Chapter 5
Super Soldiers (Part 1): What Is Military Human Enhancement?

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ABSTRACT

After World War II, much debate unfolded about the ethical, legal, and social implications of military human enhancement, due in part to Adolf Hitler's war on the "genetically unfit" and the United States military's experimentation with psychedelic drugs such as LSD. Interest in that debate has waxed and waned since the 1940s. However, it would be foolish or perhaps even dangerous to believe that America and its modern allies have abandoned efforts to upgrade service members' bodies and minds to create the "super soldiers" necessary to match the increasing pace of modern warfare and dominate the strengthening militaries of China and North Korea. Slogans such as "be all that you can be and a whole lot more" still reign strong at the US Defense Advanced Research Projects Agency and, according to some military futurists, the so-called "War on Terror" has only proven that military superpowers need a new type of soldier that is independent, network-integrated, and more lethal than ever before. Patterns of public risk perception, military expenditure, and new technological developments suggest that it is now time to re-open or reinvigorate the original debate. The authors' contribution comes in two parts. In this chapter, they provide a brief background to military human enhancement before defining it carefully and exploring the relevant controversies. In the second, they more explicitly examine the relevant legal, operational, and moral challenges posed by these efforts.

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INTRODUCTION

War is an all-too-human affair and will probably always require a strong commitment to allowing human lives to be damaged, blighted, or lost. This is a terrible cost, but one which science and technology hope to ease. History has seen an evolution of defensive and offensive technologies—from shields and body armor to more accurate and longer range artillery and precision guided munitions—that are aimed exactly at minimizing the human cost, at least to our own side. In today's digital age, we are seeing the pace of the military technical revolution increase with the wide scale deployment of military robots, cyber weapons, and other technologies that promise to replace the organic, soft-bodied combatant and better protect noncombatants as well.

Yet it is difficult to imagine a plausible medium-term scenario in which technology replaces all human combatants in war. No weapon or loss thus far has been so horrific as to deter us from renewing our fighting, a point made clear by the fact that World War I did not end up being the "war to end all wars." Even against daunting odds and fearsome machines, from tanks to flying drones, humans are tenacious and hopeful, refusing to give up easily and enslave themselves to a greater power.

But therein lies a fundamental problem with how we wage war: as impressive as our weapons systems may be, one of the weakest but most valuable links in armed conflict continues to be warfighters themselves. Hunger, fatigue, and the need for sleep can quickly drain troop morale and threaten a mission. Fear and confusion in the "fog of war" can lead to costly mistakes, such as friendly-fire casualties. Emotions and adrenaline can drive otherwise-decent individuals to perform vicious acts, from verbal abuse of local civilians to torture and extrajudicial executions, with the potential to make an international incident out of what would have otherwise been a routine patrol. And post-traumatic stress can take a devastating toll on families and add pressure on already-burdened health services.

Human frailty is striking and largely inescapable. Unlike other animals, we are not armed with fangs, claws, flight, venom, fur, or other helpful features to survive the savage world. It is a wonder our naked species has survived at all, if not for our tool-making intellect and resourcefulness. But our tools so far provide limited sanctuary from dangers. For instance, some estimates put the United States government's investment in each soldier, not including salary, at approximately $1 million (Shaughnessy, 2012), helping to make the US military the best equipped in the world. Nonetheless, the million-dollar soldier still remains vulnerable to a fatal wound delivered by a single 25-cent bullet.

If humans will always be called upon to fight, then it makes sense to focus efforts on overcoming or compensating for that frailty. To be sure, military training attempts to address these problems, but it can only do so much. Science and technology again offer hope for whatever challenges we may face, in this case to upgrade or supplement the basic human condition. We want our warfighters to be made stronger, more aware, more durable, and more adaptive. The technologies that enable these abilities fall in the realm of military human enhancement.

As we explain in the following sections, human enhancement technologies are more than mere tools: we are drawing on these tools to such an extent that, for all practical intents and purposes, they can be considered integrated with ourselves—and this creates special competitive advantages and, sometimes, special risks. This two-part exploration is derived from our recent report for the Greenwall Foundation (Lin, Mehlman, & Abney, 2013) and aims to examine these risks and the associated legal, ethical, and policy issues arising out of military human enhancement—not necessarily a new class of warfighting technologies but one that is now developing in novel ways. In this first chapter (Chapter 7) we provide an outline of the developments in the field, as well as more fully explain what we mean by "human