
There's Always Potential! Medicine and the Debate on Human Enhancement for Soldiers

by Bernhard Koch

Therapy – enhancement – doping

“Falklands war declared void. British soldiers were doped. Rematch next year.” Even if sporting contests are sometimes likened to wars, happily no one has yet drawn an analogy such as this. Sport is supposed to be a game, but war and military force are deadly serious. But then given that war is such a serious matter, wouldn't it seem obvious to say that rather than leaving anything to chance, we should strive for an optimum – meaning best possible – outcome, i.e. victory? And that for the sake of victory, we should be prepared to go to any lengths, including doping or a military equivalent?

Doping means taking banned performance-enhancing substances or using illicit methods to enhance performance in sport. To a certain extent, doping is also part of a phenomenon called “enhancement”: enhancing performance by medical or biotechnological means, which go beyond restoring or maintaining a normal condition, i.e. they do not simply have a therapeutic or preventative effect. If these performance enhancements affect human activities, they are referred to as “human enhancement”.

In practice, there is no sharp line between therapeutic use of a substance and performance-enhancing use.¹ This shows already the complexity of the matter. We need only think of the discussions as to whether anti-impotence drugs like Viagra should be paid for by health insurance. A second difficulty is the simple fact that human beings are not biologically equipped to remain in their natural

condition. For example, in Europe, clothing is essential – it is a very rudimentary form of enhancement. Human culture begins with the use of tools; this too is a method of self-improvement. But today, the human urge to optimize can go as far as “body hacking” (i.e. having technology implanted in your body and becoming almost a “cyborg”), and human genetic engineering, where the aim is to make improvements by manipulating the germline.² This research does not stop with the military, in fact it tends to be the other way around. As is so often the case, military research projects are the spearhead. In “Mind Wars” (New York 2006, reprinted 2012), Jonathan Moreno reports on “DARPA's neuromics program, which is aimed at finding ways to permit brains and machines to interact.” DARPA – the Defense Advanced Research Projects Agency – is a Pentagon research department, and the aim of this research is to enable soldiers to control robots by thought. In 2011, the agency spent US\$ 240 million on its neuroscience projects alone. But Western soldiers have to face enhancements not only as potential or actual users, but also enhancements used by their enemies. In “Black Hawk Down”, Mark Bowden tells how during the U.S. Somalia operation in 1993, Somali men would often chew khat. It contains an amphetamine-like stimulant called cathinone, which in some cases could lead these men to become aggressive or even violent.

Civilian use

Human enhancement entered the public debate particularly as a result of studies supposedly showing that the use of neuro-

enhancement products – including conventional substances like caffeine, but also drugs – is on the rise among school and university students. Among these, methylphenidate – better known by its trade name Ritalin – is one of the most common performance-enhancing drugs in this field. “A study on methods of coping with stress and enhancing performance among nearly 8,000 students in Germany showed that 12% of students had taken one or more substances since starting their course to make them better able to deal with the demands of studying.”³

Focus on performance and pressure to perform among soldiers

In a soldier’s career, stress and performance are factors which play a truly critical role. Working in the military involves some of the most serious consequences imaginable. Any error during operations can mean a person being killed unnecessarily, or needlessly putting oneself in an extremely critical situation, or losing one’s own life. When it comes to the crunch, soldiers are expected to give maximum performance – a fact that of course places them under enormous stress. Hence it is no surprise that whenever discussions turn to the future of the military, the human enhancement question arises. This is a question which creates special challenges, particularly ethical ones, for military medicine.

Human enhancement covers a wide range of meanings in the military field as well. For example, since 2001 the U.S. Army has paid for its members to have refractive surgery, i.e. corrective laser surgery on the cornea, which in the best case can eliminate defective vision – usually shortsightedness – so that the person concerned no longer needs to wear glasses or contact lenses. Such an intervention affecting the cornea is still widely regarded as being a therapeutic procedure. It only returns vision to a predetermined normal condition.

In the case of German soldiers, the employer does not (yet) pay for this procedure, although the Advisory Board for Medical Care in the Armed Forces (*Wehrmedizinischer Beirat*) has expressed its support for this.⁴ We also know that in the not-too-distant future, it will be possible to enhance our senses with technological implants such as nano chips. Wouldn’t it seem obvious to make it a priority to equip soldiers, on whose sensory capabilities so much depends, with these enhancements?

Another area consists of the ways we cope with stress and pain, and suppress fatigue. Even in jobs where less is at stake, many employees consume a little caffeine to help them through the day. Given the severe consequences of mistakes, the hope that military doctors might be able to use medical “enhancers” to make soldiers more alert and increase their stamina during operations is entirely understandable. David N. Kenagy⁵ describes how during the Iraq War in 2003, pilots who took off from the Whiteman Air Force Base in Missouri had to stay in the air for 35 hours to fly to Iraq and back. For others who flew to Afghanistan, it was 44 hours. Without help from enhancement medication, it would be impossible to get through situations like this.

There have been some sensational developments in the field of powered exoskeletons too, though research in this field has been ongoing for a number of decades. These are a kind of mechanical exterior shell similar to an insect’s exoskeleton, with a motorized or hydraulic system that assists the wearer’s limb movements. Exoskeletons can help to conserve energy, boost endurance (and the ability to carry loads), and enhance precision. Apart from soldiers, doctors – including military medical personnel – will perhaps make greater use of (at least partial) exoskeletons (e.g. on their arms) in the future, when they need to make extremely precise movements during surgery. As with mobile computer

technology, one of the problems with these exo suits today is how to provide them with a compact power supply that will allow them to operate for extended periods. Maintenance of such enhancements for soldiers requires doctors – orthopedists – who also have engineering expertise. But is it acceptable at all for soldiers to “enhance” and “improve” themselves and have themselves improved in such ways? Is human enhancement compatible at all with our ethical concepts, principles, and judgments?

Should we allow enhancements?

In an ethical consideration of such new developments, we need to distinguish three questions: a) Are enhancements forbidden? Nick Bostrom calls people who answer yes to this question “bioconservatives”. b) Are enhancements allowed? Using another of Nick Bostrom’s expressions, we can call people who answer yes to this question “transhumanists”. c) Are enhancements morally required or essential? We can call those who answer yes to this question “biooptimists”. According to the rules of deontic logic, with the aid of negation we can reformulate question c) as a question in the form of a): Is it forbidden not to use enhancements?

If we take the consequences of an action as being the decisive ethical criterion, a duty to improve performance does seem rather obvious. Actions by soldiers often determine the life or death of people: their own lives, enemy lives, civilian lives. Soldiers have to go to the limits of their capabilities to achieve the best results, and if by biotechnological means these limits can be shifted in a direction which delivers better results, the duty of enhancement appears to be practically inescapable. Of course, any long-term harm that the enhancement causes to soldiers themselves needs to be offset against the real or perceived benefit. But since soldiers can be expected to accept certain professional burdens, it may be that

the cost–benefit analysis still works out in favor of the enhancement. As in the armed drone debate, therefore, consequentialist reasoning entails a strong preference for technological advancement. Thus it appears that the biooptimists are right and a bioconservative position is indefensible.

A new normative field emerging

But it’s not that simple. Although it is almost always futile to ban technology, not using it can be an expression of ethical awareness. Any such relinquishment seems to make a lot of sense when we consider the host of unresolved difficulties that human enhancement creates in the armed forces. To begin with, there is the question of how to prevent enhancements from violating the individual rights of soldiers. In the vast majority of cases, for example, we will consider it ethically necessary to ask soldiers for their consent for the enhancement. But the biooptimist must demand that even if a soldier refuses, it is acceptable to a certain extent to act “paternalistically”, contrary to his wishes, to achieve the best possible outcome. Yet any such action would contradict the value we attach to the autonomy of adult human beings, and the respect that we owe them. It also seems ethically reasonable to demand that enhancements, once made, can be reversed. This is certainly the case with exoskeletons, but even with laser eye surgery the procedure is irreversible.

Enhancements for soldiers will affect their understanding of their own role, and possibly their role-specific duties. Soldiers who have received an enhancement might perhaps be expected to take on specific tasks which soldiers without the enhancement are not expected to carry out. Yet these soldiers may feel that they belong to a military elite, and view or treat their fellow soldiers with contempt. Possibly they will carry this elitist attitude – the sense and justification of which

actually deserve a separate discussion – over into civilian life. Finally, there are certain characteristics resulting from the enhancement, such as improved sensory capabilities, which these soldiers do not lose upon bowing out of military service.

If it became established practice for a majority or at least a considerable proportion of soldiers to be equipped with these enhancements, the question arises of whether it would therefore be necessary to modify the rules of *jus in bello*. For example, should there be a weapons control regime – i.e. a kind of doping test – for enhancements, or should we assume that soldiers who have been given an enhancement have themselves become weapons? In this case, their use would need to be reviewed in light of international humanitarian law, in accordance with Article 36 of Additional Protocol I to the Geneva Conventions. Some scholars of international law and military ethics will perhaps argue that soldiers with enhancements contradict the “principles of humanity and the dictates of public conscience” of the Martens Clause – which sends us back to our starting point and raises the question of whether enhancements can be ethically justified.

The list of questions which today seem curious to us can be added to. For instance, it is possible to imagine a scenario in which animals, rather than people, are given a particular enhancement. But then any such “enhanced” animal could very well be construed as a biological and hence banned weapon under the law of war. Without doubt, proliferation problems will occur, since in the long run, a state or community of states can never monopolize the use of a technology.

Not least of all, however, is the fact that military doctors are affected by the ethical issues which arise in connection with human enhancement. For example, if two soldiers are wounded, one

of whom has received what may have been an extremely expensive enhancement, then for economic reasons it would seem obvious to preferentially treat the soldier with the enhancement. But ethically one could argue that the soldier without enhancements, in a certain respect, has made the greater effort. Military medical personnel also face a challenge when deciding on the appropriate treatment of captured soldiers with enhancements. In many cases some kind of drug withdrawal therapy could be necessary.

Only one aspect, but a key one

Given the abundance of questions and issues, only a very general aspect can be singled out here to stimulate ethical discussion. The outcome mentioned above – that with regard to its benefit, technological innovation is usually preferable – is not surprising in itself, since the consequentialist thinking on which it is based itself constitutes a use of reason that is in line with technological progress. But there is more to ethics than weighing up consequences. Non-teleological points of view can and must be taken into account as well. One important aspect of this kind is the freedom to decide over one’s body as a flesh-and-blood entity, not as a mere instrument for a person to use. We have a peculiar and unique relationship with our bodies. Although we “have” bodies and “are” not bodies, this having is of a different kind than having an extrinsic tool, such as a knife. A knife is good if it cuts well, Aristotle says. If we need good cuts, we have to sharpen the blade. This enhancement is necessary. Using a blunt knife can be dangerous and therefore irresponsible. But the body is not an instrument for a purpose. Rather it is itself the expression of our makeup as a flesh-and-blood person. We do not need – even despite all modern-day “needs” for cosmetic surgery – to optimize our bodies for other people’s purposes. We may do so, however, as long as this does not unduly prevent others from exercising their freedoms.

Doping in competitive sports, for example, is cheating, so it always restricts other people's freedoms. But doping and enhancement have in common that there is a serious danger that people who actually reject human enhancement are put under pressure by the usage of enhancements by other people (especially in competitive contexts.)

Within reasonable limits, sport and a healthy lifestyle are correct and important. For soldiers, these limits can be somewhat different than for people in other professions. But even if maximum performance is demanded from soldiers in their role as soldiers, they still remain people and flesh-and-blood beings who can decide for themselves how they develop in flesh and blood. To insist on a – biooptimistic – duty of enhancement is to exaggerate the power of consequence-based thinking. Hence one can responsibly decide for or against the enhancement. Other questions, however, are whether soldiers without enhancements should take on tasks which, for good reasons, soldiers equipped with enhancements can perform better, or whether particular enhancements should be banned. Enhancements can have a negative impact in the long term on the persons concerned, whether as a result of toxins given off by the materials used, or through addiction and dependency. In many of the highly diverse examples of human enhancement, there are no long-term studies on the effects. This means that doctors who administer such enhancements need to provide information about the unknown risks, and that the persons concerned can say no – including soldiers and military medical personnel. If enhancements are believed to entail massive dangers, it may even be necessary to consider a ban. This is particularly the case if the dangers concern not only the informed user of the enhancement but also persons who had no influence over its use, e.g. civilians who are threatened

by a soldier who “flips out” because of an enhancement.

Particular demands on military medical personnel

For military doctors, new questions arise, and old questions arise again. The key new question is the extent to which they should morally participate in such enhancements for soldiers. Of the old questions which arise again, I shall single out just one which is currently being discussed: Should military doctors – and, according to their professional ethos, this should be ruled out – now perhaps nevertheless play an accompanying or even assistive role in acts of torture, if they know that because of an enhancement the torture victim is almost completely insensitive to pain? In other words, this torture victim with an enhancement is not affected by the torture in the same way as one should assume of a torture victim under “non-enhanced” conditions.⁶ “In changing human biology, we also may be changing the assumptions behind existing laws of war and even human ethics,” writes Patrick Lin in *The Atlantic Monthly* (2/2012).⁷ Maybe the ban on torture did not foresee the potential resistance to pain that can be achieved by biotechnological means, with the result that legal questions should be rediscussed in this regard. Or perhaps, conversely, this possibility will be used as an argument by those who in any case would like to water down the ban on torture, as a way of getting closer to their goal. The question of what exact effects enhancements really have will be a very long-term empirical research task, and it is more than questionable whether we should turn our backs on hard-won ethical standards because of arguments based on effects. But even if we had such studies, a far deeper problem remains: Perhaps enhancements – especially the neurological type – will provoke a shift in what we understand by origination of action. In this respect, ethical standards could actually come

under enormous pressure. With what justification, for example, could a soldier still be held responsible for a war crime, if as the result of a neuro enhancement he is essentially acting under remote control? This should be counteracted in advance, and soldiers should be told that giving up the origination of action is itself not a responsible act. Soldiers should not agree to this surrender, and military medical personnel should not assist in it, if we don't want our entire field of ethics to collapse.

¹ Cf. Bostrom, N.; Roache, R. (2008): Ethical Issues in Human Enhancement, in: Ryberg, J.; Petersen, T.; Wolf, C. (eds.): *New Waves in Applied Ethics*, Basingstoke, pp. 120–152.

² One suggestion for anyone seeking an introduction to this extremely extensive debate would be to read Sandel, M. (2004): *The Case Against Perfection*, *The Atlantic Monthly* April, pp. 1–11, <http://www.theatlantic.com/magazine/archive/2004/04/the-case-against-perfection/302927/> (accessed 4 June 2015).

³ Akademien der Wissenschaften Schweiz (2012 ed.): *Medizin für Gesunde? Analysen und Empfehlungen zum Umgang mit Human Enhancement*. Bericht der Arbeitsgruppe, Bern, p. 54.

⁴ As in an article published by the German armed forces association (*Deutscher Bundeswehrverband*) in 2011: <https://www.dbwv.de/C12574E8003E04C8/Print/W28HEJVV857D-BWNDE> (accessed 4 June 2015).

⁵ N.N. (2004): *Dextroamphetamine Use During B-2 Combat Missions*, in: *Aviation, Space, and Environmental Medicine* 75/5.

⁶ Torture should probably not be defined by its effects, but, like actions, from the intentions.

⁷ <http://www.theatlantic.com/technology/archive/2012/02/more-than-human-the-ethics-of-biologically-enhancing-soldiers/253217/> (accessed 4 June 2015). I owe many of my examples to Patrick Lin's works on the topic.

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