

Medicine. Chapter Summary

The panel of participants representing the medical field faces the challenge of approaching the topic of human enhancement from a psychological, neurological, anthropological and general biological viewpoint, and to issue an appraisal regarding its relevance to the military and other security forces.

“Cognitive Enhancement – A critical reflection from psychology and neuroscience” by Dr rer. nat. Sandra Grinschgl provides a comprehensive examination of neuroenhancement which is supported by a wide range of literature. This emphasises that the scientific evidence regarding the effectiveness of these methods is often overestimated, and that a more circumspect and therefore critical attitude regarding the current possibilities and promises concerning cognitive improvement is therefore generally appropriate.

The second contribution to the panel also makes a similar argument from a medical perspective: for example, clinical trials with large numbers of patients are carried out in scientific medicine, which cost a great deal of time and money in order to optimise the risk-benefit balance. On the other hand, when it comes to researching neuroenhancements, individuals who are not medical experts often expect positive results to be achieved within a short period of time.

A review of the fundamental difficulties involved in enhancing or supporting the biological system underlying the human brain with technical measures however supports a more sceptical approach.

Despite the absence of any in-house processing, a brief observation regarding the process commonly referred to as Genetic Human Enhancement still seems appropriate.

In somatic gene therapy, small parts of the genetic material are removed, deactivated or replaced. Treatment can be successful where there is a clearly defined and, above all, simple genetic defect.

The situation is different for targeted “improvements”. Due to the complexity and intricacy of the human genome, this kind of gene manipulation may result in unexpected and above all undesirable side effects if it is carried out

under the current level of knowledge. In particular, the phenomenon of epigenetics, which influences the activities of gene segments that are not based on changes to the DNA sequence but are nevertheless passed on to daughter cells, has not yet been fully researched. Genetic enhancement is therefore possible, but the timeframe for its successful realization is not foreseeable.

Finally, the authors contributing to this chapter thoroughly enjoyed putting together this publication, and the discussion with the other authors of the project was considered to be extremely thought-provoking.