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vanuit christelijk perspectief

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INHOUD

VOORWOORD	13
I. MENSVERBETERING	15
1. Inleiding	17
1.1 Het kan beter!	17
1.2 De maakbare mens	17
2. Technologische mensverbetering	20
2.1 Convergerende technologieën	20
2.1.1 Nano- en biotechnologie	20
2.1.2 ICT	22
2.2 Onderzoeksterreinen	22
2.2.1 Fysieke verbetering	23
2.2.2 Gedragsverbetering	24
2.2.3 Genetische verbetering	25
2.2.4 Levensverlenging	26
2.2.5 Stemningsverbetering	28
2.2.6 Cognitieve verbetering	29
2.2.7 Implantaten	31
2.3 Mens en machine	35
2.3.1 Transhumanisme	36
2.3.2 Cyborg	37
3. Definities	40
3.1 Grensbegrippen: therapie en verbetering	42
3.2 Twee niveaus van verbetering en ethiek	45
3.3 Definitie functionele verbetering en mensverbetering	47
4. Een medisch-ethisch kader	48
4.1 Culturele context en antropologisch concept	48
4.2 Morele reflectie	51
4.3 Onderzoeksvraag en doelstelling	53
Samenvatting	55

II. DE BETERE MENS IN CULTUURPARADIGMATISCH PERSPECTIEF	59
5. Inleiding	61
6. Mensverbetering: geschenk of verworvenheid	64
6.1 De mythische mens	64
6.2 De magische mens	65
6.3 Evaluatie (1)	66
7. De ideale en perfecte mens is mogelijk	67
7.1 Mensverbetering door zelfkennis	67
7.2 Mensverbetering door denkende ontwikkeling en ascetische spiritualiteit	70
7.3 Evaluatie (2)	73
8. Een door theologie gekleurd cultuurparadigma	75
8.1 Mensverbetering: van tijdelijke naar eeuwige rust	75
8.2 Prioriteit van het algemene of van het bijzondere?	77
8.3 Mensverbetering door te streven naar goddelijk geluk	78
8.4 Persoonlijke wil doorslaggevend	81
8.5 Evaluatie (3)	82
9. Mensverbetering: van genade naar vrijheid	84
9.1 Van kwaliteit naar kwantiteit	85
9.2 Beheersing	87
9.3 Rationaliseringstendens en vooruitgangsgeloof	91
9.4 Mensverbetering als technisch project	92
9.5 Lichaam, subject en context	95
9.6 Identiteit als project	98
10. Slot - Mensverbetering: (g)een eenzijdige oriëntatie	102
Samenvatting	106

III. DE BETERE MENS IN THEOLOGISCH PERSPECTIEF	115
11. Inleiding	117
12. Schepsel en representant	119
12.1 Beeld van God	119
12.2 Koning in de schepping	124
12.3 Menselijk leven	126
12.4 Leven in relaties	127
13. Goed of kwaad?	130
13.1 Mensverbetering?	130
13.2 Ontregeling	132
13.3 Aangetaste relaties	133
14. Breuk met de medemens	139
14.1 Verantwoordelijkheid en aangetaste identiteit	139
14.2 Toch menselijk	140
15. Een nieuw begin	143
15.1 Degeneratie	144
15.2 Modificatie	146
16. Een uit de hand gelopen humaniteit	148
16.1 Menselijk imperialisme	148
16.2 Van vloek naar zegen	150
Intermezzo - Op zoek naar verbetering	151
17. De nieuwe mens	155
17.1 Christus: het beeld van God	156
17.2 Mensenkind	158
17.3 Progressieve parallelle ten opzichte van het Oude Testament	159
17.4 'Vlees' en 'geest' als manieren van lichamelijk bestaan	162
17.5 De lichamelijke opstanding van Christus	166
18. Lichamelijke opstanding	169
18.1 Van een natuurlijk naar een geestelijk lichaam	171
18.2 Continuïteit en discontinuïteit	172
18.3 Een nieuw lichaam	175

19. Normatieve contouren voor mensverbetering	178
19.1 Futurum en adventus	179
19.2 De mens als navolger	180
20. Slot - Betekenis voor mensverbetering	184
Samenvatting	189
IV. DE BETERE MENS IN ANTROPOLOGISCH PERSPECTIEF	201
21. Een antropologisch concept	203
21.1 Het lichaam: geleefd, geobjectiveerd, voorgesteld, idealiter	203
21.2 Normativiteit	206
21.3 Kwalitatief-normatieve structuren	208
21.4 Modale aspecten	209
21.4.1 Wetmatigheden voor natuur en cultuur	212
21.4.2 Modaliteiten en de mens	213
21.5 Entitaire structuren	216
21.5.1 Ontwikkeling van entiteiten - subject- en objectfuncties / context	216
21.5.2 De entiteit 'mens' - subject / context	218
21.6 Lichaamsstructuren	220
21.6.1 Fysisch-chemische substructuur	220
21.6.2 Biotische substructuur	222
21.6.3 Sensitieve substructuur	224
21.6.4 Actstructuur	225
21.6.5 Dieptelagen - disposities, ethos	228
21.6.6 Het 'ik'	231
21.6.7 De 'ik-zelf'-verhouding	232
21.7 De mens als vervlochten structuurgeheel	236
21.7.1 DNA	238
21.7.2 Embryo	239
21.7.3 Het brein	240
21.7.4 Conclusie	242
22. Identiteit	243
22.1 Diachrone identiteit	244
22.2 Sociale identiteit	246

22.3 Biografische identiteit	248
22.4 Ideale identiteit	250
22.5 De beperkte mens	251
23. De maakbare mens	254
23.1 Menselijke natuur	254
23.2 Leven en artefacten	257
23.3 Cyborg	263
24. Conclusie	267
Samenvatting	271
V. EEN MEDISCH-ETHISCH KADER VOOR MENSVERBETERING	285
25. Inleiding	287
26. Medische praktijk als normatieve praktijk	289
26.1 Richting	291
26.2 Structuur	292
26.2.1 Kwalificerend	293
26.2.2 Funderend	294
26.2.3 Faciliterend	295
27. Het goede leven	297
27.1 Zelfaanvaarding en dienst aan het leven	299
27.2 Antropologische kaders	302
27.2.1 Gezondheid en normaliteit	302
27.2.2 Geluk	304
27.2.3 Transhumanisme	307
28. Medische ethiek	310
28.1 De verbeterhandeling	310
28.1.1 Weldoen	311
28.1.2 Niet schaden	312
28.1.3 Autonomie en authenticiteit	314
28.1.4 Rechtvaardigheid	320
28.2 Het verbeterdoel	323

28.2.1	Bestemming van de medische praktijk	326
28.2.2	Risico's: voorzorg en proportionaliteit	328
28.2.3	Subsidiariteit	331
28.3	De verbeteraar	334
28.3.1	Prudentie	335
28.3.2	Motieven	336
28.4	Maakbaarheidsdenken	338
29.	Een medisch-ethisch kader	340
29.1	Prioriteit mensverbetering boven functionele lichaamsverbetering	340
29.2	Geen gereguleerde en gefinancierde medische verbeterpraktijk	341
29.3	Antropologische argumenten	342
29.3.1	Unieke realisatie lichaamsstructuren	342
29.3.2	Mensbeeld en wensbeeld	343
29.3.3	Waardering - integratie, continuïteit, coherentie, ik-zelf	344
29.3.4	Het 'volle' leven	345
29.4	Simultane realisatie van normen	348
	Casus - Brain-computer interfaces	353
	Samenvatting	364
VI. DE BETERE MENS		381
30. Conclusies en verantwoording		383
30.1	Mensverbetering	383
30.2	Cultuurparadigmatisch perspectief	386
30.3	Theologisch perspectief	389
30.4	Antropologisch perspectief	392
30.5	Medisch-ethisch kader	397
30.6	Besluit	404
SUMMARY		407
LITERATUUR		429
CURRICULUM VITAE		463

SUMMARY - THE BETTER HUMAN

This dissertation is entitled 'The Better Human', and has the subtitle 'A medical-ethical framework for human enhancement from a Christian perspective'. Its theme is human enhancement, with a focus on functional enhancement. In order to arrive at a medical-ethical framework, I seek to discuss as many relevant aspects of human and functional enhancement as possible. To obtain a good view on the subject and to go beyond a mere procedural ethics, this study draws on several scientific disciplines. It is neither purely cultural-historical, nor purely theological or philosophical. The nature of the research is *interdisciplinary*, driven by the central research question and drawing on content from various disciplines. The insights from these fields have been integrated with a view to answering the research question.

Chapter I - Human enhancement

That humankind wants to improve itself and its life is of all times. The peculiarity of the current situation is the specific form of manufacturability, namely the notion that people can be upgraded and perfected through technology. Human beings can be biologically or electronically modified to elevate physical functioning beyond what might be considered normal. To realize these modifications, we turn to medical practice. The medical-technical possibilities thus become an instrument which is expected to ensure a longer, healthier, more pleasant, or, in short, better life. The possibilities include techniques for physical, behavioral and genetic enhancement, life extension, mood enhancement, cognitive enhancement, and implants.

Meanwhile, the cyborg has entered the picture. This hybrid is a groundbreaking figure which breaks through contrasts and boundaries between the organic and the technological, between nature and culture, between real and virtual. Transhumanism seeks to go furthest by claiming the right for the willing individual to implement technologies that expand human capabilities.

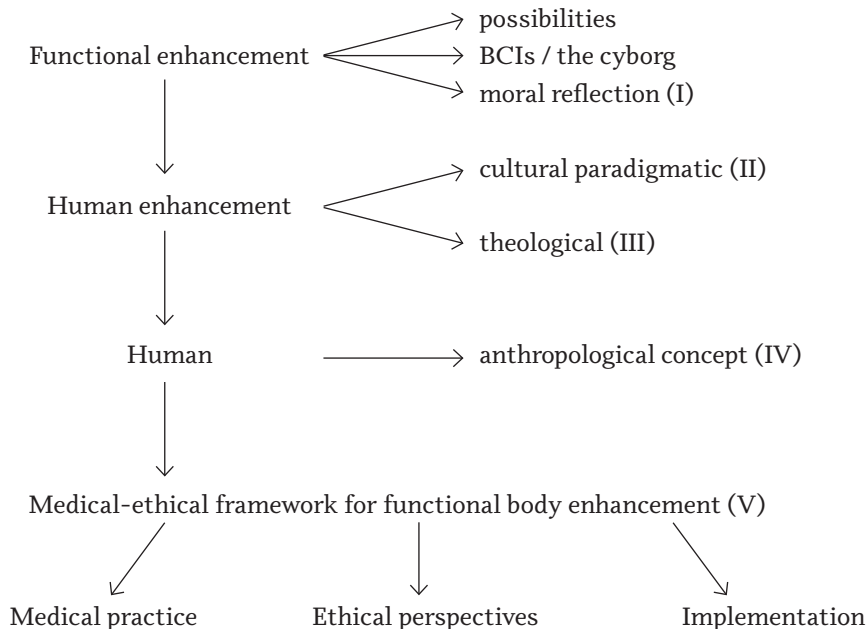
Although the boundary between therapy and improvement is not an easy one to draw in practice, it can generally be described as the difference between the pursuit of normality and the pursuit of supernormality. However, there is no consensus on what 'typically human' or 'normal physical functioning' actually

is. Everyday experience, however, seems to have less difficulty with that distinction; moreover, the distinction is important on the ethical level.

Two interpretations of enhancement often appear to be confused. According to one interpretation, enhancement is the improvement of an ability or strength of the human body. The other interpretation focuses on the broad context of the improvement of human life. This study distinguishes these two levels of enhancement as follows: *Functional enhancement* is understood as the modification or extension of the normal and healthy individual human constitution through science- and/or technology-based interventions with the intent to improve – temporarily, long-term, or permanently – the capacity, performance, or well-being of the person concerned, either to a level that is not attainable for that person without this intervention or to a transhuman level. *Human enhancement* is the continuous process of the pursuit of human improvement, which manifests itself within a certain cultural development and functions as a regulatory idea, also for functional enhancement. This means that human enhancement is the framework within which functional enhancement takes place.

These two interpretations of enhancement can be linked to two levels of ethics. Ethics as the systematic reflection on responsible action of people has a first level, which seeks an answer to the question ‘What should we do?’ and is more policy oriented. The second level seeks an answer to the question ‘How should we live?’ and focuses on elaborating and refining moral points of view and visions on the good life. This second level is necessary to promote nuanced opinion forming, especially because enhancement technologies raise the question of the good life.

This study has its origins in the need for moral reflection on the rapidly expanding possibilities of medical-technological activity for improving physical functioning, against the background of the anthropological fundamental question: ‘What kind of people are we and do we want to be?’ In order to give shape to this reflection, the following research question has been formulated: *To what extent do applications of enhancement technologies constitute an acceptable encroachment on human corporeality as a (non-moral and moral) normative given, and to what extent do they contribute positively to human life?* The objective is to *sketch a medical-ethical framework for functional body enhancement from a Christian perspective*, based on the acquired insights.

Research scheme

In order to widen the discussion and to place it in its context, chapter II - using a cultural paradigmatic approach - details the influence of symbolic frameworks of interpretation on ‘what’ people understand by human enhancement and on ‘how’ they think this enhancement can be achieved.

Since a Christian philosophy of life intends to contribute to reflection on the development of enhancement technologies, chapter III sets out to identify guiding theological insights and notions that are important for humankind and its enhancement.

Subsequently, chapter IV zooms in on the identified need for an anthropological concept. In this chapter, the normativity of human corporeality and its significance for the pursuit of functional body enhancement are investigated.

In chapter V, the findings of the previous chapters are elaborated in a medical-ethical framework for functional body enhancement, focusing in particular on the developments around the cyborg and brain-computer interfaces.

Chapter II - Cultural perspective

A good moral assessment of functional enhancement demands attention to the cultural background of human enhancement. For this reason, chapter II offers a cultural paradigmatic sketch of the various views on humankind that have existed in the course of history. This sketch yields elements of the cultural-philosophical and anthropological backgrounds to the observation that the pursuit of human enhancement in our culture has given rise to the development of technologies for functional enhancement. Why do people in our culture think that human beings should be improved in this way? The aim is to clarify the current enhancement discussions, to make their presuppositions explicit, and to note their consequences. After all, the manifestation of human enhancement is above all the expression and elaboration of an image of the human race as it developed step-by-step over the course of European history. Moreover, it is important to see how, in the course of time, attempts have been made to ‘sanctify’ existence, that is, to relate it to what is seen as ‘the sacred’, as ultimate reality. Our perception and formation of opinions are mediated by a set of culturally determined ideas, attitudes, and behaviors (paradigms) with their embodied norms and values (symbolic order).

Cultural history reveals an initial dependency of people and their society on the sacred as well as a respect for and participation in a given order. The counterpart to this stance is the attempt to seize power oneself, in magical practices. These two components of the playing field of forces appear to be present in every phase of culture: an attempt to align oneself with a good, meaningful relationship between humankind and existing powers, and an attempt to seize power oneself.

In the course of European history, one can observe a secularizing movement in which the invisible – and normative – reality of God and gods recedes into the background, while the present, physical world conversely increasingly comes to the foreground. The notion of an integrated life in which all aspects of life are connected with what is considered sacred gave way to a process of observation, abstraction, and classification in which humankind and its environment themselves became objects of investigation and intervention.

The classic question of how soul and body can form a unity is still relevant to human enhancement. This question concerns the relationship between materiality and ‘more than materiality’. Aristotle’s notion of a hierarchy of human capacities, which involves the actualization of potentials, the integration of different levels of such capacities, and his distinction between substantial form and accidents, are worth considering in working towards an anthropological concept.

In the cultural paradigm of the Middle Ages, questions and problems are addressed within a theological framework. The Augustinian view on the optimal life, according to which human enhancement is primarily spiritual and relational in nature (as a life according to the Creator's design, reflecting the trinity of God, and as Christ being both the way and the goal of life), is demonstrated to be tenable and to be able to offer useful insights for our own theological chapter below.

The analysis of medieval philosophy in this second chapter sheds light on one of the premises of this study, namely its basis in an axiological realism - a view according to which order in reality is sustained by a spiritual invisible reality, which ultimately has consequences for moral reflection on human enhancement.

Thomas Aquinas's Platonic (or Neoplatonic) tenet, by which he argues that the soul is a form independent of matter and that it is a principle of immortality, does not stand up to critical theological scrutiny, since corporeality is a 'conditio sine qua non' for human life and since there is no ground for intrinsic human immortality; corporeal resurrection from death is due to the initiative of God.

Where the medieval cultural paradigm is at work, the experience of God's presence becomes weaker while the desire to understand reality from a human perspective grows. 'Thinking' increasingly becomes the instrument for penetrating the truth. The rational systems in which God, the world, and humankind are viewed in a new context form the prelude to a shift from the concept of 'recovery' to that of 'change'. The result is a movement in which grace is replaced by human freedom as the central concept, and quality by quantity, with a growing emphasis on the functional structure of God's creation linked to a subject-object distinction.

With Descartes, we see that the human being becomes an abstraction: the 'I' is now identified with the function of logical consciousness and is as a subject separated from its own corporality and from the outside world. The body is merely a means to act. If bodily processes are understood as measurable and mathematically calculable units, the body - in theory, at least - becomes repairable and manipulable as a machine. Conversely, machines can imitate the body as a subject's vehicle. This initiates a confusion between the living and the inanimate. Within the context of functional body enhancement, this means that the body can be modified almost indefinitely. Questions only arise when enhancement concerns an attempt to improve consciousness.

The process of rationalization, which in the nineteenth century became a powerful factor in the development and shaping of science, brought a lot of good and produced progress from which we still benefit in our days. There has been vast improvement in the diagnosis and treatment of patients, as well as in

life expectancy and quality. However, this progress is accompanied by a *faith* in progress, making people sense-givers rather than sense-receivers.

If human beings are primarily approached as the biological product of evolutionary development, the attempt to improve and perfect humanity in accordance with an intentional project makes sense. The view of humankind associated with these new developments is primarily that of an organism as an expression of genetic information.

Important in this context is the observation that science does change human nature in the technical modification alone, but also in the very way human nature is conceptualized. Here we are not so much speaking about the disclosure of the meaning of life, but about the presentation of the human being as a bundle of information in a code that may or may not be correct. As such, existing boundaries between species are overcome and the meaning of life diminishes as life becomes computerized and hence contextless. In this approach, science can be guided by the question of how reality *can be*, instead of primarily by the question of how reality *is*. The result is a functional position, in which the human being is approached as an object for diagnostic examination and therapeutic treatment; the data become the starting point for the manufacturable.

Against the sketch in this chapter, it might be argued that its representation of cultural paradigms is one-sided or lacking nuance, given the presence of other voices, such as those of ecocentric or gaiacentric thinking. While this might be true, the present study focuses on that line which has led to the demand for functional enhancement.

Opposition to this trajectory has mainly come from the side of phenomenology. Nevertheless, also the twenty-first century seems to be characterized by a focus on biomedical methods for improving humankind. The human being must shape the project that he himself is. Although the question of the relationship between soul and body still lingers in the background, a new dualism has emerged between matter and human will. To this dualism corresponds the figure of the cyborg, which gives expression to the desire for the makeable human being. However, people who want to change themselves according to images presented by their own culture are still confronted with the natural and biological boundaries of human existence. As a consequence, they turn to medicine, which must provide the means to transcend these boundaries.

This cultural paradigmatic sketch reveals that, in the pursuit of human enhancement, cosmology (or worldview; i.e., how one understands reality) and anthropology (i.e., how one sees humanity) go hand in hand. In the ethical discourse on human enhancement, a *cosmological deficit* can arise if no justice is done to the

versatility, depth, and fullness of reality. An *anthropological deficit* arises when the human body becomes an object of action in view of instantaneous utility without regard for its own value or the meaning of corporeality (i.e., the state of having a body).

Chapter III - Theological perspective

Since this study aims to formulate a medical-ethical framework for functional body enhancement from a Christian perspective, chapter III is dedicated to a theological investigation. The central aim is to identify guiding theological notions and insights for a view of humanity as well as enhancement, more specifically the good life and the normativity of human corporeality. The approach is primarily biblical-theological rather than systematic-theological in nature, although these two perspectives are indeed complementary. Various parts of the Bible are reflected on in relation to the research question. Biblical anthropological notions are understood in the context of the whole of the biblical message, with salvation history as the ordering principle. In this way, within the interdisciplinarity of this research and guided by the central research question, theology makes its specific contribution to the present study.

One important theological insight is the fundamental distinction between God and humankind. Humankind is God's functional representative and therefore has a material-bodily structure. There is similarity in modes of action and communication between God and the human being, but no physical resemblance. The desire for equality with God is the source of much human misery. The blessing God pronounces on humankind means that God creates and sustains life and gives everything necessary for humankind to reach its destiny. Thus, God's blessing is the condition, source, and norm for human life.

Humankind is called to imitate God and to develop the potential in creation - including the potential in its own humanity. Corporeality means visibility, possibility to act, communication, and the ability to mediate God in the material world and to reveal who and how God is. These realities manifest part of the normativity of the corporeality of the human being mentioned in the research question. Humankind must learn to understand and become aware of the destiny of things and events. Human beings are the kings of creation, crowned with the day of rest. Advancement from a 'good status' to a 'good status in action' can be achieved by making a conscious choice and following the Creator in confidence.

The normativity of corporeality also manifests itself in the *nefeš*; corporeality is life that is precious and possesses intentionality. Corporeality is thus more

than the material, it is this human being itself. Integrated within this bodily being is the relationship with God, fellow humans, the earth, and the human being itself. The religious, social, and cultural belong to the human existential structures (*existentialia*). Responsibility towards one's fellow human entails interdependence and mutual support.

Not following God but deciding for oneself how to reach a higher level of existence means the emergence of a different understanding of corporeality. As such, corporeality becomes humankind's certainty of existence. Not having to die remains a desirable ideal, but life has been reduced to the temporary gift of the spirit (*ruach/pneuma*) from the hand of YHWH. This spirit moves the human being to turn possibility into reality. Although evil also affects human biological development, the human body is itself not something evil. The human being's corporeal life is the manifestation of full human existence and as such worthy of protection.

However, human beings themselves try to escape their existential structures of dependence, transience, and responsibility. As a result, they find themselves at the very center of life. They seem to search for satisfaction for their material and spiritual aspirations independently from God and to seek meaning and immortality in their own achievements. Relying on their own abilities and technical discoveries, they try to subdue the power structures surrounding them. But standing on their own feet also makes them anxious and insecure. Outside God (or dialogue with him), present reality can easily be instrumentalized; it becomes the starting point for, or even goal of, what they have conceived. Life starts to follow its own search and desires, its own needs and limits. Compensation is sought for what has been lost.

Biblical history offers many examples of scenarios for improvement that do not work out well. God calls on us to leave all sorts of power structures or to take control of them. This implies orienting oneself to the improvement of life opened by God's blessing, and acting accordingly. God's blessing does not depend on whether or not we become 'better people', but on his loving choice. Where people fail, God gives improvement for life: transformation into holiness, completeness, and integrity.

Christ has come to elevate fallen humanity from the degradation of lostness to the fulfillment of its immense creation potential – but that is not an enhancement according to the definition given in chapter I (i.e., to improve human capabilities or functions beyond a normal level). People are not improved by Jesus in the sense that they will no longer be susceptible to evil, vulnerable to disease, or liable to death. Through their relationship with Christ, however, human beings

become temples of the Spirit, who sanctifies bodily existence and brings it to its destination. This improvement is not achieved by acting (morally) better than Adam, but by trusting in Jesus and in his way.

In the corporeality of life, the decisive question concerns the specific power that is dominant here. If the conflict and struggle with God dominate, then the unredeemed human being stands central in his powerlessness before God and in his inability to reach a full life by his own power. If the Spirit is the dominant power, then forgiveness, liberation, and the restoration of the degraded life stand at the center; the Spirit is the power that changes the human being and the norm that determines one's way of life. The Spirit-inspired person looks at things from a spiritual point of view. This renewal of the human being starts in the heart and will eventually result in a totally new corporeality. There is discontinuity in the nature of corporeality, but also a continuity of identity. That continuity is not guaranteed by the *sooma* (i.e., the bodily human being, who is subjected to all kinds of powers), but by God. It concerns a way of bodily life that corresponds to the Spirit's re-creation order. The hope for a bodily resurrection offers solid ground, allowing people to live in confidence – cheerful, courageous, persevering. The question for the good life is Christological; Christ must gain dominion. The Spirit is the guarantee and pledge for this dominion. Through the Spirit, a person obtains a better body – in the sense of a better existence, although this does not imply a functional enhancement.

From a theological point of view, the creation of a perfect human being is a utopia. Medical-technical interventions can be seen as a fight against evil and as such refer to the eschaton. Functional body enhancement goes a step further and, from a theological point of view, can be seen as the development of possibilities given in creation. The normative direction for that unfolding is indicated by Christ's work of salvation and re-creation.

As *imitators*, human beings can align themselves with the work of God and look for new possibilities. They are appointed to understand God's intentions and to realize them in good management. As imitators, they do not have to fight endlessly against the finite nature of this life, but can and may live towards the eschaton. The changes which Jesus has brought about for the better may be continued. Our activities should focus on a blessed functioning of reality. The fact that God Himself takes the improvement of humankind in his hands implies responsibility and a well-founded hope for humankind. Prospective medical-technical body enhancement should in any case reflect that blessing and contribute to a flourishing of that particular human being and the relationships in which they stand. In this, one might ask whether the intended enhancement can be seen as a legitimate and optimal use of the space which God has given to his im-

age in order to reflect Him. Focusing specifically on the biological life, including its corporeal materiality, would mean reducing the full, complete life, and it could turn the body into a mere instrument for what is presumed to be the good life.

Chapter IV - Anthropological perspective

Chapter IV zooms in on the need for an anthropological concept to answer the research question. The normativity of human corporeality and its significance for the pursuit of functional body enhancement are examined from a philosophical perspective. The basis is the notion that reality harbors forms of normativity that constitute the conditions in which life is possible, and can unfold and flourish (axiological realism).

The philosophy in the line of Dooyeweerd and Vollenhoven presents a system of thought which departs from the notion of a versatile, ordered reality (qualitative diversity) that does not rest in itself and demands normative development, a development which can be interpreted in terms of structure, direction, and context. For events, actions, and things, at least fifteen ways of existence (modes) can be distinguished. A human being functions in these fifteen modes, but is itself an entity. A person has an identity which is connected with an inner structure guaranteeing the continuity of this identity amidst changes. The 'specific identity' of a human being manifests itself in the constancy and continuity of this structure through time. His 'individual identity' is related to a unique realization of the various interconnected layers of the structure typical for the human species. This means that a person's uniqueness is expressed in each of the different layers, or, as Dooyeweerd formulates it, substructures. Identity thus has a 'species-typical' and an 'individual' side.

Human physicality must be understood in its widest sense, as 'human life'. 'Life' expresses the combination of the static (i.e., the given normative structure) and the dynamic. Life is about making choices, giving meaning, and embarking in a certain direction. It is permeated with a potentiality that can be 'updated' in time: being human is also becoming human. Human life resembles a process with a certain stratification - a body structure with different layers that are in constant interaction with a layered context.

On the basis of an analysis of human corporeality and a search for its coherence and usefulness, this chapter sets standards for the (medical) treatment of the body. By the analysis of the body as a system, all bodily functions and operations come to be seen from the perspective of corporeality as a whole. Such an approach culminates in a hierarchy of system levels, in which lower substructures

are embedded in higher ones, leading finally to the one human being in its context as the most encompassing system level in this anthropology.

A human being can be seen as a unity characterized by an individuality structure consisting of four substructures and a complex whole of structural interconnections. These bodily structures are not physically distinguishable parts, but represent aspects of full human bodily life. The physical-chemical substructure functions according to the laws pertaining to the physical reality; these laws make life *possible*. In the biotic substructure, the organic and vegetative body processes take place and biological life manifests itself. The sensitive substructure refers to psychic function (i.e., sense perception and feeling). The act structure refers to a person's inner activities, which can be summarized in the three basic types of 'knowing', 'imagining', and 'willing'. In this act structure, the depth layers of the dispositions, the ethos, and the 'I' (which is in relation with the 'self') are distinguished. The structure in which the (empirical and other) answers are given to what is and what happens is the 'I-self'-relationship. The 'I' is the dynamic and the actual of my life, as my answer to what enters my life and where I give direction to my life. The 'I' is the spiritual, guiding center of identity and activity, for which no scientific definition can be given. As such, the 'self' is the more or less permanent result of my 'answers' in the form of, for example, mimetic and movement dispositions, basic mood, character traits, social roles, legal position, attitude to life, and sense of vocation. My 'I' and my 'self' thus do not coincide, but are interrelated.

Direction and structure cannot be separated. The human being is an *interlaced structural whole*, which does not coincide with his way(s) of existence, nor with the sum of his functions. Every function is always a functioning of the full human being. The interlaced structural whole concerns a relationship between wholes of different order. The singularity of those varying wholes also remains in the interlaced whole, in which the mutual influence between those wholes has both a bottom-up and a top-down direction. The different levels are functionally bridged, where the information on the specific levels plays an integrating role. For this reason, corporeal processes can only be approached integrally, and, on the basis of changes at one specific level, no reliable predictions can usually be made regarding a person's bodily situation. In medical intervention at the level of the body, which is strongly motivated by one of the modal aspects, demonstrable interactions must be taken into account. The interwoven nature of the normative structure of the human being means that a slight modification in one substructure of the whole can result in a change in corporeality.

Central characteristics of human identity are the body structures, the depth dimensions, the 'I', the 'I-self'-relationship, the socio-cultural influences, and

personal biography. Within the framework of functional body enhancement, the normative significance of the bodily constitution becomes particularly pertinent when technical possibilities are able to annul hitherto valid facts or to create new facts.

As indicated above, the starting point for identity is the body. This body, however, constantly interacts with the social context. It is in this interaction that a person's identity develops. This means that identity has an intersubjective structure. The transition from one's nature (diachronic identity) to culture (social identity) usually takes place in the way of formation. This path can be considered successful if it develops a person's identity positively under the given circumstances.

That is why functional body enhancement not only has meaning for the person in question, but also for its framing in the social context, because the intervention in the body also changes the context as well as one's position in that context. The social context must be able to incorporate a person's change in a coherent way in social intercourse, otherwise alienation arises.

In order to guarantee the continuity of biographical identity, a person must be able to incorporate changes resulting from physical or mental experiences into their narrative coherently. Moreover, to a certain extent they must be able to map out that story, since they are considered capable of giving an account of their choices and actions.

Changes in identity need to be adapted to the pace a person can handle. What must remain is a stable identity, continuity, and coherence between the 'I' as the integration point of full human existence and the human body, and a person's identity must be able to develop positively as a result. It should be possible for the changes to be seen as part of a meaningfully structured coherence of life. Moreover, they have to fit into a person's alignment with a philosophical and moral value system (symbolic framework, ethos).

The concrete form of human life is always incomplete. A human being is always limited. No one person has all the qualities and talents that a human being can have, nor is this something desirable. The social community is a space where a person can develop, a space for security and support. At the same time, it can form a boundary to prevent human freedom from overextending. 'Living' also means dealing with the limits of life, which at once also constitute the conditions of the possibility of life: can a person accept him- or herself as the starting point of his or her existence?

The concept of nature is important in the discussion on enhancement, since human nature is the starting point, necessary precondition, and (contingent) constitutive for human existence. The buffer capacity is different in every hu-

man being, but that does not mean a denial of the existence of critical thresholds. Even though the concept of nature does not suffice for a definitive answer to the question of functional body enhancement (since it does not provide a hard limit), it can contain ethical indicators for a good life as a corporeal being.

With regard to the connection between man and machine, it can be established that ‘living entities’ and ‘artifacts’ are fundamentally different. Living entities have many more relationships and interconnections over more levels than artefacts do, without being divided into separate parts: everything is connected to everything. The many structural interconnections in combination with bottom-up and top-down influences cannot be copied or constructed technologically. Moreover, human behavior can never be explained on purely causal terms, since a person is intentionally engaged and acts consciously and responsibly on that basis. The difference between a human body system and an information system can also be clarified at the hand of the distinction between signals, signs, and symbols with respect to information.

Brain-computer interfaces are possible due to the plasticity of human corporeality, but there is no reciprocity on the same level between a brain-computer interface (BCI) and the human being in question; the properties of the computer program and of the technical artefact are activated only in interaction with the human being.

BCIs share the physical level with humans, even though we do see differences at this level, for instance in the immunological defense in human beings. The question is whether human beings can integrate the implant in question into their functioning on each of the different levels (substructures) of their corporeality and whether the implant will improve the functioning of this human being as a whole. The unique realization of the body structures and the intentionality of action cannot be realized by a computer model. Consciousness, affection, fear, and care are more than an information process in which information is processed and stored in the brain. Both the body and the historical dimensions (biographical identity) are of great importance for our human experience and for the experience of personal identity. The person’s ‘self’ must be capable of integrating the implant as well as the changes evoked by that implant in a way in which the consequences for experiencing reality and acting upon it must be considered.

The application of a BCI does not necessarily mean that the person in question loses their integrity (unity and wholeness), precisely because the typical human is not bound to one particular substructure, function, or organ, and also because of the relational character which human existence has. On the functional level, however, it is not easy – if not impossible – in the functioning to distinguish the corporeal part from the technical part. One can only look at the

resulting actions, not at how they come about. To what extent is the person in question guided and controlled by the implanted system, rather than steering and controlling the system? To what extent is the person in question instrumentalized for external purposes? Regardless, a discontinuous alternation between different ways of existence is undesirable.

It is worth noting that the making of a cyborg can be seen as a cultural or functional interpretation of the human being rather than a biological one.

In a moral assessment of the use of neuroprosthetics for enhancing the functioning of the human body, the question must always be asked - from an anthropological point of view - whether the resulting modes of perception and possible experiences can be integrated into the body schema, whether a stable identity remains, and whether continuity and coherence between the 'I' and the body are guaranteed. The normativity of human corporeality is related to the boundaries between integration, disintegration, and reintegration. Justice must be done to the uniqueness of the body structure, since the body benefits from that and can therefore reach its destination. Trying to construct a desired reality is not the same as integrating into reality.

To conclude this chapter, ten anthropological criteria are formulated that are in each and every case important for a medical-ethical framework for functional body enhancement.

Chapter V - Medical-ethical framework

Chapter V is an elaboration of the objective of this study, namely to arrive at a medical-ethical framework for functional body enhancement from a Christian perspective. To this end, it first pays attention to medical practice itself. Medical practice is a social practice which has its own normative structure that makes this practice possible, defines and limits it, and gives it the character of a medical practice. The relationship between care giver and care seeker is a care relationship characterized by 'beneficence' on the part of the physician and by 'trust' on the part of the care seeker, making the relationship moral in nature. This makes the ethical aspect of determinative significance for the medical activity (*qualifying* standard). The *foundational* norm of medical practice lies in profession-specific activity, which implies that the formative aspect provides the basis for medical activity. The *facilitating* norms refer to, among other things, institutional, social, economic, and legal conditions.

The fragmentation of worldviews has led to a plurality of lifestyles, as a result of which the human body increasingly seems to have an instrumental purpose; the body must give a good, useful, and pleasant life. The mindset of appreciation for life is giving way to a mindset of weighing the quality of life. However, the good life requires more things, of a different kind. For a good life, biological life is necessary and foundational as a premise and substrate. Human life, however, cannot be fabricated (that is, made complete). First, life and reality as they are should be accepted, and there must be acknowledgment of vulnerability and limitation (in the sense of not having all qualities and abilities) as being normal and good. Self-acceptance means consenting to, being open to, and engaging with that which is. To that end, human beings need ground under their feet, a basis, a conviction, a philosophy of life.

Another possible perspective on life apart from that of manufacturability is *service to life* – that is to say, giving time and space to life, having a basic attitude of appreciation for the given, openness to the unasked-for, active waiting, allowing oneself time, and willing to serve.

The paradox is that as the attitude of acceptance, appreciation, and service to life fades, uncertainty regarding existence and the future seems to increase. This uncertainty is then parried with an even stronger pursuit of control by technical manipulation, even though this manipulation forms the very background to the growing uncertainty.

Bodily existence originally rests in a meaningful order, which may be appreciated, accepted, and investigated. If that corporeality can be brought to fruition in a respectful development, in agreement with its purpose, it can become even more valuable. The great claim behind human enhancement is that it will make us all better and happier. Happiness, however, does not coincide with better functioning and is not the same for each and every human being.

In medical practice, three elements relevant to ethics can be distinguished with respect to functional body enhancement: the *act of enhancement*, the *enhancement goal* which is pursued with the act, and the *enhancer* who performs the act professionally. Morally good medical activity is activity which can be justified from these three perspectives. In a medical-ethical discourse on the ethical justification of a certain body enhancement (from these three perspectives), very diverse aspects can be discussed. For the sake of the clarity and recognizability of this framework, we elaborate these ethical perspectives using the major ethical principles used in the care professions: beneficence, nonmaleficence, autonomy, and justice. Such midlevel principles derive their full meaning from underlying worldview convictions and philosophical theories. In themselves they cannot present a ‘thick’ ethics. In their use here, they have been loaded with the

theological, philosophical, and anthropological notions presented in the previous chapters. Schematically, the framework can be presented in the table below (which is presented in an extended version in chapter V):

ENHANCEMENT ETHICALLY JUSTIFIED?		
ENHANCEMENT ACT	ENHANCEMENT GOAL	ENHANCER
Beneficence	Intended result	Prudence
Nonmaleficence	Destination	Motives
Autonomy	Risks / Precaution and Proportionality	Basic attitude
Justice	Subsidiarity	

The act of enhancement. Medical activity should primarily aim at fulfilling the qualifying principle of *sincere beneficence* within the medical context. Functional body enhancement involves medical interventions in healthy people. Positively coping with what is has priority over the technological realization of what someone personally desires, since such positive coping with the givenness of life does not require medical intervention and since it also implies the experience of training, learning, work challenges, and failure as part of getting better. The minimum requirement for an act of enhancement is that it will only be carried out if it is scientifically sound, can be performed competently, serves the wellbeing of the caretaker from a professional point of view, and represents good care.

The principle of *not harming* implies that a risk analysis should be carried out as accurately as possible. Important criteria here relate to the result of an enhancement: is it temporary or permanent, moderate or radical? The more invasive the intervention is, the more urgent the reason for intervention must be and the more foreseeable the risks. There should be awareness that the enhancement opportunities, once they become available, will effect a shift in standards in what is considered normal behavior or a healthy and normal body. At the same time, if many people seize upon the same opportunities for enhancement, the relative advantages will disappear, with undesirable homogenization as a result. In addition, there will be increased pressure both on those who have improved (i.e., to meet the raised expectations) and on those who do not want to be changed.

Respect for the human being and/or his *autonomy* demands that that individual's life remains an ongoing and coherent story (diachronic identity), that the enhancement fits into the individual's life trajectory (biographical identity),

and that the individual remains recognizable to the social environment (social identity).

Furthermore, there must be respect for the authenticity of the individual life, implying that the individual can continue to identify with their own ideals, values, and concepts of life and their physical constitution.

The availability of certain techniques can contribute to the perception that interventions in which these techniques are used represent good treatment. This raises the question of whether people are aware that functional body enhancement can also express and reinforce an instrumentalist view of the body.

In the light of the principle of distributive *justice*, a cost-benefit analysis will have to be made. Increasing inequality resulting from the use of enhancement technologies could mean (only) permitting such enhancement if it in the first place represents an improvement for those who find themselves in the worst circumstances. Public funds are arguably not used best when they are designated for the ‘better person’, let alone the ‘best person’. Therefore, enhancement interventions, if realized at all, ought not to be financed with public funds.

The enhancement goal. It must be assessed whether a technical-functional enhancement of the body really is an enhancement of that person. In my view, as based on this study, an unbridled increase of enhancement requests and treatments must be prevented. The pursuit of one particular enhancement goal may imply that alternatives are neglected and the breadth of life is lost from sight. The scientific-technical enhancement can come to imply a denial of the value of a detour to reach desired goals. In life, it is not only the goals that are important, but also the path to the goals and the experience of that path. Technical interventions should not lead to an impoverished experience of reality.

The question naturally arises as to why someone ought improve him- or herself through medicine and medical-technological interventions rather than other means. Body enhancement fits in with a tendency towards anthropotechnics, which is capable of modifying people according to their wishes. However, medical intervention is about treating the pathological, not transforming the physiological. Overemphasizing one’s personal rights can lead to unrealistic expectations and demands on the caregiver.

Since both technical developments and body processes are quite complex, the relationship between an action and its consequences is not always apparent – that is why the *precautionary principle* applies here. Another ethical question is whether the expected advantages of functional enhancement outweigh the expected disadvantages (proportionality), taking into account the possibility that improvement of one function can lead to deterioration of another, or that one dependency, on physical parameters, is exchanged for another, on technology.

Should functional body enhancement in society still come up for discussion, it is recommended that at first only techniques be used that either work temporarily or can be undone. Before an enhancement is made, psychological counseling is desirable.

Secondly, if, in conflict with the findings of this study, enhancement does come to be applied, it must always be preceded by empirical examination to determine whether the people being treated really have become ‘better’ in the sense of an enhanced health and life enhancement as a whole, or whether life has only become ‘different’.

If enhancement is to be practiced at all, permanent ‘improvements’ should only be pursued after the above conditions have been satisfied. Temporary means must always be given priority in case of equal effect. The evaluation should proceed case by case in order to make policy recommendations.

In other words, where the following three developments in the possible pursuit of functional body enhancement come together, borders are crossed: 1) a predominant attitude of manipulation; 2) a dismissal of the medical model from disintegration to reintegration with the intention of arriving at a form of (re)-construction; and 3) a disturbance of the mutual relationships and of the integration of the normative structure of human existence.

Implants and prosthetics should not simply be seen as new forms of naturalness. Rather, they are alien elements that act on the body and that are not always adequately integrated into the body as an organic whole, even if they sometimes do perform a crucial function in an acceptable way.

The question is whether a person can integrate an implant into his functioning on each of the different levels of their corporeality and whether the implant will improve the functioning of this human being as a whole. Whatever the case may be, there is in any case no equal level reciprocity between man and machine. And, of course, one must ask whether the same improvement goal cannot be realized with less radical or costly treatments (subsidiarity).

If the normative boundaries of medicine as a professional practice are observed, medicine can be prevented from becoming an instrument for controlling life. The complete medicalization of life, which will go hand in hand with a further secularization of the concept of salvation and the immanence of happiness, is undesirable.

The enhancer. Prudence means being open to new scientific-technological developments, but prevents technology from dominating or controlling human beings. It tries to guarantee corporeal integrity (privacy) and does not simply outsource human actions to machines. Physicians should not become servants who, in a

contractual relationship of service on demand, intervene in a subjectively purposeful way in the corporeality of the care consumer.

Traditional improvement techniques develop certain virtues because they require human beings to work on themselves. A scientific-technical enhancement, on the other hand, is not gradual, but abrupt. The ongoing adaptation of the body to prevailing ideals disturbs the relationships between being, appearing, and having. A fruitful tension between outer appearance and inner feeling, however, is part of the ambivalence of human life. Being a good human being does not happen by itself; it is also a task and has a time dimension.

Whether an act of enhancement really is an enhancement depends much more on the person in question, their attitude and character, and the different contexts. Values like self-distanciation and modesty, acceptance and appreciation of ultimate limits, are also important.

The big question is whether the result of body enhancement is really important for the person concerned. Life is not first and foremost a ‘deficit’ to be eliminated in a ‘project’. Departing from a basic attitude of gratitude, contentment, and appreciation, life is about a healthy balance between ‘being able’ and ‘letting be’. The problem does not reside in manufacturability as such, but in the totalization of that manufacturability.

Medical-ethical framework. This study makes clear that the debate on ‘human enhancement’ has not only a moral dimension, but also an anthropological, existential, cultural, and religious one. We have argued that there is nothing indicating the need for the establishment of a regulated medical *functional* enhancement practice, because 1) *human* enhancement starts with valuing the given corporeality and seeks to develop it - not primarily through enhancement technologies, but through life with its broad possibilities and opportunities; 2) the limitation of existence belongs to the structures of human existence (*existentialia*); 3) the normative priority of medical practice is not enhancement, but health care for people with (present or impending) health problems, which to date has not yet been achieved globally; 4) and ‘enhancing’ means intervening in a healthy body.

The ability to choose for body enhancement represents an increase in human freedom when it is understood as the ability to shape oneself as one *wants* to be. In an individual situation, one might imagine that improving the ‘I’ makes a functional body enhancement desired or, in extreme cases, even necessary. But regardless, it must serve the health interest of that human being in their totality (wellbeing), in their functioning within their specific context involving a certain emergency situation.

An important criterion for functional enhancement is the extent to which, following the intervention, the aforementioned unique realization of the substructures in that individual falls within the variations characteristic of the biological species concerned (continuity of species identity). Moreover, any functional enhancement must be capable of integration into a person's development, in a way in which that person can continue to take on one's narrative in that development (coherence of individual identity). In exceptional situations, identification with one's own body might increase through a functional enhancement intervention (within the boundaries of the human species). Examples include the applications that can be viewed as medical prevention or treatment. On the other hand, enhancement is likely to contribute to alienation from one's own body, since it has been turned into an object to be modified. Regardless, the modification of the body should not go so far as to result in alienation between the 'I' (as a point of integration) and the body. A potential functional enhancement should not be judged primarily on the basis of the improvement of bodily functioning, but the improvement of that *human being*. Gradual, mild, and moderate changes in form of life seem to contribute more to the optimization of that life than abrupt, sharp, and immoderate modifications.

From a medical point of view, functional body enhancement involves non-indicated interventions in a healthy body with (at times considerable) risk of complications. In fact, medically speaking there is a contraindication.

Another criterion is whether the reality that opens up through enhancement is a world that we may wish for on good moral grounds. If the answer is 'yes', the next question is whether this wish must be fulfilled through medical-technical activity. Enhancement options can have an enormous symbolic power, and, as a result, exercise an influence on society disproportionate to the concrete possibilities. The most direct effect, however, is that the range of possibilities means one has to decide whether or not one wants to respond. The intention perspective is therefore of essential importance in the question of human enhancement: what is the intention of the enhancement?

Ultimately, the entire constellation of constitutive norms of medical practice have to be observed in the actual performances of that practice. They must be realized simultaneously within a broad normative framework, which starts with the foundational norms, requires facilitating norms, and finds its destination in the qualifying moral norm. This chapter lists fourteen norms that always apply.

Conclusion

I can do better! I myself have several possibilities for improvement, and the people around me can undoubtedly add to their number. But will I become a better person if I try to realize them by scientific-technical means? That is the question. And in order to answer that question in general and in concrete situations, we have proposed a medical-ethical framework illustrated at the hand of enhancement by means of brain implants (Chapter V: Case study - Brain-computer interfaces).

The central research question - *To what extent do applications of enhancement technologies constitute an acceptable encroachment on human corporeality as a (non-moral and moral) normative given, and to what extent do they contribute positively to human life?* - has been approached and answered from a cultural paradigmatic, theological, philosophical, and medical-ethical perspective. The conclusions and their justification have been briefly presented in this summary. The realization of the goals of body enhancement - to be healthy, active, socially involved, and happy, and to live long - could be *supported* with the help of the converging technologies. However, as argued, these technologies should not be used to modify or extend the normal and healthy individual human constitution with the intention of enhancing - temporarily, long-term, or permanently - the quality, performance, or well-being of the human being to a level that cannot be achieved without this intervention, let alone to a transhuman level.

Our assessment of functional body enhancement from the medical-ethical framework in this thesis initially yielded a negative view on *functional enhancement*. At the same time, it must be recognized that the boundary between the recovery of damaged functions and the enhancement of normal functions is not always sharp in practice. The development of applications that can be seen as medical prevention or treatment (e.g., increased resistance to or new treatment of post-traumatic stress syndrome) is conceivable. It is therefore important for developments in this field to be monitored by a central body, and for proposals for research or even experimental applications to be assessed on the basis of an ethical framework. Content for such a framework has been offered in this dissertation. The assessment itself is to be carried out by a central - i.e., government-regulated - body.