



Nationale Ethikkommission im Bereich Humanmedizin
Commission nationale d'éthique pour la médecine humaine
Commissione nazionale d'etica per la medicina
Swiss National Advisory Commission on Biomedical Ethics

Human enhancement by means of pharmacological agents

Opinion No. 18/2011

Bern, October 2011

Adopted by the commission on 15 September 2011

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Imprint

Published by: National Advisory Commission on Biomedical Ethics, NEK-CNE

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Citation proposal: NEK-CNE. Human enhancement by means of pharmacological agents. Swiss Medical Journal (Schweizerische Ärztezeitung). 2011; 43. (The complete version is available online at www.saez.ch)

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Introduction

It is part of human nature to try to boost one's physical and mental capacities as well as improve one's emotional and social skills. In fact, certain ethics consider this to be a moral imperative [1, 2]. In contrast, the Swiss National Advisory Commission on Biomedical Ethics (NEK-CNE) believes that what is at issue are the **means** used to achieve the enhancement as well as the **health-related and social consequences** of the consumption of alleged performance-enhancing agents. Not all means and consequences are unproblematic from an ethical point of view [3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13]. Using pharmacological agents currently being consumed for performance enhancement in daily life as well as for professional applications and in educational institutions as an example, the NEK-CNE deliberately presents its ethical considerations in a thesis-like format and uses them to derive corresponding recommendations. **The objective is to query potential health-related and social risks associated with non-therapeutic human enhancement** [14]. The intention is to **kick off** comprehensive and sustained ethical, medical, social science-based, psychological and addiction-preventive **research projects** on the one hand, and to **raise awareness among policy makers and the public** on the other.

The English term *enhancement* has entered the vernacular to describe changes in people which are not therapeutically indicated but are still considered an "improvement" of human abilities, performances and mental states.¹ Not only does enhancement mean increased performance or changed behaviour which the affected persons perceive as an improvement of their quality of life, but also a change that is desired by their environment, for example at school or at work or even in the family or a partnership. Considering these circumstances, an increase in the consumption of pharmacological agents is to be expected, although we are currently (still) seeing a certain degree of reserve vis-à-vis enhancement among the Swiss population [15]. However, this may change with rising consumption and the associated growing use of these agents, as well as in the event new substances with fewer or no adverse effects are discovered.

Enhancement – a matter of personal freedom?

An essential starting point for the NEK-CNE's ethical considerations is not to consider enhancement a "purely personal matter". The commission thereby deviates from the opinion that enhancement should be considered ethically unobjectionable if mature adults voluntarily deciding to take pharmaceuticals without medical indication are not misled about their

¹ In the latest study conducted by the Swiss Centre for Technology Assessment (TA-Swiss) on the topic of human enhancement, *enhancement* is defined as "any medical and biotechnological interventions whose aim is to change human beings in terms of their skills and appearance in such a way that the change is seen as an improvement in their respective sociocultural contexts, and whose purpose is not primarily of a therapeutic or preventive nature." [16, p. 5 et seq.]

effects and harmful side effects [16]. Based on that opinion, no explicit information about potential side effects, e.g. by means of a product insert, would be required, nor would the non-harmfulness of the product have to be guaranteed. Similar to the excessive consumption of alcohol, each individual would be free to inflict harm upon him- or herself and responsible for independently obtaining information about the effects of a substance, as needed. **Even the NEK-CNE does not categorically deny this freedom up to the point of self-destructive behaviour** [17]. Nevertheless, the aforementioned position with respect to enhancement is inadequate in the NEK-CNE's opinion.

Concept of man and medicine in flux

Two arguments contradict the outlined opinion: Firstly, the commission doubts that the image of rational individuals making decisions free of any social influences, expectations and relationships and acting in accordance with their own knowledge and in their own interests is realistic. Secondly, by focussing solely on the action of the *single* individual, the opinion ignores the social environment in which enhancement is expected or already taking place. Yet, the NEK-CNE believes that the social consequences are aspects that must be integrated in the ethical evaluation of enhancement. If expectations about people's ability to perform change and people are expected to consume performance-enhancing pharmacological substances, society's concept of man is changing as well.

Furthermore, this development has profound implications on the medical profession, because patients are asking for performance-enhancing substances which are only available by prescription. However, if prescriptions are no longer based on therapeutic standards, or indications are continuously broadened, medical practice turns into wish-fulfilment medicine and the medical ethos undergoes a disturbing change [18]. **Medical practitioners should realise that their work, their authority and their respect in society influence social values and standards.** In addition, enhancement pursues societal competition through means originally reserved for curative medical purposes.

Health risks and personality development

The fact that the consumption of pharmacological substances can improve personal well-being, as confirmed by some field reports [19], could be seen as a benefit. However, the actual performance enhancement is only temporary and often overestimated [20, 21]. What's more, according to current science, *one* cognitive ability (e.g. short-term memory capacities) can be maximised only at the expense of *other* cognitive or emotional abilities (e.g. associative thinking, profundity, frustration tolerance) [20]. Harmful side effects or even potential psychological or physical dependence, i.e. addiction, as a consequence of consumption can often not be excluded [19]. Other approaches aimed at developing one's

personality and improving the quality of one's life disappear from the field of vision. Indeed, training, self-education, meditation, etc., while being time-consuming, are effective and, in moderation, even beneficial to one's health.

Social risks

Not only does widespread consumption create personal health risks, it also changes societal expectations with respect to the required performance level. For example, the stress at work rises, thus increasing the **risk of mental disorder** [22]. Managing greater demands with drugs rather than adjusting work structures and conditions where appropriate [23] would be a sign of societal approval of enhancement, thereby putting pressure on those who refuse to consume performance-enhancing products. **As a result, the voluntary nature of enhancement would be curtailed.** Surveys demonstrate that these fears are justified: enhancement is pursued not to achieve top performance but to be able to “keep up” and “handle stress” [16]. People for whom the agents have little or no effect are also at a disadvantage.

Such fears might be countered by claims that enhancement can also be used to equalise natural differences in talent and capability, i.e. to promote equal opportunities within society. Therefore, enhancement should be accessible especially to those “in need”. The NEK-CNE is not convinced of the validity of these arguments for the following reasons:

Plea for human diversity

Widespread use of enhancement would limit a variety of ways of life and differences in talent. However, a loss of diversity is not desirable, because it would lead to a levelling of different human aptitudes and characteristics, thus decreasing the **tolerance of otherness**. If the push towards uniformity rises to such an extent that a different talent or even a disability is deemed the person's “own fault” because, after all, they should be taking a drug to cure it, this would be tantamount to a loss of fairness.

Collective prevention and health policy

The issue of which health strategies are legitimate and which ones interfere with people's personal rights is a matter of cultural and historic circumstances [24, 25]. It would, for example, be perfectly conceivable to adopt (previous) enhancement methods in health policy under the guise of “prevention and health promotion”. However, it should not be merely a question of terminological convention whether for example diagnostic procedures (e.g. in connection with prenatal care) or the fortification of staple foods with additives (e.g. iodine) are considered a form of enhancement or a measure aimed at collective prevention – because this distinction is vital. While preventive procedures are aimed at averting diseases

and are consequently recommended by the state and financed in solidarity, enhancement lacks this kind of support, and rightly so in the NEK-CNE's opinion. **The NEK-CNE recommends vigilance in ensuring that a possible shift of the boundary between the areas of enhancement and prevention are medically sensible and justifiable from the entire population's point of view, rather than being driven by commercial interests.**

Enhancement in children

Special attention should be given to enhancement in children. Here, a growing tendency towards pharmacological interference can be observed which affects persons not yet (fully) capable of consent, over whom adults, usually the parents, have decision-making power relating to medical concerns as well. This tendency is boosted further by parents' motivation to obtain and ensure only "what is best" for their child [26]. In the process, "the best" is often defined in terms of the child's future life in society: parents generally want their children to successfully compete for an education and a workplace, by improving especially their cognitive as well as emotional and social skills and by boosting their "stress resistance". This competition starts at a very young age and increases when the child starts school. It is no secret that psychotropic drugs are effective in healthy children as well—a major incentive for parents to use these substances for promoting their children's attentiveness and concentration in an attempt to provide them with a competitive advantage. This kind of "optimisation" of a child's abilities takes place without any time expenditure and goes unnoticed, so parents are not asked to respond to any criticism.

According to information provided by the US President's Council on Bioethics, the use of psychotropic drugs such as Ritalin[®] and Concerta[®] does not coincide with the number of diagnoses and therapy indications. What is more, a tendency with respect to gender (boys), age (younger children) and region (cities) can be identified [26, p. 75; 80]. Aside from language-related regional differences, the same tendency can also be observed in Switzerland [27, 28]. Furthermore, the consumption of Ritalin[®] in Switzerland rose markedly between 1996 and 2000, from 13.7 kg to 69 kg, and mainly amongst 5- to 14-year-olds [28]. Within these four years, the average dose was increased by about 10 percent [28]. In spite of a number of parliamentary interventions, no detailed, representative recent report is available on the prescription practice throughout Switzerland and the consumption of psychotropic drugs in children [27, 28, 29, 30]. **Nevertheless, such a report would be revealing in explaining why, e.g., the use of Methylphenidate, also known, inter alia, as Ritalin[®], which has been used in Switzerland for more than 55 years, has suddenly seen such an increase in the past 15 years.**

From an ethical perspective, it is important to note that the diagnosis, for example, of attention deficit disorder, oppositional defiant disorder or anxiety disorder represents a professional challenge, because it is difficult to differentiate between normal and pathological behaviours in children [31]. It can further be presumed that the increased use of psychotropic drugs is responsible for an ongoing shift in standards as to which behaviours of a child or adolescent are socially compatible and “normal”, and which ones are considered pathological. Given that the diagnosis is also affected by these societal evaluations as well as the concern that children “fit in” in kindergarten and at school, a further increase in prescriptions is likely. This example demonstrates that the **distinction between enhancement and a need for therapy can vary depending on the cultural and historical context – and as a result is subject to ethical reflection.**

Of course this development can be considered positive, since it is aimed at advancing the child’s manifestly desirable characteristics and consequently his or her social integration. Some even consider this advancement a moral obligation. Still, the NEK-CNE is hesitant in this respect, because the consumption of pharmacological agents for the purpose of enhancement alters the child’s behaviour without any contribution on his or her part [32]. This amounts to interference in the child’s freedom and personal rights. Because pharmacological agents *induce* behavioural changes but fail to educate the child on how to achieve these behavioural changes *independently*, the child is deprived of an essential learning experience to act autonomously [26], namely to influence his or her behaviour through personal decisions rather than external means (alone), which would allow the child to take responsibility. **Within this context, enhancement considerably curtails children’s freedom and impairs their personality development.**

Moreover, the consumption of pharmacological substances can have further implications on the character, because the child is taught that he or she can “function” in a socially appropriate manner only with the help of these drugs. To the extent that the child’s character traits are medically altered and made dependent upon psychotropic drugs, this has consequences for the formation of the child’s personality and self-esteem and might promote the development of patterns of addiction behaviour [19]. The pressure to conform imposed upon children by their parents and educational institutions enforces a standard of normalcy that decreases the tolerance towards childishness. This might reduce the variety of temperaments and lifestyles, ultimately jeopardising the child’s right to an open path of life. **The NEK-CNE advocates the adaptation of living conditions to the interests and needs of children.** Otherwise, the value of childhood qualities not related to aspects of societal competition and performance, those concerning play, friendship and non-competitive leisure, could be lost – along with childhood itself.

NEK-CNE recommendations

1. The medical community needs to be aware that a broad prescription practice of drugs for non-therapeutic purposes alters the public image of medicine and influences the societal concept of man.
2. Personal freedom must be categorically respected, even in the case of self-destructive behaviour, but not at the expense of such basic societal values as fairness and tolerance of otherness. Furthermore, behaviours associated with health risks should not be advocated by health care professionals.
3. Because health risks are inherent to freely accessible pharmacological agents too, they – as well as the reasons and modes of their use – should be studied thoroughly and become subject to appropriate monitoring.
4. Educational institutions should be aware of their responsibility for the psychological well-being of their charges, and employers of their duties to their employees, by trying to counter excessive pressure to perform.
5. Health policy should neither confuse nor commingle enhancement with prevention, i.e. the avoidance of illness.
6. Pharmacological enhancement can curtail the freedom, personal rights and personality development of children in particular. Parents, educational institutions and other persons in charge of the care and custody of children bear a major responsibility, both for the individual child as well as for our society's future values and standards.
7. The current prescription practice of psychotropic drugs in children must be reviewed, the causes of greater consumption investigated, and children protected against excessive use.

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