



# United States Army Aeromedical Research Laboratory



## In-Flight Spatial Disorientation Training in the United States Army and National Guard

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## SD Awareness Training in the US Army/NG :

### Initial Rotary Wing Training

- ☎ Academic (US Army School of Aviation Medicine [USASAM])
- ☎ In-Flight Training (US Army Aviation Center [USAAVNC])





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## SD Awareness Training in the US Army/NG :

Graduate (Continuation) Rotary Wing In-Flight Training

☎ SD Scenario Training (Visual Flight Simulators)



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## USASAM Academic Training (IERW)

Visual, Vestibular & Proprioceptive Systems:

☎ Physiology / Role in Orientation

☎ Illusions

☎ Barany Chair Demonstration

Types of Spatial Disorientation (I-III)

Prevention

Corrective Actions





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## SD Awareness In-Flight Training

### SD Demonstration Flight (Background) -

☎ Based on the British Model. Introduced to U.S. Army by COL M. G. Braithwaite.



☎ USAARL assessment conducted.

- ☎ Same basic maneuvers (UH-1 vs. Gazelle).
- ☎ Flight Surgeon in a pilot seat or in the cabin.



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## SD Awareness In-Flight Training

### SD Demonstration Flight (Background) - (cont.)

- ☎ Assessment determined that Demo Flights were an excellent augmentation to the academic training.
- ☎ SD Demo Flights integrated into IERW syllabus in September 1997.
- ☎ SD Demo Flights ended May 1999 because of:





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## SD Awareness In-Flight Training

### SD Demonstration Flight (Background) - (cont.)





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## US Army SD Demonstration Flight

### Challenges Encountered:

- ☎ Difference in US & British Flight Surgeon duties.
- ☎ Critical shortage of US Flight Surgeons.
- ☎ UH-1 is being phased out.
- ☎ Shortage of UH-1 pilots.  
(USAAVNC/Flatiron)





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## US Army SD Demonstration Flight

### Challenges Encountered (cont.):

- ☎ IERW syllabus problems. (no makeup day)
- ☎ Contractor lost a day (2 hrs) of a/c training.

**RESULT: Pressure to cancel the SD Demo Flight or use the TH-67 as the aircraft.**



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So, what's so bad about using the TH-67?

- ☎ Limited to 3 on board. (One IP and two students.)
- ☎ Eliminates the Flight Surgeon.
- ☎ The IP must be trained to teach physiological limitations and all training must be standard







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## US Army SD Demonstration Flight

- ☎ USAARL & USASAM concerned over possible elimination of SD Demo Flights.
- ☎ Aviation Training Brigade did not want to eliminate Demo Flights, but had few options.
- ☎ Convened meeting of all concerned USAARL, USASAM, ATB, USASC and others.



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## US Army SD Demonstration Flight

Meeting Outcome:

1. All agreed training was important.
2. UH-1/ UH60 could not be used.
3. Only option was to use TH-67 & IP's to continue SD Demo Flights.
4. In order to keep training in syllabus, requirement for Flight Surgeon must be eliminated.





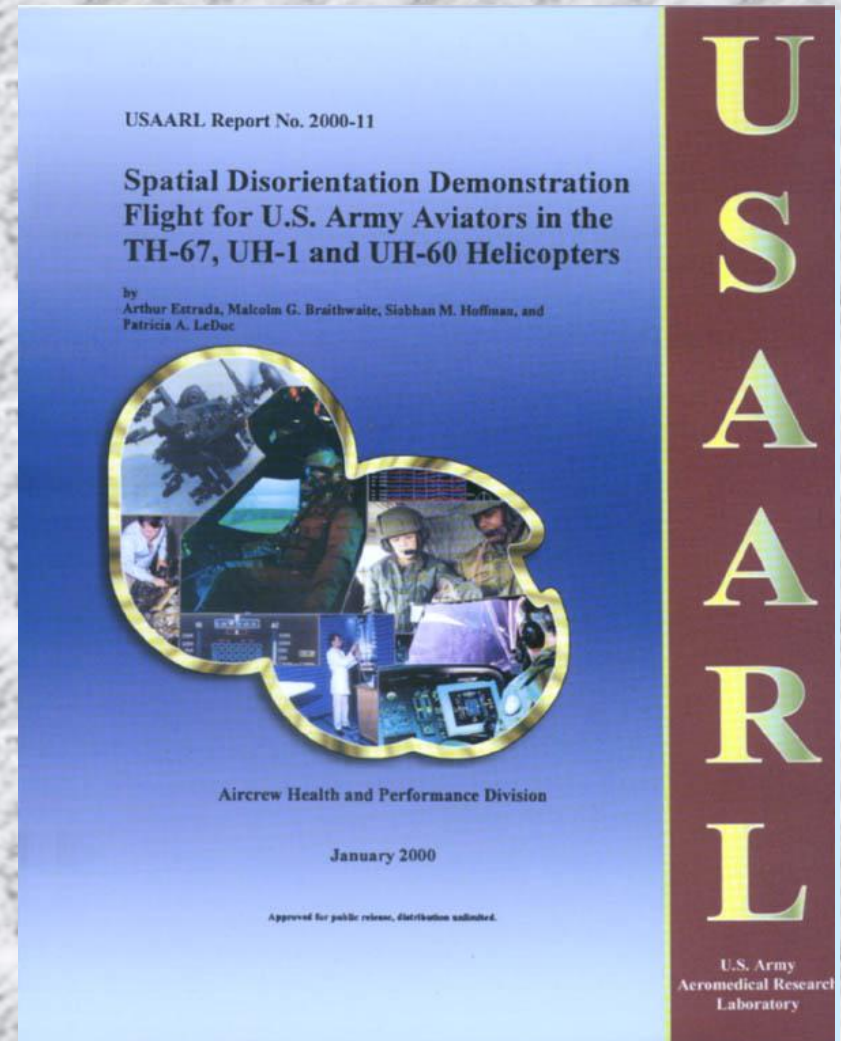
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## Meeting Outcome (cont.):

### 5. USAARL agreed to

a) Rewrite SD  
Demonstration Lesson  
Plan published as USAARL  
Report No. 2000-11





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Meeting Outcome (cont.):

b) Produce an instructional video







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## Lesson Plans and Videos available:

- ☎ On-line at [www.usaarl.army.mil](http://www.usaarl.army.mil)
- ☎ By telephone: (334) 255-6936
- ☎ By visiting USAARL's Science Support Center

## ☎ SD Demonstration Flight:

- ☎ Training has started in TH-67 / IP's as trainers.
- ☎ Training is part of syllabus and, thus, mandatory.
- ☎ Allows training day flexibility.
- ☎ Jury's out on effectiveness.



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## Graduate (Continuation) Rotary Wing In-Flight Training

### SD Scenario Training (Visual Flight Simulators)

- ☎ Background (COL Braithwaite)
- ☎ Recreate events and conditions of actual SD accidents
- ☎ USAARL Study
- ☎ USAARL Report No. 98-17 (18 scenarios)





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## Graduate (Continuation) Rotary Wing In-Flight Training

☎ SD Scenarios can be used in any visual flight simulators if modified.



☎ Raise awareness of SD & those factors which make SD more likely to occur.



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- ☎ Scenarios demonstrated to:
  - ☎ Division Commander's Courses (G.O.)
  - ☎ Aviation Pre-Command Course (LTC & COL)
  - ☎ VIP's
- ☎ USAARL has trained trainers worldwide.
- ☎ Active Duty - Use is voluntary in ATP
- ☎ NG - EAATS mandatory for IP's
- ☎ NG - WAATS used in refresher training





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**QUESTIONS?**

**<http://www.usaarl.army.mil>**