Utility of Dextroamphetamine for Attenuating the Impact of Sleep Deprivation in Pilots
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The authors have done research in the role of amphetamines in maintaining the performance levels in sleep deprived aircrew. This paper aims to substantiate the efficacy of dextroamphetamines (Dex) for sustaining the alertness and performance of pilots during periods of sleep deprivation by showing the robust effects of the medication and its consistent effects across several research efforts. Field Studies have been done during USAF strike on Libya in Apr 86 by Senechal using 5mg of Dex. The aircrew were able to overcome fatigue of mission and sleep deprivation with no in flight or landing problems.

This article utilizes select measures from the entire set of Dex vs Placebo comparisons from 4 separate investigations collected by United States Army Aeromedical Research Laboratory to conduct a comprehensive analysis of the stimulant effects of the drug. From the four separate investigations a total of 28 subject pilots were tested. The dose given consisted of active capsule 5mg of Dex (2 tablets were given per dose) and placebo consisting of lactose powder. The materials used in the study consisted of a UH 60 simulator which had computer generated visual, a 6 degree of freedom motion base and a multi channel data acquisition system. Also used in the study was a UH 60 helicopter (used in 1 study) and it recorded the same aspects as in simulator and downloaded on the main computer in the lab. The various parameters recorded were EEGs, Polysomnographic evaluations consisting of sleep architecture during recovery sleep, EMG (chin) & EOG data. The mood was assessed with Profile of mood status(POMS). It is a 65 item test measuring affect on 6 scales. From the results the authors concluded that prophylactic administration of repeated 10 mg doses effectively attenuates the impact of sleep loss on flight performance, mood, physiological arousal, when pilots are kept awake continuously for 40 hrs were not examined. Also it was observed by the authors that pilots were substantially more talkative under dex but did not become careless or reckless. The authors concluded that dex can be used for maintaining the performance of fatigued but otherwise normal personnel in operational setting.

PCATDs and Currency
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Personal Computer based Aviation Training Device (PCATD) is a FAA’s term for certain combinations of flight simulation software and flight simulation control hardware that meet the requirements specified in FAA Advisory Circular 61-126. Most importantly, this combination of software and hardware operates on a standard, off-the-shelf personal computer, rather than as part of a stand-alone flight simulator. The main goal of this study was to determine whether a PCATD can be an effective vehicle to maintain the FAAs recent experience requirement for instrument flight currency. This would be evident if the group of instrument flight rated (IFR) who receive refresher training in PCATD could perform comparably to the group which uses aircraft of Flight Training Device (FTD) during the 6 month currency period. This study consisted of 106 instrument rated pilots. The following materials were used for the study, two FAA approved Jeppesen FS 200 PCATDs configured as Beech craft Sundowner aircraft, two FAA approved Frasca 141 FTDs, two 180 hp single engine Beech craft Sundowner aircraft (BE- C 23). A familiarization session which included Instrument flight regulations and Emergency procedures. All Pilots underwent this Instrument proficiency check 1 (TEST 1) in aircraft. In test 1, 45 pilots passed and were equally divided into four groups namely: PCATD, FTD, Aircraft and control. Each of the group received two training session at 2nd and 4th month on the respective training aid. After this all the subjects were made to undergo test 2 similar to test 1 and the results were obtained. The authors concluded that the pilots assigned to FTD and PCATD group on average showed improved performance on Test 2. PCATD showed a significant improvement on three of the six maneuvers. The PCATD is effective for maintaining instrument currency and also effective in enhancing instrument proficiency. Pilots who trained in PCATD during 6 month period performed as well as those who trained in FTD.

Both FTDs and PCATDs may actually be more effective for training purpose than an airplane.

Compiled By Sqn Ldr Piush Renjhen