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Pharmacological Optimization of Combat Performance

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Abstract

This short paper provides some of the historical background and rationale for reopening the question of whether some of the stressor of the modern day battlefield may be made more manageable by judicious sampling from a burgeoning pharmacology industry

Widespread use of marihuana and heroin by U.S. servicemen in Vietnam was a practice roundly condemned by military leaders and civilians at home as an indication of bad soldiers, bad leaders, or a bad war, depending on the position of the critic. The drugs clearly served some purposes for the users themselves however. Bentel, Smith and Crim (1971) for example report on how social bonding was facilitated by communal drug use, how heroin was used by some as "therapy" for their despair and frustration, and how still other soldiers spoke of carefully titrating their use of marihuana while on combat patrols to calm down, enhance awareness, and increase their suspiciousness of enemy activity. It might be argued that these soldiers differed from their counterparts in prior wars primarily in their choice of illicit drugs for their self-medication. Alcohol in fact has a long and glorious tradition among military men as a builder of camaraderie - cohesion is -- the currently fashionable term. It very-likely has been used for its direct effects on fighting spirit as well. The term "Dutch courage" is thought to have originated from the widespread use of Dutch manufactured gin by 18th and 19th century soldiers (Jones, 1985). When the great British general Wolseley decided to abolish the rum ration during his 1884 campaign to relieve Gordon at Khartoum, he needed the personal intervention of Queen Victoria to overcome the strenuous veto of the War Office -- and he suffered his only major set back in the subsequent campaign (Manning, 1984). The ancient Viking "beserkers," as well as some American Indian tribes, are thought to have included ingestion of psychodelic mushrooms in their preparation for battle (Aaronsan and Osmond, 1970).

The pharmaceutical industry has exploded in the last fifty years, and, though its greatest impact on the military has been in the areas of vaccines and antibiotics, "performance enhancing" drugs have not gone entirely unnoticed. The Soviet army of World War II apparently used amphetamine to stave off fatigue, as did Rommel (Cuthbertson, cited in Laties & Weiss, 1981), but other 20th century uses have been focused on limited non-shooting aspects of combat. US soldiers on "long range reconnaissance patrols" in Vietnam for example were issued methylphenidate (Ritalin) and sometimes dextroamphetamine, but with instructions to use it only for the long march back to base camp at the completion of the mission (Jones, 1985; Malone, 1984). More

recently, an Israeli physician capitalized on the sleep-inducing "side effect" of the antihistamine Dramamine to promote sleep during the long flight prior to recapturing the hostages at Entebbe airport (Dolev, personal communication, 1982). Finally, Baird, Coles, & Nicholson (1983) have reported on the widespread use of the short-acting hypnotic temazepam by British aircrews during the Falklands conflict in 1982. Flying rates were extended far beyond previous experience, particularly in reconnaissance and transport roles, and temazepam was used to insure that crews got maximum sleep in their non-flying hours.

It was with these examples in mind that the Division of Neuropsychiatry at the Walter Reed Army Institute of Research assembled a small group of scientists to examine in a systematic way the possible uses of behaviorally active drugs in military operations. Nearly all the members were sceptical that a good case could be made for any currently available drug. Some remain sceptical today, but others have slowly come to feel that under some circumstances, some drugs, at some dose level, might provide our soldiers a worthwhile edge. All agree that recent developments in neurochemistry provide substantial grounds for continued research along these lines.

The four papers included in this symposium focus on four different aspects of soldier performance: physical strength and endurance; anxiety; sleep; and cognition. These categories are not independent of each other, and certainly are not meant to encompass all behavior. Furthermore, a number of behaviorally active drugs are clearly relevant to more than one category. As a heuristic device however, this division of labor has served its purpose of organizing our considerations around required performance rather than drug structure or disease entities.

All of our Psychopharmacology Group's members were keenly aware from the start that altering CNS chemistry was something that simply cannot be done without wide ranging behavioral effects, only some of which will be desirable, no matter what the context. We thus conceded from the outset that the chances of finding or ever developing a drug that would produce a "Superman," i.e., significantly enhance the maximum performance of a well-trained, well-motivated soldier. There are however a myriad of features (stressors) of the modern battlefield which insure that nearly no one will in fact be performing at or near maximum for very long. Two of these features have been especially influential in our thinking about drugs. The sheer lethality of modern weapons for example and the anticipated need for wide dispersal and a 360° "front" lead us to expect unprecedented numbers of battle stress (i.e. psychiatric) casualties. Second, the availability of night-vision devices has made it possible for Soviet doctrine to specify continuous operations. Following even a rough approximation of this doctrine will quickly cause enormous difficulties for Western forces, which simply do not have the numbers to go to a simple shift work schedule. A more modest and theoretically achievable goal than building a superman has instead been to mitigate the decrement in performance known to occur in highly stressful circumstances (a la sports psychology) or as a function of increasing fatigue and sleep deprivation. There will undoubtedly be "trade-offs" to be considered in using these drugs, as there are with any drug, but we see these drugs as emergency equipment, the alternative to which is death on the battlefield. It is largely for this reason also that we have not considered vitamins, steroids, ginseng, and other compounds which require chronic or long-term administrations.

In summary, I do not feel I am being unfair to any of the four speakers who will follow me to say that there are no panaceas on the horizon, but there are some promising leads for repairing or for stalling deterioration of performance on the modern battlefield. We owe it to our soldiers and our country not to ignore them.

References

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Note

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