

# Lumena MindGym helps warfighters improve task completion time by up to 29% while helping manage their stress better by 61%.

Few would argue that the United States military is the most lethal and well-prepared armed force in the world. The Pentagon spends billions each year to provide the latest tools, technologies, and training techniques to maintain both strategic and tactical advantages through optimal readiness at all times.

However, readiness is more than physical preparation and combat readiness. Mental performance and resilience — how service members handle, perform, and recover from high-stress scenarios — are top priorities for the U.S. Air Force.

Both on the job and in their private lives, service members of all ranks and backgrounds want to aim high, refining their mental fitness to become top performers. However, they already face challenges in their daily lives that can make that a difficult goal to achieve.

Military personnel often perform complex cognitive operations under unique conditions of intense stress. Sometimes, stress is triggered by anxiety from traumatic experiences; however, frequently, the nature of their daily lives can also cause significant stress. For example, isolation from family and friends, the ambiguity or fluid nature of their position, and even the demanding workload and pressure to perform can lead to heightened stress. The challenge arises when

## CHALLENGES

- Increasing access to performance-enhancing and mood-sustaining training
- Personalizing performance mindset training for diverse groups
- Quantifiably improving service members' stress response management, resilience, and performance under duress

## SOLUTION

- Hill Air Force Base implemented Lumena MindGym for two focus groups to participate in a 6-module performance mindset training course and measure the results.

## OUTCOMES

- Improved stress management by up to 61%
- Reduced task completion time by 29% while improving task accuracy 8%
- Provided non-medicinal sleep enhancement support
- Achieved planned skill adoption by 44% of service members to be deployed

stress affects cognitive performance and the ability for operators to perform at their peak.

At Hill Air Force Base (AFB), the Integrated Prevention and Resilience team wanted to find a way to help airmen proactively address the mental performance gap –providing them and their families the opportunity to actively engage and train their mind to improve focus and performance on the job and in life.

*They found their answer in MindGym.*

## MindGym & the Small Business Innovation Research Program

Hill Air Force Base’s Integrated Prevention and Resilience team is a breed of their own. As a strategic advisor on integrated resilience and cognitive performance strategies, they actively seek to build initiatives to reduce risk, increase mental fitness, and enhance resilience in Air Force operators.

Popular modalities like talk therapy, and pharmaceuticals have become more common for managing service member mental health. But these reactive approaches are intended for therapeutic reasons, not performance enhancement.

They also have significant drawbacks—social stigma, affordability, and lack of access—that make widespread adoption harder to achieve and increase the cost of implementing them.

Eager for a different approach, Hill’s Integrated Prevention and Resilience team discovered Lumena Inc. (Lumena) following an introduction by Jannell MacAulay, PhD, a United States Air Force (USAF) veteran and renowned performance mindset expert.

As Lumena targeted the Phase II of the Small Business Innovation Research (SBIR) program, the Hill team was instrumental in guiding the

original development of MindGym and driving solution awareness and its ability to combat stress, improve resilience, and speed up recovery.

MindGym is an isolated meditation pod that regulates stress, improves focus, and promotes resilience. Each MindGym session is a low-sensory, audio-visual immersive experience. Users complete 10 to 20-minute sessions, harnessing the power of mindfulness, ranging in techniques such as tactical breathing skills and guided mindfulness exercises. MindGym is like a flight simulator for the mind that uses wearable technology to analyze performance, monitor stress levels, and provide feedback on how the trainee’s body and brain responded at each stage of the session, which allows the person to monitor performance and improve over time.

MindGym’s adaptive curriculum is ideal for bases with expansive mission sets like Hill Air Force Base, where an operator’s individual needs are as diverse as their mission assignments.

## Cognitive Study within the United States Air Force

Hill’s Integrated Prevention and Resilience team and the Lumena team set up two focus group trials: one for the USAF 775th Civil Engineering Squadron (CES) and a second for the 75th Air Base Wing ABW First Sergeants and influencers. The trials intended to measure the quantitative impacts of brain-based training, with specific interest in evaluating:

- ✓ acute stress reduction during sessions
- ✓ reducing baseline stress levels throughout the curriculum
- ✓ and improving acute cognitive performance, measured by task completion time and accuracy.

The goal was to test an inventive yet science-backed approach to stress/cognitive performance in high-performing operators. Focus group participants volunteered to participate in a six-session Performance Mindset Training Module and self-selected rest-and-relaxation or exploratory content to supplement their trial.

Participants reported their mood on a scale of 1 to 5 at the beginning and end of each session and completed an outcomes survey and an in-person focus group user debrief at the end of the trial.

For reporting and analytical purposes, all biodata was anonymized and used to measure changes in the users' stress levels and cognitive states. Cognitive tasks designed to elicit stress and measure task accuracy and reaction time were completed at the beginning and end of each session.

## Results of study on resilience and performance

The outcomes from the two population trials strongly suggest that MindGym can help.

According to the analyses, participants from the 775th CES explosive ordnance disposal (EOD) focus Group — 55 volunteers — completed 219 training sessions and self-reported an average 30% improvement in mood and mental wellness over their 20-minute sessions.

**30% Improvement**  
in mood and mental wellness

Biodata analysis revealed that participants saw a 16.2% improvement in stress biometrics. 61% of participants stated that their ability to manage their stress improved, and 15%

reported significant improvements in sleep quality, a well-documented factor in job-related performance.

Wellness and new skills were improved from the MindGym and were generalized into the participants' daily lives. . Many in the group reported stronger focus during the Weighted Airmen Performance Systems (WAPS) testing — the program that determines promotions for Staff Sergeant (E-5) and Technical Sergeant (E-6). They also cited decreased incidents of road rage and across-the-board improvements in their marital relations, gym workouts, and even their golf scores.

The 75 squadron-specific and influencer group trial participants experienced similarly high-impact results. After completing 128 20-minute sessions, 46% of participants reported improvements in their mood and mental wellness. The group averaged a 29.2% improvement in task reaction time, along with an 8.3% improvement in task accuracy.

**46% Improvement**

Mental wellness and mood

**29.2% Improvement**

Task reaction time

**8.3% Improvement**

Task accuracy

Like their 775th counterparts, 44% of Squadron group participants said their ability to manage stress improved and one-third noted an improvement in sleep quality. The outcomes were so compelling that approximately 66% of the group said they were very likely to employ

these new performance mindset training skills to use in their daily lives, with 55% saying they'd do so particularly in stressful situations. Nearly 45% planned to incorporate their new skills during deployment.

## The Expansion of MindGym

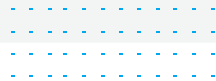
The battle for defense preparedness is a never-ending arms race. The success of the two trial groups has inspired Hill Air Force Base and others to explore expanding the use of MindGym in their standard operations to support sustainable performance achievement and the mental wellbeing of operators worldwide.

To date, the MindGym has expanded to 7 of the 9 major commands within the United States Air Force and is quickly expanding into additional military branches.

### Near future MindGym enhancements include:

- ✓ Adaptive Neurofeedback Sessions
- ✓ Mobile Booking, Reporting, and On-the-Go Sessions
- ✓ Stress Inoculation Training in partnership with AFSOC
- ✓ Advanced command-level reporting and dashboards

Already, MindGym has earned an 8 of 10 rating on the Technology Readiness Level (TRL) scale, which assesses the maturity level of a particular technology against a range of predetermined performance parameters.



### CONTACT US

hello@lumenalabs.com | [www.lumenalabs.com](http://www.lumenalabs.com)

