outside of the movement because he is met with skepticism, thus at the event I described in the beginning he did use those words, because there were mainly transhumanists present. Rather, he tells people that "London Futurists wants to ride the surge into the future". Avoiding terms like immortality and transhumanism, he told me, makes people more open to ideas such as life extension. When people are open to these ideas, and as David phrased it, "when people are ready to have the conversation", he tells them that these transhumanist ideas go beyond religion, beyond humanism and it's rather a transcending humanism. As for immortality, David does not

like that word himself: “I say that I am interested in radical life extension. Because immortality is too big of a promise, it is something that religion might promise. What we say is that you can be immortal in the sense that you don’t age, which means that even though another ten years pass, we are not more likely to die. *Chronologically* we will be older, but biologically we will not be older”.

Transhumanism in the UK seems to be mirroring the strategy of the cryonics movements that Dawley et.al (2024) describes. David Wood avoids the “I-word” and the “T-word” at all costs, hoping that this will give London Futurists a broader appeal in the greater public and in the mainstream scientific world. Transhumanist projects, through an implicit discourse, might be on their way to reaching more acceptance in the mainstream world. Indeed, transhumanist projects (or projects stemming from transhumanist concepts such as age reversal) are increasingly showing up in media and the news. However, despite the increase in media coverage, transhumanist ideas are still facing critique and skepticism. Bryan Johnson, whom I introduced in the beginning of this chapter, is an example of this.

#### Bryan Johnson: project blueprint

Bryan Johnson and his project to never die, can be placed in between transhumanism and biohacking, but still at the extreme end on the scale of the anti-aging practices described in my ethnography. He has gained a lot of popularity amongst biohackers and transhumanist. As Anders Sandberg expressed at the event, he finds it is important for the development of transhumanist projects to let individuals try out new ways to live longer, which is what Bryan Johnson is doing. What he does is essentially biohacking (at a very extreme level), but he leads with the discourses that come from the (explicit) transhumanist movement, such as the goal to live forever – not just extend your life- and healthspan as biohackers wish to do.

At an online event I attended, hosted by Oxford Society of Ageing and Longevity, Bryan Johnson was the keynote speaker. After he introduced himself, he was asked, “how did you get here, and what is project blueprint?”. He told us that when he was 21 years old, he wanted to make a lot of money, which was his plan to stay meaningful in his lifetime. At this time, he was interested in reading biographies, learning about people who “were able to identify impossibly hard things and then do them”. Later in his life, he started a company, which he sold for eight hundred million dollars in 2018. “With some fresh capital, I asserted what I could possibly do in the world”, he said.

Project Blueprint was born when he met Dr. Oliver Zolman (who was also attending this meeting) a couple of years ago. Bryan was curious about aging, and what could be made



possible if they were to explore the frontiers of health, wellness, and anti-aging. “We were able to go through a methodical protocol and were able to implement with precision what would be possible”, Bryan explained. This process, he said with a smile on his face, has been the most enjoyable and exhilarating adventures of his life. As for the critique and attention in social media, he believed that this has given new life to what he described as an industry that has been going on for decades. “We can now implement those things into the community”, he said. He too, wants to appeal to the public – but as we saw in the beginning of this chapter, he receives a lot of skepticism, which in contrast, projects like the dog aging project does not receive in the same degree.

### **“We have come to take aging as a given”**

In the series of meetings I attended, by Oxford Society of Aging and Longevity, the issue of acceptance and interest in the mainstream world was discussed frequently. At one of these meetings aging was described as a disease by one of the speakers, which got a lot of negative feedback from the other speakers and hosts. Not because they did not believe this themselves, but because this was not the right way to lead their life extension projects if they wanted to gain acceptance and interest in the greater public and mainstream science. So, there is a layer to how transhumanism operates, one in an explicit setting like the live event I described above, where they openly talk about how to reach this far-far future and Bryan Johnsons’ project of living forever. Second, in settings where they adapt their language to reach a level of acceptance and interest which they have not yet managed to do. This appeared to be one of the main interests of the transhumanists I spoke to during my fieldwork.

One of my interlocutors told me that he had created a group that discusses radical life extension online. This group, he told me, was mainly created to “get as much information out to as many people as possible, but particularly to the wider population”. He said that the problem with groups like this one, was that he was not sure if everyone had the goal of getting “real science” out to the wider public, which might lead to painting all of the transhumanist projects as unserious. He also said that he avoided the word “immortality”, because it is not accurate: “If you stopped aging biologically, then you are sort of immortal, but I guess not even that because you can still get an infectious disease. There are lots of reasons why you could die, not just from aging”. This worry of catching an infectious disease, reflects how transhumanists does take on the individual responsibility to take care of, or protect their aging bodies to some extent.

Another transhumanist I met shared his insights about the public skepticism that they face, and the most common thing he heard when expressing his interest in such projects was:

*“Like, that we can’t be for real. We’ve come to take aging as a given. It will take a preponderance of evidence to get people to think otherwise. My hope is in a watershed moment. There is sufficient evidence that people should at least be considering it. The thought is that it will all of a sudden be undeniable, and that’s when enough people will change their mind all at once that we recognize our priorities to beat aging. I’m not sure which is more idealistic, thinking we can beat aging, or that humanity will shift all of a sudden”.*

He explained that he thinks people are hesitant to place any hope in beating aging, and that the advancement in technology might not seem as exponential because we constantly are presented with new technologies, that when we first hear about them, we forget them when the next comes along. Another reservation he believed to be true, from the general public, was that there is an “uneasiness” about what living forever would look like, which was expressed at the event I attended too when they addressed nuclear war, pandemics, the climate crisis and so on. Thus, for him he believed that living is always better than not living: “It is only quite recently that I realized that, so long as I was still living, no matter what the future, it is still better than me not living”, he told me.

#### The war on death: a cultural connection

As David Wood pointed out in the interview, the general public need proof to accept transhumanist ideas, and to join the project of abolishing aging. Bryan Johnson, for example, for people like David Wood and other transhumanists, a living proof that it is possible to reverse the biological age. But it is not sufficient for the mainstream world. The question many ask (for instance in the popular press) is “is it a life worth living?”. Bryan Johnson’s life is a fulltime job: taking a hundred pills each day, tracking his health, strict routines, diets, treatments and so on. Similarly, the questions the transhumanists and biohackers of the “Bryan Johnson type” face, are thus: is it truly a life? And on a more general level; what does a life without death entail, how does it change the sense of being alive? These questions did not worry my interlocutors among the London Futurists. For them, as my informant above conveyed, staying alive is always the main goal, at any cost. This of course varies, as Anders Sandberg stated he would not like to live in a future that is not good.

The anti-aging practices I have described so far in this thesis, I argue, are all part of what we in general can call the war on death, which comes in varied forms. There is a scale of the individual responsibility of managing the aging body, from fighting aging (slowing down aging), to ending aging, and ending death. Although transhumanist projects and the goal to never die is radically different from the more general anti-aging projects I have described in the previous chapters, because the physical body is not as important for them, there is still a cultural connection between these projects.



## CHAPTER FOUR

### **Biohacking: aging, gender and individualism**

*I am at a café in Waterloo, right beside the River Thames. I am sitting with Arjun, a 45-year-old man, who considers himself a biohacker. The waiter comes over and hands us our coffee, and I start the interview. “My dad used to do it...He is a big influence. When I was little, he injured his shoulder, and he read a book about magnets. So, he bought a huge speaker, broke it and took out the magnets, because they were powerful, and he used them on his shoulder. And I said, dad that looks crazy, why do you do that? And he goes, the magnets help to heal. And he healed his shoulder!” he said, laughing. “No doctors, just the magnets... There was a lot of stuff he used to do, so I think I got influenced by him from a young age. Obviously, he was doing it (biohacking) without knowing it, and he always looked after himself”. He continued talking about what kind of biohacks Arjun did himself: “I’m always looking at stuff (biohacks) and if I think it is worth it I will try it. So, recently, just like Huberman,<sup>2</sup> I tried a natural testosterone boost, and I think that has helped out with my workouts and stuff...”. Arjun tells me that he is frequently measuring his biomarkers, but not at his doctors. He gets a testing kit delivered at his door, which he sends to a clinic that will measure his biomarkers and email him the results. “I had a general blood test from the doctors, but they are all rubbish aren’t they?”, he said with a frustrated tone. “They don’t tell you too much information, they just say that you are okay. The 360 one (the home test kit) gives you your testosterone levels, sugar, minerals and all that. It’s 250 quid, so it’s a bit pricey... but it is quite good is it. As you get older one of the most important levels to mark is your testosterone levels.”, he said.*

In this chapter I will look at biohacking and show how biohackers go the extra mile to achieve what is usually their ultimate goal: to slow down, or even reverse, the biological aging process. Not much has been written about biohacking in anthropology, and the existing literature often describes biohackers as someone who implants technological devices into their bodies, which is no longer the only way biohacking is practiced today. My ethnography will show how biohacking today, in the UK at least, is more about controlling the aging process and

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<sup>2</sup> Andrew Huberman is a neuroscientist, well-known in the biohacking community, and has created a blueprint for longevity: <https://www.hubermanlab.com/about>

performance, and enhancing the body. My ethnography is based on interviews with biohackers, a biohacking summit I attended and online ethnography.

One of the few anthropologists who have written about biohacking is Miriam Grewe-Salfeld (2022) and Jacob Boss (2021). Grewe-Salfeld describes biohacking, or “do-it-yourself biology”, as a cultural phenomenon: “The media reports on it, TV shows use it, “cultural heroes” and celebrities endorse it” (Grewe-Salfeld 2022, 20). She points out that the media coverage makes the biohacking lifestyle increasingly popular, and that most likely we have all engaged in some form of biohacking without knowing it, by changing our diet, doing yoga, taking supplements and so on (Grewe-Salfeld 2022, 20). Or, like we saw in chapter two, doing cryotherapy or taking a cold plunge, without describing these practices as biohacking. However, in the mid-2000’s, Grewe-Salfeld points out, there was an increasing rise in both commercial and private initiatives that aim to make knowledge about oneself or the biological world more readily available, which is what we today call biohacking or DIY-biology (Grewe-Salfeld 2022, 20).

Biohackers aim to make their bodies “transparent, to access their interior landscape through (self) screening and diagnosis, to conquer uncertainty and contingency through a healthy lifestyle and responsible choices, subjecting the body to a new, all-encompassing clinical gaze – their own” (Grewe-Salfeld 2022, 23). Thus, there are different subcultures of biohackers, according to Boss in his work in biohacking in the US: punks, profiteers, and grinders. The first subculture, the punks, are the biohackers that take DIY-approach very seriously and resist any commercialization (e.g. the biohacking summit I attended). The second subculture, the profiteers, market and sell products for enhancement or wellbeing, and are reinforcing existing commercialized and exploitative structures. The last subculture, the grinders, make and implant cybernetic devices in their bodies and not only exhibit strong punk tendencies, but also resist any given bodily form, according to Boss. The description of grinders fit the more traditional description of biohackers. Boss stresses that these subcultures are not a binary (between punks and grinders on the one hand and the profiteers on the other), that restricts biohackers from being either this or that. They can be both punks and profiteers. It just helps, he points out, to navigate how identity is established and contested among these biohackers (Boss 2021, 137).

The Health Optimisation Summit I attended consisted mainly of what Boss calls profiteers. I could not find any of the grinders or punks he has described. This, I argue, shows how the biohacking community, at least the way it was displayed in the London scene, have changed from being a mixture of punks to being mainly (or even only) profiteers. Biohacking

has changed the last few years from being an underground movement to a movement that is highly commercialized. Biohacking is clearly making their way into the mainstream world. There are however some internal differences among the biohackers that might be interesting to unpack: One thing that struck me at the venue, was that the summit was “split” in two parts. One part focused on natural biohacking, and the other part focused on technoscientific biohacking.

The point of this chapter is to investigate the continuities in the field of anti-aging: if it is time (and freezing time) which is the structuring element that can help explain the cold therapies of different kind, what are the main structuring elements among the biohackers who seek (sometimes, at least the most extreme such as Tim Gray) to reverse aging? I suggest that we can apply a performative gender perspective on the field of biohacking, where the body becomes a moldable material, from hormones to skin cells. It is, to a certain extent, a biological form of performativity. I also want to suggest, building on Dumont (1986) and Macpherson (1962), the term *biological individualism*<sup>3</sup>, as a way to conceptualize this idea that the aging body becomes an individual responsibility.

### **The Health Optimisation summit: first encounter**

An early morning in June, I made my way to the biohacking summit. I got off the tube at Angel Station, and I could already see a lot of people making their way towards the Business Design Centre, where the summit was held. I was met by a long queue of people when I approached the building, and as I looked around, I could see both men and women, speaking all kinds of languages. The queue moved slowly towards the entrance. When I finally got to the entrance, I was handed a blue band to hang around my neck, with my ticket attached to the end. When I got further in a man in a suit scanned my ticket and handed me a bag containing discounts for products promoted at the summit as well as some samples of various health supplements. As I entered the last entrance, I looked up at a gigantic, open room with a glass roof. It kind of looked like a shopping center. In front of me, in the middle of the building, there was a wide staircase that led up to something that looked like a market, which was the exhibition hall where all the stands were placed.

There were a lot of people present already (in total 3000 attendees) and I saw many people who looked just as overwhelmed as I was. I turned to my left, and I saw a huge device that looked like a futuristic bed, on the side it said, “human regenerator”. To my right there was

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<sup>3</sup> The concept «biological individualism» was suggested by my supervisor Annelin Eriksen in one of her comments to my draft of this chapter, and I find it a useful concept.

an area with a DJ-booth and lots of yoga mats placed in front of the booth. Anywhere I turned I could see things that I immediately wanted to check out, and it was hard to know where to start. After a while of just standing there, looking around, a woman working there approached me and asked me if I had attended before. I told her that it was my first time attending. She explained to me how the venue was set up: the staircase in the middle led to the exhibition hall where I could buy and try different biohacks, technologies, supplements, and so on. The area to my right, she told me, was the workshop area where there would be held several workshops throughout the weekend. She also pointed me in the direction of the different stages, where all the talks were held. “You have to show up early, because they fill up quickly!”, she told me. Tim Gray’s (UK’s leading biohacker and founder of the summit) welcome speech was about to start, and she told me to hurry over to the “MONK stage”. MONK was one of the summit’s main sponsors, a company that sells “smart ice baths” to make cold plunging easily accessible, in the comfort of your own home, thus for a less comfortable price: 6000 pounds.

#### Tim Gray: “the prescription for optimal health”

The MONK stage was the biggest stage out of the four stages. The room was a big and filled with chairs, and at the front, a stage. At the stage was a podium and the wall behind it was lit up by a projector, where it said, “Health Optimisation Summit 2023”. Purple and red lights from several spotlights filled the room. There were both men and women present, in fact it looked like it was quite equally divided. As I had noticed in the queue earlier, I seemed to be the youngest one here. Some people were on their own, but most shook hands with those next to them and engaged in conversation. There was an anticipation filling the room, while we were waiting for Tim Gray to enter the stage. When he finally entered, people clapped their hands and cheered. He is clearly the superstar of the biohacking community. After the room was settled, Tim Gray did a short speech where he welcomed old and new biohackers to this year’s summit. His welcome speech lasted only for a few minutes, but I did attend his main talk later that day, where he listed all his top biohacks of 2023.

In the talk Tim Gray held later that day, he emphasized the importance of optimizing *every* aspect of your life, both body and mind. On the screen behind him he had listed “the prescription for optimal health” which included: “sleep well, eat well, hydrate well, breathe well, move well, sun well, ground well, relate well, love well, fuck very well, and detox well”. He went through all of the points listed, and in the end of each, he had a product or a supplement that you could buy to help you implement these hacks into your life. At one point he talked about “grounding”, which is done by standing outside barefoot and “charging” yourself.



*“Grounding completes our electrical circuitry. Think of a battery, it has a positive and it has a negative. Now if the negative is not connected, most things don’t work. The human body is like this. We are bio battery! And that battery requires a positive, think photons and sun. And negative, grounding and earth. And you can measure it in the body, you can see how grounding affects your body in real time. Not just when you look at it under the microscope, to see your red blood cells go from clumped together to equidistant, which means that you have better blood flow, which means that you have better energy, which means you have everything because your blood is doing better”, he said.*

He then stated that grounding, and many other biohacks can be done completely free, but “if you live in London and don’t have a garden, there are hacks for that” and proceeded to show the different grounding products available at the summit. There were grounding-beds or “sleep systems”, grounding mats, grounding shoes and so on.

Tim Gray clearly showed a strong profiteer tendency at this talk, like Boss (2021) describes in his work. His way of presenting the audience with hacks you “must do” to optimize your health, and then presenting a product or a supplement that could be bought in the exhibition hall. Although he said that many of these hacks could be done completely free, it was clear that this summit was about profit, and that buying a product was presented as a way better alternative than the free ones.

### **The market: natural- and technoscientific biohacking**

As I stated in the beginning of the chapter, I found that the summit (or types of biohacks found at the summit) were divided into two parts: the natural and the technoscientific. I want to make clear that I do not define these two parts as binaries, just like Boss points out with the different types of biohackers (Boss 2021, 137). Although it a clear distinction between the two, they do have common ground as well. The first time I entered the exhibition hall, or “the market”, I was stopped by people working at the stands who tried to sell me their products. Nearly every conversation started with “what do you want to improve?”. The exhibition hall was set up with stands arranged like a maze, so you had to pass them all. Because of my Master’s project, I answered these questions telling them that I was concerned and curious about aging, and whether it was supplements or technoscientific devices, they all had the “perfect” product for me to slow down the aging process.

Similarly, Boss (2021) describes a visit to a biohacking conference in Las Vegas; DEFCON. He describes how he encountered, in addition to punks, “plenty of suits lined up too, ready to sell the future with a smile and a subscription service, promising that we could all make ourselves better” (Boss 2021, 136). The “suits” he is referring to are the profiteers, which were the only type of biohackers I identified at the summit, ready to sell me the future (and youth) with a smile. At DEFCON the punks were at the margins, but nevertheless visibly there. They communicated among themselves about performance of different hacks that would take place, not to sell or to market but to experiment, to check if it was possible. Not totally different from lab-experiments in research. For instance, Boss describes how a biohacker known as Lepht Anonym was driven to explore possibilities within plasticity and cybernetics and took the risk (and pain) of self-implantation of magnets under the skin. When the implanted magnets healed, they indicated the presence of electromagnetic activity by vibrating (Boss 2021, 138).

Punks such as Lepht Anonym, according to Boss, are ever shifting and seeking to exceed the normative. At the biohacking summit in London, there were only (or at least observably so) profiteers. Profiteers are not seeking to shift the normative, but rather seeking to make profit based on a growing consumer movement, and growing sentiment, that the body and the mind can be “hacked”, not for the hack in itself (as for the punks who value difference), but for increased health- and lifespan.

At the conference Boss visited (DEFCON), the theme was “disrupting the medical industry”, and Boss describes how punks gathered where papers, panels and presentations focused on the chemical and mechanical alteration and augmentation of the human body (Boss 2021, 146). In comparison to what Boss described from DEFCON, what I observed at the London conference was that it was a marketing space for optimizing your health through biohacking. This difference might be a result of development over time, and that the biohacking space has become less a scene for the punks, but it might also be a result of context. It seemed to me that the biohacking scene in London, at least the way it was presented at this summit, was primarily (and even only) a marketing place. Perhaps this is a US versus UK distinction, or it might be that this specific health and biohacking conference did not attract the punks. This was a conference for “suits”, and it was the natural and technoscientific divide which seemed most obvious to me.

### Natural biohacking

During my first walk through the exhibition hall, at the part where the “natural products” were displayed (a distinction I had not realized at the time), I was recommended herbs and natural

supplements that would “make wonders” for my skin and boost the collagen production that keeps the skin elastic and youthful looking. The beauty-as-youth discourse was clearly also present here, on the biohacking scene. I kept on walking and the pamphlets were almost flying into my hands. These were often decorated with flowers or pictures of women with clear skin and no wrinkles – much like how the beauty clinics and stores in London advertised their products. I noticed a stand that was named “Oxford Healthspan”. Their slogan was “age better, smarter, later – on your terms”, which reflects the biological individualism I described above. They, like many others at this end of the exhibition hall, had decorated their stand with flowers. Pink orchids to be exact, and there was a big photo of a woman behind the stand, bathing in a pool while looking at what I believe was Mount Fuji.

The Oxford Healthspan, and the other stands at this end of the exhibition hall, gave me a feeling that these products were for women. Not only as a result of how these stands were decorated and how they spoke of “youth as beauty”, but also because there were mainly women coming over to this end. The woman working at the Oxford Healthspan stand explained their products to me, which were “spermidine supplements”. On the pamphlet she gave me it said, “a celeb-loved, longevity molecule that has been shown to slow aging on a cellular level”. I asked the woman how spermidine supplements worked, and she told me that these supplements target the root cause of aging which is mitochondrial dysfunction. “It helps to clean up dysfunctional and dying cells”, she told me, which is something I had heard other biohackers talking about as well.

#### “Test, don’t guess”

After a while her colleague ran over to us, shouting in excitement, “I have the liver of a 20-year-old!”. He had been at the other end of the exhibition hall, at a stand where you could test your liver values. Testing the values in your body is an important part of biohacking, I learned, because they want to track their improvement and make sure that what they are doing is working, as well as measuring their biological age, which might differ from the chronological age. As Grewe-Salfeld puts it, these ways of testing and tracking progress is a “part of the aim to personalize medicine, to tailor medical interventions to the patient, thus reducing costs and improving outcomes. For some critics, these types of tests can also be considered the “epitome of a particularly individualist or consumerist approach to healthcare” (2021, 175). I was also told by Elanor (a biohacker I met at the summit, which I will come back to below) that she goes to the doctor every six months, to check her blood and values. I told her that I never do that unless I am feeling ill. She looked at me with a confused look, and she seemed quite shocked

about what I had just said. “What is the purpose of doing it when you are ill? I do it to prevent getting ill!”, she said. This also shows profiteers tendencies, not that Elanor herself was a profiteer, but that she participated in practices enforced by profiteers. Tim Gray, talked about this as well in his talk at the summit. “Test, don’t guess!”, he said. And there were several stands in the exhibition hall where you could test your blood, liver, hormones, vitamins and so on. Grewe-Salfeld argues that self-tracking (and biohacking) all emphasize a self-reliant, proactive, and curious patient-consumer (Grewe-Salfeld 2022, 20). This individually customized medicine is a discourse that can be made profit of, which has become a part of the biohacking scene, especially within the profiteer’s discourse.

As I moved on in the natural part of the exhibition hall, there was one stand that really stood out to me: “Karmaceuticals”. In front of the stand, I saw a man with long dreadlocks, yoga pants, a cape-looking shirt, no shoes or socks and a big smile. Behind him was a wall with wooden shelves, decorated with plants and moss. On the shelves there were lots of small bottles that looked like elixirs. I stood there for a while trying to figure out what it was, until he waved at me to come over to him. “Do you want a sample of Karmaceuticals?” he asked. I asked him what it was, and he explained that he sold three different kinds of herbal medicines that were supposed to mimic the effect you get from drugs and alcohol, “without the negative side effects” he said smiling. He picked up one of the bottles, “social fluency”. This one was supposed to give the consumer an effect that resembles the effects of alcohol, by activating the same receptors in the brain that alcohol does. “It helps you relax”, he said. He went on explaining that what it does: it will reduce social boundaries, just like alcohol, which makes it easier for consumers to participate in social settings. “It gets you out of your head and into the conversation” he said. He picked up the next bottle, which was called “all night long”. This one was an aphrodisiac, and he told me that it gives a relaxing and stimulating effect to give you a little boost while simultaneously calming down the nervous system. “It enhances your stamina, and some women have reported that it heightens their orgasm”, he said proudly. He picked up the last bottle, “turbo tonic”, which he said was a “vegan alternative to cocaine”. It was supposed to give the consumer a “buzz”, and help to adapt to the mental, physical, and chemical stress one might experience. In the pamphlet he gave me it said that the turbo tonic is “perfect for partying all night long or as a pick-me-up for work”. Now, by this time I was a little confused. It seemed to me that it was no different from Marijuana, as this is also natural – but still illegal. I asked him if it was legal (hoping I would not offend him), and he told me that it is legal and approved. He asked me again if I wanted to try it. I politely declined but thanked

him for the pamphlet. “It’s all about enhancing and empowering your mind!” he said, before I moved on through the market.

### Technoscientific biohacking

Later I made my way to the other side of the exhibition hall, and this is when I noticed the distinction. At this end of the exhibition hall there were lots of technological devices. There were red light therapy panels and beds, hyperbaric oxygen chambers, blue light blocking glasses, bio chargers, circadian glasses and much, much more. As I walked further, I saw a man in swimming trunks, plunging in a smart ice bath. I also noticed three armchairs where people sat with a brace-looking device, covering their eyes. The device had a light panel installed, that hung in front of their eyes, and the lights were flashing rapidly. On the poster in front of the stand it said “Neurovizer”. I walked over to the man working there, and asked if I could try it. I got in line, and I did not know what to expect. After a while I was guided over to an available chair. I sat down, and he explained the procedure to me step by step. Again, I was asked “what do you wish to improve?”. I could choose from a menu of settings, either “focus”, “stress”, “sleep” or “anxiety”. I chose focus, hoping that it would help me stay focused throughout this day. He put the brace on my head, gave me a headset and asked me to close my eyes. Behind my closed eyes I could see the lights blinking rapidly, in the same pace as the music playing from the headset. After a while I began to see patterns and colors forming, moving around, and shifting. At first it was overwhelming, but after a while it felt hypnotizing. It did no longer feel like I was at the summit, I was just in my head. When the treatment was done, I continued exploring this end of the exhibition hall.

There was a “natural” discourse present here too, but, in contrast to the other part, rhetoric’s like “ancestral power”, “raw force”, “endurance” and “elevate yourself” were used. Instead of women portrayed on their pamphlets and posters, there were pictures of men doing sports, muscles or medical images showing the muscular system (of men). And I got the impression that the technoscientific part of the exhibition hall was more about performance, because of the technoscientific devices and machines that promised enhancement of the body and performance (often related to athletes). There were no pink or purple colors, or flowers, here the colors displayed were often blue, black or red. And there were most men coming to this end. We can start to see how gender might be structuring how men and women biohack differently, in a gendered way. Thus, the analysis of how goes deeper than just color palettes and decorations, as I will elaborate below.

### **Hacking hormones: “how to work with it”**

Day two of the summit, I met up with Elanor in the morning before the summit opened for the day. The day before, I met her when I sat down to take a break. She walked over to me and asked me if I was doing fine, we started talking and suddenly I had a new interlocutor. Elanor is a 24-year-old woman, who has been biohacking for five years. She started because she got sick when she was 17 years old. Just like Tim Gray, her doctors had put her on a lot of medications, and she had numerous visits at the doctors and admissions to the hospital – but with no use, she told me. After a few years without getting better, she took matters into her own hands and started her biohacking journey. Now she biohacks with a focus on optimizing her health, staying youthful and learning about her female body. We decided that I would follow her on the second day of the summit, attend the talks she wanted to and join the workshops she was interested in.

Before we entered the summit, I asked her if there were any talks that was especially interesting to her, and she told me that she was really excited to attend a talk about hacking your hormones, for women. At this summit, there were in total 41 talks, and four of them were explicitly for women. The themes of these four talks were focused on optimizing women’s health: hormones, sexual health and love, and menopause. We talked a bit about women’s health, both sharing experiences and thoughts. Elanor expressed dissatisfaction towards how women’s health in the UK (and in general) is not taken seriously. “There is much less knowledge of the female body, than the male body”, she told me, referring to mainstream medicine. She added that there are little to no information for women on how to make the best out of their hormonal cycle, “how to work *with* it” she said. Elanor believed that feeling tired, fatigue, irritated, sad or so on because of your hormones is a bad excuse. I was a bit surprised at first, but then she explained, “there is always something you can do to balance your hormones, and it is your responsibility. All the information you need is either online or places like this. It is your responsibility to seek out these spaces. You have to know your body and figure out what works for you”. This, I would soon learn more about at the talk we attended, “living in sync with your hormonal cycle”.

As we entered the room where the stage was set up, there were only women present. Some of them had their note pads ready, and some took pictures as the woman presenting, Pauline Cox, entered the stage. She started her talk asking us to close our eyes:

*“Close your eyes for a moment and visualize a road in front of you. There are fields, trees, flowers, and birds. You are wandering on this road, and you look down at your feet, you*

*see them taking steps forward. Now, your attention shifts up, and in the distance, you can see a car. That car is coming towards you faster and faster. You see this car coming and that it is going to hit you, you know that you have to step aside but you don't know how to step aside”* she took a break, our eyes were still closed. She continued, *“replace car with chronic disease, Alzheimer's, diabetes, depression, anxiety. Open your eyes!”*.

I opened my eyes, and she was standing at the edge of the stage, with a kind smile, looking at us. The women around me were nodding in agreement. “So many women are at risk of getting these chronic illnesses, and they see them coming towards them. Living out of sync with your hormones is driving us towards this. Simply stepping out of the road feels easy, but living out of sync with your hormones makes it really difficult”.

Her talk focused on what causes hormonal disruption, which is mainly menopause, that starts between the age of 45 and 55, and how to fix the problems of menopause with biohacks: supplements, nutrition, detoxification, fasting, stressing down, quality sleep, exercise and so on. She also focused a lot on how to burn fat effectively and emphasized that if your hormones are not in sync, it is a lot harder to do so. She was kind of painting a picture of what a woman's optimized body should look like. She did point out that women should never feel guilt or shame for craving certain foods, or for having a “sugar addiction”, but that women should take back the control of their hormonal cycle and their bodies. The women around me were still nodding, taking notes and pictures.

This talk reflected the idea of the biological individualism, the responsibility individuals have to master “nature”. As individualism is a key value and system of meaning in the West (Dumont 1986), age and gender in this context becomes assets of the individual. Although this is clearly a gradual process where the biological body for a long time has been seen as a matter of “nature” and not “culture”, something “given”, and not something the individual could master, shape or form, the new focus on biohacking and anti-aging, which is emphasized in the talks about and products for women's health as they age (and men taking testosterone supplements as we saw in the beginning of this chapter), opens for an understanding of age and gender as an individual responsibility, and nature as something to be managed. Thus, if individualism has been tied first and foremost to the mind, to “inner” senses of self, to the moral self, as it developed in the context of Christianity in Europe, the biological body is increasingly also becoming an expression of the value of individualism (see also Eriksen 2016).

### Performing gender

If age and gender become assets of the individual, the work on anti-aging in the biohacking scene (and in general) will play out in different ways. Hence, I want to turn to how gender might be structuring the war on death and aging, in the context of biohacking. Judith Butler (2006, 34), one of the most important and most quoted academics on performative gender theory, points out that gender is not a noun, nor a set of “free-floating attributes”. Rather, Butler argues that gender is performative, that it is always a “doing”. In this sense, gender is “constituting the identity it is purported to be” (Butler 2006, 34). When you think of gender in this way, she points out, there is always a coherence that is desired and idealized. There are acts, gestures, and desires that are performative, they produce the effect of an “internal core or substance”, and they express identity, which according to Butler are created through discourses. To perform gender is to create the illusion of an interior and organizing “gender core”, which is maintained through discourses to regulate sexuality within the frame of reproductive heterosexuality (Butler 2006, 185-186).

Although I will not be addressing sexuality, I will discuss and analyze how masculine and feminine discourses play a role in the biohacking scene, and the war on death and aging, and how gender is performed through various biohacks. If gender is performative, this means that it is created by acts. The acts of gender, according to Butler, require a performance that is repeated. Butler argues that the repetition of such acts is a way to reenact and reexperience a set of meanings that are socially established, and that these acts are also public, even though there are individual bodies that enact them. And, that there are also temporal and collective dimensions to these actions: these performances are affected by the strategic aim of maintaining gender within its binary frame, which can of course vary in time and place (Butler 2006, 191). Gender instituted through acts, “is precisely that, a constituted identity, a performative accomplishment which the mundane social audience, including the actors themselves, come to believe and to perform in the mode of belief” (Butler 2006, 192).

Taking control of your body is the core of biohacking, and I suggest that it can be viewed as an individual responsibility of aging well. At this summit, it became clear to me that there is a distinction between how women and men biohack, and most importantly what they hack. There is common ground here of course, as they are all seeking to slow down or put an end to aging. But just like the natural- and the technoscientific divide I detected, there was a divide between the feminine and the masculine “hacks”. The feminine was much more visible at the natural end-, and the masculine at the technoscientific end of the exhibition hall. Looking through a lens of gender highlighted these differences, and it is not to say that just because you



are a woman you are drawn to the feminine, but as Butler points out, there is always a coherence that is desired, wished for and idealized when it comes to gender (Butler 2006, 185).

In the biohacking scene in London, I detected that women in general hack their hormones to control the aging process, as well as hacks that reflects that “beauty is youth”. Women are expected, like Elanor pointed out, to work with their hormones and bodies, and to figure out which hacks works for them. If we look at biohacking as an individual responsibility to hack your body, to master nature and fight aging, then it is no excuse to blame your hormones if you are feeling tired or sad. Taking control of the aging process in the biohacking scene is of course focused more internally and on the cellular level than e.g. the ethnography from the beauty clinic where youth is beauty, thus the individual responsibility to manage the aging body is gradual.

The performance of gender in the biohacking context, which requires acts that are repeated (Butler 2006, 191), is practiced by women through hacks that will balance their hormones or boost their collagen production. For men, it was harder to say what exactly is a “male-hack”. Thus, I was under the impression that technoscience was much more important for men, to elevate and optimize their bodies with hacks that took their *performance* to the next level. The technologies that men were drawn to was for example the oxygen chamber and the red-light therapy bed, which (amongst other things) promised to reduce recovery time after a workout, to enhance endurance and to slow down the aging process. There were no talks at the summit that were explicitly for men, but there were some that drew a bigger male- than female audience. These talks focused on enhanced performance, drawing on rhetoric’s like “raw ancestral power”, implying a more masculine discourse.

The differences I observed between the two parts of the exhibition hall (and ways of hacking), the natural and the technoscientific seemed to be shaped by, and simultaneously shaping how men and women biohack by appealing to men with a masculine discourse and women with a feminine discourse. Hence, I suggest that biohacking can be viewed as an “extreme way” of performing gender, and in an extension of this view, how the war on aging is shaped by gender.

The biohacking summit can then be seen as a supermarket for commodities that allows for the management of the aging and gendered body. Possessive individualism (Macpherson 1962), as I stated in chapter one, describes how an individual “owns” their own bodies. In the culture of biohacking and anti-aging the possessive individual not only owns things, but also “owns” (and enhances) one’s own body. The body becomes something that must be managed as a commodity; biohacking, buying hormones, making sure the body is gendered in a specific

way, and aging well becomes a key aspect of this version of what we can call, building on Dumont and Macpherson, biological individualism. The biological individualism, in the context of biohacking, is reflected in many ways: How they track their health to know exactly what to “hack”. How Elanor felt responsibility to learn as much as possible about the female body, and how to work with and optimize it with biohacking. Or, how she, and many other biohackers, take matters into own hands when dealing with illnesses, instead of going to the doctor. Their health is in their own hands, and they view it as their responsibility to manage their health and aging process. This is of course not only reflected in the biohacking scene, but in the other parts of my ethnography as well: Evelyn and Micheal who took control of the experience time by plunging in cold water and doing cryotherapy, how transhumanists avoid crowds in fear of catching a virus, or as we shall see in the next chapter how the clients in the beauty clinic manage their aging bodies by using expensive anti-aging treatments and cryotherapy, thus in the next chapter I will look at how the war on death might similarly shaped by economic capital.

## CHAPTER FIVE Aging and economic capital

*I'm in the beauty clinic, working. There are no clients yet, just me and the manager, Veronica, preparing for the day ahead. In an hour the clinic will be filled with clients ready for their treatments, the phone will ring constantly, and I will have lots of tasks to do. While we wait for the rush, I look through the big glass door that leads to the street. On the other side of the street, by the fancy corner shop, I see a man sitting at the pavement. His clothes are worn out and in front of him he has laid out a piece of cardboard. On the cardboard it says, "need money for food". I can see him trying to make eye contact with every person walking by him, but with no luck. It's quite the contrast to the wealthy clients in the clinic. After a while, Sarah enters the clinic, ready for her daily cryotherapy session. Before her session, she asks for a renewal of her cryo-membership. Veronica hands her the payment terminal and says, "6000 pounds please". After paying, like it was nothing, Sarah says, with a smirk, "It's a lot of money in this economy, but that's okay. I really believe that those who don't do this (cryo) every day are missing out! I guess they have a job and a life to attend to".*

In this chapter I look at, based on my ethnography from the beauty clinic and the pond from chapter two, how perceptions of aging are shaped, and from that how the individual responsibility to manage the aging body takes on different forms. There are obviously differences between going to an expensive, luxurious clinic everyday versus going to a pond for a cold plunge. The difference in the practices may be obvious, but I want to analyze my ethnography to show how class might contribute to different understandings of aging, drawing on Lamb's (2018) work on aging and class. My ethnography shows how people of different socioeconomic backgrounds fend off aging differently. Hence, in this chapter I will use Bourdieu's forms of capital, specifically economic capital.

Pinxten and Lievens (2014) show in their work how the forms of capital, in reference to Bourdieu, is important to consider when looking at health inequality. The three forms of capital developed by Bourdieu are social-, cultural-, and economic capital. Individuals of different social positions differ from one another with regard to their possession of these forms of capital, hence, Pinxten and Lievens argue that the different forms of capital, in their own way, can be viewed as a resource for acquiring or maintaining good health (Pinxten and Lievens 2014, 1095). In my analysis I will focus on economic capital, because of the lack of material on the

other two capitals. The wealthy people in the beauty clinic clearly shows, as we shall see, a possession of high economic capital: they live in the wealthiest neighborhoods in London, they spend thousands of pounds on beauty treatments a week, they travel a lot and drive fancy cars (or have private drivers). Evelyn and her friends from the pond, worked in central London, but could not afford to live there, so they lived in the periphery of the city where housing is more affordable, implying a lower possession of economic capital.

Economic capital, according to Bourdieu, “refers to material assets that are immediately and directly convertible into money and may be institutionalized in the form of property rights (Pinxten and Lievens 2014, [Bourdieu 1986] 1097). Pinxten and Lievens argue that economic capital, including all kinds of material resources, can be used to acquire or maintain better health, and that having little economic capital can cause more stress, which in this way might influence an individual’s health (Pinxten and Lievens 2014, 1097). My argument then, is that economic capital contributes to shape how the individual responsibility to manage the aging body takes on different forms, when aging is no longer seen as unavoidable.

In the ethnography I present in this chapter, I found that there were two ways of engaging in anti-aging practices and understanding aging. 1) The wealthy clients in the beauty clinic, fend off aging by using expensive technoscience and treatments, and their focus is mainly on beauty, which I refer to as “external signs of aging”. 2) People with less economic capacity, like Evelyn, are more concerned with the loss of time and bodily-function, and fends off aging by exercising, a healthy diet, or cold plunging. This, I refer to as “internal signs of aging”.

Although I will discuss the significance of possession of economic capital for a perception of aging, I also want to emphasize the complexities of this phenomenon. As Lamb (2018, 270). argues in her ethnography from the US, economic factors are substantial, but perceptions and experiences of aging cannot be reduced to these alone. When talking about what contributes to shape perceptions of aging.

Sociologists have found that intersections of gender, class and age define how individuals understand aging, and how they perceive and practice (or don’t practice) anti-aging (Åberg et.al 2020, 2). A national survey conducted in Finland revealed that people with higher income tend to define themselves as more attractive than people with lower income do, and they also considered physical appearance as a more important part of themselves (Åberg et.al 2020, 5). To understand this, the authors state, we could point to gender and look at how women are more harshly judged, compared to men, as they age, but class might be equally significant (Åberg et.al 2020, 1). As I have shown with my own ethnography, anti-aging looks different for wealthy clients in the clinic versus the cold plungers, and the broad field of biohacking is also

shaped by economic capital: you can hack everything, but as Tim Gray told us at the summit, there are better and easier ways of biohacking that cost a lot more money.

My ethnography from the beauty clinic sheds light on the part of the anti-aging phenomenon where beauty is youth. This brings me to one of the two ways of perceiving and practicing anti-aging that I identified during my fieldwork: being concerned with external signs of aging (beauty), rather than the internal signs (function). The wealthy elite/upper-class, like the clients in the clinic fended off aging by using extremely expensive technoscience, treatments and skin care. Åberg et.al suggests using Bourdieu and his “aesthetic capital” to analyze this phenomenon (Åberg et.al 2020, [Bourdieu 1984] 1). Aesthetic capital can be understood as what “resources” or “assets” individuals have related to physical appearance: e.g. facial beauty, body shape and size and how one dresses and grooms oneself (Åberg et.al. 2020, [Anderson et.al 2010] 1). This reflects a concern of physical appearance, which is what showed up in my ethnography from the beauty clinic: how some of them fended off aging with cosmetic injections, treatments and other practices that made them look youthful. Also, in the way they spoke about aging as something to be “fixed”, wrinkles as something to be “removed”, and “fighting nature” instead of “giving in”.

When I worked in the beauty clinic, I tried to learn as much as possible about the different treatments that were offered there. There were lots of other treatments besides cryotherapy, almost 40 different ones. There were treatments that focused on health and well-being, but the majority targeted beauty and youth. Thus, the “star of the show” was clearly cryotherapy. You may think that 90 pounds is not too expensive for a treatment, but I was told that you should do cryotherapy (and other treatments as well) often to achieve your desired effects and to maintain them. So, most cryo-clients came in once or even twice a day. In addition to this, clients were encouraged to maintain their skin at home with products they could buy at the clinic. The sum of all the different treatments (varied from 80-500 pounds) and expensive skin care products makes this way of practicing anti-aging a very expensive “lifestyle” to maintain. Spending about 1000 pounds plus a week was not uncommon. Being able to spend an average monthly salary on anti-aging technologies of different kind, is not for everyone. I therefore argue that being worried, to this extent, of the external signs of aging is very much linked to economic capital, which I will discuss further in this chapter.

#### External signs of aging: beauty is youth

Stark (2020, 11) in his work on anti-aging in modern Britain, points to that aging have been seen as a loss of beauty historically in England. This discourse on aging as a loss of beauty was

an explicit discourse in London during my fieldwork. For instance, I got in contact with a woman via Instagram, Ivy. She had posted several pictures from an expensive wellness-center in London, offering memberships including workouts, yoga sessions and biohacking, which is how I found her. I met her at a café in one of the wealthy neighborhoods of London, near her home. Ivy is a 29-year-old woman, and aging worried her a lot, she told me. She had long black hair, tied up in a sleek ponytail, she wore jeans paired with a blazer and high heels. “I am definitely not comfortable with it. For now, it seems far away, but I am definitely getting injections (cosmetic injections) later in life... For sure!”. When I asked Ivy what made her feel this way about aging, she told me, with a concerned look on her face, “I guess you don’t look as energetic as you used to when you age. You are not young and beautiful anymore”. Her facial expression changed, and she laughed, “the funny thing is that my mum does not do injections or anything at all, she wants to age naturally. I don’t want that, I want to fight with nature! I mean, at the end of the day no matter what you do you are still going to look older. But there are certain things you can do to slow down that process”.

Stark identifies the five major methods used to combat aging during the interwar period in Britain: Hormone treatments, electrotherapy, skin care, dietary regimens, and exercise plans (Stark 2020, 12). As they do today, the different anti-aging methods target different groups of consumers. Expensive and high profiled technologies were used only by a small group: the wealthy upper-class. More mundane products like skincare that drew on youthfulness appealed to a broader group of people with less economic capacity (Stark 2020, 16). Cryotherapy is clearly the equivalent of the high-profiled technological, and scientific (or appearing so, at least), methods. The more easily available anti-aging products are of course, still, skin care, even though there are big differences in brands when it comes to cost. Nevertheless, these anti-aging and anti-wrinkle products promise to fend off signs of aging.

Stark points out that the emergence of skin care and domestic devices to fend off aging reshaped people’s daily bathroom habits and routines (Stark 2020, 16). These routines have clearly intensified today and have become part of a quite big trend on social media. There are endless videos on social media platform like Instagram and TikTok, where people (mostly women) share their “skin care routines”, both morning and night. There are own “rituals” for any flaw one might have and want to work on. Videos of these routines usually goes like this: A young woman cleanses her face, then she applies a toner to remove excess cleanser and makeup, after this she might put on a serum, then a facial cream (specifically for nighttime or daytime) to lock in the serum – or a retinoid (retinoic acid) to fight “imperfections” like wrinkles

or fine lines. It is also common to use facial masks, crystals to massage in the products to give the products a “boost”, or light-devices to rejuvenate the skin cells.

Ivy had a skin care routine herself, which was quite close to the one mentioned above. But as I stated there are differences between drugstore brands and luxury brands. One of Ivy’s favorite brands were La Prairie. This is an extremely expensive brand, which I have seen being promoted by beauty influencers and celebrities on Instagram and YouTube. To give you an idea of their price range, one of their facial creams “skin caviar luxe cream” is priced at 1000 pounds for 100ml. Ivy told me that this cream was her absolute favorite and that it gave her skin a “lift” and made her skin look more youthful.

An apt question is thus: what makes some people buy anti-aging skin care products that costs 1000 pounds, while others simply do not care and do not buy into the narrative of looking young for as long as possible? For whom and why do the anti-aging products matter? For Ivy and the clients in the beauty clinic, the extremely expensive treatments and products had more credibility because of the high price and because they were “backed by science”. To find an answer to why one individual buy these expensive methods, and worry about the external signs of aging, we might point at the “beauty is youth” discourse: influencers that promote anti-aging products, advertisements showing “airbrushed” models, social media, celebrities, movies, and so on – or the time we live in right now where technology has advanced to the point that it is possible to slow down the aging process – so why shouldn’t we?

### The beauty clinic

In the beauty clinic, the most expensive treatments were the most popular ones. One of these two treatments were a skin tightening treatment, priced at 500 pounds. I had seen this treatment several times on social media, used and promoted by beauty influencers and celebrities like Kim Kardashian. The treatment is done with an apparatus that looks like a pen, called a DermaPen, with microneedles attached to the “head” of the pen. The treatment targets areas of your face that you want to improve, e.g. wrinkles, fine lines, acne scars, dark spots, or hyperpigmentation. During the treatment the beauty therapist glides the DermaPen gently over the client’s face, which leaves microscopic punctures in the tissue, which then stimulates the body’s natural healing response and encourages it to renew, repair and rejuvenate the damaged skin cells. Treatments like this might be as popular as they are because they gain credibility through their high price, or because celebrities vouch for them on social media, or because they take on a scientific language. In the beauty clinic it was not a secret that several celebrities, like actresses, artists, comedians, models, and designers, used the treatments offered here – which

was exploited as a salespoint and a marketing strategy as well, because these celebrities got the treatments for free if they promoted the clinic on their social media platforms.

When I thought about the clients who did cryotherapy (and other treatments) for aesthetic anti-aging reasons, the first person that crossed my mind, was Sarah. Sarah is a woman in her sixties, she is from Russia and lives in London with her British husband. Sarah does cryotherapy *every* day, sometimes combined with the infrared sauna. I also saw her doing facial treatments a couple of times. She is not employed, but her husband is a wealthy businessman, who usually has his driver pick her up when she is done with her daily cryotherapy session. Her days consists of coming to the clinic once, and sometimes twice, meeting up with friends, shopping and she travels a lot as well. After a few visits I noticed that she would always look in the mirror before and after her cryotherapy session, and she would drag her fingers over the lines on her face. Sometimes I could see a concerned look on her face as she looked in the mirror, which was mainly prior to the treatment. Every time she entered the clinic she always looked well put together, usually wearing heels, black and elegant clothing, diamond jewelry, and I never saw her without her red lipstick.

“This cryo is much better than the one in Dubai” she told me prior to one of her sessions. When I asked her why, she told me that the one in Dubai is not as cold as this one, and that the uniform they gave her covered too much skin. “They don’t know what they’re doing over there!” she said. Sarah wanted to expose as much skin as possible to get maximum anti-aging benefits. This day she told me that she was travelling to New York for the weekend, and she wondered if the cryotherapy in the US is any good. Michael was present too and overheard our conversation, “It’s almost impossible to find in the US!” he said. He pointed out that they only have cryotherapy with liquid nitrogen instead of cold air in the US. “I have been to Palm Springs several times, and I thought they had everything there. You can get a massage for your dog, but not this!?” he laughed. Veronica told Sarah that there is cryotherapy in New York, but as Michael stated, with liquid nitrogen instead of cold air. Sarah then replied, “I prefer this one, it’s much better because it’s more expensive”. “The other ones are not as good because they’re so cheap!”, she said with a smirk.

For Sarah, and others I encountered, an expensive treatment was better than a cheaper alternative, mainly because of the price it seemed. What concerns me here is: First, that treatments and products gain credibility when they have a higher price, or when celebrities vouch for them. And second, I want to argue that what Sarah, and the other clients are doing when spending money on extremely expensive anti-aging treatments, is a way of (not necessarily consciously) cultivating their aesthetic capital. By doing do, they keep up with the



“right” way of aging well, as it is viewed in this context. Her possession of high economic capital allows her to buy these treatments, and thus there might be a responsibility to do so, to be able to age well. As I will show below, what is seen as “aging well” is not the same for everyone, and this might be shaped by economic capital.

Anti-aging and anti-wrinkles products and treatments promise to fend off signs of aging. A newer regime, which is also related to biohacking, is cold plunges. This low tech-regime promises to slow down aging, but, and significantly, not necessarily on the outside. The goal is a healthy and strong body, for as long as possible.

#### Internal signs of aging: healthy and successful aging

Evelyn, whom I introduced in chapter two, takes control of her aging body by doing cold plunges, in addition to exercise, a healthy diet, and using natural products for her skin. She spoke of her aging body with phrases like “taking care of” or “nurturing”, which is a clear contrast to the phrases the elite/upper-class from my ethnography used, e.g. “fixing”, “erasing”, or “fighting”. This way of taking care of body while mostly being concerned with the internal signs of aging (function, control of time), I argue, is linked to the cold plungers and the biohackers. Biohackers are of course more invested in the anti-aging project than someone who goes for a cold plunge every other day, thus the reasons are similar, but differ in degree.

This resembles what Lamb (2018), in her study of aging and class in the US, calls the “healthy/successful-aging movement”. Her research examines US endeavors to eradicate old age. Although her research is conducted in North America and mine in Europe, I found her arguments useful when analyzing my ethnography on how perceptions of aging are shaped. Lamb (2018, 266) describes this as a movement where self-care and responsibility for your own health (and aging) can be interpreted as part of a broader medical enterprise, where the goal is to have healthy, independent subjects. Lamb refers to Foucault and “biopower” and suggests categorizing this movement of successful aging as “contemporary biopolitics of aging” (Lamb 2018, 268). She explains that these biopolitics of aging are “remaking potentially frail, dependent elders into active, fit, consuming, responsible bio-citizens” (Lamb 2018, 268).

We might then think of anti-aging practices in this sense as part of the biopolitics of aging. Cold plunging and biohacking are all about staying healthy, both physically and mentally – to increase healthspan and lifespan. Cold plunging, as we saw in chapter two, is a way of taking control of the body and control of the experience of time. Cryotherapy also have these elements, but this practice is available for people who have a lot of money. When I asked Evelyn what aging well looked like to her, she mentioned explicitly health and fitness. “If I can go for

long walks, cycle a long way, and continue swimming. If I can physically and mentally carry on as I am now, then that is aging well. If my skin sags, that's fine, that's what happens". When Evelyn takes on her "journey of aging well", she takes control and responsibility of her own health and body, which can be understood through the biopolitics of aging as Lamb (2018) describes.

### Cold plunges and the loss of time

People who, like Evelyn and her plunge group, might be concerned by their looks changing as they age, but they put a lot of effort in to "fix" this. Rather, they accept it and focus on fighting the internal signs of aging. After Evelyn and I had gone for a cold plunge, we had a conversation about aging. When I asked her how she felt about aging, I was surprised by the answer she gave me. For Evelyn, anti-aging had nothing to do with the loss of beauty of youth, but more to do with loss of time:

*"I don't like aging. No, I don't. I am fifty-six, it kind of scares me to think that I have less time already, I don't like that! I kind of feel when my children are older; I want to travel, I want to you know... see lots more of the world and have adventures. One of the trips I am planning with my husband is in Ireland. The Wild Atlantic Way. Lots of beaches, opportunities to swim. I want us to swim as much as we can, and since we are both photographers, we will document it as well. But yeah, I don't like it... aging. Inside I don't feel older, but I am not as fit as I used to be. The aging process isn't right, it's unfair. That is something I need to work on, to embrace and accept it. But there are some things I like, I don't really care what other people think about me anymore, as I did in my twenties. There is a confidence that comes with age that I like. The thing I don't like is the loss of remaining time".*

When I asked her if she worried about her looks at all, she told me that she didn't. "I look okay", she smiled, "now that I'm married, I don't need to attract anyone. I can do things naturally. I never used to use moisturizer, but after forty I started" she laughed. "So, I do try to take care of my skin, but it has to be natural, vegan". For Evelyn, aging was seen as a negative thing because of loss of remaining time and her body not functioning as it used to, not because of her appearance changing with time.

## **How economic capital shapes understandings of- and the process of aging**

Above, I have discussed how one's possession of high- or lower economic capital might affect how we perceive aging, as well as how we age. We have seen that aging well is not a term that means the same thing for everyone: for the clients in the beauty clinic aging well means to look youthful, and to fight nature, taking control of the external signs of aging. Evelyn's understanding of aging well was different to this. Aging well, in her case, meant to take control of her body and her aging process: the internal signs of aging. Thus, I found that the discourse in London was explicitly "beauty is youth". People like Evelyn might worry about looking older and their appearance changing, but I argue that what you do (or don't do) is shaped by economical class.

On the other hand, Lamb (2018, 263) suggests that there are more layers that needs to be unpacked to explain exactly what structures these different understandings and practices of anti-aging. She argues that it is not sufficient to give only one explanation to why people perceive aging as they do (Lamb 2018, 267). The "healthy/successful aging" movement, she argues, "hold such appeal not simply because of government's need to tackle the challenges of population aging, nor merely because of neoliberalism's pressure on subjects to perform self-care and consumer capitalism's drive to profit from anti-aging products, nor only because biomedical practices have made it possible and ordinary to extend life". These are compelling realities, she states, but they are not sufficient to explain why people want to eradicate old age. Lamb suggests that there are intersecting factors that shape these understandings. Medical, political and economic agendas to counter aging, she argues "resonate with and are propelled by long-standing cultural values surrounding personhood and the life course, tightly woven together in mutually constitutive ways" (Lamb 2018, 268). Her research shows that there are intersecting factors that contribute to how we age, but that people of different socioeconomic backgrounds will have different ways of practicing anti-aging and different ways of understanding aging and what "aging well" means, which becomes clear when looking at how Sarah and Evelyn, for instance, takes on their "anti-aging journey" very differently (Lamb 2018, 277).

Thus, my ethnography and analysis in this chapter, have shown how possession of economic capital is a crucial factor in shaping how individuals understand and practice anti-aging. In my ethnography I found that there were two discourses present. One where the visible signs of aging were something that needed to be fixed, versus the other discourse that focused on bodily function and the loss of time, as well as "nurturing" and "taking care of" the aging

body. This is not representative for everyone in London, but it is significant for what is going on in London in the anti-aging field. Similarly, biohackers are also concerned with the internal signs, but on a more “extreme” and even more controlling level, reflecting a higher sense of individual responsibility. They take the work of anti-aging very seriously, and it is part of their daily routines, a constant work on not aging, every day. Thus, within the broad field of biohacking there are many ways to biohack, but as we saw in chapter three, there are ways of doing the same biohack for “free”, or you can spend a lot of money on technoscience (e.g. cold plunges versus cryotherapy or smart ice baths).

### **Concluding remarks**

In this thesis I have explored the concept “the war on death” (Boss 2021), contextualized in the anti-aging field in London, where I conducted my fieldwork. In an attempt to show how people of different social backgrounds make sense of aging, when aging is no longer seen as “necessary”, “natural” or “unavoidable”, I have argued that managing the aging body can be seen as an individual responsibility. This individual responsibility, or biological individualism, differs in degree, as I have shown through analysis of my ethnography from different scenes in the anti-aging field in London: a beauty clinic, cold plungers, transhumanists and biohackers. In my efforts to do so, I have shown how people from each “group” take on their “anti-aging journey”, as many of my interlocutors phrased it.

My interlocutors who used cold technologies of various kinds, cold plunging and cryotherapy, reflected an attempt to gain control over the limits of biological time. Thus, what I shed light on in chapter two, was how they also seemed to be taking control of the experience of time, slowing down- or even “freezing” time for a brief moment. This, I suggest is a way of practicing time-tricking (Bear 2016), as a way to step out of productive time and the hustle and bustle of the busy, overwhelming experience of living in a metropolis like London.

As for the transhumanists, I argued, that the original physical body is not as important to them, because they hope to one day be able to upload their mind into other non-human bodies – which is, *if* the technology advances to this point, enabled by cryonics. Thus, they are being careful to not catch any viruses, by mostly meeting online and wearing medical facemasks in public. This does reflect biological individualism of a lesser degree, compared to for example biohackers. What I have tried to show, is that there was another “responsibility” they devoted their time to: striving towards no longer being viewed as unserious, or their projects as a taboo science. Transhumanists are hoping to gain acceptance, as well as interest, from the general public, and as I have argued, drawing on the work of Dawley et.al (2024), they try to achieve

this by maneuvering between an explicit- and implicit way of leading their transhumanist projects and discourses.

Through an analysis of the biohacking scene in London, I examined how the war on death and aging might be shaped by gender. By drawing on performative gender theory (Butler 2006), I argued that biohacking is an “extreme” way of performing gender. My description of the biohacking summit I attended, also shows how this summit can be seen as a “supermarket” for commodities that creates the expectation for individuals to manage their aging body in a gendered way: by hacking hormones, hacking the skins collagen production, enhancing performance, aging well and thus making sure the body is gendered in a specific way. For biohackers, the body is seen as something moldable and something to be managed as a commodity, which I argue is an example of biological individualism.

Lastly, I have looked at how economic capital, with reference to Bourdieu’s forms of capital, shape the way the individual makes sense of aging, and how the individual responsibility of managing the aging body is practiced in different degree. In other words, how the war on death and aging takes on different forms, depending on one’s socioeconomic background. To emphasize the difference in degree here, I analyzed my ethnography from the beauty clinic and the pond. My interlocutors from the beauty clinic have a much higher economic capacity, compared to the people who did cold plunges, and I argue that this shapes how they take on their “journey of aging”: in other words, how the war on death takes of specific forms depending on one’s economic capacity.

Through my analysis of my ethnography applied in this thesis, it is clear that “aging well” have different meaning, depending on lifestyle, gender and economic capacity: Aging well can be defined as “beauty is youth”, and is then achieved by managing the visual signs of aging, e.g. wrinkles, fine lines or a receding hairline. Aging well can also be defined as being able to function, for as long as possible, or for as long as you wish. The efforts put into achieving this can be seen through how some people engage in more time consuming and expensive lifestyles as biohackers do, or how some attempt to live a healthy life by going for a cold plunge, exercising or having a healthy diet. Although my ethnography includes anti-aging practices and values of very different kinds, I my argument is that there is in fact a cultural connection between them: taking control of the aging process, which becomes an individual responsibility when aging becomes “optional”.



## Works cited

Attia, Peter and Bill Gifford. 2013. *Outlive: The Science & Art of Longevity*. New York: Harmony Books, an imprint of Random House, a division of Penguin Random house LLC, New York.

Bear, Laura. 2016. "Time as Technique." *Annual Review of Anthropology* 45 (1): 487-502.

Becker, Ernest. 1973. *The Denial of Death*. New York: Free Press.

Bernstein, Anya. 2019. *The Future of Immortality: Remaking Life and Death in Contemporary Russia*. Of Princeton Studies in Culture and Technology. Princeton, New Jersey: Princeton University Press.

Boss, Jacob A. 2021. "Punks and Profiteers in the War on Death". *Body and Religion* 5 (2): 135–159. <https://doi.org/10.1558/bar.18251>.

Butler, Judith. 2006. *Gender Trouble: Feminism and the Subversion of Identity*. 2nd ed. of *Routledge Classics*. Oxford: Routledge.

Dawley, William, Annelin Eriksen and Sigrid Torsnes. 2024. Nd "Cryonics 2.0" unpublished manuscript.

Dumont, Louis. 1986. *Essays of Individualism: Modern Ideology in Anthropological Perspective*. Chicago: University of Chicago Press.

Engelke, Matthew. 2019. "The Anthropology of Death Revisited". *Annual Review of Anthropology*. 48 (1): 29-44.

Eriksen, Annelin. 2016. "The Virtuous Woman and The Holy Nation: Femininity in The Context of Pentecostal Christianity in Vanuatu. *The Australian Journal of Anthropology*. 27 (2): 260-275.

Eriksen, Annelin. 2023. *Evighetsmennesket: om teknologi, vitenskap og udødelighet*. Oslo: Universitetsforlaget.

Farman, Abou. 2020. *On Not Dying: Secular Immortality in the Age of Technoscience*. Minneapolis: University of Minnesota Press.

Farman, Abou. 2013. "Speculative matter: Secular Bodies, Minds, and Persons". *Cultural Anthropology* 28 (4): 737-59.

Friedrich, Alexander, and Stefan Höhne. 2020. "Regimes of Freshness." *Medicine Anthropology Theory* 3 (3).

Grewe-Salfeld, Mirjam. 2022. *Biohacking, Bodies and Do-It-Yourself: The Cultural Politics of Hacking Life Itself*. 1<sup>st</sup> ed. Vol 36 of *American Culture Studies*. Bielefeld, Germany: Transcript Verlag.

Huberman, Jenny. 2021. *Transhumanism: From Ancestors to Avatars. Of New Departures in Anthropology*. Cambridge: Cambridge University Press.

Huberman, Jenny, and Jeffrey Bennett. 2015. "From Monuments to Megapixels: Death, Memory, and Symbolic Immortality in the Contemporary United States." *Anthropological Theory* 15 (3): 338-57.

Hylland Eriksen, Thomas. 2016. *Overheating: An Anthropology of Accelerated Change*. London, England: Pluto Press.

Lamb, Sarah. 2019. "On Being (Not) Old: Agency, Self-Care, and Life-Course Aspirations in the United States." *Medical anthropology quarterly* 33 (2): 263-81.

Macpherson, Crawford Brough. 1962. *The Political Theory of Possessive Individualism: Hobbes to Locke*. Oxford: Oxford University Press. (2011)



Meyer, Morgan and Frédéric Vergnaus. 2020. "The Rise of Biohacking: Tracing the Emergence and Evolution of DIY Biology through Online Discussions." *Technological Forecasting & Social Change* 160: 120206.

O'Reilly, Karen. 2012. *Ethnographic Methods*. 2<sup>nd</sup> ed. London: Routledge.

Romain, Tiffany. 2010. "Extreme Life Extension: Investing in Cryonics for the Long, Long Term." *Medical Anthropology* 29 (2): 194-215.

Sinclair, David and Mathew D. LaPlante 2019. *Lifespan: Why We Age – and Why We don't Have To*. New York: Atria Books.

Stark, James F. 2020. *The cult of youth: anti-ageing in modern Britain*. Cambridge: Cambridge University Press.

Wang, H, W Olivero, D Wang, and G Lanzino. 2006. "Cold as a Therapeutic Agent." *Acta Neurochirurgica* 148 (5): 565-70.

Wood, David. 2016. *The Abolition of Aging: The Forthcoming Radical Extension of Healthy Human Longevity*. London: Silverwood Books.

Zahle, Julie. (2012). "Practical Knowledge and Participant Observation". Oslo: *Inquiry*. 55(1): 50-65.

Åberg, Erica, Iida Kukkonen, and Outi Sarpila. 2020. "From Double to Triple Standards of Ageing. Perceptions of Physical Appearance at the Intersections of Age, Gender and Class." *Journal of aging studies* 55: 100876.

#### Online resources

Health Optimisation Summit. 2023a. "Tim Gray, Founder & CEO". Accessed 10<sup>th</sup> of November 2023: <https://summit.healthoptimisation.com/page/2988970/tim-gray>

Health Optimisation Summit. 2023b. "Home". Accessed 10<sup>th</sup> of November 2023: <https://summit.healthoptimisation.com/>

London Futurists. 2023. “Welcome to London Futurists”. Accessed 15<sup>th</sup> of September 2023.:  
<https://londonfuturists.com/>

Oxford Society of Ageing and Longevity. 2023. “Home”. Accessed 15<sup>th</sup> of September 2023:  
<https://www.ageingandlongevity.org/>

Snape, Joel. 2023. “My Ultimate Goal? Don’t Die. Bryan Johnson on His Controversial Plan to Live Forever.” The Guardian. Accessed May 6<sup>th</sup>, 2024:  
<https://www.theguardian.com/society/2023/sep/14/my-ultimate-goal-dont-die-bryan-johnson-on-his-controversial-plan-to-live-for-ever>

UK-Cryonics. 2023 “Welcome to the Cryonics UK website”. Accessed 15<sup>th</sup> of September 2023: <http://cryonics-uk.org/>