



## ABSTRACT

This study extends enrollment within the CARE (Concussion Assessment, Research, and Education) and SALTOS (Service Academy Longitudinal mTBI Outcomes Study) studies to a cohort of military service members at the Naval School Explosive Ordnance Disposal (NAVSCOLEOD), located at Eglin Air Force Base.

## INTRODUCTION

This study extends enrollment within the CARE (Concussion Assessment, Research, and Education) and SALTOS (Service Academy Longitudinal mTBI Outcomes Study) studies to a cohort of military service members (SMs) at the Naval School Explosive Ordnance Disposal, at Eglin Air Force Base. While extensive research exists on concussion/mild traumatic brain injury (mTBI) and head impact exposure (HIE), few studies focus on blast vs. blunt brain injuries, particularly among enlisted personnel. The CARE-SALTOS Integrated (CSI) Explosive Ordnance Disposal (EOD) Cohort Study is baselining a cohort of SMs to prospectively assess intermediate and long-term effects of mTBI/HIE on health, military performance, and quality of life.

## METHODS

### NAVSCOLEOD Population

- Jointly staffed school by the Army, Navy, Air Force, and Marine Corps located at Eglin AFB, FL
- Provides high-risk specialized, basic and advanced EOD training to approximately 2,100 students per year
- The EOD Pipeline takes approximately 8-12 months to complete.
- 83% graduation rate on average between all four branches of the DoD

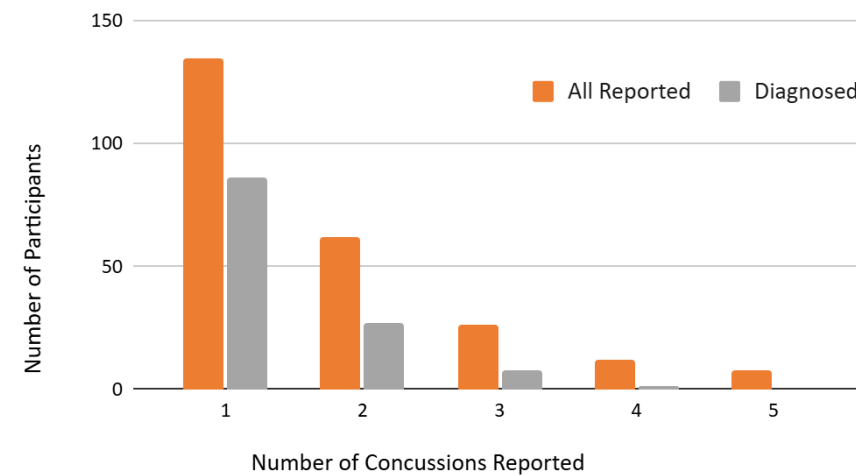
### Baseline Assessment

- Patient-reported outcomes (PROs)
  - Demographics, medical history, concussion history, sport history, behavioral health, quality of life
- Military-relevant outcomes (MROs)
  - Military status, history, & training, fitness tests, officer/enlisted evaluations, Blast Exposure Threshold Survey (BETS), Deployment Risk & Resilience Inventory (DRRI-2)
- Neuropsychological assessment
  - Automated Neuropsychological Assessment Metrics (ANAM), Test of Premorbid Function (TOPF)
- Neurologic function
  - Balance Error Scoring System (BESS)
- Biospecimens
  - Biomarkers of neuroinflammation and neurodegeneration
- Training Pipeline Performance
  - Graduation status, time to completion

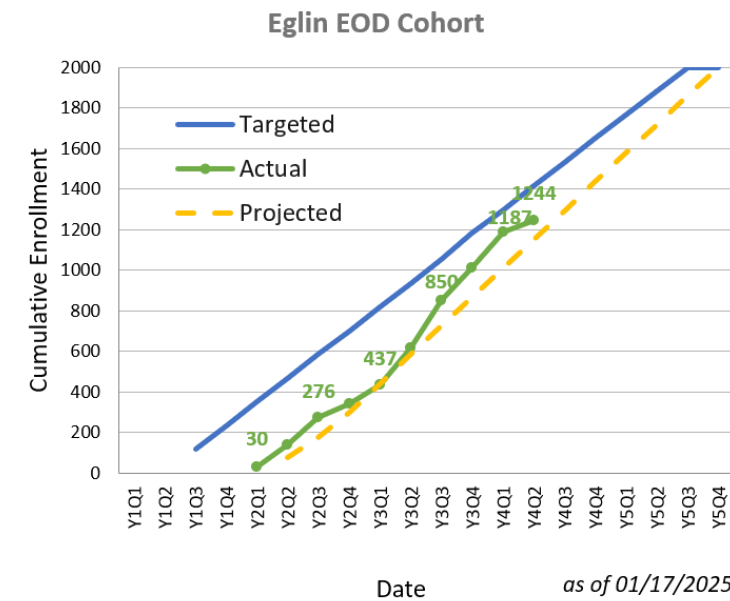
## RESULTS

The CSI EOD Cohort has been actively enrolling participants since Fall 2022. Current enrollment is approximately 180 participants/quarter, with total enrollment having reached n=1244. Of this total, n=700 are active in the training pipeline, n=3 have withdrawn their participation, and n=203 are fully completed and are >12 months out, making them eligible for CSI Tier 1. Demographic data was currently available for n=1076.

Concussion history data was currently available for n=581. N=243 (39%) reported a history of concussion, n=168 (40%) reported a history of diagnosed concussion. Median age of first diagnosed concussion was 16 years. N=125 (29%) concussions were sport-related and n=34 (8%) were blast-related.



**Figure 2.** Number of participants reporting concussion history, for diagnosed and all reported concussions, total n=581. 6% (n=36) reported a history of multiple diagnosed concussions.

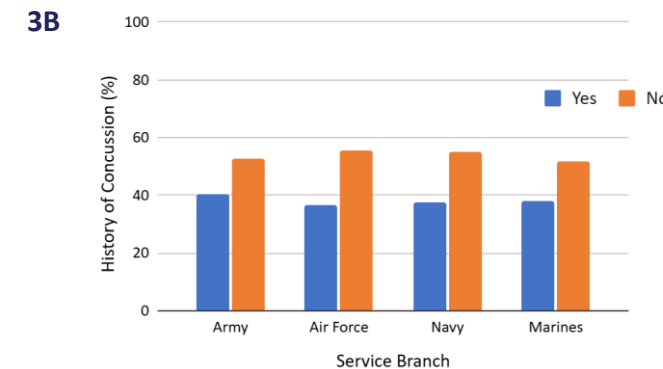
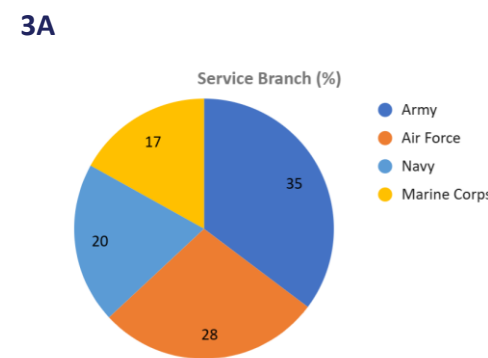


**Figure 1.** Cumulative enrollment over time compared to initial targeted and projected enrollment. Data as of 17 JAN 2025.

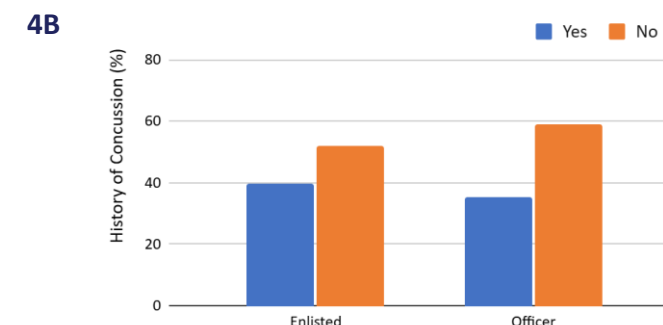
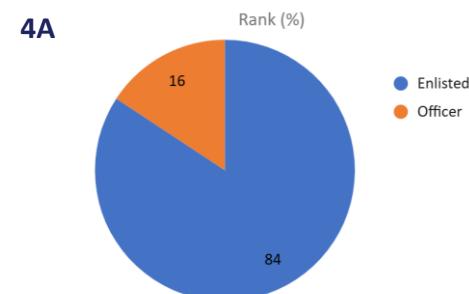
**Table 1.** Summary of demographic characteristics of the EOD Cohort.

Characteristic	Descriptive Statistics
Age	Median = 24 years Range: 18-47 years
Sex	93% Male
Race	83% White; 4% Asian; 3% Multi-racial; 2% Black
Ethnicity	15% Hispanic/Latino
Status	95% Active Duty 93% Students

**Figure 3.** Service branch representation. A. Percent of EOD Cohort participants serving across service branches. B. Concussion history (present/absent) did not significantly differ across service branches ( $p=.91$ ). Not pictured: Number of previous concussions also did not significantly differ across service branches ( $p=.41$ ).



**Figure 4.** Military rank representation. A. Percent of EOD Cohort participants in enlisted and officer ranks. B. Concussion history (present/absent) did not significantly differ across rank ( $p=.24$ ). Not pictured: Number of previous concussions also did not significantly differ across rank ( $p=.13$ ).



## DISCUSSION

- CSI is enrolling a new cohort of primarily enlisted service members across service branches from NAVSCOLEOD
- Substantial portion of service members entering training report history of concussion
  - Higher self-report rates of all concussion than civilian collegiate athletes and MSA graduates, but these differences narrow when limited to diagnosed concussion
  - Small percent of blast-related concussions, but greater than in civilian/MSA grads (approximately zero)
- Baseline characteristics and health outcomes will be important for understanding how blunt/blast exposure impacts service members' health over their military careers

## CONCLUSION

The EOD Cohort study expands the scope of the CSI effort and will increase its generalizability to the larger military community, particularly those exposed to both blunt and blast exposure. Furthermore, this cohort will enable the ability to explore any differences that may exist across unique populations (i.e., officer, enlisted, civilian) and advance scientific understanding of the warfighter brain health initiatives aimed at informing the detection, treatment and prevention of long-term effects of repetitive neurotrauma.

## ACKNOWLEDGEMENTS and DISCLOSURES

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