PILOT STRESS: Factors Affecting Performance

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STRESS

• Environmental challenges that induce a non-specific set of neurologic and hormonal responses:
  - Increased cardiac output
  - Increased respiration
  - Sympathetic nervous system arousal
  - Redistribution of bloodflow
STRESSOR

• Any environmental change, novelty and/or instability that eludes control

• Change in the ability to exert control
  - Can be inherently unpleasant (distressor)
  - Can be inherently pleasant (eustressor)
STRESS DIATHESIS

• A condition of increased biological susceptibility to stresses that can lead to increased reactivity to various stressors

• Each individual has distinct diatheses
  - Some are biologically determined
  - Some are environmentally conditioned
  - Some are interactive
STRESS RESPONSE: General Adaptation Syndrome

- Three-stage response of hierarchical biological systems:
  1. **Alarm Stage**: immediate, short-term
  2. **Resistance Stage**: mobilization against threat
  3. **Exhaustion Stage**: biological fatigue
8 Types of Stress Factors

- Conscious Factors: thought, judgement, decision making
- Unconscious Factors: past influences, memories
- Personality Factors: character and temperament
- Psychological Factors: emotional condition
- Physiologic Factors: biological influences/condition
- Environmental Factors: noise, comfort, ergonomics
- Experiential Factors: situational influences
- Sociocultural Factors: family, finances, life-changing
8 Interactive Stress Variables

- Intensity: magnitude (low vs high)
- Quality: insignificant vs significant
- Duration/frequency: short vs long; high/low
- Focus of Stressor: vulnerability (high vs low)
- Extent of Stress: scope of influence (isolated vs extensive)
- Mental/Physical Status: hardiness (high vs low)
- Resistance: active vs inactive
- Perception: reductive vs magnifying
Identified Pilot Stressors

- Flying alone
- Congested airspace/busy airports*
- Emergencies
- Night flying
- Check rides
- Flying over water
- Getting lost/landing at wrong airport
- Losing medical certificate/grounding
- Violating FARs/grounding*
- Miscomprehension of ATC*
- Making a fool of oneself
- Crashing/midair collision*
Stressful Aspects of Flight

1. Approach/landing (Demand = Stress)
2. Takeoff (Demand > Stress)
3. Cruise (Demand > Stress)
4. Taxi (Demand > Stress)
Stress, Performance & Error

• **Under low perceived stress:**
  - Boredom/complacency may be high
  - Performance = low, with high potential for poor judgement

• **Under high perceived stress:**
  - Performance degrades due to decreased skill and/or diminished endurance
  - Poor judgement and error potential increase
“Ideal” Stress Level

• “Stress Comfort Zone”: environment in which *eustressors* outnumber *distressors* to increase arousal within response limits, while generating peak performance
  - Low boredom factor
  - Low potential for poor judgement
  - Low potential for error
Stress-coping Patterns/Behaviors

- Denial: Ostrich effect “This isn’t happening to me”
- Suppression: “I’m OK…I’ll be fine”
- Humor: “Pagliacci effect”
- Projection: “I’m OK, you’re the one who’s stressed out!”
- Intellectualization: “Let’s examine the data…”*
- Rationalization: “What are some options here…”*
- Decompensation: Pass the Xanax and could I wash it down with some gin, please?
Overcoming Stress

• It’s not the stressor, it’s your reaction to it!
• Every stress *Activates* a particular set of *Beliefs* that drive your *Cognitions* to evoke Consequences. (A - B - C)
• Access the ABCs of any stressor you encounter
• *Dispute* your irrational Beliefs to generate new *Expectations* and *Feelings* (D - E - F)
Preparation is the Key

• Through preparation, you can gain knowledge to rationally dispute beliefs that lead to inadequate behavioral consequences
• Such preparatory safety is not a fable…remember AESOP

  - Aircraft factors
  - Environmental factors
  - Situational factors
  - Options
  - Personnel factors