

Flight Lesson: Human Factors

Objectives:

1. exhibit knowledge of the elements related to Human Factors
2. understands the importance of relying on instruments in non-visual conditions
3. sees the effects of physiological illusions in causing spatial disorientation.

Schedule:

| Activity | Est. Time |
|----------------|-------------|
| Ground | 0.75 |
| Preflight/Taxi | 0.25 |
| Flight | 1.5 |
| Debrief | 0.25 |
| Total | 2.75 |

Elements Ground:

- The Ear
 - ear orientation
 - semi-circular canal
- Spatial Disorientation Illusions
 - Vestibular
 - Turning Illusions
 - The Leans
 - Coriolis Illusion
 - Graveyard Spiral
 - Other Illusions
 - Somatogravic Illusion
 - Inversion Illusion
 - Elevator Illusion
 - Visual Illusions
 - False Horizon
 - Autokinesis
- Posture
- Recognition & Coping

Recommended Readings:

| | |
|-----|--------------------------|
| IFH | Chapter 1: Human Factors |
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Elements Air:

- Spatial Disorientation Demonstration
 - Acceleration Illusion (climbing)
 - Turning Illusion (climbing)
 - Turn Recovery Illusion (diving)
 - Skidding Illusion (leaning)
 - Reversal of Motion (counter rotation)
 - Rolling beyond Vertical Plane (extreme)

Spatial Disorientation Exercise

- 1) Straight and Level at Approach Speed, then accelerate Straight and Level
- 2) slow entry into 50° bank for 90° heading change
- 3) slow entry into 50° bank for 45°, then roll out to Straight and Level
- 4) slight skid to the right or left
- 5) brisk roll into 45° bank while maintaining pitch and heading
- 6) coordinated brisk roll into 30-40° bank, while pilot looks down, left or right, then back up. Bank should be completed as pilot looks back up.
- 7) fly eyes closed with head tilted, attempt to follow instructions