

## NEW AIRCRAFT, NEW PROBLEMS?

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**Introduction:** Since the dawn of aviation, aircraft systems, technology, and performance have evolved as mankind has sought to improve performance. Technological advancements and innovations have resulted in the capability to fly higher, faster and longer than ever before and introduced a multitude of sensors to monitor aircraft parameters and enhance awareness. The human body has not changed, and the implementation of newer, more advanced aircraft and technologies outpaces the physiological capability of the operator. Aircrew have witnessed evolutions in oxygen masks and oxygen delivery systems, instrumentation and displays and improved anti-G garments, but must still address the same fundamental physiologic challenges of aviation. Regardless of the sophistication or complexity of an aircraft, it is still operated by the same generation body and brain.

**Discussion:** Whether a new aircraft is developed with improved avionics and advanced maneuvering capabilities, or updated hardware and software integrated into an existing platform, it is necessary to consider the human element and impact on performance. Aircraft with enhanced maneuverability, capable of turning faster requires integration of improved anti-G technology. Integration of enhanced sensors and integrated viewing capability necessitate the capability to control the stream of information while maintaining awareness and orientation. Modern oxygen systems still present a risk of failure or malfunction leading to hypoxia and incapacitation. Regardless of the type of technology or the potential benefit, human performance training remains an effective risk mitigation method of physiological risks.

This panel will discuss the evolution and mitigation of physiological risks presented by advancements in aviation technology. The goal is to highlight and overcome these challenges through research and application of human factors, reducing risk and preserving aviation resources and human life.

**Educational Objective:** Educate the aerospace medicine community on the existing human performance challenges and trends and encourage research and application of Aerospace and Operational Physiological and Human Factors principles associated with advanced aviation systems and technology.