
A relatively new alertness enhancing compound of interest in military aviation is modafinil. To establish the safety and efficacy of the use of this drug on pilots, studies are being carried out in the USAF. The present study was designed to determine whether modafinil (100 mg after 17, 22, and 27 h without sleep) would attenuate the effects of fatigue on fighter-pilot mood and performance during 37 h of continuous wakefulness.

The authors used a quasi-experimental, single-blind, counterbalanced design and tested the effects of modafinil in 10 Air Force F-117 pilots. They found out that modafinil attenuated flight performance decrements on six of eight simulator maneuvers. Overall, modafinil maintained flight accuracy within approximately 15-30% of baseline levels, whereas performance under the no-treatment/placebo condition declined by as much as 60-100%.

Modafinil decreased self-ratings of depression and anger, while improving ratings of vigor, alertness and confidence. Benefits were most noticeable after 24 to 32 h of continuous wakefulness.

A potential drawback of modafinil was noted that, at least at the 100-mg dose level, the drug’s effects were not subjectively salient. As this may lead personnel to escalate the dose without flight surgeon approval, authors suggested that the personnel should be cautioned regarding this particular drug characteristic.

The authors concluded that although modafinil did not sustain performance at predeprivation levels, the present study suggests that modafinil should be considered for the military’s armament of short-term fatigue countermeasures.

Compiled by Sqn Ldr Piush Renjhen
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Skeletal muscle responds and adapts continually to the loads placed on it. However, there is a point where by the stress is too great & the muscle is unable to adapt and injury may occur. The cervical area has the highest loading while performing flying maneuvers under +Gz. The occurrence of clinical injuries may be due to cervical muscles having insufficient strength. The first purpose of this study was to examine the neck muscle response to the physical environment associated with flying training, incorporating limited exposure to +Gz force, in a PC-9 aircraft. The second purpose was to examine the short term range of movement (ROM) response to flight training. Isometric cervical muscle strength and ROM was monitored in 9 RAAF pilots completing 8-months flight training course in Western Australia and 10 controls matched for gender, age, height and weight. By using the multi-cervical rehabilitation unit, isometric cervical muscle strength and ROM were measured at baseline and at 8 months. Results showed that an increase in pilot neck strength was limited to flexion while in a neutral position. No strength changes were recorded in any other site in the pilots or for the controls. These findings suggested that short term exposure to the physical environment associated with flight training had a limited significant effect on increasing isometric cervical muscle strength. No significant changes were observed in pilot ROM, indicating that short-term exposure to flight does not effect ROM.

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