



## Mental Resilience and Performance Study Outcomes for First Responders

### Background

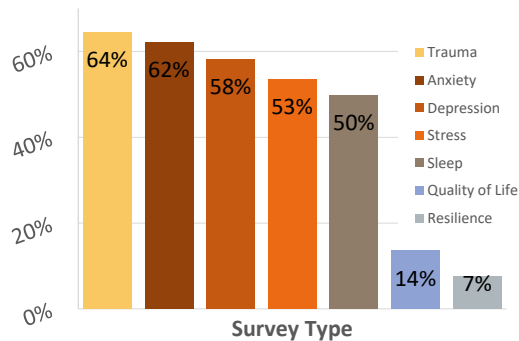
Through a public/private partnership utilizing Heal the Hero Foundation and the Arizona State Governors Office, Vitanya was chosen as the service providers to help mitigate the additional stress and mental health crisis of first responders due to the pandemic. Our services were provided tele-remotely and on location as a neurotechnology-driven program for police and fire departments. Our program focused on improving sleep, stress resilience, job performance, and quality of life while reducing anxiety, depression, stress, and trauma. Vitanya has perfected a proof of concept developed with thousands of participants over 10 years. This includes working with the United States Air Force, first responders in multiple states, and the veteran community; including Special Forces. The following data was collected because of a grant provided by Governor Ducey's office and illustrates the average percent improvement after a six-month program completion.

### Outcomes

With program oversight by psychologists, outcomes were recorded in phases during this year. Those phase outcomes were previously sent to several members of the Governor's Office.

Executive Function	24-wk Avg
Attention	17.86%
Emotion Regulation	10.58%
Flexibility	10.75%
Inhibitory Control	9.83%
Initiation	11.29%
Organization	12.63%
Planning	10.15%
Self-Monitoring	11.49%
Working Memory	16.74%
<b>Trauma</b>	<b>64.41%</b>
<b>Resilience</b>	<b>7.50%</b>

24-week Vitanya First Responder Average Improvement Profile



Quality of Life	24-wk Avg
QOL General	17.12%
Physical Health	16.87%
Psychological	16.16%
Social Relationships	14.31%
Environment	8.10%
Total	13.54%
<b>Mental Health</b>	
Stress	53.47%
Anxiety	62.06%
Depression	58.14%
Sleep	49.71%

**Note:** While the numbers of reduction of stress, anxiety, depression, and PTSD are readily understood; when examining changes to resilience and executive functioning, it is important to note that minor changes can have significant impact. Psychological resilience is the ability to mentally or emotionally cope with a crisis or return to a pre-crisis status quickly. Specifically, this allows first responders to remain calm during crises or chaos and to be able to move on from incidents without experiencing long-term negative consequences.

### Summary

The results of this study indicate that military, first responders, and others became better equipped to manage daily personal, familial, and/or job requirements, while mitigating the mental health challenges they face because of their career. In this cohort of individuals after 24 weeks, it was observed that individuals saw a 64% improvement from PTSD, while also lowering their anxiety, depression, and stress by over 50%. Over time, clients reported an improvement in sleep quality, allowing for better executive functioning and increased processing speeds.<sup>1</sup> These changes have shown long term effects, meaning the neuroplasticity of the brain has improved. This in turn resulted in a reported 14% increase in their total quality of life, while resilience showed 7% improvement by strengthening healthy neural connections and pruning unhealthy connections in the brain.

### References:

- 1) Wilckens KA, Woo SG, Kirk AR, Erickson KI, Wheeler ME. Role of sleep continuity and total sleep time in executive function across the adult lifespan. Psychol Aging. 2014;29(3):658-665. <https://doi.org/10.1037/a0037234>