



**European Conference on Aerospace Medicine
2010 Athens
10th – 13th November 2010**

ABSTRACT

Title: THE INFLUENCE OF SLEEPINESS ON PILOT PERFORMANCE IN A FLIGHT SIMULATOR	
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Objectives: The aim of the study was to find correlations between easily measurable fatigue and sleepiness indexes and pilot performance in a simulated instrument flight.	
Methods: An anonymous questionnaire assessing various aspects of fatigue and sleepiness was given to pilot trainees just before performing a scheduled instrument training flight in a T-2 flight simulator. The trainees were asked to assess their subjective feeling of sleepiness using a Likert scale (0-10), to report the duration of their sleep the previous night and the previous two nights, and to answer the Epworth sleepiness scale. The subjects were then asked to perform a simulated HI/TACAN instrument approach in the local airport. The lateral deviation from the ideal flight path, the crossings of the actual with the ideal flight path and the final instructor score (0-100) were used as performance measures. A total of 55 questionnaires were gathered. Regression analysis was performed and with the level of statistical significance being >0,05.	
Results: The lateral deviation from the ideal flight path has a statistically significant relationship with the score in Epworth sleepiness scale ($p < 0,001$). No other statistical relationship was found between the rest of sleepiness measures and the rest of performance measures.	
Conclusions: The finding of pilot performance decrement that follows the increase of sleepiness is compatible with published data. The most accurate performance parameter used was the lateral deviation from the ideal flight path. We believe that the vertical deviation, which could not be measured in the T-2 simulator, would be equally accurate. The results of sleepiness measurements recorded in our study lacked extreme values (too much or too little sleep). Thus, performance decrements were not dramatic enough to be detected by the instructor and reflected in the final score. Subjective measurement of duration of sleep is a very unreliable fatigue index. Seeking maximum objectivity, a method of wrist actigraphy should be used in similar studies.	
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