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When the Game is in the Air

How training pilots like elite athletes can develop resilience and improve performance

A new study exploring the crossover between sports psychology and aviation performance has been published. **Alex Pollitt** argues that it should be capturing the attention of visionaries and innovators in aviation training

A recently published review by Caso et al. (2026) with the title Applying sport psychology to aviation: Ensuring resilient pilot performance through self-regulation techniques and tools suggests that aviation might have a lot to learn from the culture and contribution of professional psychology in elite sports. The central premise is compelling: pilots - much like top athletes - are required to deliver optimal performance under pressure in dynamic and unpredictable environments. Yet while in sports the development of psychological

performance has become well resourced, highly integrated into performance training, and deeply evidence-based, in aviation (once in the vanguard of applied psychology and non-technical skills development) the potential contribution of professional psychologists in developing mental resilience and cognitive adaptability is still an untapped and unfunded resource. Instead, flying training generally leaves the development of metacognitive skills in aircrew to emerge organically through the exposure gained by experience.

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At the heart of this research is a belief that aviation's future safety improvements and the continuing evolution of CRM and non-technical skillstraining will depend on treating psychological performance with the same seriousness given to technical performance. And to do that aviation needs to look outside of itself to benefit from lessons that other domains such



as sport have to offer and have already spent many years refining. For flight operations and training organisations, this is an intriguing prospect: what would happen if we really started to switch the focus from technical skills training and started to train the 'inner' - mental - game of flying as deliberately as the outer - skills-based - one?

Sport vs aviation: Parallel pressures and shared human limitations

Pilots of all flavours, both military and civil, often operate and train in high pressure, high-stakes environments. Balancing workload, managing attention, and handling ever-present stressors require composure to ensure operational efficiency and safety. Aircrew are expected to remain vigilant through long, fatiguing duty periods, yet be ready to handle potentially rare but highly consequential failures with calm precision, while collaborating effectively with colleagues they may have just met that morning. Throughout a career, they are stress-tested in training with multiple emergencies and failure scenarios under exam conditions in the simulator and on the line, where a setback could determine a reputation or derail a career. The combination of a need for fine motor skills with cognitive focus and mental control whilst under this level of pressure are not common in most other professions, but they do have similarities with the demands of high-performance sports. Like a goalkeeper facing a penalty in front of millions of spectators, or a sprinter taking marks on a track with one chance to bring home a medal, how we frame and respond to the inherent stressors around us can be critical to an outcome, and the consequences of a missed cue or misdirected attention can escalate in seconds.



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Sport psychology has long accepted that human performance in such moments hinges less on pure skill, and more on how well individuals regulate attention, emotion, confidence, and situational interpretation under pressure. The aviation industry is starting to recognise this too. In recent years, an increasing focus on subjects such as resilience development and startle and surprise management are testament to this. They have raised awareness, yet there has still been little integration of practical methods and tools for pilots to develop mindset and psychological resilience to take with them into the cockpit. Pilot training is very good at teaching what to think and what to do, but

sport also trains its athletes in how to manage themselves while doing it. This study suggests that aviation should take the same approach.

Self-regulation: Bringing sport's mental edge to aviation

In competitive sport, athletes are now taught a suite of cognitive tools to prepare themselves to act effectively in high-stakes conditions. These include goal setting, mental imagery, self-talk, pre-performance routines, and mindfulness, all of which have been validated repeatedly through scientific studies showing them to enhance focus, emotional stability, and consistency when pressure and stress threaten performance. The main objective of this review was to demonstrate how intuitively these techniques from sports can map onto cockpit tasks and pilot performance.

Goal setting, for example, could be integrated within line-oriented training and briefing structures. Not simply by listing tasks and objectives but considering how the goals being set can influence and contribute to individual performance. A pilot entering a



recurrent simulator session might define personal learning targets which help to reframe the avoidance of error towards intentional skill development, thereby shifting the focus from “passing the check” to improving operational readiness. Line training could incorporate micro-goals for workload distribution, attention monitoring, or communication timing, with progress of these consciously reviewed in debriefs rather than just debriefing perceived lapses.

Visualisation, already used informally by many pilots through the medium of “chair-flying,” could be developed and taught as a formally endorsed method for mentally rehearsing unexpected scenarios, including anticipating the stress response itself: what will the first physical signal of surprise feel like? How will I react? Where will my attention be drawn? What will I do to regain focus? Sport psychology demonstrates that when the brain has lived a scenario (if only in the mind’s eye) before it occurs, the performer responds quicker and more coherently.



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Self-talk offers another compelling crossover from sport. Athletes use it to prime and sustain confidence and clarity in the heat of competition. Pilots could do the same, especially during startle or other high stress events. A small shift in internal language from “don’t mess this up” to “aviate first, scan and breathe...you have it all under control.” can be the difference between a downward spiral and recovery. That words have such power can seem mumbo-jumbo but has been proved time and again in performance studies.

Pre-performance routines are also ubiquitous in sport, whether in the calm ritual of a tennis serve or a footballer’s personalised sequence before a free kick. Aviation uses its own versions of routine - checklists, briefings, standardised voice procedures—but these have emerged as tools without any explicit psychological intent. The best pilots have learned to develop their own mental work-cycles, but it is time that these techniques are recognised more formally and embedded into training. For example, running quick mental resets before high-workload phases of flight could anchor a crew into shared focus, raise levels of communication, and symbolically transition the team from low workload phases to performance mode. Some airlines now work with standardised mental reset techniques for managing a crew’s stress response to startle and surprise events.

Perhaps the most familiar and widely used technique outside of a specific domain is mindfulness – the skill of noticing distraction and emotion without being overwhelmed by it. Mindfulness, once known by most to be a lifestyle intervention, is starting to be recognised as a performance and safety skill. Sports science has

shown that mindfulness training can improve cognitive control and lead to faster recovery from mistakes. These are two abilities deeply relevant to flight operations, especially in highly automated environments where a momentary lapse can quickly develop into a major emergency. Interestingly, one of the first groups in aviation to take the power of mindfulness seriously has been fighter-pilots, with some of the world’s air forces pioneering its training. When a fatigued, overstimulated, or anxious mind drifts, mindfulness helps bring it back to the task at hand.

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Mindset matters

Alongside some of the above techniques, sports psychology places enormous emphasis on mindset. Top athletes adopt a belief that failure is a stepping stone rather than an outcome. A “growth mindset” can turn discomfort and failure into feedback for future improvement. In aviation, where assessment can seem relentless and unforgiving, a fear of failure has the potential to shut down learning. If a simulator session becomes a career-shielding exercise instead of a learning event, the opportunity to grow and progress is lost. Shifting aviation’s training culture toward growth rather than ‘performance protection’ will help develop pilots who seek feedback, experiment with new learning and cognitive strategies, and who are more willing to confront their own blind



spots. This cultural transformation aligns perfectly with the current momentum towards competency-based and resilience-focused training and CRM practice.

The concept of grit also emerges as highly relevant. Aviation is a domain where continuing professional development spans decades and motivation inevitably waxes and wanes. Furthermore, the most important learning moments are likely to present themselves following professional setbacks or perceived errors. This makes the ability to persevere crucial to long-term success. With pilot mental health ever more in the spotlight, the addition of conscious and overt personal psychological development in training could have a positive impact on occupational health and longevity. Currently pilots are mostly just expected to adapt and overcome. Sport provides rich frameworks for nurturing this kind of durable resilience in high-pressure careers from which aviation could learn much.

Technology as a mental skills accelerator

One of the most exciting possibilities explored in the emerging research is the ability of technology to support psychological performance training more than ever before. Virtual and mixed reality environments are increasingly capable of simulating not only procedural tasking, but also the cognitive and emotional dynamics of operational adversity. This makes mental rehearsal possible in virtual reality where the goal is not to fly the aircraft, but to develop and maintain task-relevant mental focus while distractions and stressors such as weather, alarms, decision-ambiguity or interpersonal tension can escalate around the crew. Such training

can fill the gap between technical skill acquisition and resilient performance.

Wearable monitoring tools are already used widely in professional sport and could also serve aviation by providing objective physiological indicators of stress, fatigue, and attention. Used sensitively with input and analysis from professional psychologists, such feedback could help pilots better understand how their bodies and minds respond under pressure, feeding learning and self-awareness, and thereby giving a significant boost to safety performance.

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Towards the next evolution of CRM

Crew Resource Management has slowly moved the focus in commercial aviation training from technical skill alone to a balance with non-technical skills and behaviours in the interests of performance and operational safety. Since its inception, generations of CRM have seen a constant evolution in the nature of this balance and the way pilots are introduced to these elements of knowledge, skills, and attitudes. CRM's traditional areas of emphasis should and will continue to evolve. The kind of cognitive and emotional resilience demanded as generations of pilots and generations of aircraft change, automation deepens and operating environments densify does not stand still. What, and how, we train has to move with it. This study points to one path that CRM could take by expanding from

the current paradigm of reinforcing crews skills in areas such as how to communicate, manage workload, and lead and co-operate in teams, to teaching them how to self-manage internal experiences such as stress, uncertainty, and threat. The next generation of CRM may lie in blending established aviation human-factors principles with sport psychology's proven mental-skills methods, forming a more holistic model of flight-crew performance.

Conclusion

Aviation has spent decades perfecting the systems around pilots. The next leap forward in safety may come from investing in the systems within them. Pilots already face the same types of psychological demands as elite athletes. What they may not yet have is systematic coaching in the techniques that make the best athletes thrive. Elite sport has already built a data-lead blueprint for developing consistent, calm, focused decision-makers in extreme situations. It would be a missed opportunity not to borrow from a discipline that has devoted itself so fully to understanding human performance under pressure. If the industry wants pilots who are more resilient to surprise, more adaptive to complexity, and more capable of rapid cognitive recovery when things go wrong, the answer may not solely be more automation, or more procedures, or more data to feed safety management systems. It may simply be better training of the human mind. And in that task, aviation does not have to start from scratch. The playbook already exists, written on the athletic tracks, the tennis courts, and the sports stadiums of the world where the power of mind over performance is already well understood ●