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THESIS

**NET BENEFIT OF PERFORMANCE-ENHANCING
DRUGS WITHIN U.S. ARMY SPECIAL FORCES**

by

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ABSTRACT

The United States Army Special Forces (USASF) depends on high fitness levels to accomplish higher-risk missions in various environments and under the most extreme conditions. USASF stresses the importance of improving an operator's strength, endurance, and cognitive ability. Soldiers within USASF undergo a rigorous selection process to secure the right person for the right job and adhere to the Special Operations Forces (SOF) truth: humans are more important than hardware. Thus, performance-enhancing drugs (PEDs) can serve a vital role in an operator's ability to become bigger, faster, stronger, or smarter. To understand the use of PEDs within USASF, we ask: "How much does USASF benefit from researching and implementing performance-enhancing drugs given the current knowledge of biotechnologies?"

Our thesis explores research on PEDs from competitive sports and overlays it with the USASF mission sets while considering the mechanics of PED use and side effects to gain a better understanding through an operational lens. We argue that PEDs can be beneficial to USASF but only in certain capacities. Our personal experiences as Green Berets and the use of declassified missions support our conclusion. Furthermore, our findings depict how PEDs could be beneficial in both capacity-building and capacity-restoring roles; however, due to limited data on PED use in the military, a more in-depth review is needed to determine the impacts on the USASF Regiment.

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LIST OF ACRONYMS AND ABBREVIATIONS

ADHD	attention deficit hyperactivity disorder
COIN	counterinsurgency
CT	counterterrorism
DA	direct action
DOD	Department of Defense
EPO	erythropoietin
FID	foreign internal defense
GH	growth hormone
JP	Joint Publication
PE	preparation of the environment
PED	performance-enhancing drug
SARM	selective androgen receptor modular
SERM	selective estrogen receptor modular
SF	Special Forces
SF Medic	Special Forces Medical Sergeant
SFA	security force assistance
SFOD-A	Special Forces Operational Detachment - Alpha
SOF	special operations forces
SR	special reconnaissance
TBI	traumatic brain injuries
TTPs	tactics, techniques, and procedures
TUE	therapeutic use exemption
USASF	United States Army Special Forces
UW	unconventional warfare
WADA	World Anti-Doping Agency
WMDs	Weapons of Mass Destruction

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I. INTRODUCTION

In an evolving world where technological advancements increase at exponential rates, so does the desire to optimize the human body to perform beyond its highest capacity. Deuster et al. describes human performance optimization as the “precise, controlled and combined application of certain substances and devices over the short and long-term to achieve optimization in a person or unit’s performance overall.”¹ Thus, to reach beyond the limits of one’s highest capacity requires the need for human enhancement or augmentation to the individual’s existing capabilities. Although human enhancement and augmentation are typically associated with negative connotations and futuristic notions of super humans, the terms specifically describe the method of altering the features of one’s human function. In reality, people enhance themselves on a daily basis through ordinary activities such as exercise, consuming caffeine or medicine, and sleep to increase the way they look, feel, and perform. As per the United States Special Operations Forces (SOF) Truths, “humans are more important than hardware;” therefore, more emphasis has been placed on human enhancement and performance optimization to increase the individual operator’s capability and capacity.²

The idea of human enhancement is not a new concept; rather it has been documented since the beginning of ancient history. Ancient warriors of many cultures consumed animal hearts to signify their bravery and animal brains to increase their intelligence. More recently, modern militaries have also believed in modifying the human body and the surrounding environment to achieve necessary results. The first modifications to military personnel were to the outside of the body for sanitary purposes. Having individuals shave their heads helped prevent the spread of lice, as did changing socks reduced foot fungus, trench foot, and other foot issues or complications. However, as time

¹ Patricia A. Deuster et al., “Human Performance Optimization: An Evolving Charge to the Department of Defense,” *Military Medicine* 172, no. 11 (November 2007): 1133–37, <https://doi.org/10.7205/MILMED.172.11.1133>.

² “SOF Truths,” United States Special Operations Command, accessed November 3, 2020, <https://www.socom.mil/about/sof-truths>.

progressed and technology became more advanced, soldiers received immunizations to prevent diseases that military personnel would be exposed to in various operational environments. “People, not widgets, not programs, nor devices, fight wars,” which is why so many militaries around the world continue researching ways to enhance the individual operator’s physical and cognitive abilities.³

Soldiers within the U.S. Army Special Forces (USASF) often depend on high levels of fitness to include physical, mental, and emotional health in order to accomplish higher risk missions under extreme conditions. Individual soldier’s strength, endurance, and cognition are vital to a higher level of fitness and could be increased through existing technology. According to Scharre and Fish, “Existing technologies have demonstrated the ability to improve individual physical and cognitive performance above baseline level and in areas central to military competition: strength, focus, attention, learning, and resistance to fatigue.”⁴ Performance-enhancing drugs (PEDs) is one example of existing technology that could improve an individual’s performance above baseline level. PEDs, in a broad sense, are considered any type of drug that an individual can take to increase their physical or mental performance.

Throughout the history of warfare, men and women have used some form of drugs to enhance their military duties.⁵ As described in historical records, “Viking Berserkers ingested mushrooms, Inca warriors chewed coca leaves, America’s civil war soldiers used morphine, Canadian soldiers consumed cocaine liberally during trench warfare, and the German Wehrmacht took speed for sustained momentum.”⁶ Even on the modern battlefield

³ Paul Scharre and Lauren Fish, *Human Performance Enhancement*, Super Soldiers (Washington, DC: Center for a New American Security, 2018), <https://www.cnas.org/publications/reports/human-performance-enhancement-1>.

⁴ Scharre and Fish, 2.

⁵ Oscar Rickett, “Soldiers Have Used Drugs to Enhance Their Killing Capabilities in Basically Every War,” VICE, April 11, 2016, https://www.vice.com/en_us/article/kwxdbdy/drugs-have-been-used-in-pretty-much-every-war-ever-shooting-up.

⁶ S.A. Cavanagh, “The Pharmaceutical Soldier - Performance Enhancing Drugs on the Battlefield - An Open Source Intelligence Study,” *Small Wars Journal*, 2018.

of today, personnel may encounter working with foreign partners that may operate under the influence of opioids, cocaine, or marijuana. Although these examples highlight foreign militaries, the United States military has also used performance-enhancing drugs to increase mission success. During World War II and the Korean War, U.S. armed forces utilized amphetamines to keep soldiers awake for extended periods of time and to keep them alert. A study in 2014 found that approximately 67% of active-duty service members, throughout all ranks and services, used dietary supplements.⁷ The percentages increased to an estimated 75% within special operation forces elements such as Army Special Forces and Navy SEALs. More recently, the U.S. Air Force has issued modafinil, a cognitive enhancer, to pilots to mitigate the side effects of fatigue.⁸ Nevertheless, this effort has halted due to the use of cognitive enhancers being the scapegoat for friendly fire incidents.

A. RESEARCH QUESTION

Implementing PEDs can potentially affect a person's well-being on and off the battlefield. However, researching and implementing PEDs could ultimately change the dynamics of human performance within the military, but their use comes with a price. Do the benefits of PEDs outweigh the risk to the force and to the mission? Where do they fit into the Army's fighting force, and is there a need within Special Operations Forces' units? How would military personnel be perceived by the public and international community for using PEDs to carry out missions/operations? The purpose of this research is to provide an alternative perspective to better understand the use of PEDs in the military and if their role could complement or detract from the USASF mission set. Therefore, our research question is how much does USASF benefit from researching and implementing PEDs given the current knowledge of biotechnologies?

⁷ Maxwell Mehlman, "Doping Soldiers so They Fight Better—Is It Ethical?," *The Conversation*, May 24, 2019, <http://theconversation.com/doping-soldiers-so-they-fight-better-is-it-ethical-117236>.

⁸ Lukasz Kamienski, "During the Vietnam War, the U.S. Army Used Drugs to Build Super Soldiers," *The Atlantic*, April 8, 2016, <https://www.theatlantic.com/health/archive/2016/04/the-drugs-that-built-a-super-soldier/477183/>.

B. RESEARCH METHODOLOGY

This thesis analyzes the net cost or benefit PEDs have on USASF through an operational lens given current knowledge of PEDs rather than tackle the ethical dilemmas and moral predicaments of the military using biomedical enhancements. Using research on PEDs from competitive sports and overlaying it with the USASF mission set, then accounting for the mechanics of PED use as well as the negative effects, we are able to create a better understanding of the costs and benefits of PED utility within the military. Our research does not encompass any type of experimentation on the use and effects of PEDs but rather provides an alternative perspective to better understand the use of PEDs in the military. Any information relating to the medical and/or legal aspect of the drugs depicted in this thesis have been collected through an extensive literature review conducted by external entities.

To gain a better perspective on whether PEDs benefit USASF's operational capacity and capability, it is vital to understand the purpose of USASF, their mission set, and the operational issues and ramifications caused by PED use and implementation. Since the use of PEDs within the military is a controversial topic with varying perspectives, we conducted a mission analysis and examined historical USASF operations/environments and current operations to see where PEDs would most likely have a role within the operational environment. We assessed that PED use could serve as a beneficial tool, but their specific use and purpose would have to be further examined.

Currently, the use of performance-enhancing drugs is prohibited by the Department of Defense (DOD). Through our analysis of the most common PEDs within sports, we focused on how these drugs could or would be utilized in the military. This information, along with our analysis of USASF's mission, sociological effects of PED use, and practical implementation of PEDs provides us with different perspectives into whether PEDs benefit the USASF mission and its personnel. We will present several arguments and counterarguments for the use of PEDs in USASF to determine the validity of implementing biomedical enhancements.

II. LITERATURE REVIEW

In this chapter, we will explore the current literature on performance-enhancing drugs, human enhancements, how the two are viewed in terms of military use, and where this thesis fits within all the various discussions on the subject.

A. CURRENT RESEARCH AND ISSUES

After extensive research into PEDs, we identified that current literature on PEDs generally only covers two topics. The first topic is a medical approach that seeks to explore the capabilities of PEDs through scientific research. Many of these journal articles explain the science behind PEDs and conduct research on their performance enhancing capabilities and the potential adverse side effects. For example, one study examined the relationship between stimulants and academic achievement in an attempt to understand the capability of stimulants to enhance cognitive function in normal individuals.⁹ The second topic of PED literature is a social scientific approach that examines PEDs from moral, ethical, legal, and psychological perspective of PED use, with the most frequent research focused around athletics and sports. An example of this category of study is Savulescu, Foddy, and Clayton's article arguing the merits of allowing PEDs in competitive sports.¹⁰

From a military perspective on PEDs, we found that current literature is generally lacking. From the scientific approach, most literature associated with both PEDs and military explore stimulants as a method of combatting fatigue—more specifically aviator fatigue—with the rest of the literature arguing that there is not enough literature or studies

⁹ Claire Advokat and Mindy Scheithauer, "Attention-Deficit Hyperactivity Disorder (ADHD) Stimulant Medications as Cognitive Enhancers," *Frontiers in Neuroscience* 7 (May 2013), <https://doi.org/10.3389/fnins.2013.00082>.

¹⁰ J Savulescu, B Foddy, and M Clayton, "Why We Should Allow Performance Enhancing Drugs in Sport," *British Journal of Sports Medicine* 38 (November 2004): 666–70, <http://dx.doi.org/10.1136/bjism.2003.005249>.

on the subject to understand their true military application.¹¹ From the social science approach, there is extensive content regarding the moral and ethical application of human enhancement within the military, but very little investigation specifically into the application of PEDs. While PEDs are considered part of the umbrella term of human enhancement, often labeled biomedical enhancement, the literature that tackles the subject is theoretical and leans heavily into ethics—both bioethics and military ethics.

Take, for instance, Wolfendale’s discussion on enhancements and the need to maintain moral responsibility. The author argues that enhancements can be ethically used if the enhancement allows the users to be morally responsible agents.¹² If the individual is unable to be held responsible for their actions, then the enhancement is not ethical. Similarly, Caron argues that biomedical enhancements within the military should be viewed in the same vein as body armor or helmets; there is a moral obligation to provide soldiers with technology that will increase survivability.¹³ Mehlman and Ashcroft propose systems of regulations to ensure that biomedical enhancements follow an ethical standard.¹⁴ These regulations blend the principles of the law of war—necessity, distinction, proportionality, humanity, and honor—with the principles of bioethics—beneficence, consent, and respect for persons. For instance, Mehlman argues that using enhancements to complete a critical mission (military necessity) could potentially override the ethical need for a soldier’s consent when using enhancements in military operations. In

¹¹ John A. Caldwell, “Efficacy of Stimulants for Fatigue Management: The Effects of Provigil and Dexedrine on Sleep-Deprived Aviators,” *Transportation Research Part F: Traffic Psychology and Behaviour* 4, no. 1 (March 2001): 19–37, [https://doi.org/10.1016/S1369-8478\(01\)00011-0](https://doi.org/10.1016/S1369-8478(01)00011-0); JA Caldwell et al., “Sustaining Helicopter Pilot Performance with Dexedrine during Periods of Sleep Deprivation,” *Aviation, Space, and Environmental Medicine* 66, no. 10 (October 1995): 930–37.

¹² Jessica Wolfendale, “Performance-Enhancing Technologies and Moral Responsibility in the Military,” *The American Journal of Bioethics* 8, no. 2 (2008): 28–38, <https://doi.org/10.1080/15265160802014969>.

¹³ Jean-François Caron, *A Theory of the Super Soldier: The Morality of Capacity-Increasing Technologies in the Military* (Manchester: Manchester University Press, 2018).

¹⁴ Richard Edmund Ashcroft, “Regulating Biomedical Enhancements in the Military,” *The American Journal of Bioethics* 8, no. 2 (February 2008): 47–49; Maxwell Mehlman, Patrick Lin, and Keith Abney, “Enhanced Warfighters: Risk, Ethics, and Policy,” *SSRN Electronic Journal*, January 2013, <http://dx.doi.org/10.2139/ssrn.2202982>.

this sense, using enhancements without a soldier's consent is much like accepting the risk of attacking a dangerous, but critical military target; the value of the target makes the risk of Soldier death acceptable.

These discussions are critical and necessary as human enhancement technology continues to develop. Getting ahead of the curve in developing frameworks is critical for establishing usable norms; the proliferation of weapons of mass destruction or cyber are great examples of the struggle of creating regulations after certain technologies have become mainstream. What we want to examine is the role PEDs would have within the United States Army Special Forces from a more practical and near-term approach. As it stands today, the ethical dilemmas of using biomedical enhancements described by Wolfendale, Ashcroft, and Mehlman have yet to become a reality except for one instance in 2003 when U.S. Air Force pilots blamed PEDs for a friendly fire incident.¹⁵ However, as we analyze the net cost or benefit PEDs have on USASF through an operational lens we will also address the portions that examine how ethical and moral issues affect perceptions and psychology, in turn affecting USASF operations.

B. WHAT IS A PERFORMANCE-ENHANCING DRUG (PED)?

Before we can begin to discuss the net benefit of utilizing PEDs within U.S. Army Special Forces it is important that we clarify some of the language that is frequently used when discussing PEDs. A universal definition for performance-enhancing drugs does not exist. Furthermore, many of the lead PED governing bodies do not actively define the term. The World Anti-Doping Agency (WADA), like other U.S. government agencies, has a comprehensive list of PEDs along with a set of criteria that would put a substance on that prohibited list.¹⁶ The United States Anti-Doping Agency (USADA) is a little more direct

¹⁵ Andrew Buncombe, "US Pilots in Friendly Fire Case 'Were given Amphetamines,'" *The Independent*, January 3, 2003, <http://www.independent.co.uk/news/world/americas/us-pilots-in-friendly-fire-case-were-given-amphetamines-125456.html>; Oliver Burkeman and Richard Norton-Taylor, "US Pilots Blame Drug for Friendly Fire Deaths," *The Guardian*, January 2003, <http://www.theguardian.com/world/2003/jan/04/afghanistan.richardnortontaylor>.

¹⁶ "Prohibited List Q&A," World Anti-Doping Agency, December 2014, <https://www.wada-ama.org/en/questions-answers/prohibited-list-qa>.

by describing what PEDs are capable of: “have the ability or potential to drastically alter the human body and biological functions, including the ability to considerably improve athletic performance in certain instances.”¹⁷

1. Perspectives and Approaches

Tackling the definition of PEDs from a human enhancement perspective is equally difficult and vague. We used Menuz, Hurlimann, and Godard’s timely examination of the various definitions and frameworks used in human enhancement literature to see if a more precise definition could be used to address PEDs.¹⁸ Menuz, Hurlimann, and Godard distilled the definitions into four categories: the implicit approach, therapy-enhancement distinction, and improvement of general human capacities.¹⁹

The implicit approach is the vaguest categorizing enhancement based on individual “feeling,” without giving any kind of definition.²⁰ The idea is that individuals will implicitly know if a technology is an enhancement or not. The approach makes several assumptions about the universality of norms, perspectives, and values that would allow everyone to define enhancement the same way. Apply this concept to PEDs and we can see that it is not helpful at all. While many would implicitly agree that steroids are a PED, that near universal agreement does not apply to the more controversial topic of supplements.

The second view is the therapy-enhancement distinction approach that defines what is considered an enhancement via purpose, specifically whether that technology is for treatment of a deficiency or to increase individuals who suffer no deficiencies.²¹ Applying

¹⁷ “Effects of Performance-Enhancing Drugs | USADA,” U.S. Anti-Doping Agency, accessed July 23, 2020, <https://www.usada.org/athletes/substances/effects-of-performance-enhancing-drugs/>.

¹⁸ Vincent Menuz, Thierry Hurlimann, and Béatrice Godard, “Is Human Enhancement Also a Personal Matter?,” *Science and Engineering Ethics* 19, no. 1 (March 2013): 161–77, <https://doi.org/10.1007/s11948-011-9294-y>.

¹⁹ Menuz, Hurlimann, and Godard. 161-69.

²⁰ Menuz, Hurlimann, and Godard, 165.

²¹ Menuz, Hurlimann, and Godard, 165–66.

this definition to PEDs it means that any drug meant to return an individual to normal health would not be considered an enhancement. The issue that arises is that a drug could be considered a PED for one individual and medication for another. Therapy-enhancement distinction approach is a highly debated topic within competitive sports as many athletes apply for therapeutic use exemption of certain drugs for medical necessity. This approach is more useful than the implicit approach, but also raises several issues with norms and semantics. We discuss our views on therapy versus enhancement in more depth later in this chapter.

The third view is the improvement of general abilities approach which defines enhancement as any technology that improves the general abilities of individuals beyond the statistically normal range of functioning of a human being.²² While this approach seems more quantifiable, identifying a universal human standard can be difficult. Within the context of PEDs, the improvement of general abilities approach can cause confusion. Individuals who already operate outside the typical range of a human (think top professional athletes and world record holders), any substance that improves their capability in any way can be considered an enhancement. Conversely, if a substance increases an individual's capability, but not past human typical function, it will not be considered a PED. As it stands today, PEDs generally do not provide super-human advantages that push individuals past the human typical range. Certain stimulants can provide wakefulness and steroids can increase muscular strength, but nothing on the level of a superhero. A modified version of this approach that could be useful is bringing the benchmark from human typical function to individual capacity, thereby focusing on individual improvement.

Ultimately, we chose to use the therapy-enhancement distinction approach to define PEDs with the caveat that we will explore PEDs that are currently prohibited for use by Department of Defense Military personnel. We wanted to focus our efforts on exploring near-term possibilities given current medical knowledge and look at the utility of PEDs from a practical perspective, rather than a theoretical basis. Specifically, we wanted to step

²² Menuz, Hurlimann, and Godard, 166–67.

beyond the moral and ethical implications and evaluate PED use on how they support the Special Forces mission and the potential unintended consequences of using PEDs.

2. Department of Defense (DOD) PED Regulations

Our research into the world of PEDs revealed that the Department of Defense does not have a specific stance on the use of PEDs, rather it follows two guidelines established by the federal government. The first guideline is Section 812 of Title 21 United States Code Controlled Substance Act, which contains a list of controlled substances organized into five schedules; each substance is categorized into a schedule based on the potential for drug abuse, accepted medical use, and the potential risk to health.²³ According to Article 113 of the United States Code of Military Justice, any substance within Section 812 is prohibited for use unless prescribed by a medical professional. The second guideline is from the Food and Drug Administration which has identified several chemical compounds that are not approved as a dietary supplement. These chemical compounds are also prohibited for use by the Department of Defense as stated in their Operation Supplement Safety website.²⁴ It must be noted that Soldier members can use certain PEDs if prescribed by a qualified medical doctor.

3. Capacity-Restoring versus Capacity Increasing

As discussed earlier, within the literature of human enhancement lies a very important distinction between two concepts; capacity-restoring (therapy) and capacity-increasing (enhancement). Capacity-restoring, or therapy, refers to treating individuals who suffer from conditions that restrict their capacity to perform as a normally functioning human being.²⁵ Capacity-increasing, or enhancement, refers to increasing an individual's mental and physical capacity beyond normal—at least beyond what their bodies could

²³ Controlled Substance Act, 21 U.S.C. § 812 (1970).

²⁴ K R Kaufman, "Modafinil in Sports: Ethical Considerations," *British Journal of Sports Medicine* 39, no. 4 (April 1, 2005): 241–44, <https://doi.org/10.1136/bjsm.2004.016303>.

²⁵ Menuz, Hurlimann, and Godard, "Is Human Enhancement Also a Personal Matter?," 169

naturally achieve.²⁶ These two concepts often create confusion because they can contradict and overlap with each other.

Defining “normal” in an organic system like the human body has always been difficult. Individual human beings are unique, each with their own set of “normal” operating functions. For example, septoplasty, a procedure used to open nasal passages to improve breathing, can be viewed as a medical procedure to bring an individual to normal operating capacity. However, what if that individual, despite a block nasal passage, already operates at “normal” capacity? If this is the case, opening up that individual’s nasal airways could make his breathing more efficient. Or what about individuals who suffer from erectile dysfunction? How are norms for gaining and maintaining an erection measured? Or how is age-related decline factored into what is defined as normal? These simple questions illustrate establishing normal is not straightforward.

As we narrow our focus from human enhancement to performance-enhancing drugs, the differentiation between capacity-restoring and capacity-increasing can become even more confusing because often the substances are the same. Ritalin is used to treat individuals suffering from attention deficit hyperactivity disorder (ADHD). However, Ritalin is also used by healthy individuals in an attempt to increase academic performance. Testosterone is another substance that is dual purposed as therapy and enhancement. Males suffering from low testosterone are administered testosterone to return levels to normal operation. However, testosterone administered past normal levels is considered an enhancement. In fact, most PEDs were first discovered/created out of therapeutic and medicinal needs. Human curiosity naturally led to the question if taking more medicine would make the effects even stronger.

Differentiating between enhancement and therapy is a central theme to the ethical debates of human enhancement because therapy is generally seen as ethically permissible while enhancements are often ethically questionable.²⁷ The sharp ethical division between enhancement and therapy makes interpreting the nature of the substance, technology, or

²⁶ Caron, *A Theory of the Super Soldier*, 10.

²⁷ Menuz, Hurlimann, and Godard, “Is Human Enhancement Also a Personal Matter?,” 162-65

procedure a critical debate. This dichotomy of ethics bleeds into PEDs, especially within competitive sports. Athletes are able to apply for therapeutic use exemptions (TUE), which allow individual competitors to use PEDs on a case-by-case basis.²⁸ The TUE requires a qualified medical practitioner to provide justification for use. However, TUEs are not a guaranteed system for athletes to use PEDs for therapeutic use and compete. There are several cases where athletes were disqualified prior to, or after competition despite having an approved TUE.²⁹

While the ethical debate in human enhancement within competitive sports is largely based around gaining an unfair advantage over other competitors, the ethical debate within the military touches on individual consent and the legal/moral authority for those with command responsibility to allow, deny, or require individuals to use enhancements.³⁰ Other issues are also discussed about the image the military will be presenting to the public if they allow personnel to use biomedical enhancements. Public perception could potentially have adverse effects on recruitment, retention, funding, or with military operations.³¹ In addition to public perception, how would our adversaries view us? If captured, would soldiers be treated inhumanely since they could be viewed as unnatural super soldiers? These debates are also contingent on whether a substance or procedure is considered capacity-restoring or capacity-increasing. U.S. military members can be ordered to take preventative medicine (against Anthrax, smallpox, and flu) as these techniques are categorically capacity-restoring. Furthermore, the U.S. military has no authority to deny Soldier's the use of certain drugs categorized as PEDs if they are used

²⁸ "Therapeutic Use Exemptions," World Anti-Doping Agency, May 2014, <https://www.wada-ama.org/en/what-we-do/science-medical/therapeutic-use-exemptions>.

²⁹ K.R. Kaufman, "Modafinil in Sports: Ethical Considerations," *British Journal of Sports Medicine* 39, no. 4 (April 2005): 241–44, <https://doi.org/10.1136/bjsm.2004.016303>.

³⁰ Maxwell Mehlman, "Bioethics of Military Performance Enhancement," *Journal of the Royal Army Medical Corps* 165, no. 4 (August 2019): 226–31, <https://doi.org/10.1136/jramc-2018-001130>.

³¹ Maxwell J. Mehlman, "Captain America and Iron Man," in *Routledge Handbook of Military Ethics*, ed. George Lucas (New York: Routledge, 2015), 411.

for therapeutic purposes (and accompanied with appropriate documentation, such as anabolic steroids for testosterone replacement therapy).

For this thesis, the line dividing capacity-restoring and capacity-increasing drugs is also keenly observed, but not for ethical deliberation. Instead, our views on distinguishing between therapy and enhancement is aimed at measuring the overall effectiveness of PEDs and if they are able to accomplish their purpose, be it therapy or enhancement. For example, Ritalin has been shown to be an effective drug to treat ADHD in children and adults.³² However, as a cognitive enhancer, Ritalin did not improve long-term academic performance in collegiate students.³³ In this case Ritalin is very effective for therapy but ineffective as an enhancement.

C. PED TYPES AND USES

The list of PEDs listed in Section 812 of 21 USC is incredibly long, technical, and generally difficult to understand without proper context or explanation. Instead of generating a comprehensive list of PEDs, we have chosen to categorize PEDs by type and use. The categorized list will explain the potential military use of certain types of PEDs and facilitate debating the merits of use at a more granular level than a blanket statement against PEDs. Several of the PEDs discussed in this chapter are used by professional athletes (illegally) and have years of data (albeit spotty) that show the performance enhancement and the associated negative side effects.³⁴ Lastly, the following is not a comprehensive list of all PEDs, but rather a list of the most commonly used/abused within competitive sports. Our argument for using a list of PEDs derived from competitive sports is that soldiering skills, especially those found within U.S. Army Special Forces, mirror

³² William E. Pelham et al., “A Comparison of Ritalin and Adderall: Efficacy and Time-Course in Children with Attention-Deficit/Hyperactivity Disorder,” *Pediatrics* 103, no. 4 (April 1999): 1–14, <https://doi.org/10.1542/peds.103.4.e43>.

³³ Advokat and Scheithauer, “Attention-Deficit Hyperactivity Disorder (ADHD) Stimulant Medications as Cognitive Enhancers,” 1-6

³⁴ Anthony C Hackney, *Doping, Performance Enhancing Drugs, and Hormones in Sport: Mechanisms of Action and Methods of Detection* (Amsterdam: Elsevier, 2018), <https://doi.org/10.1016/B978-0-12-813442-9.00001-8>.

the needs of professional athletes. In fact, the Army has been using the term “Soldier Athlete” since 2010, further emphasizing the connection between soldiering and athletics.³⁵ Furthermore, the United States Army Special Operations Command (USASOC) specifically created THOR3, a program that mirrors training methods and recover techniques used by college and professional sports teams.³⁶ These trainers usually, but not always, have a background in kinesiology, exercise physiology, nutrition, and more.

1. Physical Enhancers

PEDs that we consider physical enhancers are substances that aim to improve strength, endurance, and recovery to the muscular system. These drugs, such as anabolic steroids or hormone modulators, allow the end users to push their bodies beyond what could be achieved naturally. For military use, physical enhancers can allow Soldiers to carry more weight, lift heavier objects, move longer, faster, and potentially allow for faster recovery from taxing activities. Below are the most common types of physical enhancers.

a. Anabolic Androgenic Steroids

Arguably the most well-known and widely used PED, anabolic androgenic steroids, also known as steroids, anabolic steroids, “roids,” are substances that imitate testosterone, the male sex hormone. Testosterone stimulates skeletal muscle protein synthesis, thereby increasing muscle strength and mass. Anabolic steroids facilitate muscular development beyond what can be achieved with exercise alone. One study found that individuals who combined regular exercise with anabolic steroids were able to increase their one repetition maximum back squat by an average of 37% over a 10-week period.³⁷ Even more impressive, users who did not exercise at all still increased their one repetition maximum

³⁵ “Soldier Athlete Initiative,” Department of the Army, August 16, 2010, https://www.army.mil/article/43820/soldier_athlete_initiative.

³⁶ Stew Smith, “THOR3: The Army’s Answer to Human Optimization,” Military.com, accessed October 30, 2020, <https://www.military.com/military-fitness/thor3-armys-answer-human-optimization>.

³⁷ Bhasin Shalender et al., “The Effects of Supraphysiologic Doses of Testosterone on Muscle Size and Strength in Normal Men,” *The New England Journal of Medicine*, no. 335 (1996): 1–7, <https://doi.org/10.1056/NEJM199607043350101>.

back squat by 13%.³⁸ Anecdotal evidence has shown some of the greatest Major League Baseball players have been abusers of some form of anabolic steroids—Barry Bonds, Roger Clemens, Jose Conseco, and Mark McGuire.

Medicinally, Anabolic Steroids are used to treat muscle wasting associated with a variety of diseases such as HIV, cancer, and severe burns to help maintain muscle mass when standard nutrition intervention is ineffective. Steroids are also used in hormone replacement therapy (HRT) which regulates males with low testosterone and females seeking to transition into males. For athletes, increasing strength, endurance, and speed is certainly alluring to gain an advantage over competitors. In the military, increased strength and endurance allows Soldiers to carry more weight and move longer distances at faster speeds, which translates extremely well for light infantry units who rely on their feet for movement.

Despite the physical improvements, anabolic steroids have been shown to produce several negative side effects ranging from minor to severe. Some side effects disappear after users stop using steroids, but other effects are permanent. Some notable negative effects are increased risk for cardiovascular disease, fatty liver, and reproductive dysfunction.³⁹ For men, shrinkage of testicles, enlarged breasts, and reduced fertility can occur.⁴⁰ For women, reduction of breast size, reduced fertility, increased amounts of facial hair, and deepening of the voice are also common.⁴¹ Psychological effects can include aggressive behavior, increased anger, irritability, mood swings, panic attacks, and depression.⁴²

³⁸ Shalender et al., 3-5

³⁹ Harm Kuipers, “Anabolic Steroids: Side Effects,” in *Encyclopedia of Sports Medicine and Science*, ed. T.D. Fahey (Sportscience, 1998), <http://sportsci.org/encyc/anabstereff/anabstereff.html>.

⁴⁰ Rabih El Osta et al., “Anabolic Steroids Abuse and Male Infertility,” *Basic and Clinical Andrology* 26, no. 1 (February 2016), <https://doi.org/10.1186/s12610-016-0029-4>.

⁴¹ Kuipers, “Anabolic Steroids: Side Effects.”

⁴² David R. Mottram and Alan J. George, “Anabolic Steroids,” *Best Practice & Research Clinical Endocrinology & Metabolism* 14, no. 1 (March 2000): 55–69, <https://doi.org/10.1053/beem.2000.0053>.

b. Glucocorticoids

Glucocorticoids can best be described as hormones that are released to assist in reducing inflammation throughout the body. These hormones are released when the body is experiencing an increase in stress which causes the immune system to become suppressed. Glucocorticoids are vital because they regulate the physiological processes in the cardiovascular, metabolic and immunologic systems.⁴³ Glucocorticoids have the ability to enhance one's physical performance, endurance, rate of recovery, and metabolic rate, which is why they can be classified as a performance enhancing drug. The most important glucocorticoid is cortisol. Cortisol, when used medically, is called hydrocortisone and can be applied topically or orally to reduce inflammation such as swelling or itching from insect bites, allergies, poisonous plants, etc.. When taking orally, it can help with blood disorders and immune system deficiencies.⁴⁴ If cortisol is injected, it will produce similar effects but in a more pinpointed area. Glucocorticoids can also be inhaled to overcome airway inflammation, which relaxes the airway and allows a person to breathe easier.

Therefore, these drugs can be attractive to both athletes and military personnel specifically for reducing inflammation within the body but more specifically within one's airway. Anything that can help increase recovery or reduce aches and pains will be beneficial to athletes and soldiers. But do they work? Only a few studies, ones with high doses, show any measurable performance enhancing effects. Unfortunately, the majority of findings are inconclusive. Additionally, the side effects from using glucocorticoids can range from mild to severe such as skin dryness irritation, acne, skin discoloration, dizziness, and shortness of breath.⁴⁵ Furthermore, glucocorticoids remain a popular enhancer because of their ability to reduce inflammation post-exercise.

⁴³ Hackney, *Doping, Performance Enhancing Drugs, and Hormones in Sport: Mechanisms of Action and Methods of Detection*, 37–47.

⁴⁴ V. H. J. van der Velden, "Glucocorticoids: Mechanisms of Action and Anti-Inflammatory Potential in Asthma," *Mediators of Inflammation* 7, no. 4 (1998): 229–37, <https://doi.org/10.1080/09629359890910>.

⁴⁵ Hackney, *Doping, Performance Enhancing Drugs, and Hormones in Sport: Mechanisms of Action and Methods of Detection*, 44–45.

c. Peptide–Protein Hormones

Peptide-protein hormones are hormones that control physiological processes within the human body such as one's metabolism, heart function, and overall body development. The two most important peptide-protein hormones are growth hormone (GH) and erythropoietin (EPO) because of their performance enhancing effects and their capacity to increase muscle mass and improve the amount of oxygen blood cells can transport throughout the body.⁴⁶ The growth hormone is produced by the pituitary gland and is responsible for protein production, supports fat use, and regulates insulin levels. GH is prescribed to adults and children that suffer from GH deficiencies. Therefore, GH injections in personnel with these deficiencies can have protection against bone fractures, increased muscle mass, increased energy levels, and less risk to heart disease.⁴⁷ Erythropoietin or EPO is a hormone produced by the kidney and has a vital role in red blood cell production. Therefore, EPO is used in pharmaceuticals to overcome severe anemia that is created by kidney disease or intestinal disorders that develop high levels of inflammation.

These two hormones are consumed as performance enhancers to increase body mass and improve the transportation of oxygen throughout the body. Growth hormone has been an attractive PED because when combined with proper training, it can increase one's lean body mass, increase strength and power while reducing one's body fat.⁴⁸ EPO is used primarily by endurance athletes to increase their aerobic capacity and exercise time. Military personnel would use EPO in the same capacity in order to perform better on physical events such as the Army Physical Fitness Test (APFT) or competitions like the Best Ranger Competition. Even though these hormones have impressive results, they come with a copious amount of side effects. Growth hormone can result in hypertension,

⁴⁶ Hackney, 46–49.

⁴⁷ Harvard Health Publishing, "Growth Hormone, Athletic Performance, and Aging," Harvard Health, May 2010, <https://www.health.harvard.edu/diseases-and-conditions/growth-hormone-athletic-performance-and-aging>.

⁴⁸ D. A. Fryburg, R. A. Gelfand, and E. J. Barrett, "Growth Hormone Acutely Stimulates Forearm Muscle Protein Synthesis in Normal Humans," *American Journal of Physiology-Endocrinology and Metabolism* 260, no. 3 (March 1, 1991): E499–504, <https://doi.org/10.1152/ajpendo.1991.260.3.E499>.

cardiomyopathy, high cholesterol, and joint pain whereas EPO can cause one's blood to thicken, which could place strain on the heart. Additionally, the effectiveness of these hormones to enhance one's performance is largely affected by diet and genetic sensitivity.

d. *Hormone and Metabolic Modulators*

Hormone and metabolic modulators are used to manipulate function hormones within the body. They work by affecting cellular receptors that are in charge of alterations to the cell environment.⁴⁹ These modulators can be attractive to athletes and military personnel because they produce similar effects as androgenic-anabolic drugs (steroids/testosterone) with potentially fewer side effects. The most popular types of modulators are selective androgen receptor modulators (SARMs) and selective estrogen receptor modulators (SERMs). SARMs were designed to replicate steroids and testosterone without the side effects since they affect selective tissues and androgen receptors.⁵⁰ SERMs act on the body's estrogen receptors by producing either an estrogenic or antiestrogenic effect. SERMs are used to elevate testosterone levels in males after using a cycle of steroids or testosterone since natural testosterone levels typically decrease, and women typically use SERMs to activate the necessary hormones associated with ovulation. Essentially, SARMs and SERMs elevate hormone levels above normal. Due to SARMs and SERMs being relatively new, the data on each is fairly limited; however, the internet is full of references associated with their anabolic effects. Even though these modulators do not have the same side effects as steroids, they could still produce side effects that are unwanted by a user. As such, SARMs can cause a reduction in testicle size, acne, and male breast (gynecomastia), and SERMs can have several side effects such as respiratory issues, dizziness, night sweats, headaches, and abnormalities in the pelvic region within females.⁵¹ Although SARMs and SERMs possess the potential to produce the side effects listed, they

⁴⁹ Hackney, *Doping, Performance Enhancing Drugs, and Hormones in Sport: Mechanisms of Action and Methods of Detection*, 77.

⁵⁰ Hackney, 78.

⁵¹ Hackney, 84.

are still becoming a more popular substitute for steroids to enhance one's body and performance.

2. Cognitive Enhancers

PEDs that we consider cognitive or mental enhancers are substances that aim to modulate emotions, promote wakefulness, and facilitate focus in an individual. These drugs, such as stimulants or opioids, allow users to hold off the body's need for sleep. For military use, cognitive enhancers can help Soldiers maintain alertness and increase focus. Below is a list of the most commonly used cognitive enhancers.

a. Stimulants

Stimulants, also known as uppers, are types of drugs that speed up the communication between the body and the brain neurons by affecting the central and peripheral nervous systems.⁵² In other words, stimulants speed up the body's functions, which is why they are so popular among athletes. Historical use of stimulants date back to ancient times in which they were used for religious, medicinal, or recreational reasons. In recent decades, stimulants have been prescribed to treat respiratory issues such as congestion, obesity, and neurological disorders such as narcolepsy and attention-deficit disorder (ADD). Stimulants have also become attractive to athletes and military personnel because they possess the ability to decrease fatigue, increase one's metabolic rate, and produce cognitive effects such as heighten alertness and focus that can create a competitive/combat advantage.⁵³

The most common types of stimulants are amphetamines and caffeine. An amphetamine is a substance that contains ephedrine and pseudoephedrine. Caffeine is a psychoactive substance and one of the world's most widely consumed stimulants.⁵⁴ Athletes and military personnel desire the effects produced by these stimulants because

⁵² Hackney, 25–26.

⁵³ Hackney, 25–27.

⁵⁴ Hackney, 28.

they are able to recover quicker, improve body composition, and increase alertness which improves situational awareness for extended periods of time. However, stimulants can also have significant side effects such as paranoia, aggression, and can be addictive if abused. Therefore, stimulant use in sports to enhance one's performance is banned by the WADA in addition to other authorities, but there are exceptions for therapeutic use. Stimulants are also linked to addictive behavior in addition to ethical and moral limitations which have hindered any potential for large-scale research and the effects stimulants can cause in relation to exercise.⁵⁵

b. Narcotics (Opioids)

Opioids are drugs that change the physical and mental status on an individual to reduce pain and alter behavior. Opioids achieve these effects by binding to the opioid receptors on cells within the nervous systems.⁵⁶ Once attached, the opioids reduce neuron excitability, which in turn reduces pain sensation. Opioids also promote euphoria through stimulation of certain neural receptors and dopamine.⁵⁷ The most common opioids are morphine, opium, heroin, as well as the synthetic variations known as Vicodin, Percocet, and Oxycontin. Used for almost every kind of ailment since the 19th century, opioids have been used for pain management in all kinds of patients ranging from recovery from surgery to hospice care and are still used in these capacities today. Opioids, much like many of the other PEDs mentioned in this chapter, are considered both capacity enhancing and capacity restoring depending on use.

For athletes, capacity restoring or therapeutic use for opioids is to manage pain that could result from injury, which facilitates sleep and enables daily function. However, the same pain management function used in a capacity restoration can also be used for enhancement. Reducing pain can allow athletes to continue training or push through

⁵⁵ Hackney, 32–33.

⁵⁶ B. N. Dhawan et al., “International Union of Pharmacology. XII. Classification of Opioid Receptors,” *Pharmacological Reviews* 48, no. 4 (December 1996): 567–92.

⁵⁷ Dhawan et al., 580–83.

difficult portions of competition. Similarly, soldiers can use opioids to continue executing missions despite serious injuries to the body. The negative side effects of opioids are well documented, with the most dangerous being overdose, physical dependency, and addiction.⁵⁸ The euphoric feelings achieved from opioids encourage mental addiction as well as the psychological dependency that is created within athletes who believe they cannot function without the use of opioids.

c. *Beta-2 Agonists*

Beta-2 agonists replicate epinephrine and norepinephrine. They are designed to allow users to breathe easier by reducing symptoms that are produced by asthma and other respiratory conditions. Similar to stimulants, Beta-2 agonists activate receptors within the central and peripheral nervous systems that regulate a variety of exercise functions.⁵⁹ In other words, they help reduce constriction in the airway leading from the lungs. These drugs are primarily used for medicinal purposes such as in rescue inhalers to assist with airflow in and out of the body. It is also noted that beta-2 agonists can produce nonsteroidal effects such as increase muscle mass, cardiac output, and dilation of blood vessels to promote better blood flow. Therefore, beta-2 agonist would be appealing to military personnel because the drug would enable a service member to control their breathing better during physical activity especially during a stress shoot or combat scenario where precision shooting is vital. However, studies have shown contradictory findings such as there are no real enhancements in non-asthmatic personnel, yet the drug still proves to be beneficial to those who suffer from asthma-like symptoms.⁶⁰ The different types of beta-2 agonists come with a range of side effects such as heart arrhythmias, palpitations, headaches, insomnia, etc. Furthermore, the use of these drugs results in dehydration which can be detrimental to an athlete or military member's performance.

⁵⁸ "Understanding Opioid (Narcotic) Pain Medications," Drugs.com, April 1, 2019, <https://www.drugs.com/article/opioid-narcotics.html>.

⁵⁹ Hackney, *Doping, Performance Enhancing Drugs, and Hormones in Sport: Mechanisms of Action and Methods of Detection*, 65.

⁶⁰ Hackney, 66–69.

d. *Beta Blockers*

Performance-enhancing drugs that have been highly effective in the medical field and within sports are beta blockers. Beta blockers, better known as beta adrenergic receptor blockers, were created to improve the function of one's heart and similar cardiovascular conditions. Beta blockers work by binding to the beta-adrenoceptors, which block the attachment of norepinephrine and epinephrine.⁶¹ This blockage allows for the body to become relaxed by decreasing blood pressure, which is ideal for people who suffer from nervousness and anxiety. Beta blockers have proven to be safe in patients of all ages and have been further used to prevent migraine headaches, stage fright, and hypertension. They have also become ideal in sports, specifically those that are precision oriented such as golf, darts, shooting, and archery. Beta blockers can also be beneficial to military personnel when it comes to long distance shooting that is carried out by snipers and in combat to reduce anxiety and nervousness. The ability to engage a target quickly with accuracy and precision can determine whether a person lives or dies. Therefore, beta blockers could be beneficial to personnel who need to maintain a relaxed state in order to achieve optimal performance. Beta blockers reduce the heart's workload but is only beneficial for people with heart conditions and not for healthy individuals that are competitive athletes or engage in aerobic exercise.⁶² Healthy individuals that use beta blockers can experience lower exercise capacity, hypotension, and heart arrhythmias. Even though the side effects can be significant, beta blockers will continue to be essential for athletes and personnel who rely on a steady hand to do their work.

D. CONCLUDING THOUGHTS ON CATEGORIES.

There are far more PEDs than the ones we have described, but they represent the most commonly used. Other more boutique PEDs may have a different name and different chemical composition but still generally seek to improve either mental or physical qualities like those discussed above. Although the performance enhancers discussed have a

⁶¹ Hackney, 70–73.

⁶² Hackney, 73.

multitude of benefits, they also come with a long list of significant side effects that are detrimental to the user. Furthermore, the long-term side effects of PED use are largely undocumented. Since PEDs are illegal, research and human subject testing are very difficult to conduct. The difficulties surrounding human testing makes it difficult to conclude how the average person would be affected in the long run. Because there is very little research that pertains to the effects PEDs have on military personnel, we are using the most common PEDs and most available data from the sports world to bridge the gap with the USASF mission set. The following chapter will incorporate a mission analysis of USASF to better determine the role PEDs would serve within the Special Forces Regiment.

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III. SPECIAL FORCES INTRODUCTION AND MISSION ANALYSIS

In an effort to determine whether or not performance-enhancing drugs benefit the Special Forces Regiment, we must first understand the role USASF has within the SOF community by analyzing their purpose and mission set that is executed in various operational environments. This chapter describes the design of USASF, why they were created, and the nine principal tasks that USASF is trained to perform.

A. SPECIAL FORCES DESIGN

USASF was created to serve as the designated Department of Defense (DOD) force to execute special warfare.⁶³ The soldiers that make up this premier fighting force undergo a rigorous selection process, are trained and educated to operate in politically sensitive and military environments. Special Forces soldiers possess the capabilities to influence their operational environments by, with, and through host nation forces, regional partners, and local populations. USASF's purpose is to do more with less equipment and personnel than conventional forces by shaping the environment, preventing armed conflict, and conducting a variety of contingency operations. Therefore, USASF was created to understand the relationship between diplomacy and military force which is vital in setting the conditions for an advantageous resolution.⁶⁴

USASF provides the United States Army an alternate capability when deploying forces to austere environments. Rather than deploying a large overt force such as a brigade, much smaller elements within USASF can deploy quicker and under the radar due to their small footprint. Although Special Forces' (SF) role places emphasis on unconventional warfare, they are expected to operate throughout various environments while conducting autonomous operations as well as support the diplomatic, informational, and economic instruments of national power. According to Field Manual 3-18, Army Special Forces have

⁶³ Department of the Army, *Special Forces Operations*, FM 3-18 (Washington, DC: Department of the Army, 2014).

⁶⁴ Department of the Army, *Special Forces Operations*.

nine principal tasks that they are responsible for executing: Unconventional Warfare (UW), Foreign Internal Defense (FID), Counterinsurgency (COIN), Security Force Assistance (SFA), Special Reconnaissance (SR), Direct Action (DA), Counterterrorism (CT), Counterproliferation of Weapons of Mass Destruction, and Preparation of the Environment (PE).

B. SPECIAL FORCES PRINCIPAL TASKS

Unconventional Warfare is the premier task for SF and is defined as “enabling a resistance force or insurgency to coerce, disrupt, or overthrow a government or occupying power with and through an underground, auxiliary, and guerilla force.”⁶⁵ Unconventional warfare enables the United States to gain the advantage through long-term campaigns by combining ends, ways, and means to achieve a desired end state. The objective of unconventional warfare is to change the balance of power by altering the control and legitimacy of a government or occupying power. According to FM 3-18, “unconventional warfare efforts generally pass through seven distinct phases: preparation, initial contact, infiltration, organization, buildup, employment, and transition. These phases may occur simultaneously in some situations or may not occur at all in others.”⁶⁶ SF must synchronize UW activities with all participating parties such as joint forces, interagency organizations, and multinational partners to help protect secret information throughout the duration of the operation.⁶⁷

Foreign Internal Defense is defined in the Joint Publication (JP) 3-22 as the involvement of a government in activities executed by another foreign government designed to free and safeguard its nation from any threats to internal security.⁶⁸ Foreign Internal Defense or FID encompasses a wide variety of actions that are intended to assist

⁶⁵ Department of the Army, *Special Forces Operations*.

⁶⁶ Department of the Army.

⁶⁷ Department of the Army.

⁶⁸ Joint Chiefs of Staff, *Foreign Internal Defense*, JP 3-22 (Washington, DC: Joint Chiefs of Staff, 2018).

the partner nation government in its defense against internal threats and their causes. The primary focus in conducting FID is to support the partner nation's internal defense program; therefore, the primary mission is to train, advise, and assist the operational capability and capacity of the partner nation's forces.⁶⁹

Counterinsurgency is the combined efforts of civilian, law enforcement, and military agencies to combat an insurgency and understand the grievances that caused the insurgency to develop. SF executes counterinsurgency operations by incorporating counterinsurgency tactics, gathering of information, counterintelligence, and any other operations that will assist in safeguarding the local population and increase the partner nation government's legitimacy.⁷⁰ Since insurgencies are unique and call for different strategies, SF operates closely with the population and its security force advisors in order to better understand the operational environment and access specific areas to set the conditions for future conventional forces to be introduced.

Security Force Assistance or SFA is defined as "Department of Defense activities that contribute to unified action by the U.S. government to support the development of the capacity and capability of foreign security forces and their supporting institutions."⁷¹ Therefore, SFA is intended to organize, train, equip, rebuild, advise, and assist security forces from the ministerial level down to the lowest level. The focus of SFA is not only to enhance a partner nation's internal capability and capacity but is also to prepare the partner nation against external threats and work together as an international coalition.

Special Reconnaissance (SR) is the use of reconnaissance and surveillance actions to collect and validate strategic and/or operational information in austere environments by utilizing military assets not typically associated with conventional forces.⁷² Special reconnaissance includes gathering information on actual or potential targets within a

⁶⁹ Department of the Army, *Special Forces Operations*.

⁷⁰ Department of the Army.

⁷¹ Joint Chiefs of Staff, *Foreign Internal Defense*.

⁷² Joint Chiefs of Staff, *Special Operations*, JP 3-05 (Washington, DC: Joint Chiefs of Staff, 2014).

designated area. Additionally, SR is utilized for target acquisition, assessments on designated areas, and battle damage assessments (BDA) post-strike. The use of SR assists with the intelligence picture of a joint operations area by acquiring timely and accurate information on operational and strategic objectives. The use of SR is vital in building a commander's situational awareness in order to make critical decisions and assessments. The deployment of SF with conventional forces creates the opportunity to achieve effects that may not be possible through conventional means.⁷³ Employing SF to execute special reconnaissance allows for the joint force commander to further develop situational awareness which enables staffs to plan and train for joint and/or combined action.

Direct Action is defined as “short-duration strikes and other small scale offensive actions conducted as a special operation in hostile, denied, or politically sensitive environments and which employ specialized military capabilities to seize, destroy, capture, exploit recover, or damage designated targets.”⁷⁴ These types of actions are different than conventional offensive operations because of the higher risk involved, different tactics, techniques, and procedures (TTPs) utilized, and the specialized use of force to achieve desired effects. SF has the capability to execute direct action operations unilaterally or in combination with large-scale conventional or unconventional operations. Direct action is typically associated with close combat, but direct action also includes standoff attacks such as employing sniper elements to attack targets without engaging them in close combat. SF executes close combat TTPs when the nature of the mission involves precise use of force or the rescue or capture of personnel or materiel that are isolated and vulnerable in austere environments.⁷⁵ These types of missions can be a result of changes in the political environment, armed conflict, or by random occurrence.

Counterterrorism is outlined in JP 3-26 as “actions taken directly against terrorist networks and indirectly to influence and render global and regional environments

⁷³ Department of the Army, *Special Forces Operations*.

⁷⁴ Department of the Army.

⁷⁵ Department of the Army, *Special Forces Operations*.

inhospitable to terrorist networks.”⁷⁶ This type of capability enables SF to operate in areas that may be restricted or limited to conventional forces because of the political sensitivity or threatening circumstances within the operational environment. Although SF involvement is limited in scope, the ultimate role of SF in counterterrorism is to provide an additional capability within DOD to counter terrorist efforts.⁷⁷ Counterterrorism activities include but are not limited to intelligence collection operations, preventive strikes on terrorist networks, recovery operations, and nonlethal operations.

Counterproliferation of weapons of mass destruction (WMDs) is “the effort to prevent and defeat the threat or use of weapons of mass destruction against the United States, allies, and partners.”⁷⁸ JP 3-40 defines these weapons of mass destruction as “chemical, biological, radiological, or nuclear weapons capable of a high order of destruction or causing mass casualties and exclude the means of transporting or propelling the weapon where such means is a separable and divisible part from the weapon.” The intent behind this task is to prevent the procurement of WMDs and their employment systems, deter and defeat the use of WMDs, to enhance U.S. forces and their ability to plan operations to defeat WMDs, and mitigate effects that might ensue due to the deployment of WMDs. Within this activity, SF possesses the necessary skillsets and personnel to locate, mark, and track WMDs, execute direct action in restricted areas, conduct partner-building, and coordinate the employment information operations.

Preparation of the environment is a shaping action that is in support of the other SF tasks that could be executed in the future. FM 3-18 mentions that preparation of the environment is considered an overarching term for activities executed to prepare or influence the operational environment for potential follow-on operations. “Preparation of the environment consists of operational preparation of the environment, advanced force

⁷⁶ Joint Chiefs of Staff, *Counterterrorism*, JP 3-26 (Washington, DC: Joint Chiefs of Staff, 2014).

⁷⁷ Department of the Army, *Special Forces Operations*.

⁷⁸ Joint Chiefs of Staff, *Joint Countering Weapons of Mass Destruction*, JP 3-40 (Washington, DC: Joint Chiefs of Staff, 2019).

operations, and intelligence operations.”⁷⁹ Operational preparation of the environment is designed to build an operational picture, build networks, and begin creating targets list or packets. Advanced force operations are used to further target development throughout the operational environment and begin necessary movements to conduct potential direct action operations. Intelligence operations coincide with the overall preparation of the environment.⁸⁰ SF conducts preparation of the environment to support the geographic combatant commander’s intent by setting the foundation for operational success across the spectrum of military operations. This is achieved by developing relationships, building a human infrastructure, and establishing a foundation to sustain future operations.

The ability to do more with less will continue to be a unique characteristic of the U.S. Army Special Forces. The principal task articulated above highlights the variety of missions and skillsets that Green Berets are responsible for and able to execute in a wide range of environments. Thus, understanding the role of SF and the different mission sets that Green Berets could be called to perform, provides insight into the role PEDs could have within each of the principal task. In order to analyze the role PEDs could play in each task, we have developed a framework that can be applied to assess the net benefit of using PEDs within USASF.

⁷⁹ Department of the Army, *Special Forces Operations*.

⁸⁰ Department of the Army.

IV. FRAMEWORK FOR ANALYSIS

In this section we will layout our framework for assessing the net benefit of utilizing PEDs within USASF. We developed three evaluation criteria to measure the net benefits of PED use within USASF principal tasks. Table 1 is an overall view of how we will tackle the issue of determining the net benefit of utilizing PEDs with USASF:

Table 1. Example Analysis of SF Principal Tasks

<u>Grouped Principal Tasks</u>	Criteria				
	<u>Feasibility</u>	<u>Risk</u>	<u>Impact</u>	<u>Second-Third-Order Consequences</u>	<u>Worth the costs?</u>
Unconventional Warfare	?	?	?	?	?
Foreign Internal Defense & Security Force Assistance	?	?	?	?	?
Special Reconnaissance & Direct Action	?	?	?	?	?

To keep the assessment simple, we will assign the criterion of feasibility, risk, and impact an assessment of low, medium, or high. Second-third-order consequences will be negative, neutral, or positive.

A. PURPOSE

Purpose is not an evaluation criterion, but a tool used to put PEDs into a better context with regards to their use and the SF principal task. Utilizing the list of PEDs annotated in Chapter II, we can identify and analyze the role PEDs would serve in the execution of each SF principal task. This analysis incorporates the use of PEDs within the full spectrum of tasks to include the training phase (pre-deployment), execution

(deployment), and post-execution (post-deployment) activities. For example, steroids, a physical enhancer, would be used to enhance a Special Forces Soldier's strength allowing them to carry more equipment. In a Direct Action mission, that extra equipment could mean more robust body armor or ammunition. In that same Direct Action mission, stimulants could be used to maintain situational awareness in the event the operation took longer than expected.

B. FEASIBILITY

Overall, feasibility is used to evaluate whether using PEDs within the SF principal tasks would be possible to do in a practical and realistic way. Feasibility encompasses several different aspects when analyzing it in tandem with the tasks. Time is a very important factor when considering the use of PEDs for Special Forces. Some PEDs, like steroids or EPO, take months to properly incorporate into the human body to be even slightly effective.⁸¹ Furthermore, those same PEDs can rapidly lose effectiveness without continued consumption. It is important to note that some of the SF principal tasks may be carried over significant periods of time, extending out to months at a time. Depending on how austere the environment is it may be impractical or impossible to sustain using PEDs. Another factor is the medical oversight that accompanies the use of certain PEDs to ensure safe use. Assuming the PED use policy would include certain procedures to safeguard operator health, qualified physicians may be required to ensure safe consumption. Access to medical facilities and providers could pose another feasibility issue.

C. RISK

We analyzed risk in two ways; the first is risk to force and the second is risk to mission. In Chapter II, we discussed the significant health risks associated with specific PEDs used by athletes; we will use that information and view the significant health risks within the context of the military and the specific principal task. While some of the risks involved with using PEDs will remain the same regardless of context, some of the unique

⁸¹ B. Ekblom and B. Berglund, "Effect of Erythropoietin Administration on Mammal Aerobic Power," *Scandinavian Journal of Medicine & Science in Sports* 1, no. 2 (January 2007): 90–92, <https://doi.org/10.1111/j.1600-0838.1991.tb00276.x>.

aspects of the military, especially Green Berets, could potentially change the calculus for health risks. For example, there are studies that suggest that the use of steroids can exacerbate neurological injury associated with traumatic brain injuries (TBI), even mild forms of TBI.⁸² USASF are constantly exposed to TBI injuries. In a garrison environment, Green Berets at a minimum must conduct airborne operations every three months to maintain proficiency, which can result in TBI despite the use of protective equipment.⁸³ In combat operations, Green Berets are frequently exposed to concussive blasts from enemy attacks; weapon systems fired by friendly forces can generate enough concussive force to cause mild TBI in the user and those around them.

Risk to mission is how PEDs could potentially adversely affect principal task accomplishment based on the risk to force. In other words, we evaluate how risks to force will affect the risk to mission based on the known consequences of utilizing PEDs. To illustrate, consider the use of the stimulant Modafinil during a Special Reconnaissance mission. The SFOD-A (Special Forces Operational Detachment – Alpha) is tasked with gathering intelligence from an overwatch position for an extended period of time therefore using Modafinil to maintain wakefulness and situational awareness. Some of known common side effects of Modafinil are anxious feelings, dizziness, and nervousness, all of which can alter perception of information taken in by the brain.⁸⁴ In this instance the use of Modafinil is adversely affecting the SR mission because the intelligence gathered by the unit could be inaccurate due to the physiological changes experienced by the user. That Green Beret may be more wakeful, but the information he is gathering could be skewed.

⁸² Dhananjay R. Namjoshi et al., “Chronic Exposure to Androgenic-Anabolic Steroids Exacerbates Axonal Injury and Microgliosis in the CHIMERA Mouse Model of Repetitive Concussion,” ed. Faramarz Dehghani, *PLOS ONE* 11, no. 1 (January 2016), <https://doi.org/10.1371/journal.pone.0146540>; James D. Mills et al., “Anabolic Steroids and Head Injury,” *Neurosurgery* 70, no. 1 (January 2012): 205–10, <https://doi.org/10.1227/NEU.0b013e3182250918>; Jason Tabor et al., “Examining the Effects of Anabolic–Androgenic Steroids on Repetitive Mild Traumatic Brain Injury (RmTBI) Outcomes in Adolescent Rats,” *Brain Sciences* 10, no. 5 (April 2020): 258, <https://doi.org/10.3390/brainsci10050258>.

⁸³ Joseph J. Knapik et al., “Risk Factors for Closed-Head Injuries During Military Airborne Operations,” *Aviation, Space, and Environmental Medicine* 85, no. 2 (February 2014): 105–11, <https://doi.org/10.3357/ASEM.3788.2014>.

⁸⁴ Kaufman, “Modafinil in Sports: Ethical Considerations.”

D. IMPACT

If risk to mission assesses how PEDs could potentially adversely affect principal task accomplishment, then impact would assess how PEDs could potentially positively affect principal task accomplishment and to what degree the task is positively impacted. Using impact to assess the benefit of PEDs within USASF is arguable the most subjective and abstract of the criteria within our framework. Therefore, we will assess impact based on our personal experiences as Green Berets as well as drawing parallels from historical examples and sports science. Furthermore, we evaluate impact separately from the other factors by focusing solely on the PED's ability to improve mission success. Therefore, risk to mission or risk to force will not be considered when evaluating impact. However, our cumulative assessment will balance and weigh all the factors together. As such, consider the previous example of incorporating steroids in the execution of a Direct Action mission. Assuming the SFOD-A has used the appropriate training and dosage prior to mission execution, the team would holistically have more strength. Increased strength could potentially translate into more equipment the team could carry. In a DA mission, this equipment could be more ammunition, better body armor, more explosives, and etc. While more of any of the previously listed equipment is undoubtedly helpful, the overall impact in a DA mission may only be low to moderate because of the expected duration and goals of the principal task. As described earlier in this section, DA is meant to be a short-duration attack; the extra equipment is not expected to be necessary if execution is successful. Conversely, consider an unconventional warfare mission with minimal resupply opportunities. In that situation, extra equipment would be significantly more impactful to mission success.

E. SECOND-THIRD-ORDER CONSEQUENCES

The last evaluation criteria for assessing the net benefit of PEDs within USASF is second-third-order consequences, which are the outcomes that are different from the first desired outcome yet directly related to the initial decision.⁸⁵ They may also be viewed as

⁸⁵ George James, "The Second and Third Order Consequences!," LinkedIn, November 13, 2015, <https://www.linkedin.com/pulse/second-third-order-consequences-george-james>.

unintended consequences that are a result of the initial decision. This criterion differs from risk to force and risk to mission because the consequences are not reasonably foreseen as a result of the action. For example, blood doping may include the adverse side effect of blood clotting. While the chances of developing a blood clot from blood doping are generally low, the danger is documented and known. Therefore, a blood clot is a risk to force rather than a second-third-order consequence. Furthermore, the associated negative effects on mission related to that blood clot would be risk to mission. A second-third-order consequence could be the psychological dependence on blood doping an individual could acquire from PED use.

While this thesis will not directly explore the moral and ethical issues surrounding PED use in the military, it will consider the potential second-third-order consequences that may stem from those moral and ethical issues. In Chapter II we discussed Wolfendale's argument that human enhancement can be ethically used if the user can remain morally responsible agents.⁸⁶ Our concern, within the context of this thesis, would not be whether certain PEDs used revoke the user's capability to be morally responsible, but what the potential repercussions could be. Whether the user is morally responsible or not, there could be a negative perception that surround USASF if certain people believed that PEDs removed moral responsibility from users. The negative perception could manifest itself into a loss of credibility at the organizational level. At the individual level, users may face distrust from partners and allies they work with.

⁸⁶ Wolfendale, "Performance-Enhancing Technologies and Moral Responsibility in the Military."

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V. ANALYSIS OF INCORPORATING PEDS WITHIN USASF MISSIONS

This chapter we will evaluate the SF principal tasks utilizing the framework developed in Chapter III. It is important to note that we will analyze UW, FID, SFA, SR, and DA while omitting CT, COIN, CPWMD, and PE. We chose to omit the four remaining tasks for a few reasons. First, CT and COIN are more umbrella terms than specific tasks. Second, CPWMD is a very particular task that USASF has not executed in 30 years. Lastly, PE is a sensitive activity that we can only discuss in vague details without raising the thesis's classification level. Another important note is that we have chosen to group FID and SFA since they share similarities within the evaluation criteria. We have also done the same for SR and DA for the same reason. Additionally, as we conduct our analysis, we will provide real-world examples of operations that will help articulate whether or not PEDs could have had a significant impact that may or may not have altered the outcome of the mission.

A. GENERAL ANALYSIS

This section aims to identify the broad costs and benefits shared across our principal task list or factors that indirectly impact the principal tasks. Thus, we can reduce any redundancy made when applying the framework to each principal task.

1. Purpose

Overall, the purpose of utilizing PEDs within USASF is to make Green Beret's bigger, faster, stronger, and smarter to achieve desired effects more efficiently. However, each principal task will leverage those attributes to achieve different end goals. Further exploring the example used in our framework analysis, steroids can increase overall muscular strength. In a direct action mission, PEDs could provide extra strength to move faster with body armor. In contrast, in an Unconventional Warfare mission, PEDs would provide users the strength to carry heavier loads longer distances. Both fall within the "bigger, faster, stronger," but for different purposes due to the principal task's nature.

PEDs share two uses amongst all the principal tasks, pre-deployment and post-deployment activities. During pre-deployment, SFOD-As are training and preparing for the upcoming mission. While the preparation may differ for each principal task, the unit will always need to train on various mental and physical tasks. Green Berets could use cognitive enhancers to facilitate learning beyond what could be accomplished by caffeine and other approved supplements.⁸⁷ From our personal experience as Green Berets, we have gone through numerous training events in which staying focused was incredibly difficult due to lack of sleep and physical exhaustion. Cognitive enhancers like Dexedrine or Modafinil could facilitate operator focus and perhaps increase learning.⁸⁸ From a physical enhancement standpoint, PED use could facilitate skeletal muscle development or retard skeletal muscle atrophy from overuse.⁸⁹ PEDs such as steroids, EPO, and glucocorticoids could help maintain recovery and muscle development.

Drawing from another personal experience, the training leading up to a deployment to Afghanistan was typically 3–5 months long. At the tail end of that train up was usually a one-month training exercise designed to emulate the theater of operation conditions. My team would spend countless hours training and preparing for simulated missions, leaving little time for physical conditioning. In this example, physical enhancers could facilitate skeletal muscle maintenance or increase the efficiency of workouts.⁹⁰ Cognitive enhancers could help operators maintain situational awareness and offset sleep deprivation to increase learning capacity.⁹¹

⁸⁷ Masud Husain and Mitul A. Mehta, “Cognitive Enhancement by Drugs in Health and Disease,” *Trends in Cognitive Sciences* 15, no. 1 (January 2011): 28–36, <https://doi.org/10.1016/j.tics.2010.11.002>.

⁸⁸ Husain and Mehta.

⁸⁹ Chad Peltier, “The Future of Steroids for Performance Enhancement in the U.S. Military,” *Military Medicine* 183, no. 7–8 (June 28, 2018): 151–53.

⁹⁰ Peltier.

⁹¹ Caldwell et al., “Sustaining Helicopter Pilot Performance with Dexedrine during Periods of Sleep Deprivation.”

2. Feasibility

Our analysis of the principal tasks has revealed that feasibility is generally unique, and each requires separate investigation, which we will explore later in the chapter. We noticed that feasibility typically correlates to the operational environment USASF customarily conducts the principal task in. To be more precise, Joint Publication 3-0, the DOD's keystone publication for joint warfighting doctrine, defines three types of operating environments.⁹² The first is a permissive environment where the host nation controls the area and populace where operations will take place.⁹³ The second is an uncertain environment where the host nation does not have complete control of the space and population where operations are to take place.⁹⁴ The third is a hostile environment where the host nation's government does not control the territory and population where the operation is to occur.⁹⁵

Furthermore, in permissive environments, the host nation's government is receptive and can support U.S. operations, whereas, in uncertain and hostile environments, the host nation's government may be opposed or receptive to U.S. operations. Though not explicitly defined within JP 3-0, denied is another term frequently used to describe the operating environment. Denied areas can be in hostile and uncertain environments and are areas where U.S. presence is secret, or U.S. forces have minimal freedom of movement. As we proceed into a more detailed analysis of the principal tasks, we will observe that the operational environment often dictates feasibility.

Much like purpose, one aspect of feasibility shared across the principal tasks is the utilization of PEDs during pre-deployment and post-deployment activities. Given pre-deployment and post-deployment activities typically take place in open and safe

⁹² Joint Chiefs of Staff, *Joint Operations, JP 3-0* (Washington, DC: Joint Chiefs of Staff, 2018).

⁹³ Joint Chiefs of Staff, GL-14.

⁹⁴ Joint Chiefs of Staff, GL-17.

⁹⁵ Joint Chiefs of Staff, GL-10.

environments, where Green Berets have medical oversight, time, and access to leverage PEDs to their full potential.

3. Risk

Our analysis of the principal tasks identified that the level of risk is relative to the mission's operational environment. However, whether the operational environment is considered permissive, uncertain, or hostile, many SF principal tasks share the same risk to force and risk to mission. The highest risk to force is associated with personnel experiencing severe adverse side effects. The type of environment directly impacts the level of risk due to the service members' ability to receive medical treatment and support outside an SF medic's capabilities. It is important to note that if personnel experienced severe adverse side effects, they would become combat ineffective, affecting the team's ability to accomplish the mission. Thus, failing to meet the minimum force requirement (minimum number of personnel required to complete the mission) poses a significant risk to mission success.

Another risk to force concern is the amount of time a soldier is using a PED. The longer a person is using a PED, the higher the chances of experiencing long-term medical issues or side effects. For this reason, USASF should limit PED use to ensure operators do not develop a dependency on the drug.⁹⁶ It is also important to highlight that many SF missions are partner enabled or partner-centric. Therefore, operators should avoid PEDs that cause erratic or aggressive behavior since a loss in the rapport between U.S. and host nation forces could negatively impact the partnership in the future. Loss of rapport can ultimately lead to mission failure and have negative strategic implications.

4. Impact

The most subjective and abstract of our framework's criteria, impact is also the most unique. We assess it does not have any shared features among the grouped principal tasks save for one area: post-deployment activities. Increases in physical strength,

⁹⁶ Hackney, *Doping, Performance Enhancing Drugs, and Hormones in Sport: Mechanisms of Action and Methods of Detection*, 26–97.

endurance, and cognitive function will have a different impact on the principal task accomplishment, but the increased physical recovery offered by PEDs would be beneficial.

Green Berets coming off of deployment or mission need time to recover from the physical toll that could have been weeks or months. While many would argue that some operators return from combat deployments physically more massive and more robust, many do not. PEDs could be used to expedite physical recovery for these individuals who have suffered muscular atrophy due to operations. Some may note that expediting physical recovery sounds similar to the concept of capacity-restoring or therapy, thus not within the purview of this thesis, as we stated in Chapter II. While this indeed sounds like therapy, it is not within the therapy-enhancement distinction definition presented by Menuz, Hurlimann, and Godard.⁹⁷ Operators often begin a mission or deployment with elite-level fitness but return in a diminished state. In these cases, operators would still be considered operating within the normal range of human physical capacity. Therefore, operators using PEDs to overcome the physical decline from deployment should be regarded as capacity-enhancing. PEDs used in this capacity could bring Green Berets back to peak physical operating capacity faster than traditional methods.

5. Second-Third-Order Consequences

By incorporating performance-enhancing drugs within USASF, we have recognized a few second and third-order consequences or unintended consequences that can occur regardless of the principal task executed. Long-term use of PEDs could cause USASF members to develop a psychological dependency on the drug.⁹⁸ Continued long-term use could consequently result in personnel abusing the drugs in the form of overdosing or self-medicating that could potentially lead to the utilization of other illicit drugs. Beyond psychological dependency, USASF could become more prone to mental health issues. One

⁹⁷ President's Council on Bioethics, *Beyond Therapy: Biotechnology and the Pursuit of Happiness* (Washington, DC: The President's Council on Bioethics, 2003), 13–17.; Menuz, Hurlimann, and Godard, "Is Human Enhancement Also a Personal Matter?," 165–67.

⁹⁸ Hackney, *Doping, Performance Enhancing Drugs, and Hormones in Sport: Mechanisms of Action and Methods of Detection*, 26,97.

study suggests that elite-level athletes who have used PEDs have been more susceptible to mental health issues than the general population.⁹⁹ While USASF may not reach the highest echelons of athletics—though there are some within our ranks—the Regiment as a whole should be considered elite-level athletes.

Another consequence to note is the aggressive or erratic behavior that could develop as a side effect. In this case, the outcomes from such action could have significant ramifications such as being asked/removed from the country one is deployed to, ruining the relationship between U.S. and host nation forces, and tarnishing the reputation of the USASF Regiment. Lastly, since USASF personnel already experience post-deployment reintegration issues, prolonged exposure to PEDs can exacerbate reintegration issues, especially with family life. It is essential to understand that the consequences discussed above already occur throughout the force. Still, PEDs can magnify these consequences that could negatively impact USASF's ability to recruit and negatively impact public perception of USASF.

Unlike competitive sports, USASF is not looking to have a level-playing battlefield; instead, Green Berets want a vertical playing field where they have a competitive advantage over their adversaries. However, within the Special Forces Regiment, the concept of competitive athletics, or “spirit of the sport,” does exist on several different levels. The most tangible need for competitive athletics resides in evaluation reports for SF soldiers.¹⁰⁰ Physical capability is part of the U.S. Army's official evaluation system and can be a discriminator when comparing similar individuals for promotion or positions. Furthermore, these evaluation reports are shared across the Army, regardless of military occupancy specialty (MOS). The Army evaluation system may place those who cannot use or choose not to use PEDs at a disadvantage. Notably, studies show women generally suffer

⁹⁹ Simon M. Rice et al., “The Mental Health of Elite Athletes: A Narrative Systematic Review,” *Sports Medicine* 46, no. 9 (September 2016): 1333–53, <https://doi.org/10.1007/s40279-016-0492-2>.

¹⁰⁰ Department of the Army, *Evaluation Reporting System*, DA-PAM 623-3 (Washington, DC: Department of the Army, 2019), <https://ssilrc.army.mil/wp-content/uploads/2017/07/DA-PAM-623-3-Evaluation-Reporting-System-27-September-2019.pdf>.

more significant side effects from the physical enhancers we described in Chapter II.¹⁰¹ With the first female's entering the SF Regiment as of this writing, PEDs could be another unintentional discriminator against females.¹⁰² Evaluations may not seem like they affect USASF operations, but they can affect readiness by influencing morale. Nothing degrades operational readiness as gravely as bad unit dynamics.

A less tangible need for competitive athletics is the concept of the "warrior spirit" within USASF. We discussed individuals could develop psychological dependency through PED use. If we were to extrapolate that to the larger force, we may grow group dependency that could degrade what it means to be a warrior. Senior leaders always preach that it is not the equipment that makes the USASF elite, but rather the warrior mentality. PEDs could be seen as another form of equipment or technology that operators exceeding rely on, degrading the abstract "warrior spirit."¹⁰³ Extremely difficult to measure, a loss of warrior spirit could weaken the overall character of the Regiment.

6. Conclusion

The analysis of the characteristics shared by the principal tasks leaves a few more questions than answers about the net benefits or costs of using USASF using PEDs. A clearer picture should emerge after we evaluate the principal tasks. However, what is clear is that the operating environment plays a large part in determining the feasibility and risk of using PEDs. Given the permissive environment of pre-deployment and post-deployment activities, some would call the garrison environment—PEDs would have high feasibility with low risk. Furthermore, the ability to quickly recover Green Berets back to elite-level fitness would increase efficiency through PEDs would have a moderate impact on the SF

¹⁰¹ Andrea Jensen Matich, "Performance-Enhancing Drugs and Supplements in Women and Girls," *Current Sports Medicine Reports* 6, no. 6 (December 2007): 387–91, <https://doi.org/10.1007/s11932-007-0057-0>.

¹⁰² John Black, "Exclusive: Woman Makes History by Becoming the First to Graduate Modern Special Forces Training," SOFREP, June 17, 2020, <https://sofrep.com/news/exclusive-woman-makes-history-by-becoming-the-first-to-graduate-special-forces-training/>.

¹⁰³ David W. Buckingham, "The Warrior Ethos" (master's thesis, Naval War College, 1999), 9–12, <https://apps.dtic.mil/sti/pdfs/ADA366676.pdf>.

Regiment's overall health. Lastly, the second-third-order consequences are very general issues that indirectly affect the principal tasks.

B. UNCONVENTIONAL WARFARE

The principal task Unconventional Warfare (UW) may be the one most widely associated with USASF. Focused on partnering with indigenous populations to overthrow oppressive regimes, UW emphasizes enabling partner forces and their activities rather than unilateral action. As we analyze UW through our framework, there are three aspects to keep in mind. First, UW is generally conducted in a denied territory (behind enemy lines). Second, UW operations are performed with and through resistance forces. Third, UW operations are conducted over extended periods of time.

1. Purpose

In Unconventional Warfare, PEDs could serve a multitude of purposes. Green Berets could use physical enhancers to increase strength and endurance in the training phase of the mission. The emphasis for these physical enhancers would be to increase capacity for long-range dismounted movements into denied territory. Due to the nature of UW, building muscle size should be approached with caution. In a UW environment, it is beneficial for operators to blend into the population to pass cursory visual contact while moving throughout denied areas. USASF could use cognitive enhancers for a variety of reasons. During infiltration, multi-modal operations are generally the norm. Furthermore, SFOD-As typically infiltrate an operational area unilaterally. Operators could use cognitive enhancers to maintain situational awareness for longer periods of time, critical when operating in a unilateral SFOD-A of 12 individuals.

2. Feasibility

Evaluating UW through the operational lens, we assess that PED use would not be feasible during a UW operation, primarily due to the extended duration of operations and the hostile/denied environments that UW campaigns generally take place in. To maintain the enhanced capacity created by physical enhancers, like steroids and EPO, users must

continue to consume the drug of choice while incorporating routine physical training.¹⁰⁴ This issue manifests itself in several ways. In a UW campaign, the amount of gear that a team can initially transport in is limited to what operators can carry on their back. Maintaining the dosage necessary to sustain PED use throughout a UW campaign is not realistic for certain PEDs. Therefore, SFOD-A's would have to rely on U.S. military resupplies or procure from the local economy, both of which can be incredibly dangerous depending on the area of operation. Often, SFOD-As in UW environments are not in a position to receive resupplies. Furthermore, access to the appropriate physical fitness facilities can also prove to be problematic. SFOD-A's do not generally deploy with a home gym kit or resupply gym equipment. Much like receiving a resupply, using local facilities is a huge security risk in a denied or hostile environment.

However, not all PEDs are challenging to carry, many come in the simple to carry form of pills like most cognitive enhancers, opioids and glucocorticoids.¹⁰⁵ Taking these PEDs during infiltration would be similar to carrying a few bottles of iodine for water purification. Furthermore, if an SFOD-A were to conduct resupply operations, it would not add difficulty to include additional PEDs within the resupply bundles.

Medical oversight for PED use would also be difficult in a UW environment. While Special Forces Medical Sergeants (SF Medics) are trained on a wide breadth of tasks, current PED dosage education is not part of their curriculum. Furthermore, SF Medics are responsible for a multitude of functions in a UW campaign; adding on another task would affect their ability to accomplish more critical (impactful tasks).¹⁰⁶

Assessment - Moderate: While specific PEDs are unobtrusive and easy to carry in pill form, the medical oversight needed to utilize PEDs safely is not realistic. Medical

¹⁰⁴ Hackney, *Doping, Performance Enhancing Drugs, and Hormones in Sport: Mechanisms of Action and Methods of Detection*, 14, 52.

¹⁰⁵ Hackney, 18,50,97.

¹⁰⁶ goarmy, "Special Forces Medical Sergeant (18D)," accessed October 28, 2020, <https://www.goarmy.com/careers-and-jobs/browse-career-and-job-categories/combat/special-forces-medical-sergeant.html>.

providers beyond the SF medic are generally not available, and relying on an SF medic detracts from their ability to focus on other tasks.

3. Risk

As noted in our overall analysis of the SF principal tasks against the framework, using PEDs always carries the risk of users suffering from adverse side effects. In the context of UW, the risk to force is no different from the rest of the principal tasks. However, due to the duration and environment of UW operations, SF operators can find themselves in situations where it is difficult to receive medical attention outside of the SF medic expertise. Furthermore, evacuating a patient out of hostile or denied territory is not only challenging and dangerous but can compromise a pre-planned movement mechanism.

Risk to force bleeds over into risk to mission because of the small size of SFOD-As. A loss of one man in a 12-man SFOD-A represents an 8% decrease in overall manpower or a 50% decrease in specific capability. Imagine if the SF medic experienced severe adverse side effects from using PEDs; the loss of one SF medic represents half of an ODA's medical capabilities. However, a counter-argument could be made that because UW operations emphasize surrogate or indigenous operations, the loss of one individual on the detachment may not entirely impair their ability to continue the mission. USASF acts as a force multiplier, leveraging its partner force to execute operations.

Assessment - High: Utilizing PEDs in a denied or hostile environment generates significant risk to mission and force due to the inability to access medical treatment or evacuate casualties. Despite the emphasis on partnered operations, the loss of a single Green Beret during a UW operation will still negatively affect the team's capability to complete the mission because of the specialized capability of each individual operator.

4. Impact

The impact of PEDs in UW fluctuates throughout the course of operations. PED's impact is much more significant during the initial phases of a UW environment. During infiltration, SFOD-As often move long distances over austere terrain to link up with indigenous forces in foreign lands. Frequently they are required to move on foot carrying

100 plus pounds of mission-critical gear and sustenance. During pre-deployment, the physical enhancers would increase muscle strength and conditioning, allowing operators to carry more gear or move more quickly through hostile terrain. The extra gear in a UW scenario is significant because teams rely heavily on battlefield recovery or procurement through the local economy in denied environments. Both methods are unable to acquire military supplies like ammunition, batteries, weapons, or communication equipment. Resupply operations are typically infrequent and dangerous, especially when SFOD-As are trying to maintain a low signature. Communications are critical for all operations, but for extended operations in denied territory, the need for redundant communications systems is paramount. The ability to carry extra communications equipment, including something as simple as batteries, can be the difference between success and failure.

SFOD-As could also benefit from using cognitive enhancers during the infiltration phase of UW operations. As a 12-man operational unit, maintaining 100 percent security is an incredible strain. Cognitive enhancers, like stimulants, could help individuals maintain wakefulness during the critical phases of infiltration before the SFOD-A has made contact with indigenous forces.

Once the SFOD-A has successfully infiltrated into the operational area and linked up with indigenous forces, the impact of PEDs decreases drastically. The team is no longer limited to twelve personnel but can now leverage partner forces for support. Physical strength loses some importance because the SFOD-A has already carried in their equipment and partnered indigenous forces could support future movement throughout the area of operations. Furthermore, once the SFOD-A has completed infiltration and links up with resistance forces, UW operations transition into the organization and build-up phase of UW. During these phases, the SFOD-A is focused on developing infrastructure, training, recruiting, and organizing to develop a capable fighting force with the requisite base of support. Even in the employment phase, where kinetic operations are at its peak, the SFOD-A is still mainly working with the partner force rather than unilaterally, reducing the impact of PEDs

Assessment - Moderate: Although there is a steep drop off in impact after the SFOD-A successfully links up with their indigenous partners, the infiltration's importance

to a successful UW campaign makes impact moderate. Often the most dangerous part of an operation, any misstep during infiltration, can severely hinder the mission. If infiltration fails, there is no link up with indigenous forces, which means no UW mission. Thus, anything that can facilitate infiltration is critical to mission success.

5. Second-Third-Order Consequences

As a partner-centric operation, UW emphasizes working with and through indigenous forces to combat oppressive regimes. Therefore, the relationship between USASF and the factions they partner with is critical to successfully accomplishing operations. As we discussed in the overall costs and benefits shared amongst all the principal tasks, PED use by USASF could alter how partners perceive Green Berets. Whether that perception would be positive or negative would be impossible to know for sure without extensive field research. However, we believe that perception would most likely be negative since PEDs are associated with cheating in competitive sports and their link to adverse side effects.

We have previously alluded to the idea that negative perception could degrade USASF credibility with partner forces and sow distrust at the individual level. However, it could be argued that these negative perceptions would be overlooked in a UW scenario because resistance forces likely value partnering with USASF enough to overlook personal beliefs on PED use. Consider some of the historical examples of USASF and resistance forces working together despite differences in beliefs that are arguably more divisive than the use of PEDs. During the 1970s and 1980s, USASF partnered with leaders that resembled dictators to combat communism spreading throughout Southeast Asia and Latin America.¹⁰⁷ If USASF and resistance forces have overcome political ideology to work together in the past, then overcoming views on PEDs should be more straightforward.

Assessment - Neutral: It is difficult to come to a definitive conclusion to the effects of second-third-order consequences without field research, but we believe these would

¹⁰⁷ Francis J. Kelly, *U.S. Army Special Forces 1961–1971: Vietnam Studies* (Washington, DC: Department of the Army, 1985), 100–113.

have little effect on mission success with UW. The value of overthrowing an oppressive regime typically outweighs divergent beliefs in PEDs.

6. Case Study

Applying our academic framework to a real scenario, we chose to compare our analysis of PEDs within a UW scenario to Task Force Dagger. They were part of the initial U.S. invasion of Afghanistan in 2001. Following the September 11th attacks, the U.S. responded by creating Task Force Dagger, who would link up with local Afghan resistance forces to fight the Taliban. The 5th Special Forces Group (Airborne) willingly took on this unconventional mission to link up with local warlords and their fighters that made up the Northern Alliance, then train, equip, and coordinate efforts with air power to topple the Taliban.¹⁰⁸ The various Special Forces Operational Detachment – Alphas (SFOD-A) that were in Afghanistan would split up into smaller elements within their teams. Some teams had vehicles to maneuver throughout their area of operations. However, for SFOD-A 595, they had to rely on horses to move throughout the battlefield even though they fought a much more heavily armed and equipped (tanks, armored personnel carriers, and antiaircraft weapons) Taliban. However, one of the primary roles that the special forces served was calling in airstrikes to eliminate the Taliban's armored assets to retake the Taliban Stronghold in Mazar-i-Sharif.¹⁰⁹ The fighting continued for a few months as the combined elements overtook Taliban positions and lines, causing them to retreat into the population. The country was liberated in weeks when senior military leaders initially assessed it would take several months.

7. Analysis

Task Force Dagger is an example of a highly successful UW operations. Not only did everyone on the SFOD-A survive, but they also took zero casualties throughout the campaign. Furthermore, capturing Mazar-i-Sharif was anticipated to take several months,

¹⁰⁸ Elizabeth M. Collins, "First to Go: Green Berets Remember Earliest Mission in Afghanistan," Army.mil, February 8, 2017, https://www.army.mil/article/181582/first_to_go_green_berets_remember_earliest_mission_in_afghanistan.

¹⁰⁹ Collins.

but the team accomplished the objective within several weeks. Using Task Force Dagger as an example is somewhat tricky because the SFOD-A accomplished the mission with resounding success without using PEDs. However, we chose to use this instance because it is the most recent UW example within the last 30 years.

Despite the unqualified success of Task Force Dagger, we can still observe the many instances that our framework would apply. The feasibility issues we identified in our earlier analysis clearly apply to Task Force Dagger. The SFOD-A was inserted approximately 100 miles away from Mazar-i-Sharif via helicopter with only the gear they could carry on their backs. Once they linked up with the Northern Alliance, they discovered the fighters were still using horseback. From a carrying perspective, only PEDs in the form of pills would be feasible to carry and sustain. David Nustch, the team leader of SFOD-A 595, highlights the issues of carrying equipment during the team's infiltration, "We're figuring out, how do you carry your rifle? What gear do I keep on my body? What can I put on the horse? What do I leave behind?"¹¹⁰ Procurement from the open market would be near-impossible in such denied territory, and resupplies were in short stock with the SFOD-A in such remote mountainous terrain.

The risks of PED use can also be applied to Task Force Dagger. After insertion, the team was almost completely isolated from U.S. support. In the event any of the team members suffered severe adverse side effects from PEDs, proper medical attention or evacuation would have been extremely difficult. However, the actions of the "horse soldiers" do highlight the partner-centric nature of UW. If a casualty had occurred, the team's total operational capacity might have been diminished. However, the team would have been able to continue the mission without too much disruption.

Earlier, we concluded that PEDs have the most significant impact on UW operations during the infiltration and link up phase of the operation. In the case of Task Force Dagger, PEDs would have had a minimal impact during these phases since the team

¹¹⁰ Diana Correll, "How the 'Horse Soldiers' Helped Liberate Afghanistan from the Taliban 18 Years Ago," *Military Times*, October 18, 2019, <https://www.militarytimes.com/news/your-military/2019/10/18/how-the-horse-soldiers-helped-liberate-afghanistan-from-the-taliban-18-years-ago/>.

was inserted directly at the link-up location. However, it should do note that the team had no idea what the situation on the ground was and whether they would be on foot or have some other mode of transportation.¹¹¹ The team could have very easily needed to move on foot, but we believe their Afghan partners would have aided the movement of their equipment.

We reasoned that PEDs have a low impact on UW operations because the team focuses more on organization and build-up of the resistance than combat operations. However, after linking up with the Northern Alliance, Task Force Dagger almost immediately began combat operations with their new partners, bypassing the infrastructure development that often occurs before large-scale kinetic operations. Despite the emphasis on combat operations, the SFOD-A only played a support role providing coordination and air support to the Northern Alliance during combat, highlighting the low impact PEDs would have in UW because of its partner-centric nature.

It is difficult to gauge how second-third-order consequences specific to UW would have played out in our case study. We suspect that if the Northern Alliance had any negative perceptions of PED use, those perceptions would not harm the mission. General Dostum, the leader of one faction of the Northern Alliance that SFOD-A partnered with, famously said, “he would rather have 500 of his own men killed than have one of the American scratched.”¹¹² The quote references Dostum’s belief that any U.S. casualty would result in the U.S. withdrawing support. Dostum valued U.S. support so much that he would willingly sacrifice Afghan lives. Therefore, it would not be too far of a stretch to believe that PED use would be a minute issue that the two parties would easily overcome, assuming it was an issue to individuals in the Northern Alliance.

8. Conclusion

Overall, we conclude that the net benefits of PEDs do not outweigh the costs in a UW scenario. The impact of PEDs are high during the infiltration phase of the operation

¹¹¹ Correll.

¹¹² Correll.

but taper off significantly once link-up has occurred. Furthermore, while moderately feasible, continued use of PEDs in a hostile or denied environment increases the risk beyond manageable levels. Losing an individual to adverse side effects is not just the loss of 8% of combat power but also 50% of a particular specialty—medical, communications, and engineering. See Table 2 for a summary analysis on Unconventional Warfare.

Table 2. Summary of Analysis on Unconventional Warfare

<u>Grouped Principal Tasks</u>	Criteria				
	<u>Feasibility</u>	<u>Risk</u>	<u>Impact</u>	<u>Second-Third-Order Consequences</u>	<u>Worth the costs?</u>
Unconventional Warfare	Moderate	High	Moderate	Neutral	No
Foreign Internal Defense & Security Force Assistance	?	?	?	?	?
Special Reconnaissance & Direct Action	?	?	?	?	?

C. FOREIGN INTERNAL DEFENSE AND SECURITY FORCE ASSISTANCE

Since the inception of USASF, FID and SFA have been the most executed principal tasks in the SF Regiment. Vietnam, El Salvador, Afghanistan, Philippines, Iraq, Syria, and countless other countries, the U.S. has sent Special Forces soldiers to support foreign ally security forces in combating the internal and external threats plaguing their countries through building partner capacity and partnered operations.

1. Purpose

In FID and SFA, incorporating PEDs is generally limited since these principal tasks are partner-centric. It is important to note that unlike UW, USASF typically conducts FID and SFA in permissive and semi-permissive environments. As such, PEDs could be used

to facilitate partnered operations; however, beyond assisting operations, enhanced strength and speed may not prove to be useful because SF elements will only be able to move as fast as their partner force. Alternatively, Green Berets could utilize cognitive enhancers to improve and maintain situational awareness while monitoring their partner force's long-duration enabled operations via video feeds.

2. Feasibility

Evaluating FID and SFA through an operational perspective, we assess that utilizing PEDs would be more feasible than UW, given the permissive and semi-permissive environments. However, as mentioned above, these two tasks are focused on building partner nation capacity; therefore, the use of PEDs by USASF personnel does not affect the partner force in any way. The permissive and semi-permissive environments are ideal because USASF elements have more flexibility to maneuver within their area of operations. Added flexibility would allow personnel to seek medical attention from local medical facilities or work with the embassy to schedule resupplies. Conversely, countries like Mongolia are difficult to maneuver within because of the lack of infrastructure and hostile terrain. Access to equipment, medical facilities, and even airlift can be challenging in certain countries despite permissive environments. Lastly, importing PEDs into foreign countries can cause concern when going through customs, especially if the drugs imported are considered illegal in that country. However, much like bringing weapons, explosives, and ammunition into countries for training, USASF can mitigate customs issues with the proper paperwork, authorizations, or memorandums of agreement between the U.S. and the host nation.

Assessment - High: As we saw in UW, the operating environment largely dictates our assessment of feasibility. The permissive operational area allows for transportation and storage for all types of PEDs. While the legality of transporting what some would consider illegal drugs, these are easily fixed through proper communication with the host nation.

3. Risk

Much like UW and our overall analysis of the SF principal tasks, utilizing PEDs in an FID/SFA setting carries the risk of users suffering from adverse side effects. Yet, due to the permissive environment of FID/SFA operations, SF operators are generally in a

better position to receive medical support. Even if the medical facilities were inadequate within the operations area, operators would have access to MEDEVACs, unlike Green Berets, executing a UW mission.

Further juxtaposing FID/SFA to UW operations, the risk to the mission is also mitigated because of the operating environment. Unlike UW, the loss of one man in a 12-man ODA does not adversely affect the FID/SFA mission as heavily as it would in a UW mission because operators can be backfilled when needed. If the SF Medic suffers severe adverse side effects to PEDs, the team can evacuate that individual bring a replacement within seven days, if not sooner. The Resolute Support and Sentinel Freedom operations in Afghanistan over the last five years perfectly encapsulate the ease of moving personnel to support SFOD-As requiring new operators due to injury or personal injuries. Moreover, much like UW, FID/SFA is focused on partner operations, frequently with U.S. forces advising far from the front lines. In this case, the loss of team members has less of an impact on the mission.

Assessment - Low: While there are concerns about the adverse side effects of PEDs, the unconstrained access to medical evacuation and medical facilities without the danger of compromise means that operators can use PEDs without putting themselves, the team, or the mission at additional risk. Moreover, if the team must evacuate an operator, the ability to quickly bring new Green Berets into the country further reduces the risk to the mission.

4. Impact

Examining the impact PEDs would have on FID or SFA missions, we assess the impact to be minimal in a training environment and combat-oriented environment because of each task's partner-centric nature. As mentioned above, SF personnel can only move as fast as their partner force; therefore, increased strength and endurance is limited in this type of capacity. Furthermore, with many FID operations focused on training, advising, and limited assisting, Green Berets are frequently not on the front lines with their partner force. PEDs, both physical and cognitive, would have less impact on mission success.

Further examining the impact of PED use against our previous UW analysis, in FID and SFA, SFOD-As do not need to infiltrate into a denied territory to link up with their partner forces. Instead, they meet directly in friendly controlled territory. Infiltration was

arguably the area where PEDs would be most impactful during UW; however, FID/SFA lacks the critical need to carry heavy equipment on foot or maintain wakefulness for hours on end while operating in hostile or denied areas.

Another area PEDs could provide positive impact is facilitating operator fitness when the operating environment lacks fitness equipment or the tempo of operations is high. Some PEDs, like steroids, have shown to minor increases in strength without exercise.¹¹³ Although physical fitness's overall impact in a FID/SFA scenario is low, increased readiness is still a small positive impact.

Assessment - Low: Partner-centric operations focus on enabling host nation security forces to build the capability to conduct their operations with little USASF support, which means PEDs provide little to mission accomplishment. While physical enhancers could support muscle maintenance for long-duration missions, it is unnecessary, nor does it facilitate FID operations.

5. Second-third-order Consequences

Like UW, FID and SFA are partner-centric operations but emphasize training and advising rather than participating in kinetic operations. Thus, USASF must prioritize the relationship with partner forces. As we discussed before, PEDs could lead to a loss of credibility for USASF. Partners may view USASF as more of a manufactured product than an actual individual or believe that USASF capability is grounded in technology rather than years of intense training and experience. In FID/SFA, USASF emphasizes empowering host nation forces to combat internal threats. These threats manifest differently based on the conditions in each country. For example, in Afghanistan, SFOD-A partnered with Afghan special forces and frequently accompanied their partners into combat missions. In the Philippines, SFOD-As were more restricted, staying at the last position with cover and concealment. What these examples share is that we ask our partners to bear a more considerable burden of risk. When USASF ask their partners to do more, it often generates tension in two forms. The first is that partner forces can develop a mentality that they cannot do what USASF does without better equipment, including PEDs. The second is that

¹¹³ Peltier, "The Future of Steroids for Performance Enhancement in the U.S. Military."

partner forces grow disgruntled or distrustful towards USASF because we place U.S. forces in a position of less risk despite having better survivability via equipment.

Assessment - Negative: While it may be challenging to gauge partner force perceptions without more formal research, personal experience from several operations working with partner forces has shown that equipment disparity is a genuine concern. I remember one instance where we were conducting a combined training exercise with the Republic of Korea Special Forces. We were moving through mountainous terrain with heavy loads of equipment, trying to make up time after a slow start to our movement. Our Korean partners complained that we were pushing them too hard and that we could move faster because our physical conditioning allowed us to carry more weight. Imagine if the SFOD-A had access to PED, and our Korean counterparts did not; the disparity could leave room for unneeded tension.

6. Case Study

For our FID/SFA case study, we will not be examining a named operation but ongoing operations in Latin America. Counter-narcotics training missions are a type of foreign internal defense (FID) mission that many Green Berets will experience when assigned to 7th Special Forces Group (Airborne). These missions take place within Latin America and assist designated countries with their fight against narco trafficking and narcoterrorism. While assigned to 7th Special Forces Group (Airborne), my SFOD-A conducted a Counter-Narcotics Training (CNT) Mission to Mexico to train, advise, and assist some of their premier military units to enhance their operational capability and capacity. All training and logistics were planned and coordinated by the SFOD-A; therefore, any gaps in planning that posed a problem forced the team to use critical thinking to develop a viable solution to ensure mission success. This training mission encompassed a variety of training events in different locations that utilized a train-the-trainer methodology. In other words, select personnel was trained to a high standard to train additional personnel in their units to prepare them for real-world operations. These missions typically occur in politically sensitive environments where the U.S. and the Host Nation Forces aim to promote interoperability and develop enduring relationships.

7. Analysis

The example described above is a typical mission executed by all Special Forces Groups, save for location. We chose this example because most FID missions concentrate on building partner capacity; very few involve direct combat operations with USASF. Furthermore, in FID, the host nation government typically controls the areas in which USASF are working with their partner forces. The permissive environment makes the feasibility of utilizing PED high because it eliminates most of the logistical concerns that plague UW missions. In Mexico, USASF has the freedom to maneuver without severe problems for resupplies. USASF can quickly bring PEDs into the country via air. Unlike UW, where the environment restricts what operators can carry in a rucksack, SFOD-As are usually allowed to send three full pallets of equipment into the country. While Mexico is a mostly permissive environment, some areas could be labeled uncertain or even hostile. Portions of the country are unofficially owned by drug cartels and prevent legitimate host nation government forces from operating freely. However, SFOD-As do not operate in these areas, instead of training and advising Mexican partners to conduct these operations.

The risks of PED use during a FID mission in Mexico are mitigated by regular access to medical facilities and airlift for evacuation. While the medical facilities may lack the expertise of a sports-oriented physician familiar with PED dosing, Mexico's health care system is considered average to good by World Health Organization standards.¹¹⁴ Moreover, the availability of airlift allows personnel to evacuate to a facility with adequate treatment capabilities quickly. As noted in our analysis, team members forced to leave or vacate the country do not place the mission at serious risk. During FID missions, SFOD-A members frequently depart the operational area due to injury or personal reasons. Furthermore, bringing new team members into a country is also simple. In this example, I took a 14-day leave of absence to be at my first child's birth. My departure did not significantly impede the mission, and I was able to return without any issues. Within the context of this FID case study, PEDs would have had a low impact on mission

¹¹⁴ Ajay Tandon et al., "Measuring Overall Health System Performance for 191 Countries," No. 30 (GPE Discussion Paper Series, World Health Organization, 2000), 15.

accomplishment. The mission focused on training Mexican security forces to combat narco-terrorist and cartels ravaging the country. The team did not participate in direct combat or come within close proximity of any kinetic operations. Neither cognitive enhancer nor physical enhancers would have provided significant benefit to increasing mission accomplishment.

8. Conclusion

Based on our analysis, we believe that PEDs provide marginal benefits for FID and SFA. They provide little impact to the mission, especially considering FID/SFA emphasizes partner operations. However, PEDs also pose little risk and are reasonably feasible to utilize without detracting from the mission. The permissive environments in which FID and SFA take place make transporting and using PEDs simple. Furthermore, the ease of medical evacuation and access to medical facilities significantly reduce the risk of use. With these factors in mind, we conclude that the benefits of PEDs outweigh the costs because the costs are negligible. See Table 3 for a summary analysis on FID and SFA.

Table 3. Summary of Analysis on Foreign Internal Defense and Security Force Assistance

<u>Grouped Principal Tasks</u>	<u>Criteria</u>				
	<u>Feasibility</u>	<u>Risk</u>	<u>Impact</u>	<u>Second-Third-Order Consequences</u>	<u>Worth the costs?</u>
Unconventional Warfare	Moderate	High	Moderate	Neutral	No
Foreign Internal Defense & Security Force Assistance	Moderate	Low	Low	Negative	*Yes
Special Reconnaissance & Direct Action	?	?	?	?	?

D. SPECIAL RECONNAISSANCE AND DIRECT ACTION

We chose to combine special reconnaissance and direct action because the two tasks share several characteristics of how PEDs would be used and share similar evaluations from our framework. Despite SR's emphasis on non-kinetic information gathering and DA's focus on offensive strike, USASF executes SR and DA in hostile, denied, or politically sensitive environments. Moreover, both are typically short—under three days—and involve a small number of operators than conventional forces. Additionally, USASF generally conducts the two principal tasks unilaterally, though SR and DA can be executed with partner forces' assistance.

1. Purpose

The use of PEDs in SR and DA could prove to be beneficial because operators are required to stay awake or focus for extended periods. Snipers or observers must also maintain situational awareness when watching through weapon optics from security and observation points. Additionally, physical enhancers would serve as a capacity-building role to enhance an operator's physical stamina/endurance to maneuver dismounted when carrying significant amounts of gear. Lastly, designated marksman (sniper) could potentially use enhancers, such as beta-blockers, to relax their body and lower their heart rate to take precision shots on targets.¹¹⁵

2. Feasibility

Evaluating the operational concept of SR, DA, and their associated activities, we assess that utilizing PEDs would be very feasible. While SR and DA occur in hostile or denied environments, their short duration mitigates any need to manage long-term consumption, unlike UW or FID/SFA. Operators would reap the benefits of consuming PEDs during pre-deployment training without suffering a decline in performance that can come when users suddenly stop using PEDs. Moreover, the short duration would typically

¹¹⁵ Hackney, *Doping, Performance Enhancing Drugs, and Hormones in Sport: Mechanisms of Action and Methods of Detection*, 103–10.

mean that operators would not need to carry PEDs with them on a mission unless it was one-time use of cognitive enhancers like Modafinil and Dexedrine.

Assessment - High: We also evaluated FID/SFA to have high feasibility, but note that in SR/DA, using PEDs is even more feasible. There are no issues of bringing significant quantities into a foreign country or have the SF medic manage proper administration. Everything needed to use PEDs safely would be done during pre-deployment.

3. Risk

Much like feasibility, the short duration of SR and DA operations offsets the potential risks of utilizing PEDs in hostile or denied operating environments. Since operators will spend their pre-deployment or train up receiving monitored dosing of PEDs, any adverse side effects in individuals would be identified before mission execution, mitigating users' risk of side effects during a mission. However, cognitive enhancers could still put operators at risk of suffering adverse side effects due to the intermittent nature of their use. Users do not (or should not) be taking cognitive enhancers regularly, but rather as needed.

PED use for SR and DA mission could pose a significant risk to mission. SR and DA missions are often unilateral, operating without indigenous or partner forces' support. Therefore, any loss of personnel from injury would significantly reduce the operating capacity of the SFOD-A. We have mentioned several times that the loss of one individual on a 12-man team is equal to an 8% loss in total capability or 50% in a specific specialty. Moreover, SR and DA missions' time-sensitive nature translates to a greater need for timely action to ensure USASF can meet checkpoints or objectives on a specified timeline. Deviations could result in mission failure, and thus delays caused by PEDs would pose a risk to the mission. However, as we mentioned above, the risk of suffering adverse side effects from physical enhancers are significantly reduced due to the time allocated during pre-deployment to monitor and use PEDs properly.

Assessment - Low: The short duration of SR and DA offset the risks of utilizing PEDs in hostile or denied areas. Although any adverse side effects suffered by any team

member could significantly impact mission success, the chances of such an event are extremely low due to the short duration of the mission, and the lengthy period of evaluation during pre-deployment operations. Lastly, every SR and DA mission must always account for potential casualties.

4. Impact

After evaluating the impact PEDs would have on SR and DA's execution, we determine that the impact on mission success would be high. Since activities within SR and DA are short, especially when compared to UW, FID, or SFA, the utilization of PEDs from pre-deployment through the deployment phase increases the chances of success. Through the use of cognitive enhancers, personnel can maintain and even enhance their situational awareness. Conducting complex raids requires precision and quick thinking to identify friendlies, enemies, locations, and civilians in the area. Heightened situational awareness gained from cognitive enhancers could mean processing more information/intelligence that is critical throughout the decision-making process. SR specific, if personnel can stay awake longer and work more efficiently at gathering information, then the number of personnel required for the mission could be reduced, creating a smaller footprint in hostile or denied areas.

Physical enhancers potentially have an even more significant impact than cognitive enhancers. In SR and DA, rapid dismounted movement with numerous amounts of gear is critical to mission success. The typical operator carries 45 pounds of equipment during a DA mission. In SR, that number increases to 75 pounds due to surveillance equipment.¹¹⁶ The extra weight significantly slows operator movement; adding rugged terrain would slow operators even more. The physical strength and endurance to overcome the physical obstacles would impact mission success substantially. In SR, arriving at the objective on time could be the difference in capturing the right information or missing the correct information. The same reasoning applies to DA; speed, surprise, and violence are

¹¹⁶ David Hambling, "The Overloaded Soldier: Why U.S. Infantry Now Carry More Weight Than Ever," *Popular Mechanics*, December 26, 2018, <https://www.popularmechanics.com/military/research/a25644619/soldier-weight/>.

fundamental aspects to a successful DA mission. Physical enhancers would increase the rate at which operators could move through and clear an objective. Maintaining a fast-paced battle tempo can generate momentum for the DA force, expanding the mission's odds of success.

Lastly, in both SR and DA, where casualties should be considered a genuine possibility, we cannot overlook the importance of possessing the physical strength to carry wounded to the exfiltration point. From personal experience, it takes a minimum of four personnel to carry a litter 100 meters in under 60 seconds effectively. Even if there are no casualties, if SFOD-As must abort the mission, a rapid withdrawal from the operations area would be necessary. PEDs would facilitate operator movement in all conditions.

Assessment - High: Physical and cognitive enhancers have a high impact on mission success. Like athletes training for a specific event, utilizing PEDs in a purposeful and targeted manner would increase operator capability to quickly and efficiently negotiate terrain under heavy loads. In SR and DA, the difference between arriving one minute early or late could be the difference between mission success or failure.

5. Second-third-order consequences

In UW, FID, and SFA, we explored partner force perception of operators on PEDs and its potential negative impact on the mission. For SR and DA, we also explore perceptions, but from a different standpoint. Specific to DA, broad and muscular operators can create an imposing presence to an enemy and neutral parties, which support the principal task in a few ways. First, the intimidation factor can decrease enemy morale, reducing their fighting capacity, and encouraging surrender. Second, operators may have an easier time controlling detainees because of their physical stature. A compliant detainee saves crucial time and allows operators to focus on other tasks like sensitive site exploitation.

Another aspect of perception deals with political sensitivities that come with failed missions, friendly fire, or civilian casualties. We previously discussed the Tarnak Farm incident when four Canadian soldiers were killed from U.S. friendly fire. Part of the issue at hand was that the U.S. pilots partially blamed the use of cognitive enhancers,

amphetamines, for their mistake. Similarly, any undesirable incidents involved in a SR or DA mission could be related to PED use. Specific physical enhancers can alter moods, and cognitive enhancers have the potential to modify sensory perceptions as well. In second-third-order consequences, we are not arguing whether these occur, but rather a knowledge that these adverse side effects could occur would bring scrutiny to USASF.

Assessment - Positive: The unintended consequence of developing a physique that can intimidate enemies outweighs the possibility of creating negative perception of USASF. Furthermore, the negative perception appears to affect USASF at the unit or institutional level rather than the operator level.

6. Case Study

For our case study, we chose the SR missions executed by USASF during the Gulf War. On August 2, 1990, the Iraqi invasion into Kuwait was the onset of Operation Desert Storm and Desert Shield. General Schwarzkopf, the Commander in Chief of Central Command, designated 5th Special Forces Group (Airborne) to execute this operation because they possessed the capabilities and capacity to achieve the effects and objectives necessary in Operations Desert Shield/Storm.¹¹⁷ The 5th Special Forces Group's (Airborne) primary mission was to identify targets for close air support (CAS) and provide the commander's ground truth. SFOD-As were deployed to the Saudi-Kuwait border region to link up with Saudi Arabian Special Forces counterparts to conduct special reconnaissance missions, early warning detection, and assist border police operations. The employment of special reconnaissance during Operation Desert Shield/Storm was critical because the SFOD-As were the only elements that provided real-time intelligence and early warning while maintaining "eyes on" the massing of Iraqi forces and operations along the border region.¹¹⁸ For these missions, SFOD-A's infiltrated deep into hostile territory via rotary wing aircraft. Once inserted, the teams had hours to construct hide-sites in terrain

¹¹⁷ William M. Johnson, "US Army Special Forces in Desert Shield/Desert Storm: How Significant an Impact" (master's thesis, University of Kansas, 1996), 23,40-50, <https://apps.dtic.mil/dtic/tr/fulltext/u2/a312864.pdf>.

¹¹⁸ Johnson, 18.

that could be best described as an open desert. These teams were so deep in enemy territory that even immediate extraction would take hours. If the teams were compromised, they would have to withdrawal on foot or fight in place.

7. Analysis

Desert Storm offers several instances of SFOD-As executing SR and the myriad of operational issues that can occur. Like our analysis of UW and FID/SFA, the costs and benefits of PEDs are subtle, but we are still able to see where PEDs may have helped or hindered these SFOD-As in their mission. Our assessment of high feasibility holds very strong. USASF had months to train for Desert Storm and Desert Shield, which provides more than enough time to utilize PEDs, especially physical enhancers, properly. Additionally, the SR missions in Desert Storm typically lasted less than 24 hours, which would negate the need to manage physical enhancers.¹¹⁹

While we assessed risk to be low because the chances of users suffering from adverse side effects during the mission were minimal, Desert Storm provides a snapshot of how catastrophic a single casualty could be. While an SFOD-A is a 12-man team, the detachments sent on SR missions in Desert Storm were often much smaller in size. In one instance, the whole SFOD-A was eight personnel.¹²⁰ With so few personnel, losing even one team member could put the entire mission at risk, especially considering how important it was to have hide sites completed in time to observe the objectives.

The SR missions of the Gulf War would have significantly benefitted from using PEDs. As far as cognitive enhancers are concerned, the teams on the ground were most likely already using caffeine to maintain situational awareness; the next step would be to use amphetamines like Ritalin or Dexedrine. In instances where SFOD-As conducted split team operations, with some small as three personnel, using cognitive enhancers would boost efficiency and increase security. While some would maintain that the short duration

¹¹⁹ Greg Walker, *At the Hurricane's Eye: U.S. Special Forces from Vietnam to Desert Storm*, 1st ed (New York: Ivy Books, 1994), 220–44.

¹²⁰ Walker, 244.

of the SR missions would counter the need for cognitive enhancers, we hold that any situation as dangerous as a three-person element operating deep in enemy territory deserves every boost in survivability.

From a physical enhancer standpoint, USASF operators of the Gulf War would have significantly benefited from being faster and more robust. Although the teams infiltrated directly onto their objectives, negating the need to carry heavy equipment on foot for any length of time, they had mere hours to construct hide sites before first light. For a frame of reference, building a hide site in open desert terrain requires copious amounts of digging. For some teams, it was hard-packed dirt that needed exhausting labor-intensive hours to dig up. Furthermore, SR teams usually construct a second hide site in a different location; in the event of compromise, the team can quickly move to the secondary hide site and continue the mission. Other teams were fortunate enough to have softer dirt. Regardless, physical enhancers would have facilitated the construction of the hide-sites.

In several instances during Desert Storm and Desert Shield, SFOD-As were compromised during their SR missions. On one mission, the team was compromised by children right after sunrise, forcing the SFOD-A to abandon their primary hide site and move to the secondary site. In this instance, it was fortunate that it was a soft compromise by unarmed children. If it were Iraqi security forces that compromised the team, physical enhancers would facilitate quick movement to the next hide site, potentially saving lives.

On a different SR mission, the SFOD-A was compromised multiple times, with the last occasion bringing a company of Iraqi soldiers to kill the USASF soldiers. The team conducted a defensive withdrawal—fighting in place for as long as possible before moving to another defensive position—while waiting for close air support. When the air support did arrive, the team had to coordinate air support, executing a defense on their position, and coordinating for extraction. Physical enhancers would improve operator stamina to perform a defense in a vicious firefight, and cognitive enhancers would aid in multi-tasking. In this case, the SFOD-A took no casualties, but PEDs certainly would have had a positive impact.

We articulated that a second-third-order consequence resulting from PEDs is creating an intimidation factor that USASF could use to degrade enemy morale or generate fear within detainees to make them more compliant. These factors generally pertain more to DA missions, and within our case study, there are no instances where the intimidation appears to have been a possibility. However, one specific SR mission had two situations that could have been highly scrutinized, especially if PEDs were utilized for the mission. The first instance is when a young girl and her father compromised a three-person split-team element. The three Green Berets all had their weapons aimed and ready but chose not to harm unarmed civilians, even though letting the pair go guaranteed their full compromise. The second instance is when the same element called in close air support danger close to their position, creating a possible friendly fire incident. In both cases, had the situation gone any differently, and the operators chose to shoot unarmed civilians or caused a friendly fire incident, extreme scrutiny would have fallen on USASF formations creating unnecessary friction and oversight.

8. Conclusion

We conclude that PEDs provide significant benefits for SR and DA. Although executed in hostile or denied environments, these two principal tasks' short duration significantly mitigates risk and increases feasibility. Since much of the PED dosing would take place at the home station, USASF would have access to top tier medical facilities, physicians, and equipment Operators would be able to take full advantage of utilizing PEDs safely. Additionally, the high impact PEDs have on SR and DA missions far outweigh the marginal risks associated with using enhancers. The capability to move faster with more weight is crucial for time-sensitive operations like SR and DA. See Table 4 for a summary analysis on SR and DA.

Table 4. Summary of Analysis on Special Reconnaissance and Direct Action

<u>Grouped Principal Tasks</u>	Criteria				
	<u>Feasibility</u>	<u>Risk</u>	<u>Impact</u>	<u>Second-Third-Order Consequences</u>	<u>Worth the costs?</u>
Unconventional Warfare	Moderate	High	Moderate	Neutral	No
Foreign Internal Defense & Security Force Assistance	High	Low	Low	Negative	*Yes
Special Reconnaissance & Direct Action	High	Low	High	Positive	Yes

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VI. FINDINGS

Table 5 is a complete summary our findings of the net benefits of PEDs in relation to the SF principal tasks:

Table 5. Summary of Analysis on all Applicable SF Principal Tasks

<u>Grouped Principal Tasks</u>	Criteria				
	<u>Feasibility</u>	<u>Risk</u>	<u>Impact</u>	<u>Second-Third-Order Consequences</u>	<u>Worth the costs?</u>
Unconventional Warfare	Moderate	High	Moderate	Neutral	No
Foreign Internal Defense & Security Force Assistance	High	Low	Low	Negative	*Yes
Special Reconnaissance & Direct Action	High	Low	High	Positive	Yes

Upon examining the SF principal tasks through our framework, we have taken note of several themes that stand out. First, the operating environment and duration heavily influence the feasibility and risk of utilizing PEDs. As we saw in UW, PED use is moderately feasible and high risk because USASF would operate in hostile or denied territory. Thus, severely restricting the team's capability to re-supply and evacuate personnel. Yet, USASF also executes SR and DA in hostile or denied territories but have high feasibility and low risk because the short duration of those types of operations. USASF can safely use PEDs during pre-deployment where Green Berets are in a permissive environment. FID and SFA also reflect the high feasibility and low risk of using PEDs because USASF typically execute these missions in permissive or uncertain environments.

Second, whether a principal task is partner-centric or USASF unilateral affects the impact PEDs have on a principal task. The emphasis on working with and through partner forces in UW, FID, and SFA means operator's focus on leveraging partner capability to accomplish the mission. Therefore, an individual Green Beret's physical fitness plays less of an impact because SFOD-As will only be able to move as fast as their counterparts. USASF who are bigger, faster, and stronger will still only be able to accomplish a task as quickly as their partner force can. Conversely, PEDs will have a high impact on unilateral operations. SFOD-As that can move swiftly in time-sensitive operations like SR and DA will have a much higher chance of success.

Third, PEDs have the potential to make an immense impact on Green Beret recovery during post-deployment activities, especially after long arduous deployments. Unlike capacity-restoring technologies aimed at bringing individuals back to normal human operating capacity, PEDs would act as an enhancement because they would return Green Berets back to elite levels of fitness. More often than not, operators return from difficult missions hurt or weaker due to high operational tempo or demanding missions which consumes precious time for fitness and appropriate recovery. PEDs could bring operators back to peak conditioning, getting USASF soldiers back into the fighting fold quicker to rejoin their teams for training.

Fourth, second-third-order consequences are difficult to evaluate because they deal with perceptions, personal beliefs, and psychology, which will vary by partner nations, individual Green Berets, and sister services. Some may find the use of PEDs morally corrupt, while others believe it is perfectly acceptable. USASF will need to do some critical thinking and decide if whether the second-third-order consequences of using PEDs will apply to their specific mission and if those costs are worth the benefits.

Furthermore, much of the literature and public perception appears to shine a poor light on PEDs, especially within the competitive sporting world. This negative view also seems to spread over to those who are not bound by the "spirit of competition." However, there is no conclusive evidence that U.S. public perception would change significantly if USASF used PEDs.

VII. CONCLUSION AND WAY AHEAD

Based on our mission analysis and the effects PEDs could have on the SF principal tasks, we have concluded that PEDs could serve a vital role within the USASF Regiment as annotated in the section above. Our analysis highlights that the utility of PEDs is multifaceted in which they could be used for capacity increasing and/or capacity restoring. Consequently, current literature has left several questions unanswered that would need to be addressed before authorizing the implementation of PEDs in the military.

Due to the limited literature and studies on PEDs within the military and the effects they can have on servicemembers, we suggest that a more in-depth review needs to be conducted on historical missions to determine the impact they could have on the regiment. Conducting further research at higher levels of classification will assist in selecting the necessary categories, types, and dosages of PEDs to test and implement in the future.

Second, due to the operational environment playing a critical role in the implementation of PEDs, testing needs to be conducted on operators in the field. Although literature and testing has been conducted on elite-level athletes, the results are not necessarily applicable since Green Berets are more susceptible to a multitude of factors outside the norm of elite athletes. These factors include significant declines in calorie intake, sleep deprivation, etc., which is due to the high operation tempo and long-duration operations. Since Green Berets are deployed to various environments around the world and at times have minimal medical support, it is important to identify how PEDs affect individual operators.

Third, we recommend PEDs be incorporated with SR and DA tasks over the others due to the nature of each mission sets. As discussed in the mission analysis section, SR and DA missions highlight the most practical use of PEDs as well as pose the lowest risk because the missions are much shorter in terms of time. The use of PEDs in these types of missions can assist in collecting more detailed information/intelligence, be bigger, faster, or stronger in situations where these attributes matter. Additionally, short-term use helps mitigate any adverse side effects that could be experienced through long-term use or

exposure. Thus, mitigating risk is a vital part to planning any operation whether its risk to mission or risk to force.

Fourth, we suggest adopting and adjusting one of the various frameworks published that addresses the multiple moral and ethical issues that could potentially arise with the implementation of PEDs within USASF. In addition to addressing potential issues, we recommend identifying cases where the use of PEDs would be command directed. Although this can be viewed as an ethical concern, soldiers are command directed to take medications to decrease any chances of contracting malaria. This directive is in the best interest of the soldier, the unit, and the U.S. Army.

Lastly, we recommend exploring other SOF units that could benefit from incorporating PED use such as the Special Forces Operational Detachment – Delta (SFOD-D), Navy Seals, and U.S. Army Rangers who have a large emphasis on reconnaissance and direct action missions. The utility of PEDs can serve varying roles across the DOD, but the needs and requirements for elite units needs to be further researched. It is critical to invest in personnel whether it is capacity building or capacity restoring as described in the SOF Truth: “humans are more important than hardware.”¹²¹

¹²¹ “SOF Truths.”

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