Longevity Hacking: Ageing as Synthesis in Biomedical Testing

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Abstract. This article examines how ageing becomes visible and malleable through biological self-testing practices within the biohacking and longevity community. Based on digital ethnographic observations of online forums and commercial age testing services, we analyse how users interpret and act upon their biological age data. Our analysis reveals that ageing is no longer viewed as an immutable biological process, but rather as a malleable combination of organic rhythms, socio-technical interventions and mundane knowledge. We refer to this as *longevity hacking*: an experimental practice of self-optimisation based on quantified ageing markers, aimed at living as long as possible, in the best possible health. This practice reconfigures notions of time, corporeality and agency, offering a new perspective on ageing as an ongoing process of maintenance and enhancement. We argue that biological age testing enables ageing to be reframed as a temporally open, controllable, and partly reversible process. This challenges the conventional view of ageing as an inevitable decline, opening up the possibility of self-directed health management grounded in molecular knowledge and collective online experimentation. We conclude that longevity hacking represents a new synthesis of ageing: a practice in which biological and socio-technological elements are interwoven into a dynamic, experimental mode of temporal and bodily modulation.

1 Introduction

Ageing and the inherent finitude of the body seem increasingly to be losing their status as biological necessities in current bioscientific discourse and the associated communities. Such debates and practices are not solely confined to tech entrepreneurs and billionaires; they have also taken root in local communities. In Germany, for instance, a variety of associations, groups and medical institutions, as well as general practitioners' surgeries, have been established alongside the Party for Rejuvenation Research, which considers longevity to be a political priority. While the individual groups and organisations differ in intensity and practice, they all draw on bioscientific knowledge and the successes

of biomedical laboratories in the field of rejuvenation to legitimise their aims. In this way, so-called 'biohackers' and 'longevitists' have been increasingly discussing medical interventions in physical ageing processes and everyday measures to slow down or even reverse biological decline at conferences and on social media. Bioinformatic models of individual ageing in organisms and the underlying sub-processes based on blood or saliva samples provide a central reference point for the new quality of imagination and practical implementation of new potential actions with regard to the prevention and intervention of the 'meta-disease ageing' (Spindler 2014: 44, own translation). Corresponding biomedical test procedures are also widely available on the consumer market and are enjoying increasing popularity among self-taught laypeople who, drawing on scientific debates and experience shared within their communities, are designing so-called 'longevity protocols', which are intended to make their own ageing available in its numerous organic manifestations – a practice we refer to as *longevity hacking*.

Longevity hacking is based on various test procedures that produce alternative age values. In contrast to the established understanding of chronological age, these values form a central reference point for technologically controlling and biologically optimising the individual ageing process using case-specific longevity practices. Our thesis is that this results in a new view of *ageing as a synthesis* of organic rhythms, sociotechnical interventions and mundane knowledge. In contrast to transhumanist ideas of an information-based mind that can be separated from the organic body using cyberware and the transformation of the human self into algorithms (cf. Ohlrogge 2025; Loh 2018), the discourses and practices of biohackers and longevitists offer a biocentric and holistic perspective (Attia and Gifford 2023; Land 2024). This perspective emphasises the preservation of human life as an interplay of physical, mental, social, spiritual and contextual factors (Sovijärvi, Arina and Land 2024). From the perspective of longevity, the pursuit of a long and healthy life renders extended lifespan constitutively linked with the malleability of bodily decline. The underlying assumption is that slowing or reversing biological ageing directly prolongs life itself. In this sense, biological ageing and longevity are intertwined in the community's practices.

The specific characteristics of such a longevity concept include individualised health interventions based on biological analyses and data-driven practices, as well as biomedical and pharmaceutical interventions and preventive measures. Longevity hacking practices combine scientific findings, technological innovations and personal optimisation strategies. Such rejuvenation practices have long been regarded in gerontological discourse as an expression of transhumanist utopias (e.g., Dumas and Turner 2015; Fishman et al. 2008; Loh 2018; Pfaller 2016; Spindler 2014; Vincent 2009). The introduction of biomedical research into everyday life, the growing popularity of home laboratory tests and new social ideas are leading to the consolidation of a new ideal of the 'end of ageing' (Sinclair and La Plante 2019, own translation) among the long-lived. However, this ideal always takes the biological body into account and does not attempt

to abandon it. As Ellison aptly puts it: ‘The hacked body is the perpetually youthful, functional, and ageless body. Just as with the ‘fit body’, it is a state that can never be fully achieved and yet must constantly be striven for, a continuous propelling forward’ (Ellison 2020: 43). Here, ageing appears neither linear nor biologically determined, but rather as a temporally open process of creation – always in the making, in a continuous field of tension between rejuvenation and ageing.

Based on an online ethnography of the biohacking and longevity community, in the following article we will present their understanding of longevity and the practices of longevity hacking. First, we will outline the bioscientific understanding of ageing as a malleable process that inspires such practices (2). We will then (3) briefly outline our methodological approach and (4) empirically reconstruct that longevity hacking manifests itself through (4.1) making the biological ageing and physical decline visible, which then (4.2) opens the possibility of shaping the ageing process. Finally, we will (5) summarise our findings and argue that longevity hacking is a synthesis of ageing.

2 Ageing as a Malleable Process

Ageing fundamentally represents the process of change in a person with and through time, which can be expressed as a central measure in old age – for example, between a person's birth and the present day. This calendar-based or chronological understanding of age is socially established, but is increasingly being debated in current discussions. In particular, scientific and social debates on longevity and rejuvenation are calling into question the linear, uniform and irreversible nature of ageing. This discourse is based on a fundamental distinction between chronological age and biological age[1], a shift in the approach to preventive medicine in relation to biological ageing, and a consensus in the life sciences ‘that at least some processes involved in ageing – and perhaps more than previously thought – are modifiable’ (Sholl 2021: 6). While chronological age refers to the calendar time since birth, biological age is measured using various biomarkers and describes the physiological state of the body (Moreira 2017: 71ff.). This distinction and the plasticity attributed to biological ageing, as well as the attribution of causing disease progression or even considering ageing as a disease itself, provide the impetus for new approaches to preventive medicine that counteract age-related decline through personalised treatment protocols (Blasimme 2021: 11). The focus of preventive medicine on ageing is thus shifting from people who are already aged to young people and their predisposition to age-related diseases (Lafontaine 2015: 62). From this standpoint, ‘to

[1] In sociology, a distinction is also made between physical age, which is an individual’s perception of their own age, and social age, which is the institutionalisation of age in society and its cultural representation (van Dyk, 2020: 17).

age well […] is not to age at all' (Lafontaine 2015: 75). The concept of longevity, the idea that it is possible to delay, halt or even reverse the individual biological ageing process, is based on a bioscientific understanding of the body at a molecular level (Rose 2007). As Ellison (2019: 133) points out: 'The body of the molecular gaze is a body that is open, malleable, contingent, stochastic, and flattened; it is a body, furthermore, that destabilizes the humanist ideal of the unified and closed body of Western modernity'. In this conception, the body can be reduced to individual biophysiological elements and processes, whereby physical decay becomes increasingly separable, localisable and malleable (Cozza, Ellison and Katz 2020; Ellison 2019; Lemoine 2020; Nowotny and Testa 2009). While chronological ageing is a measure based on the passage of time, biological age is understood as a construct based on various physical parameters. The concept of longevity, as understood through bioscientific knowledge, ultimately embodies the idea of extending one's lifetime beyond the limitations of the biological ageing process. This renders ageing molecularly malleable.

In this logic, bioinformatician Aubrey de Grey claims to have discovered seven cellular and molecular causes of ageing that can be treated with regenerative medicine. Each of these causes represents a distinct damage process for which reparative approaches exist or can be theoretically developed (de Grey and Rae 2010). In this context, ageing is constituted by the combination of the various elements. While Grey's promises of healing and repair in biomedical research were dismissed as wishful thinking in the early 2000s, other research programmes have emerged over the years that, albeit more sceptical about the possibilities of human rejuvenation, are investigating regenerative approaches to treating, reversing and ending ageing processes. These programmes attribute the physical ageing process – primarily based on animal experiments – to an accumulation of various cellular and molecular damages that can be treated with medical interventions and determined along biological age values (Mykytyn 2008; Sholl 2021; Vincent 2006). The so-called 'hallmarks of ageing' (López-Otín et al. 2013, 2023) have becoming widely known in popular science. These are factors that, in their interaction, determine the ageing of organisms and include, for example, genetic damage, chronic inflammation and disrupted cell communication. The corresponding therapeutic approaches to slow down or reverse the ageing process include stem cell therapies, regenerative drug delivery and dietary interventions (López-Otín et al. 2023).

Ageing processes are studied in the laboratory using so-called biological clocks. These computer-based models measure changes in genetic material, known as DNA methylation, and compare them with age, average values and other biological characteristics (Crimmins, Klopack and Kim 2024: 1031). They form the basis for tests that determine biological age and enable statements to be made about physical condition (Pinel, Green and Svendsen 2023). Direct-to-consumer test procedures available on the market take this pattern-based approach on measurable and modifiable hallmarks and apply them to different cellular processes to generate alternative values for determining

biological age. Typically, these self-tests require the most commonly needed blood or saliva sample to be taken at home and returned to the test provider, where the biological age can be determined using the biological clocks underlying the respective method.[2] Based on these findings and drawing on scientific debates, biohackers and longevitists use experimental measures to shape their biological ageing processes and maintain their physical health in the long term. To develop and sustain the physical basis for potential future interventions, longevitists engage in various longevity practices. Many life-extension methods are based on early laboratory findings in model organisms, such as fruit flies, worms and mice. For example, calorie restriction has been shown to slow cellular ageing in mice under ideal conditions (Park 2016). Rapamycin, originally developed as an immunosuppressant, is also considered promising due to its initial rejuvenating effects in mice (Sinclair and La Plante 2019: 187). Other practices under discussion include dietary supplementation, regular exercise, consistent sleep routines, and even invasive approaches such as stem cell and gene therapies or blood plasma transfusions (Ellison 2020: 42; Sinclair and La Plante 2019: 222ff.).

Based on this understanding of age, which makes it possible to measure the ageing process using various age values and to view it as something that can be shaped, practices are increasingly emerging today that actively intervene in the ageing process and aim to achieve longevity (Ellison 2019). In addition to biological age values, digital media such as self-tracking technologies are used to test the individual effects of various interventions 'in a personalized *n=1* manner' (Swan 2012: 95, emphasise in original). The self-tracking practices of people who want to live longer by slowing down their biological ageing draw on concrete practical knowledge from scientific studies on the potential of various dietary supplements, medical interventions or nutrition-related practices to modify ageing, as well as from the quantification of their own ageing processes using biological age tests. In doing so, biohackers and longevitists experiment on their own situation, identify specific problem factors, test potential measures and modify their situation (Wettmann 2025). In such a self-experimental process of a 'reflexive self-scientification' (Zillien 2020, own translation), knowledge about success factors can be generated by successively integrating factors and measures into the experimental design, thereby transforming everyday life (Zillien, Wettmann and Peper 2023). Building on this approach to digital self-tracking as an experimental practice, our exemplary analysis of longevity hacking focuses on the question of how biological age tests contribute to the promise of individually achievable longevity.

[2] Beyond biomedical tests, biological age is increasingly embedded in everyday life: fitness trackers display a 'fitness age', smart scales calculate 'metabolic age', and health insurance companies determine an bodily lifestyle age.

3 Methodology

Our findings are based on a digital ethnographic analysis (Caliandro 2018; Hine 2015) of the online practices of longevitists who use direct-to-consumer biological age testing as part of their efforts to shape their personal longevity and pursue rejuvenation. The starting point for our analysis was an examination of digital self-tracking of sleep as part of the DFG projects 'Sleep Knowledge: On the Production of Knowledge in Sleep Laboratories and via Self-tracking' and 'Sleepwalking: Recalcitrant Knowledge about a Liminal State'. In the online forums we observed, we noticed an increasing focus on longevity. As a result, in preparation for a research project on longevity, we reviewed online forums on this topic as well as publicly available advertising materials and information documents from providers of biological age tests.[3] Rather than adopting a critical perspective on commercial age testing, neoliberal health responsibilities, or medicalisation, our analysis focuses on understanding an age-related 'culture of life' (Knorr Cetina 2005) around biological ageing and longevity interventions. The preliminary analysis presented here therefore focuses on how results of biological age testing are negotiated, interpreted and used within the biohacking and longevity community. We therefore selected an initial corpus of 14 forum posts from the subreddits r/blueprint, r/nutrition, and r/renue. These discussions are primarily characterized by user reports on the testing process and the presentation of test results, often accompanied by self-declared interventions to improve or reverse biological ageing indicators. In addition to forum discussions, our empirical material includes one detailed report of a GlycanAge test, and two reports provided by TruDiagnostic. These test reports are complemented by five publicly available informational documents, which offer insights into the scientific foundations and evaluation procedures of the respective TruDiagnostic test kits. All selected data sources were freely accessible on the Internet, discoverable through search engines, and did not require any registration or login credentials. We exported and saved the online material for our further qualitative analysis following grounded theory (Glaser and Strauss 1967). The results presented here provide initial insights into our empirical observations regarding the use of biological age testing within the self-experimental approach of longevitists and thus mark the beginning of a joint research project on the central everyday practices, actors and debates in the context of longevity.

[3] In our further research, we would like to take a closer look at the field of longevity and its associated social worlds, including medical institutions, political organisations, tech companies, and activist groups. The following analysis is therefore our first foray into this arena.

4 Findings & Analysis

In the following analysis, we reconstruct the relational positioning of biological age testing in the context of experimentally pursued longevity along two characteristics: First, home laboratory testing of biological age is characterised by making the organic rhythms visible, which is seen as the first step in shaping ageing (4.1). Second, this results in the shaping of ageing through socio-technical and nutritional interventions, which are intended to either maintain the current physical condition or restore a previous one, with the aim of achieving longevity. (4.2). As our analysis demonstrates, ageing emerges as a synthesis construct within the context of longevity hacking.

4.1 Making Age Visible

Based on the 'molecular gaze' (Ellison 2019: 133), ageing is understood as a conglomerate of individual elements. Singular ageing processes can be measured using various biomarkers and must ultimately be synthesised to form a holistic picture. However, this also means that different tests are needed to determine the biological decay process in its entirety, such as inflammatory age, telomere age, functional age, etc. For biohackers and longevitists, the quest to shape their own biological ageing process often revolves around the measurement of biological markers and processes to determine their biological age. In the longevity community, measuring biological age is often emphasised as the starting point for individual interventions, with the aim of collecting as much data as possible. As one user puts it in an online forum: 'I decided to do the first step which was to test my biological age'. To make ageing visible, there are various commercial providers, such as TruDiagnostic. In contradistinction to preceding providers, TruDiagnostic employs myriad biological clocks to make the individual senescence process visible and thus pledges to cover the relevant organic levels of the ageing process using a solitary blood sample.[4] In addition to individual health markers, the TruDiagnostic test report provides three biological age measurements at different levels: holistic biological age (OMICmAge), organ-specific age (SYMPHONYAge) and the speed of ageing (DunedinPace). These are based on the analysis of numerous biomarkers to determine biological ageing. TruDiagnostic's home lab test thus enables the visible representation of the decay process using various biological values and scores, providing knowledge about one's own ageing, which initially leads to fragmentation of the body and the current state of decay and is then brought together through the synthesis of these ageing values. This frames ageing as a temporal biological

[4] Consequently, there is no standardised measure for the biological ageing process. Instead, measurements are subject to provider-specific definitions and methods, which leads to incompatibilities and controversial debates about validity.

effect that can be tracked along measurable current states of multiple biomarkers, rather than a calendar-based determination of age.

The visibility of ageing as a multifactorial process, as shown in the example of a chronologically 36-year-old user, can in many cases lead to confusion regarding the validity of the numerical data produced, the general state of health or the current living conditions, provided that there are significant deviations from the respective age values or with regard to the expected test results. The age values shown here for the user in question indicate consistently positive values for organ-specific age, i.e. values below or equal to chronological age. However, the OMICmAge determined by TruDiagnostic, which is considered a 'deeper reflection of your biological age', is about 10 years above his chronological age. The user comments on his results:

> Do you know why my biological age is so high ? and if it's possible to reverse it dramatically ? I've 3 hypothesis why it's so high : 1/ The TruDiagnostic test is bullshit (?) […] 2/ I might have long Covid-19 which affects the results […] 3/ I've quite a stressful Job since 10 years so could be accumulation of stress.

The user's irritations and doubts are directed at the test procedure itself, which is usually met in the community with recommendations to perform other test procedures for comparison, his own medical history and long-term effects from a previous COVID-19 infection, although his 'lung and brain age' seem to contradict this, and stress in his everyday working situation. The problematisation of individual age values is then used in discussions with the community to develop interpretation patterns from which concrete options for action are derived. Another user interprets the results as follows:

> The way that I understand it is that OMCm age reflects the lifelong experience whereas DunedinPace reflects your current habits. You're aging at a rate of 0.65 currently which is great but it's very likely that you were previously aging much more rapidly than that […] If I were you I'd focus on what you can control in there and now which is your current rate of aging.

Biological age is consequently the basis for interventions aimed at enhancing longevity, as visible signs of ageing prompt the desire to manage one's own ageing process to prolong life (Pinel, Green and Svendsen 2023). The molecular view and the biologisation of the ageing process justify an extension of the potential framework of temporal agency beyond physical decline. The reciprocal relationship between life and time thus creates a range of possibility for actively shaping ageing. In addition to the test provider's understanding of ageing as conveyed through information materials and test reports, this is evident in the interpretation of the test results and the subsequent experimental longevity practices of the longevitists, as presented and discussed in online forums and blog posts, for example. In their efforts to slow down or even prevent biological ageing, the longevitists we examined develop informational templates based on scientific debates and derive concrete practices for shaping their ageing trajectories from them.

4.2 Shapability

Making biological age visible through home lab tests leads to a practice of shaping the ageing process with the aim of longevity. The tests not only enable the current biological ageing to be recorded but also allow the success or failure of longevity hacking to be determined, i.e. measures to rejuvenate or at least maintain the current physical condition. Such measures for shaping ageing, which are intended to lead to the longest possible and healthiest life, range from dietary interventions, the use of regenerative drugs, stem cell therapies and blood transfusions. In the online forum, longevity enthusiasts discuss these options and other interventions, as well as their biological age test results, in order to design and evaluate suitable measures. This is fundamentally a self-experimental mode of testing and evaluation (Wettmann 2025) based on biological age values. Or, as one longevitist writes in the online forum: 'try and post results of biomarkers and other tests if effective – continue, if not – modify'. This sense of self-experimental testing are recurring topics in the online debates. In one thread, for example, a user presents his age tests and writes:

> Just got my TruDiagnostic results back. First test is .66 pace of aging! I'm stocked that my protocol is translating to paper. If I can get my next two test rules to be around the same pace, looks like I'll be on the leaderboard of rejuvenation Olympics. I think it goes to show that you don't need millions of dollars to achieve good results.

For the user, it becomes clear that the ageing pace in self-experimentation is considered a key indicator for visualising the individual ageing process and evaluating its slowing down as a success. While a pace of ageing of 1 indicates average ageing by one calendar year, the test result shows a slowing down of biological ageing ('.66 pace of ageing') and thus the success of age management interventions. He emphasises that, unlike publicly effective longevity millionaires such as Bryan Johnson, it does not take millions or biotechnological interventions to achieve good results. His longevity hacking is mainly based on a consistently implemented lifestyle. Factors such as sleep, nutrition and exercise are central to this. He uses the self-tracking technology Whoop to measure his sleep in order to maintain a consistent sleep duration of 8 to 8.5 hours; he eats a Mediterranean diet low in carbohydrates and high in protein; and his training includes 5 to 6 sessions per week of strength training followed by cardio training, with at least 150 minutes of Zone 2 endurance exercise, weekly runs and at least 2 minutes of Zone 5 exercise. Compared to his wife, who also wants to slow down her ageing process, he can determine the success of his protocol by determining his ageing pace:

> I'm still looking to improve where I can. This isn't a perfect protocol but right now it works for me. My wife does the same regimen, but her score came in at .94 pace of aging. She went through three months of high stress, low sleep, and bad diet before she took her test which in my opinion, gave her that score. She was taking

> all her supplements through that period. That to me means that supplements alone are not enough if you want to increase your longevity.

Even though he does not consider his protocol to be perfect, he can say that it works for him. The comparison with his wife, who has the same lifestyle but a higher ageing pace of 0.94, underlines for him that dietary supplements alone are not enough to slow down the ageing process. Despite regularly taking supplements during a period of high stress, poor sleep and poor nutrition, a negative impact on her biological age remained measurable. For him, this clearly shows that lifestyle-related and social stress factors are central to the ageing process. However, a similar finding was made by the following user:

> I've been following Bryan Johnson's supplement regimen while making some key lifestyle changes [...] The results? Pretty exciting! Telomere Length: My biological age dropped from 80.37 years in January to 63.70 years in August. DunedinPACE (Pace of Aging): Improved from 1.14 (accelerated aging) to 1.02 (close to a normal aging rate). I'm now planning to ramp up my exercise routine to see if I can push these improvements even further. The journey isn't over, but I'm excited to see where it leads!

In nine months, the user was able to slow down his ageing process by consistently changing his lifestyle, using Bryan Johnson's protocol. Specifically, his biological age, measured by telomere length, improved from 80.37 to 63.70 years; his DunedinPACE score dropped from 1.14, indicating slightly accelerated ageing, to 1.02, which is about normal. Encouraged by this success, he now wants to continue shaping his ageing process and add exercise to his protocol. He uses the measures, which are checked against measurements, to shape his everyday life in order to slow down the ageing process. In doing so, he tries to continuously improve his protocol. However, improvements here do not mean a constant upward trend and gaining complete control and availability over the ageing process. On the contrary, as the following case shows:

> Here are my results: Pace of aging = 0,68 Telemere length= 22,7 y/o. My chronological age = 24,75. Actually I slightly changed my life style. What I do the most: consume 3 table spoons of olive oil per day Collagène Glycine Curcumine I run once a week 5km I do gym once a week I have a good skincare but I dont think it has a big impact But I avoid totally sugar, eat meat once a week at most and avoid processed food (excepted bread and pasta/cheese) [...] It gives me want to continue and improve myself. [...] It seems the 80/20 rule is true.

This user was also able to improve his biological age values through minimal adjustments to his daily routine: with a chronological age of 24.75, he has a telomere age of 22.7 and an ageing pace of 0.68. He refers to the '80/20 rule', according to which 20% of targeted measures can achieve 80% of the results. Instead of radical changes, he emphasises the effectiveness of simple, consistently implemented changes such as a balanced diet, moderate exercise and avoiding unhealthy habits.

In the experimental knowledge production, protocols are constantly tested and evaluated, supplemented by successful practices of other longevitists or study-based interventions, and fundamentally changed if necessary. In this self-experimental practice of longevity hacking, an experimental self-empowerment is established, which enables users to validate predictions and promises of a longer life on their own bodies and through individually tailored practices. Longevitists share and discuss their protocols and test results in online forums, thus embody the medical promise of ageing as a malleable process, and the potential to shift previously accepted biological boundaries.

5 Discussion: Ageing as Synthesis

This analysis has revealed that biological testing methods offer new insights into ageing. The visibility and malleability of ageing are two central dimensions: first, biological tests make it possible to determine age as a biological measure and to identify, compare and correlate various physical ageing processes; second, these temporal markers open up a space of possibilities for targeted measures to slow down or even reverse the ageing process. In this dual movement, ageing is not only measured but also shaped – an interaction we refer to as longevity hacking. This refers to a practice in which ageing appears as a negotiable variable. Ageing is not viewed as exclusively biological or purely social, but rather as a relational synthesis of both: made visible through technological processes, influenced by socio-technical measures and framed by knowledge about individual, family and societal ageing. Although biological measurements serve as a yardstick, they are always relative to social knowledge about ageing and understanding of chronological age. Biological ageing can only be defined in relation to biological averages and the chronological logic of ageing. At the same time, however, chronological ageing continues to be used to interpret biological ageing. This means that concepts of age and values are interrelated. Drawing on Elias's (1992: 62) notion of 'seeing together' [*In-Beziehung-Setzen*], we understand this synthesis as a dynamic relational process in which biological, technological, and social dimensions of ageing are continuously brought into relation with one another. Ageing thus emerges as a relational composition shaped through socio-technical infrastructures, biological processes, and cultural imaginaries. In this sense, ageing no longer appears as a linear and biologically determined process, but rather as a temporally open process of shaping – always in the making, in a continuous field of tension between rejuvenation and ageing. The chronological understanding of time as a continuous and uniform flow is thus supplemented by a biological conception of time in which one's own ageing body appears as a mere temporal framework – one that contains multiple levels and layers, interacting and counteracting across diverse organic rhythms and sometimes fundamentally distinct temporalities. However, the synthetic reconstruction of biological ageing in the context of biomedical testing is by no means detached from its chronological counterpart.

6 Conclusion: The (In)Finite Nature of the Body

The biomedical deconstruction of the ageing process into multiple sub-processes, alongside the experimental appropriation of the body's own decay, gives rise to a new perspective on the finitude of the individual body. The practices of body modification and biomedical age testing, which are aimed at maintaining or even reducing biological age, are based on and further promote a shift from the inevitability of ageing to the infinity of life. The special temporal characteristic of this desired amortality is based on an intertwining of prediction and promise (Farman 2020: 29), in which the prediction of a potential slowing down or even reversal of the ageing process carries the promise of the malleability of biomedically measurable age values and is supported by this. This intertwining fits into a 'somatic sociality' (Niewöhner 2011: 291), in which biomedical knowledge about the malleability and multidimensionality of the ageing process understands and reproduces social life as a 'synthesis of nature and culture' (Wettmann and Peper 2023: 222, own translation) along its epigenetic and molecular effects on the individual body. This means that the body in its organic constitution always appears as something that has become molecular and is thus modulated by past influences, but in its molecular becoming it harbours the potential and thus the call for longevity interventions.

In the understanding of biohackers and longevitists as well as the knowledge transfer of scientific findings and biological test procedures, a view of ageing emerges as 'a contingency of evolution and not an ontological necessity' (Farman 2020: 9). This picture presupposes and enables an understanding of ageing as a combination of interdependent, yet partly antagonistic, processes that can be technologically recorded and experimentally treated. From this perspective, *longevity hacking represents a synthesis of ageing*, combining organic rhythms with technical processes, subjective embodiment, and mundane knowledge to produce an understanding of the body as malleable and temporarily open. Ageing is not abolished, but rather reimagined as a malleable project – ultimately with the aim of challenging what has been unavailable until now: 'Death is now our only foe' (Johnson 2023).

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