

Heinrichs | Rüther | Stake | Ihde

Neuroenhancement



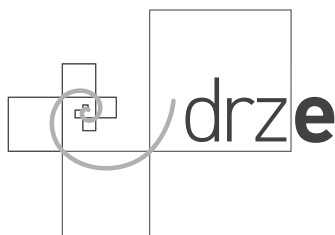
VERLAG KARL ALBER



Ethik in den Biowissenschaften –
Sachstandsberichte des DRZE

Ethics in the Life Sciences –
DRZE Expert Reports

Band 21: Neuroenhancement



*Commissioned by the
German Reference Centre for Ethics in the Life Sciences*

*Edited by
Dieter Sturma and Dirk Lanzerath*

www.drze.de

VERLAG KARL ALBER



Neuroenhancement concerns the improvement of a person's mental properties, abilities, and performance. These improvements can be achieved by diverse techniques and with different targets. Biochemical substances, medical devices, and behavioural strategies are employed in order to enhance, for example, cognition and mood.

The improvement of mental and physical properties, abilities, and performance has always been part of cultural history. The various techniques of neuroenhancement offer new opportunities of such improvement, but also come with substantive perils. Their employment may promote people's autonomy by facilitating self-expression. At the same time, however, these techniques may also undermine people's autonomy by making them the object of instrumentalization. Neuroenhancement thus involves significant normative challenges for individual persons as well as for society as a whole. In considering how neuroenhancement can be employed ethically, the benefits and risks must be carefully analysed.

This expert report provides a concise overview of the contemporary debate on neuroenhancement. It discusses the definition, techniques and targets of neuroenhancement and examines arguments for and against it at the level of individual persons, social interaction, and social policy.

Neuroenhancement hat die Verbesserung der mentalen Eigenschaften, Fähigkeiten und Leistung einer Person zum Gegenstand. Diese Verbesserungen können durch verschiedene Techniken und zu unterschiedlichen Zwecken erzielt werden. Biochemische Substanzen, medizinische Apparate und Verhaltensstrategien werden eingesetzt, um beispielsweise kognitive Prozesse zu optimieren und Stimmungen zu beeinflussen.

Die Verbesserung mentaler und physischer Eigenschaften, Fähigkeiten und Leistung war immer schon Teil der menschlichen Kulturgeschichte. Die verschiedenen Techniken des Neuroenhancement bieten neuartige Möglichkeiten der Verbesserung, bergen jedoch auch signifikante Gefahren. Sie können einerseits die Autonomie von Personen stärken, indem sie die Selbstentfaltung fördern. Andererseits kann die Autonomie von Personen durch den Einsatz dieser Techniken auch erheblich beeinträchtigt werden, wenn Personen zum Gegenstand von Instrumentalisierungen gemacht werden. Neuroenhancement stellt folglich sowohl Personen als auch die Gesellschaft im Ganzen vor umfassende normative Herausforderungen. Bei der Betrachtung, wie Neuroenhancement ethisch rechtfertigbar eingesetzt werden kann, müssen daher Nutzen und Risiken sorgfältig erwogen werden.

Der vorliegende Sachstandsbericht bietet einen konzisen Überblick über die gegenwärtige Neuroenhancement-Debatte. Definition, Techniken und Zwecke des Neuroenhancement werden erörtert und Argumente für und wider seine Anwendung auf personaler, interpersonaler sowie sozialpolitischer Ebene untersucht.

*Jan-Hendrik Heinrichs / Markus Rütber /
Mandy Stake / Julia Ihde*

Neuroenhancement

Verlag Karl Alber Baden-Baden

This publication is funded by the North Rhine-Westphalian Academy of Sciences, Humanities and the Arts as project of the Academy Program of the Federal Republic of Germany and the state of North Rhine-Westphalia.

The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available on the Internet at <http://dnb.d-nb.de>

ISBN 978-3-495-49180-5 (Print)

978-3-495-99961-5 (ePDF)

British Library Cataloging-in-Publication Data

A catalogue record for this book is available from the British Library.

ISBN 978-3-495-49180-5 (Print)

978-3-495-99961-5 (ePDF)

Library of Congress Cataloging-in-Publication Data

Heinrichs, Jan-Hendrik | R  ther, Markus | Stake, Mandy | Ihde, Julia
Neuroenhancement

118 pp.

Includes bibliographic references and index.

ISBN 978-3-495-49180-5 (Print)

978-3-495-99961-5 (ePDF)

Printed on acid-free paper

1st Edition 2022

   The Authors

Published by

VERLAG KARL ALBER –

a publishing company in the Nomos Verlagsgesellschaft, Baden-Baden 2022

Production of the printed version:

Nomos Verlagsgesellschaft mbH & Co. KG

Waldseestra  e 3 – 5 | 76530 Baden-Baden

Copyediting: Dr. Marius Bartmann

ISBN 978-3-495-49180-5 (Print)

eISBN 978-3-495-99961-5 (ePDF)



This work is licensed under a Creative Commons Attribution
– Non Commercial – No Derivations 4.0 International License.

Contents

Preface	9
I. Neuroenhancement – a short introduction on medical options	13
1. Definition	13
2. Possible targets of neuroenhancement and the measurability of its effects	14
3. Enhancement strategies	15
3.1 Biochemical strategies	16
3.1.1 Everyday substances and dietary supplements	16
3.1.2 (Psycho-)Pharmaceuticals	17
3.1.3 ›Microdosing‹	20
3.1.4 Genetic editing	20
3.2 Physical strategies	22
3.2.1 Brain stimulation	22
3.2.2 Biohacking devices	24
3.3 Behavioural strategies	24
3.3.1 Sleep	24
3.3.2 Physical exercise	25
3.3.3 Cultural activities	25
3.3.4 Cognitive training techniques	26
References	27
II. Ethics of Neuroenhancement	33
1. Introduction	33
2. What can be enhanced? On the targets of (neuro-)enhancement	35
3. How to enhance? On the means of enhancement	38

Contents

4.	What is enhancement? On the definition of enhancement . . .	41
4.1	›Beyond therapy‹-strand	42
4.2	›Beyond species-typical functioning‹-strand	43
4.3	Welfarism	44
4.4	Umbrella term	45
4.5	Commonalities	46
5.	Ethical Arguments – for and against	46
5.1	Enhancement and the individual good life	47
5.1.1	Supporting arguments	48
5.1.1.1	Improved welfare	48
5.1.1.2	Means of leading an authentic life	52
5.1.1.3	Support of character and virtue development	54
5.1.2	Counterarguments	59
5.1.2.1	Adverse (and long-term) effects	59
5.1.2.2	Fraudulent happiness	60
5.1.2.3	Negative impact of enhanced traits	61
5.1.2.4	Loss of authenticity	62
5.1.2.5	Human Nature and its components	63
5.1.2.6	Limits to the development of character and virtues .	67
5.1.2.7	Hubris and playing god	73
5.2	Enhancement in social interaction	75
5.2.1	Supporting arguments	76
5.2.1.1	The emotional basis of social interaction	76
5.2.2	Counterarguments	76
5.2.2.1	Social disruption	76
5.2.2.2	Coercion to enhance and rising standards	78
5.2.2.3	Complicity and its consequences	80
5.2.2.4	Complicity and its intrinsic badness	80
5.2.2.5	Cheating	82
5.3	Enhancement in social policy	84
5.3.1	Supporting arguments	85
5.3.1.1	Mitigation of global catastrophic risks	85
5.3.1.2	Creation of social value	86
5.3.1.3	Creation of equality of chances	87
5.3.2	Counterarguments	88
5.3.2.1	Discrimination of the enhanced / unenhanced . . .	88
5.3.2.2	Coercion to enhance and rising standards	90
5.3.2.3	Enhancement divide	91
5.3.2.4	Lack of social fit, supremacy and discrimination . .	93
5.3.2.5	Division of species	94

5.3.2.6	Too much social homogeneity and lack of diversity .	96
5.3.2.7	Competition for social resources	97
5.3.2.8	Non-autonomous enhancement (military etc.) . . .	98
5.3.2.9	Changing an already optimal human nature	99
6.	Concluding observation	100
6.1	Summary: What is the enhancement debate all about? . . .	100
6.2	What is the debate struggling with?	101
6.2.1	The placeholder-debates	101
6.2.2	The decisive reason assumption of the restrictive views	102
6.2.3	The burden of proof strategy of the permissive views .	103
6.2.4	Lack of transparency in ethical grounding	104
6.3	Final thoughts	105
	References	105
	Contact Details	117

