



Case study: Aviation essay example

Sample introduction

The impact of sleep on a pilot’s performance has attracted the interest of both aviation authorities and researchers for some time. One specific factor, sleep inertia which is the physiological state that immediately follows awakening has been found to impair mental and manual operations. Sleep inertia has been linked to a number of aviation incidents involving pilot error. This case study will analyse the role sleep inertia may have played in the crash of Air India Express Flight IX-812 at Mangalore in India on May 22nd 2010. The report of the subsequent Court of Inquiry along with literature relating to sleep inertia will form the basis of the analysis. First, research findings about sleep inertia generally, and sleep inertia in aviation specifically, will be examined. An account of this particular incident and the major findings of the Court of Inquiry will then be provided. Next a discussion of the impact of sleep inertia played in this incident and the lessons that can be learnt from this will be presented. Finally, recommendations for how such incidents can be avoided in the future are made.

Set the scene
- Moving from broad to specific

Purpose of the case study

Methods

Outline of essay

Sample body paragraph

One factor which may contribute to this chronic fatigue among pilots is the extended flight duty period associated with long-haul, international flights. In particular, pilots of these flights are likely to have duty periods in excess of 8 h and thus are at the greatest risk for performance impairment due to fatigue (Rosekind et al. 1995). For example, a 9-h flight may involve a duty period of 12 h or more. Justifying concerns with regard to the potential dangers associated with these long-haul flights and extended duty periods, Goode (2003) examined the records of accidents in commercial aviation between 1978 and 1999 and found a significant relationship between flight duration and frequency of accidents. Additionally, pilots have reported increasing fatigue across the duration of the flight (Gundel et al. 1995; Petrilli et al. 2006), suggesting that the combination of time-on-task fatigue (Samel et al. 1997) and the strong drive to sleep after someone has been awake for a long period of time (that is, homeostatic sleep pressure) may lead to a serious deterioration in the pilots’ alertness and performance. *However, several other factors have been found to affect alertness on long-haul flights.*

Topic sentence
Introduces the focus of the paragraph

Linking words
Used to give cohesion & logical progression of ideas

In-text references
Used to support or back up discussion, & to acknowledge sources of information

Concluding sentence
Links to next paragraph



Sample conclusion

<p>This case study examined the role sleep inertia may have played in the crash of Air India Express Flight IX-812 at Mangalore in India on May 22nd 2010. Studies of human factors in aviation have shown that a variety of factors influence the severity and duration of sleep inertia. These factors include depth of sleep, timing of sleep and chemical influences. If a crew member is awakened from a deep sleep, then it is likely their reaction time performance will be adversely affected. This appeared to be the case for Air India Express Flight IX-812 where the Captain was in a long sleep during the flight. As a result, upon awakening, the Captain’s judgment appeared to have been impaired, resulting in a series of poor decisions. This case highlights the need for an effective Fatigue Risk Management System (FRMS) and a Crew Resource Management (CRM) system, along with focused training to ensure crew are fully aware of the impact of sleep inertia on performance, particularly decision making.</p>	<p>Restated focus/ purpose of essay</p> <p>Sum up main points or findings from the body of the essay</p> <p>Conclusion</p> <ul style="list-style-type: none"> - links to recommendations
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Sample recommendations

<p>Based on the main findings of this case study, it is recommended that:</p> <ul style="list-style-type: none"> • CRM training and refreshers for all flight crew should be conducted as required by DGCA vide Operations Circular No 2 of 2001 • CRM training must include both classroom and simulator training 	<p>Recommendations</p> <ul style="list-style-type: none"> - relate back to the issues discussed in the Conclusion. - are stated briefly but clearly - are expressed as action statements or directives to do something - use persuasive or firm language such as ‘must’, ‘ought to’ etc.
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References

Government of India Ministry of Civil Aviation (2010) ‘Report on accident to Air India Express Boeing 737-800 Aircraft VT-AXV on 22nd May 2010 at Mangalore’ Government of India, New Delhi.