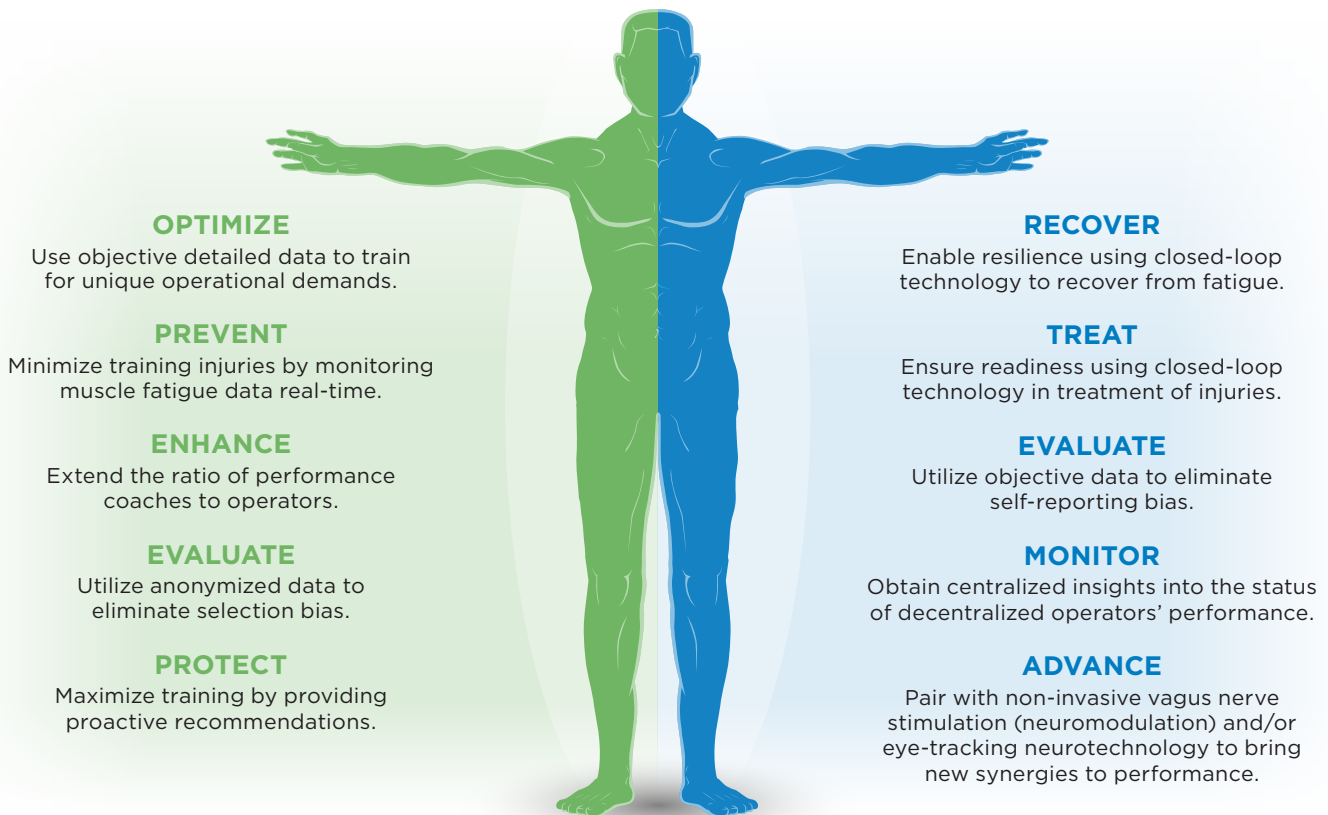




# Neurotechnology for Performance: Envisioned Future Personnel Readiness

Cognitive neuroscience is a blend of neuroscience and psychology, it is aimed at determining the neural mechanisms that underly cognitive processes. Cognition is how the brain enables common processes like attention, thought, perception, memory, and language which are used in activities like learning, communication and analysis.<sup>1</sup>

The NeuroLife<sup>®</sup> sleeve is a platform solution that has a revolutionary way of using the brain and peripheral nervous system. NeuroLife utilizes proprietary high-definition EMG and FES sensors embedded in a garment that are driven by customized AI powered by machine learning (ML). Available in EMG-only, FES-only and closed-loop EMG + FES, the NeuroLife system may provide a holistic solution across physical, psychological, and cognitive domains.



**Let These  
Stats Sink In**

Over 5,000 Special Operations Forces (SOF) are currently deployed to over 80 countries executing a range of activities.<sup>2</sup>

Within the past four years, SOF's campaigning activities to counter coercion and deter aggression by strategic competitors have more than tripled - comprising nearly 50% of the deployed forces in FY2023.

**BATTELLE**

Developed by an ISO 13485-certified company with more than 65 years of experience in medical device development, the NeuroLife sleeve is an evidence-based technology developed by a team with over 48 publications on decoding, 35 publications on modulation and sensing, and 45 publications on stimulations and rehabilitation.<sup>3</sup>



NeuroLife technology in a sleeve form factor

- NeuroLife's sensors detect user intent at a sub-threshold level.
- The NeuroLife sleeve has been used as an investigational device in able-bodied and non-able-bodied individuals.
- NeuroLife's closed-loop technology reads intent and evokes movements -10x per second.
- As a platform technology, the NeuroLife system has been demonstrated in non-medical applications.

The technology shown is investigational, not commercially available, and has not been approved or cleared for treatment, cure, or mitigation of any disease by the FDA. Results shown are from studies performed.

**Battelle is the world's largest not-for-profit applied science and technology organization. As a division of Battelle, Medical Device Solutions knows how to navigate the valley of death and has demonstrated success in translating novel technologies for fieldable use.**

**Battelle  
Delivers**

**65+**

years of medical device design and development experience.

**250+**

companies as their medical device research and development partner.

**100%**

success rate for FDA submissions with Battelle human centric design work.

**40+**

granted medical technology patents and 100+ patents pending.

Sources

<sup>1</sup>Gazzinga, I. M. (2019). Cognitive Neuroscience: The Biology of the Mind 5th Edition.

<sup>2</sup>STATEMENT FOR THE RECORD. (2023, March 7). Retrieved from <https://www.armed-services.senate.gov/>

<sup>3</sup> Sources available upon request