

## **EDUCATION: Case Study: Clinical or Human Performance Template**

This type of abstract describes the analysis of an individual clinical or operational case that is not a research study but provides pertinent information directly applicable to aeromedical practices, safety or human performance

Please retain the headings in **BOLD** and replace the *blue text in italics* with your submission.

**PROBLEM STATEMENT:** *<This section concisely summarizes the case>*

**BACKGROUND / LITERATURE REVIEW:** *<This section describes the importance of the case and provides supporting evidence>*

**CASE PRESENTATION:** *<This section describes the event>*

**OPERATIONAL / CLINICAL RELEVANCE:** *<This section explains the applicability to civilian and military operations>*

**Example (AMHP 86(3):206, 2015):**

### **+Gz-INDUCED VISUAL SYMPTOMS IN A MILITARY HELICOPTER PILOT: A CASE REPORT**

**PROBLEM STATEMENT:** This case report describes a military helicopter pilot who experienced +Gz-induced visual impairment during low-level flight.

**BACKGROUND / LITERATURE REVIEW:** Military helicopters are increasingly agile and capable of producing significant +Gz loads. In the tactical environment, factors such as dehydration and fatigue can adversely affect a pilot's +Gz tolerance. +Gz-induced symptomatology may be seen in such situations at lower +Gz levels than might otherwise be the case. As a result, the potential for adverse consequences of +Gz exposure to affect flight safety in military helicopter operations needs to be recognized.

**CASE PRESENTATION:** The subject pilot was a 25-yr old Australian Army Blackhawk pilot. He was an experienced pilot, with 1500 total flying hours including 500 hours on the Blackhawk type. The incident occurred during a tactical training exercise in a tropical environment, with an ambient temperature of around 35°C. Due to the operational tempo of the exercise and the environmental conditions, aircrew were generally fatigued and dehydrated. During a low-level tactical flight at 200 feet, the pilot initiated a steep turn at approximately 30-40 degrees angle of bank. During the turn, the pilot noticed a significant deterioration of vision consistent with the grey-out phenomenon. The +Gz level was estimated at around +2.5 Gz. After releasing the bank angle, the pilot's vision returned to normal. The remainder of the flight was conducted without further incident.

**OPERATIONAL / CLINICAL RELEVANCE:** This case highlights the potential dangers of +Gz exposure in modern tactical helicopters. Although the +Gz level was moderate, the pilot's +Gz tolerance was reduced by the combined effects of dehydration and fatigue, allowing grey-out to occur at a lower +Gz level than normal. The dangers of such +Gz-induced visual impairment while operating at low level are clear. Loss of visual reference to the ground and an overall reduction in situational awareness could lead to ground impact. This case illustrates the need for more awareness of +Gz physiology and +Gz tolerance reducing factors in helicopter operations.

