

Soldier Enhancement, Consent, and Long-Term Care: the super soldier perspective

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I. Introduction:

So-called super soldier enhancements are becoming increasingly inevitable. From brain-computer interfaces allowing soldiers to seamlessly leverage AI technology, to exoskeletons, and metabolic enhancers, we are getting closer and closer to a sci-fi future, in which soldiers will be offered and/or expected to accept enhancements. These enhancements will inevitably have unforeseeable consequences and give rise to a mountain of ethical dilemmas. Bioethicists, medical professionals, lawyers, neuroscientists, as well as military leaders are increasingly aware of the potential for ethical issues and thus, much has been written recently on ethics of soldier enhancements. The literature on the issue has rightly leveraged decades of bioethics, medical ethics, and research ethics literature. *What is missing, however, from much of the literature is the perspective of potential subjects of such enhancements, namely the potential super soldier perspective.* Our project seeks to fill this gap by capturing the practitioner's perspective regarding the possibility for super-soldier enhancements.

Our project focuses on two central topics: consent and long-term care, and it approaches these topics by capturing the perspective of the members of the U.S. Special Operations community.

Consent: Through interviews with members of the U.S. Special Operations Forces, we seek to understand how members of the special operations community see the coming enhancements and specifically how far they perceive their anticipatory consent extending with respect to such enhancements. In other words, we ask whether they think their anticipatory consent extends to some forms of enhancements (and which forms). In addition to asking about anticipatory consent (consent soldiers give in joining the military), we also ask about potential obstacles to giving consent for particular enhancements. Unlike many other ethically relevant concepts, the ethical salience of consent is greatly affected by the subjective experience, as in, it matters what those consenting think they are consenting to. This is why we also ask about key vulnerabilities they think they will face that might potentially affect their ability to truly consent. In other words, we try to identify, through interviews, what pressures the special operators feel they might face, in being asked to consent to enhancements.

Long-term care: Our other focus for this project involves collecting central concerns around long-term care and after care for enhanced soldiers. Even outside of enhancement the funding for the Veteran's Affairs (VA) and thus the funding for the services that the VA can offer have been notoriously lacking. Long-term care for those affected by TBIs, PTSD, lung injuries from burn pits, and other ailments is often hard to come by. The project seeks to identify if there are any specific additional worries that soldier enhancements give rise to, from the perspective of potential super soldiers.

The hope for this project is that by identifying obstacles for consent and identifying concerns around long-term care of those that might be the subjects of enhancement, we can enrich the

already robust landscape of ethical considerations around enhancements. Special operators often face unique challenges and pressures. In addition, they are likely going to be, as in the past, the first community to be offered, or expected to accept enhancements. As such their perspectives are an invaluable addition to the literature on the ethics of soldier enhancement.

II. Background and motivation:

Our understanding of the concepts and moral salience of consent, anticipatory consent, and the institutional duty to provide long-term care for soldiers play a key role in how we approach this research, and how we shaped the questionnaire that we use for interviews. Before we discuss the theoretical underpinnings of anticipatory consent, ordinary informed consent, and duty of long-term care we first illustrate what we mean by soldier enhancements and provide a few examples.

Soldier enhancement: Elsewhere we have defined “soldier enhancement” as “*an enhancement because (and when) it has a statistically relevant likelihood of increasing the probability of accomplishing the stated military objective through biological, medical, or technological change to a soldier’s physical, metabolic, mental, emotional, or moral baseline (or current capability).*”¹ Such enhancements might have in the past included pharmaceutical interventions designed to increase the metabolic rate, or focus of soldiers on the battlefield. Increasingly, enhancements in development include significant interventions and alterations to soldier’s mind and body. These include BCIs (brain-computer interfaces), exoskeletons, gecko-skin, and others. BCIs are one of the most widely discussed forthcoming enhancements. BCIs would leverage the amazing capabilities of large models and AI as well as, the still significantly more advanced (than AI), human perception to produce superior orientation, object recognition, and response times. “By leveraging big data and machine learning BCIs could augment a pilot’s visual field or respond to the pilot’s decisional intent and speed the execution of her decision. The breadth of advances and the scope of physical, metabolic, and cognitive enhancements being pondered or developed currently are impressive.” (Governale 2017). These include skull caps that can “read minds,” exoskeletons that can execute actions based on decisional intent, algorithmic decision-making integrated into one’s natural/biological decision-making process, metabolic improvements that can make a soldier several times faster, cognitive augmentation that can make them smarter, etc. The Health and Human Performance Council of the U.S. Department of Defense (DoD) recently included “ocular enhancements to imaging, sight, and situational awareness; restoration and programmed muscular control through an optogenetic bodysuit sensor web; auditory enhancement for communication and protection; and direct neural enhancement of the human brain for the two-way data transfer” as plausible enhancements that might be fully developed by 2050 (Emanuel et al. 2019). Current development includes Lockheed Martin’s HULC exoskeleton allowing for the ability to carry payloads of 200 pounds and to sustain a run at 7–10 miles per hour; University of West Florida’s Aquasuit, which emulates the locomotion of dolphins, penguins and turtles; DARPA’s Geckskin, which is an adhesive fabric that can enable humans to climb walls

¹ Davidovic, Crowell, “Operationalizing the Ethics of Soldier Enhancement,” *Journal of Military Ethics*, 2021, 20:3-4, 180-199.

like geckos, spiders, and other animals do; BAE systems' liquid armor; and many others.² As such enhancements that we are primarily focusing on are the ones likely to emerge over the next 10-50 years and that will likely have some effects on subjects' brain, mind, metabolism or body.

Consent: For most enhancements that we are focusing on we are assuming that the questions of consent and long-term care *primarily* emerge when there is a risk of harm. That risk might be well known and identified, as is the case with some BCIs when the changes that one's brain undergoes might be harmful to the subject or the dependence on such an enhancement might become harmful. Other times the risk might be more diffuse or less clear, it might be that we simply can't tell what long-term effects of an enhancements might be and as such the subjects risk some unknown type of harm. But in many cases enhancements pose risks of short-term or long-term harm to one's identity, body, or mind. However, even in cases when we can reasonably and with confidence say that the risk of harm (in most general sense) is minimal to none, we commonly still think that consent matters. Consent matters because it is a tool to protect one's dignity, integrity and autonomy. Even if things we do to someone objectively make their life go better, if they involve effects on their bodily integrity (giving a sleeping person a fabulous haircut), autonomy, or dignity, then they require consent as a matter of autonomy, integrity, and dignity. But in cases when our actions threaten to risk *harm* to someone, consent has a *further* conceptual role it can play, which is that it can counter the moral weight of risk of some harms in our moral considerations. The disvalue of harm can be outweighed in some cases by consent. We start with this very broad understanding of consent- partly because we are aware that both senses of consent (as meaningful in itself and as a part of autonomy and as meaningful because it can justify imposing some risks of harm) are part of the ordinary sense of 'consent,' and as such both elements of the concept of consent are likely to play a role in our subjects understanding of the concept of consent.

Informed consent: Bioethical and medical ethics literature discussed this concept in great detail. The term 'informed consent' is "shorthand for informed, voluntary, and decisionally-capacitated consent. Consent is considered fully informed when a capacitated (or "competent") patient or research participant to whom full disclosures have been made and who understands fully all that has been disclosed consents voluntarily to treatment or participation on this basis."³ Informed consent is incredibly relevant in medical research and medical ethics because without it many intrusions remain impermissible. It is a necessary condition and a legitimacy condition on doing most medical procedures or research.

Soldier's consent: The question of consent with respect to enhancements offered to or performed on soldier's is complicated by the fact that military life is one of obedience and institutional deference. When soldier's join their autonomy is significantly limited, and the sorts of things that civilians commonly expect or are entitled to with respect to the breadth of their autonomy is significantly limited for a soldier. Soldiers give consent – broad and long- when they

² Paragraph borrows heavily from Davidovic and Crowell "Operationalizing Soldier Enhancements,"

³ Eyal, Nir, "Informed Consent", *The Stanford Encyclopedia of Philosophy* (Spring 2019 Edition), Edward N. Zalta (ed.), URL = <<https://plato.stanford.edu/archives/spr2019/entries/informed-consent/>>.

join the military, consent to a significant limit on their freedom and autonomy and deference to military authorities. That consent extends to a range of actions including some medical interventions. This consent most certainly includes a broad consent to some forms of interventions on one's body through at a minimum physical training, vitamins, vaccinations, etc. However, for most cases of medical interventions or drug administration of drugs or enhancements that are not FDA approved the DoD does require informed consent, although it leaves some exceptions in cases when informed consent requirement is impractical, or if it is not feasible to obtain consent in a particular military operation or research is considered urgent.⁴ Scholars like Mehlman, et.al, Gross, and Rhodes have to various extents discussed this elsewhere. The central claim is that as Gross puts it "soldiers are not fully autonomous individuals ... Without autonomy in its most expansive form, its derivative patient rights—informed consent, confidentiality, and the right to die—weaken"⁵

Soldier perspective on consent and our motivation for the project: Much has been said in literature (both ethical and legal) on what types of consent might be needed for what types of enhancements. Two central questions in the literature include "Should warfighters be required to give their informed consent to being enhanced, and if so, what should that process be?" and "If a standard other than informed consent should be used, what additional protections are needed, and under what circumstances would they supersede a need for consent?"⁶ We agree that these are central questions to ask, and we think that a good answer to these questions must include the perspectives of potential subjects of enhancement, and in particular perspectives of special operators.

Consent is a unique moral concept in the sense that given why and how it operates to give rise to moral requirement of abstaining from intervention or interference, and given the relevance of informed consent, it seems like it matters greatly how subjects of potential enhancements see consent regarding enhancement. It matters whether and when they think their soldier's consent already covers an aspect of institutional intervention, it matters what sort of things they think they can consent to in the first place, and it matters what sorts of obstacles, and pressures they anticipate to their ability to give true/voluntary and informed consent (we use informed to include voluntary, as mentioned above). This partly matters because wherever and whenever we decide we need to seek consent (in which circumstances and how) whether that consent truly is informed and voluntary is largely driven by the soldier's understanding of the obligations they have in virtue of being a soldier, their understanding of obligations they have to their fellow soldiers and their unit, their understanding of protections and care they will receive that might mitigate some of the risks they undertake, etc. In most extreme cases we might think that some enhancement X is necessary, proportionate, and that it meets all other conditions laid out, but it

⁴ Mehlman Lin "absent FDA approval, a Presidential waiver or informed voluntary consent must be obtained for the administration of an investigational drug (IND) [Russo 2007]." And "the time, the DoD argued that the informed consent requirement for the administration of INDs was impractical [Doe v. Sullivan 1991]." And "21 CFR 50.23(d), or Interim Final Rule Rule 23(d) allows the DoD to waive the informed consent requirement, if it is not feasible to obtain consent in a particular military operation, subject to conditions [Brown 2006]."

⁵ [Gross 2004, 101].

⁶ Mehlman Lin

might be the case that informed consent is impossible as it is not voluntary on average, because, for example, the internal pressure among fellow combatants is too great. The subjective experience of consent affects both, we think, whether and when we should seek consent, and what type of consent we should seek, and how we should seek such consent. This is why we had undertaken this project in the first place.

III. Method

This project is intended to collect potential super soldier's perspectives on the question of enhancement. We will conduct interviews (10-15 interviews or until we reach saturation of perspectives). The interviews will last 1h. The subjects receive a consent form before hand and a basic description of three enhancements: a BCI, an exoskeleton, and an auditory enhancement. All our subjects are special operations (mostly NSW) U.S. warfighters. Our subject recruitment includes retired personnel in addition to active-duty personnel- for two reasons: they likely will feel more comfortable speaking with us and they might have first-hand experience of long term care. The interviews follow the below script loosely.

Interview Questions and Script:

1. Introductions
2. Project purpose (short version) and reminder of consent form (stressing anonymity and the fact that results will be only reported in aggregate)
3. Examples of types of soldier enhancements (normatively neutral presentation):
 - a) BCIs – brain computer interfaces for either streaming observational data to pilot/operator or for quicker translating decisional intent into outcomes
 - b) Exo-skeletons- increased speed
 - c) Direct replacement or modification of both inner and mid-ear components
4. Questions:
 - i. How far do you think your (anticipatory) consent extends with respect to enhancements of any type? In other words, do you think that in joining the military you have consented to enhancements as if so which kinds? (Might need to supplement with some ordinary examples- vaccines, training, vitamins, etc.)
 - ii. What types of enhancements do you think you need to be asked for further consent? In other words, what are the kinds of enhancements that when your unit leader, commander or supervisor offers them you feel like further consent needs to be sought from each participant?
 - iii. For further informed consent, what type of information would you like to have to make an informed decision?
 - iv. What pressures do you foresee to accept enhancements? Do you for example feel that you would betray your fellow soldiers if you didn't take an enhancement that would make you more capable of protecting them in the battlefield? What other pressures do you think you or others might feel to accept enhancements?
 - v. If there is a limited number of enhancements, do you think there is a smarter/better/fairer way to distribute them, or should it be random (among your types of units?) Why?

- vi. Moving on now, what are your biggest concerns regarding leaving the military after potentially accepting an enhancement?
 - vii. Do you think those worries are shared by others in your unit?
 - viii. When it comes to long-term care and after-service care of those that had been enhanced, what do you think should be the biggest priority and what do you foresee as the biggest concern?
 - ix. Are there some questions we did not ask you that you think might help us get a better sense of the potential-super-soldier perspective regarding being offered body/mind altering enhancements?
- 5. Thank you, reminder re: anonymity, and assurance that they can reach out and how if they think there is something further to discuss or add.
 - 6. Follow up thank you emails.

IV. Results