

POLYTECHNIC

Lifestyle and Solutions: An Investigation of Fatigue in Collegiate Aviation

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The threat of fatigue to aviation safety is not fully understood. Airplanes are complex machinery and likewise, flying an airplane is a very complex operation. This includes having to manage the three-dimensional in-flight controls, aircraft configurations, and maintaining situational awareness for handling communications with air traffic control. These activities require optimal performance and the most alert mental state. Fatigue impairs both manual dexterity and intellectual processing, such as higher-order thinking skills. Causes of fatigue are well known in airlines and military flight operations. However, collegiate aviation pilots are subject to unique causes of fatigue, including part-time jobs, student organizations, social activities, and academic matters. Furthermore, little research has been done addressing fatigue among collegiate pilots.

The purpose of this study was to validate the Collegiate Aviation Fatigue Inventory (CAFI), and to investigate the causes and symptoms of fatigue among the target population—pilots at a Midwestern university. After an exploratory factor analysis and reliability test, the CAFI was deemed a valid instrument. Results indicated (n = 146) over half of the participants did not consider themselves as having a healthy lifestyle. Poor quantity and quality of sleep was an issue for 66% of the respondents. A finding of concern was that, although 86% of the respondents agreed fatigue negatively affected flight safety, 48% of them elected to proceed with their flights despite acknowledging a fatigue state. Future research includes focus groups and interviews with collegiate aviation pilots to improve fatigue management as well as training.

Research advisors Julius Keller and Flavio Mendonca write: “Erik and Aaron’s research addressed an important gap in literature—fatigue identification and management by collegiate aviation students. Findings of this study will inform future researchers as well as provide the groundwork for the development and implementation processes to mitigate the risk of fatigue during flight training.”