

Mar 4th, 10:45 AM - 12:15 PM

## Aviation Stress Management: A Holistic Approach to Aviation Education and Training

Jennah C. Perry

Embry-Riddle Aeronautical University - Prescott, perryj13@erau.edu

Amy McVickers M.Ed.

Embry-Riddle Aeronautical University, MCVICKEA@erau.edu

Follow this and additional works at: <https://commons.erau.edu/ntas>



Part of the [Health and Physical Education Commons](#), [Higher Education Commons](#), and the [Student Counseling and Personnel Services Commons](#)

---

Perry, Jennah C. and McVickers, Amy M.Ed., "Aviation Stress Management: A Holistic Approach to Aviation Education and Training" (2020). *National Training Aircraft Symposium (NTAS)*. 65.  
<https://commons.erau.edu/ntas/2020/presentations/65>

This Presentation is brought to you for free and open access by the Conferences at Scholarly Commons. It has been accepted for inclusion in National Training Aircraft Symposium (NTAS) by an authorized administrator of Scholarly Commons. For more information, please contact [commons@erau.edu](mailto:commons@erau.edu).



Stress Management:  
A holistic approach to aviation education &  
training

Embry-Riddle Aeronautical University  
Prescott, Arizona

# Short term – Acute Stress

- Improves focus
- Prepares the body for action
- Aligns systems to support optimal performance
- The right amount of stress can be inspiring and foster greater productivity and optimal performance



# Our challenge is that beneficial short-term stress, is becoming chronic & toxic

Elevated levels of stress have a significant impact on an individual's cognitive processes.

2018

Air Traffic Collegiate Training Initiative (ATCTI), FAA informed the attendees that air traffic control college graduates are lacking in stress management skills directly impacting academy success.

2014

High levels of perceived stress correlated to lower perceived flight performance in college aviators.



# Direct and Indirect Effects of Chronic stress on students

## Indirect & Behavior Change

- Loss of sleep, tiredness, irritability, & anxiety
- Procrastination
- Withdrawal or interaction change with peers
- Difficulty focusing with day to day life
- Poor recall
- Digestive issues, irritable bowel, ulcers
- Change in eating habits/nutritional health
- Potential for illness and disease
- More reliance on addictive substances, i.e. alcohol, caffeine, sugar, nicotine

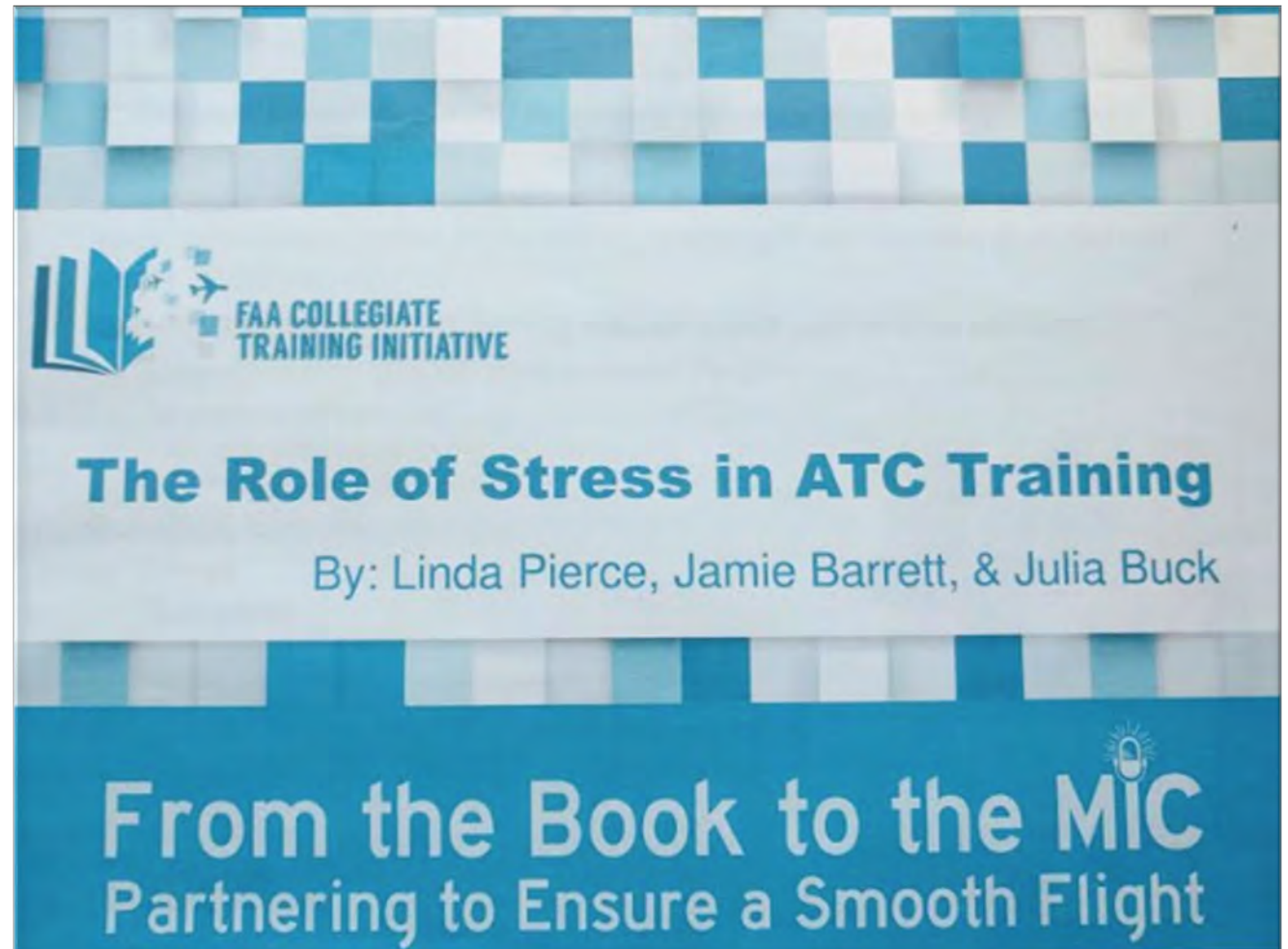
## Direct

- Physiological changes in the body as a result of hormone release during the alarm reaction stage of the General Adaptation Syndrome (Alert, Resistance, Exhaustion).
- Cardiovascular, Immune & Body Systems effected, including physical & emotion effects.

# Background

## Stress is an Industry Problem:

- FAA identified and reported Air Traffic graduates are lacking stress management skills necessary to achieve success
- Based on FAA recommendations, ERAU identified a need for specific training

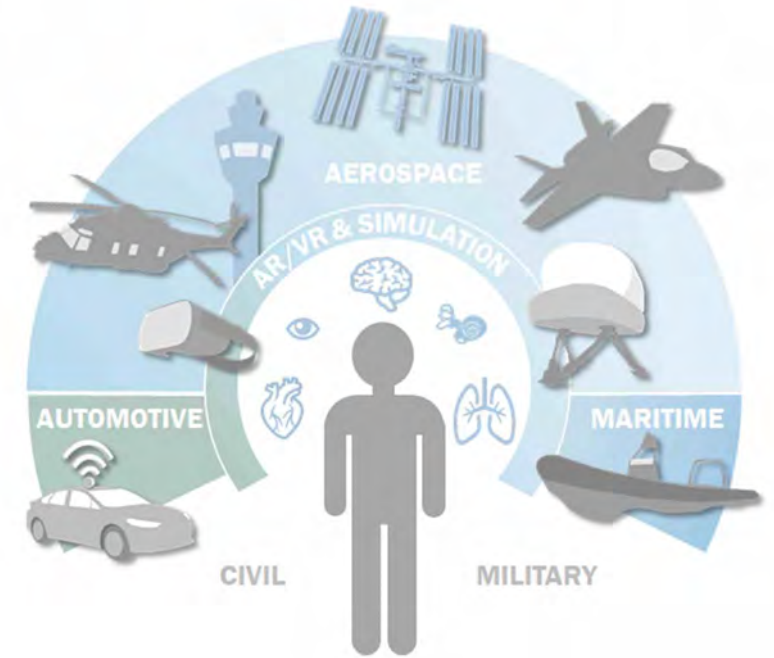


# Stress & Human Performance

We are training our future professionals to operate multi-million dollar assets and the safety of human lives,

yet

as found by the FAA, specific to individuals in the aviation industry, we have not included holistic education on how to address stress in order to optimally influence performance.



FAA Collegiate Training Initiative 2018

# Understanding the influence of stress on human performance is of practical importance.

Most frequent stressors based on Academy trainee responses:

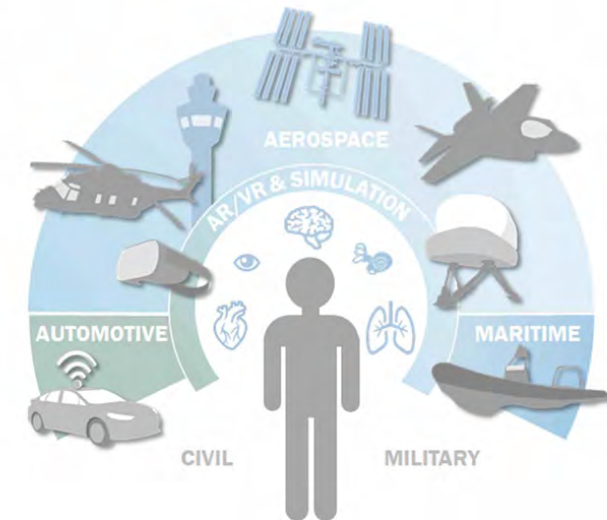
- Performance during evaluations
- Fear of potential job loss

But also:

- Watching classmates fail
- Uncertainty
- The amount of information needing to be learned

CAMI investigated the role of stress during Academy training confirming that an individual's reactions to stress directly influences performance, academically and professionally.

FAA Collegiate Training Initiative 2018





# Stress Rankings

## 2019 Stress Rankings

- Pilot ranked 3<sup>rd</sup>

## 2010 Stress Rankings

- ATC ranked 4<sup>th</sup>

## 2019 CBS News Identified these Professions with the highest rate of suicide

- 3<sup>rd</sup>: Mechanics, Repair
- 9<sup>th</sup>: Transportation Industry Workers

# College Stress

Study finds 1 in 5 students surveyed reported thoughts of suicide in last year

By JOHANNA YOUNGHANS | September 10, 2018 | [Research](#), [Education](#)

f t p e + 547



By ERIC W. DOLAN — January 30, 2019



We are seeing the ramifications of chronic stress in our schools.

We can support our future professionals by not just educating on the awareness of stress, but provide tools to take action before and when symptoms arise.

# Effects of Stress on Perceived Performance of Collegiate Aviators

(Blouin, Deaton, Richard, & Buza, Aviation Psychology and Applied Human Factors 2014)

Elevated levels of stress have a significant impact on an individual's cognitive processes.

- Strong negative correlation was found between participants stress levels & perceived performance level.
- Individuals with high levels of stress has a significantly lower level of perceived flight performance than peers with low & medium stress.

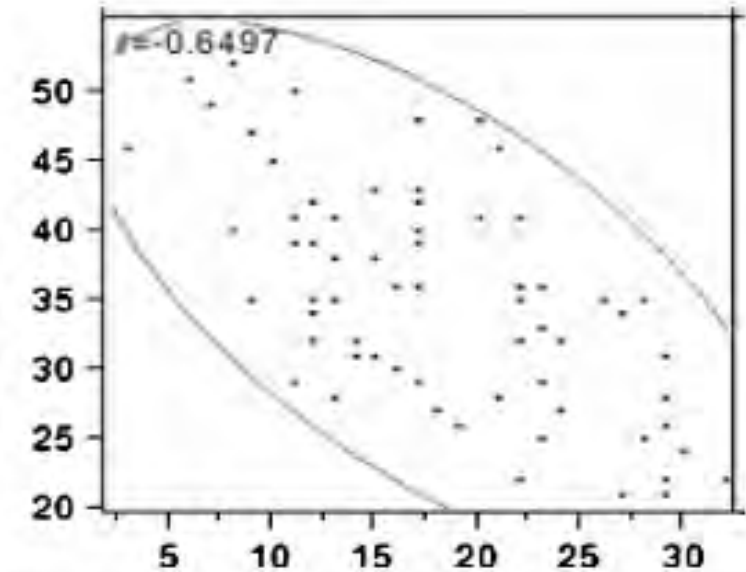
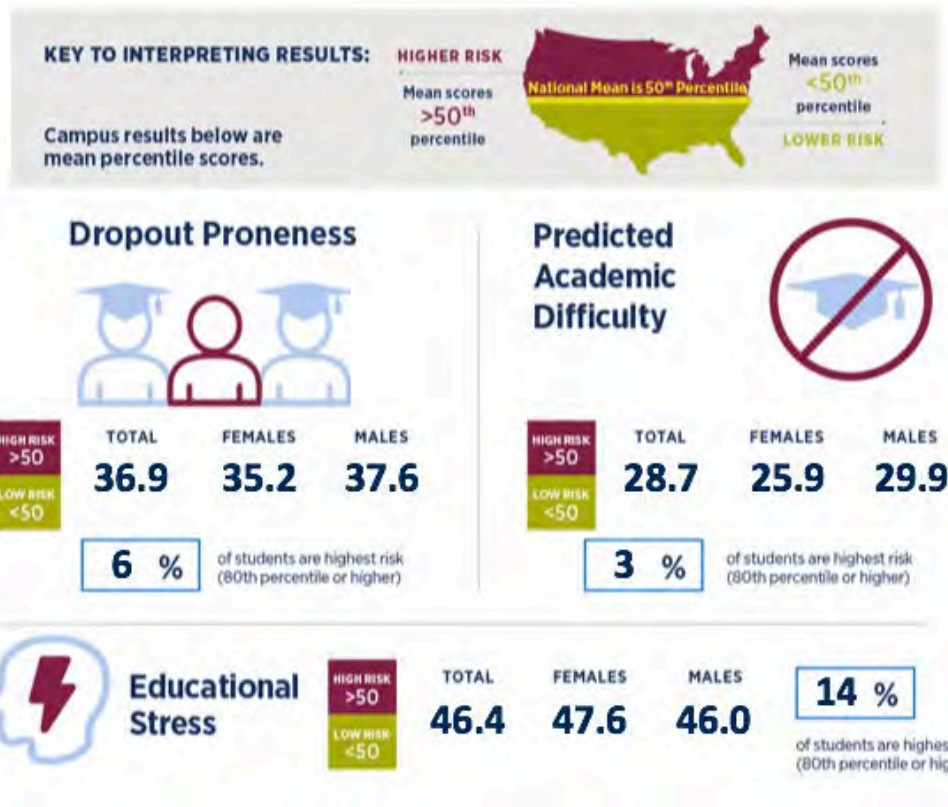


Figure 1. Scatterplot of participant stress scores (x-axis) and performance scores (y-axis).

## Results

### Correlation

A scatterplot of the participants' raw stress scores (independent of grouping) and their perceived performance scores was created with the SAS JMP<sup>®</sup> 10 software. Inspection of the plot reveals a negative, linear relationship (see Figure 1). As stress scores in the sample increased, the perceived performance scores tended to decrease. The Pearson  $r$  coefficient for this relationship was  $-0.65$ .



46.4% of entry level freshman students are on the verge of being high risk for educational stress

14% of our current students are AT the highest risk for stress related challenges

Ruffalo Noel Levitz College Student Inventory Study:  
 EMBRY-RIDDLE AERONAUTICAL UNIVERSITY PRESCOTT CAMPUS  
 (Fall 2019)

# Stress, College, and the Future of Aviation

2018 Brigham and Women's Hospital, Harvard Medical School, study identified 1 in 5 College Age students have contemplated Suicide

The high rate of multiple stress exposures among the U.S. college population and the high impacts of stress on Mental Health and suicidality point to an urgent need for strategies

# Empower our students & future professionals to:



Understand

understand physical, emotional, mental, spiritual, and social domains of health



Be

be aware of and acknowledge experiences around stressors



Respond

respond as opposed to react to stressors to support overall wellbeing and ultimately academic and professional performance



See

see opportunity & learn from failure



Challenge

view stressful events as a challenge

# Beware: Stress Is a Silent Killer



We need an understanding that allows us to respond to stressors as opposed to simply react.

We Need to Move Away from Negative Stress Headlines

# Recommendation

Teach	Teach	Teach	Empower
a foundational understanding of the nervous system's response to stress & the impact on wholistic health	the importance of self assessment, self awareness, & knowing personal symptoms of stress	the use of the relaxation response to support daily exposure to stressors	decision making to support stress resiliency

**Viewing our stress response as a Call to Action = Empowerment**



# Resiliency Strategies

Understanding Stress

Stress Preventing Strategies

- Mindfulness & Mindset

Understanding effects of stress on performance: challenge vs. threat

Pressure Management

Stress-Reduction Strategies & Techniques

- Relaxation
- Breath work
- Progressive relaxation
- Meditative practices
- Visualization

# Voice of Past ERAU Graduate

*“Riddle taught me how to identify (stress), but not how to deal with it.*

*I wish I would have known about the option to take (Aviation Stress Management) before I graduated”.*

Spring 2019 Graduate  
UAS and Part 121  
License  
Charlotte, NC

# Voice of Past Aviation Stress Management Student

*"My suggestion to peers would be to take this class as soon as possible. It will change how you see stress(ors) and prepare you for the stress you face in your education, home, and professional life. This class exceeded my expectations. I truly learned how to deal with my stress."*

2019 ERAU Graduate  
USMC Veteran  
Helicopter Flight  
Instructor

# Positive Outcomes

More ERAU majors are seeking out Aviation Stress Management coursework.

Students are experiencing:

- ❖ Improved personal awareness
- ❖ Understanding experiences of stressors and the impact on 5 domains of health
- ❖ Improved personal competence, self awareness and self management necessary for success on the job
- ❖ Empowered choice making & skill development
- ❖ Confidence in ability to self manage stressors and bolster stress resiliency

With education we can empower our students to address stress before it becomes a problem.

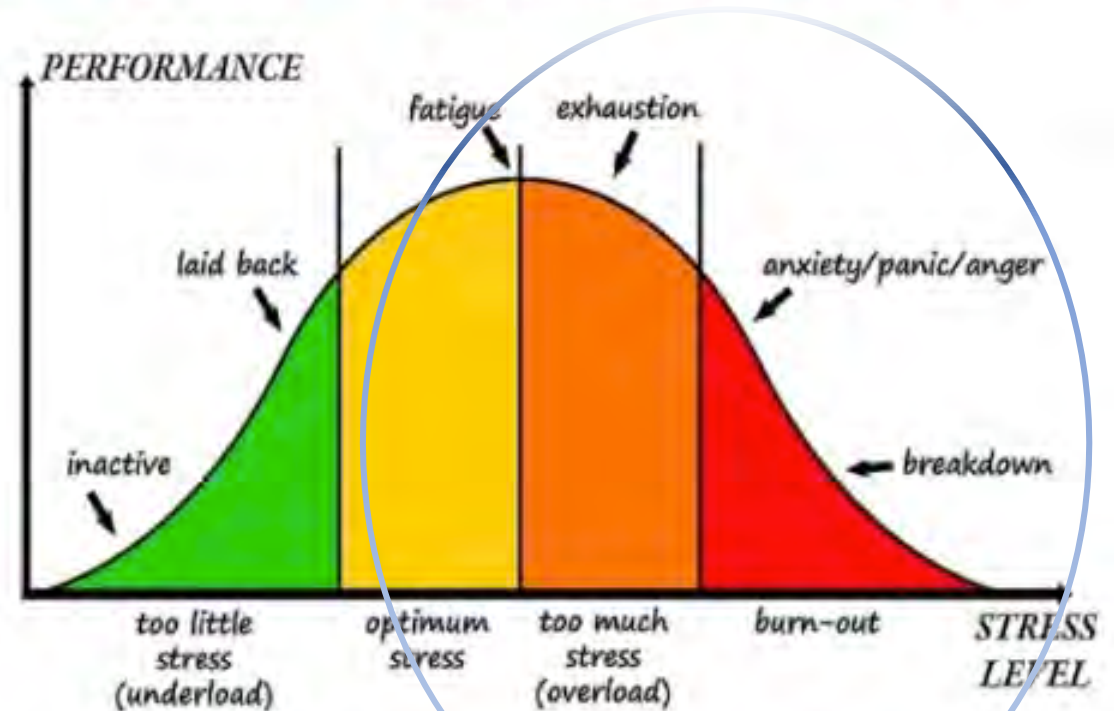
Increase safety

Increase resiliency

Improve performance outcomes

Enhance skillsets to support our future industry professionals

## The Stress – Performance Curve



# Resources

- Blouin, Deaton, et al. (2014) Effects of Stress on Perceived Performance of Collegiate Aviators. *Aviation Psychology and Applied Human Factors* (2014), 4, pp. 40-49. <https://doi.org/10.1027/2192-0923/a000054>.
- [www.bensonhenryinstitute.org](http://www.bensonhenryinstitute.org)
- Crum, Alia. Mindsets Matter. [https://mbl.stanford.edu/sites/g/files/sbiybj9941/f/crumlyddy\\_mindfulstresschapter\\_handbookofmindfulness\\_6.26.13.pdf](https://mbl.stanford.edu/sites/g/files/sbiybj9941/f/crumlyddy_mindfulstresschapter_handbookofmindfulness_6.26.13.pdf)
- G. Costa. (1996) *Occupational Stress and Stress Prevention in Air Traffic Control*. ISBN 92-2-110070-7
- Jamieson, Jeremy P., Wendy Berry Mendes, and Matthew K. Nock. 2013. "Improving Acute Stress Responses: The Power of Reappraisal." *Current Directions in Psychological Science* 22 (1): 51–56.
- Kim, SE, et al (2016) Direct and Indirect Effects of Five Factor Personality and Gender on symptoms Mediated by Perceived Stress. *Plos ONE* 11(4): e0154140. doi:10.1371/journal.pone.0154140.
- Liu CH, Stevens C, Wong SHM, YasuiM, Chen JA. The prevalence and predictors of mental health diagnoses and suicide among U.S. college students: Implications for addressing disparities in service use. *Depress Anxiety*. 2019;36: 8–17. <https://doi.org/10.1002/da.22830>
- Olpin & Hesson. (2016). *Stress Management for Life: a research based, experiential approach*. 4<sup>th</sup> ed. Cengage Learning.
- Pierce, Barrett, & Buck. (2018) *The Role of Stress in ATC Training*. FAA Collegiate Training Initiative. Oklahoma City.

# Embry-Riddle Aeronautical University

## Contact

Jannah Perry, MAS  
928.777.3860  
Jannah.perry@erau.edu

Amy McVickers, M.Ed.  
602-670-1866  
mcvickea@erau.edu

Prescott, AZ

