



US Army Research Institute
of Environmental Medicine

The U.S. Army's Holistic Health and Fitness System has a Positive ROI on Soldier Health, Performance, and Readiness

2026 Military Health System Research Symposium

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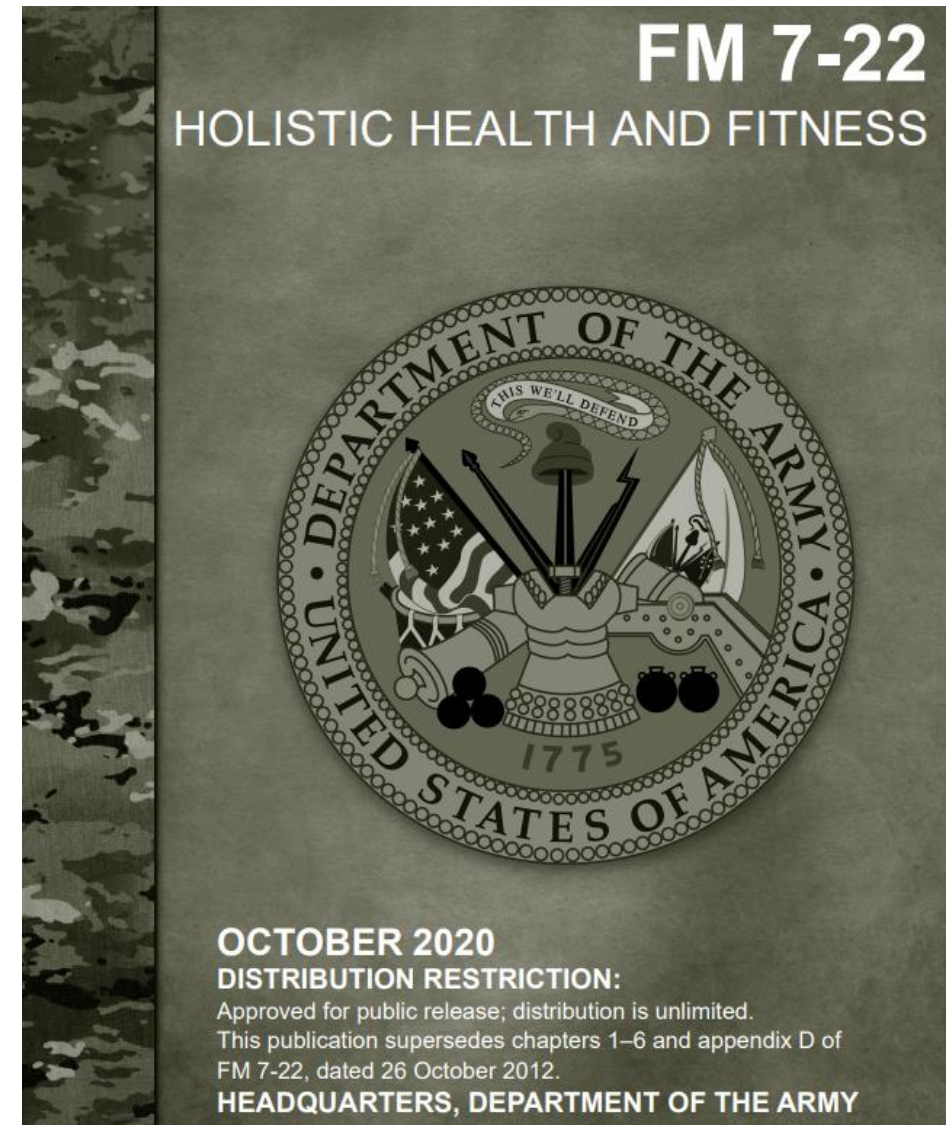
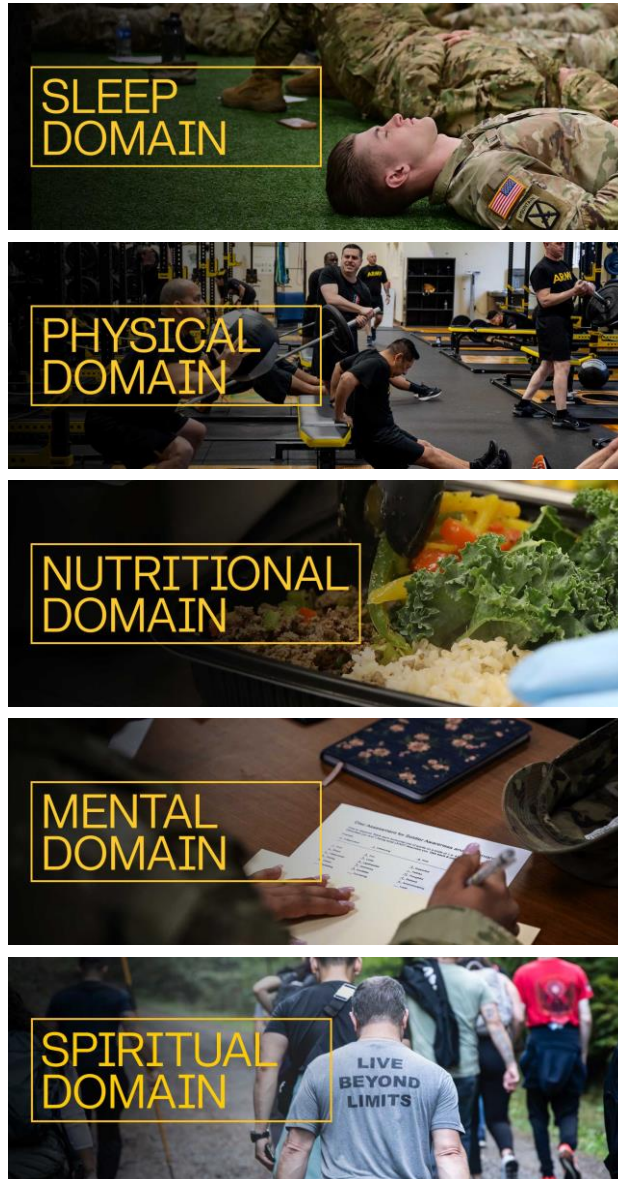
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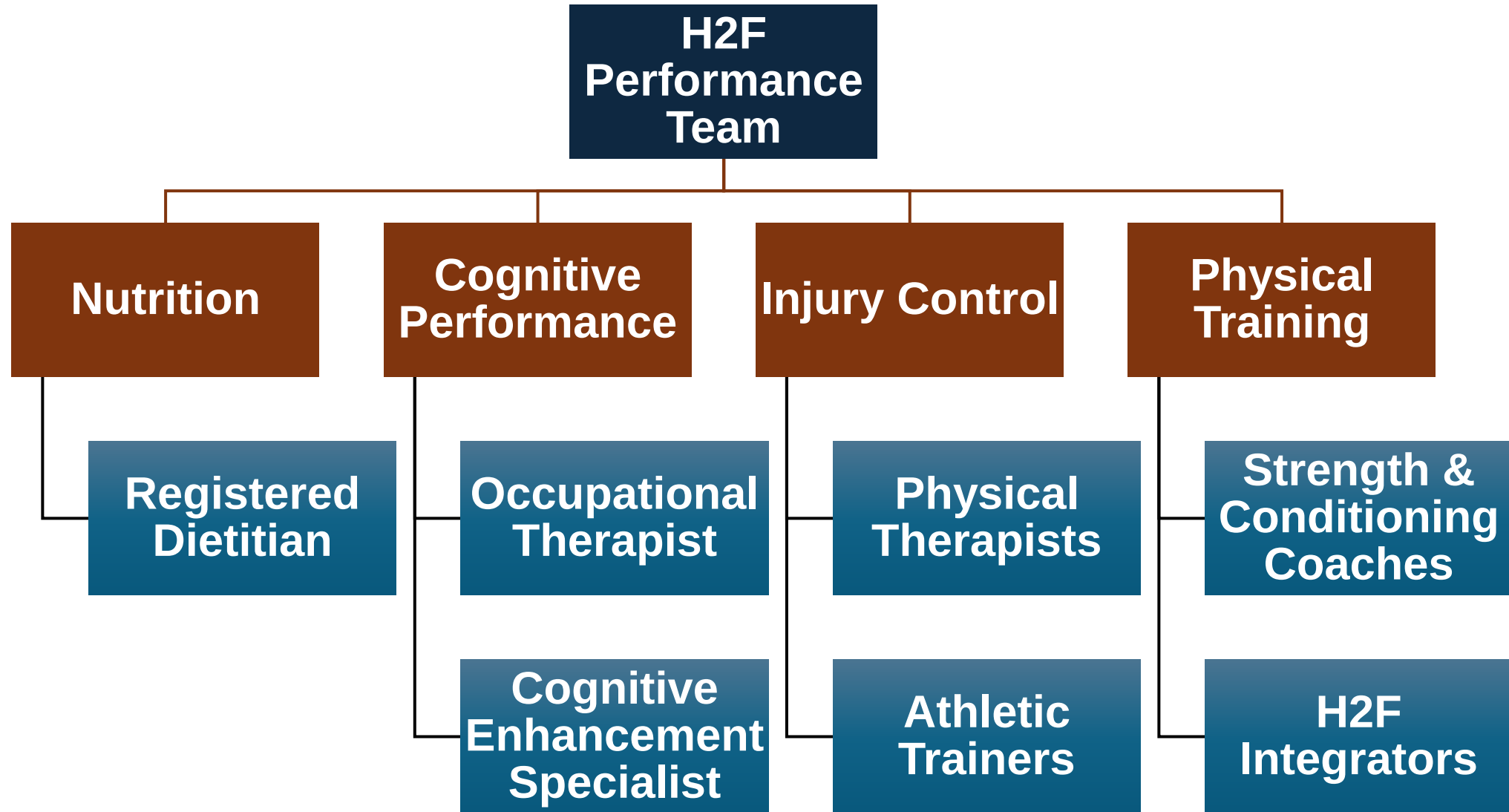


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Holistic Health and Fitness



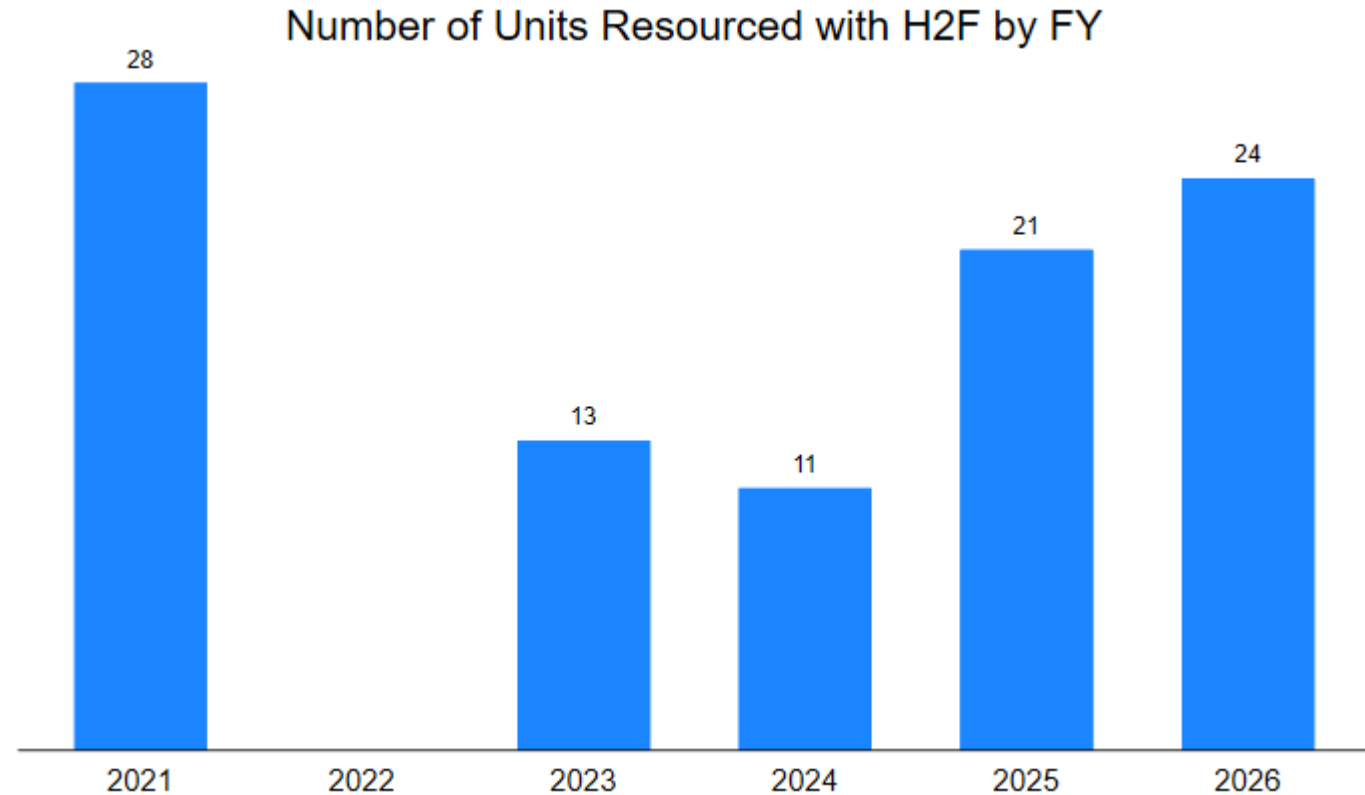
H2F Performance Teams



H2F Rollout to the Army



- Rollout of H2F is in phases
 - New brigades get resourced each year
 - Non-resourced Soldiers PCS into resourced brigades each year
- Brigades not chosen at random
- Goal is full Army implementation by 2029



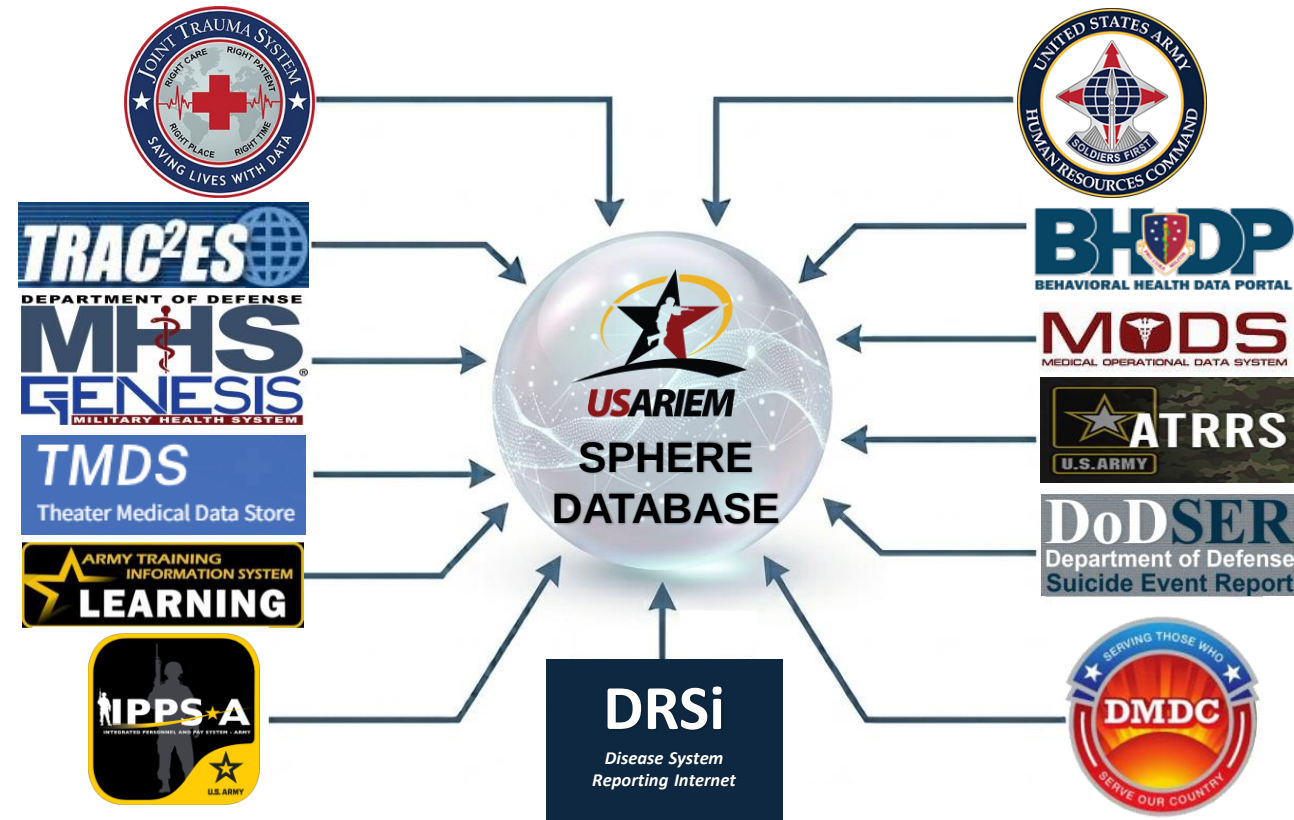
H2F Return on Investment



- The goal of the H2F Return on Investment (ROI) analyses is to determine how the H2F system impacts Soldier health, performance, and readiness
- Army Senior Leaders are interested in the impact on the enterprise
- Division, Corps, and Brigade leadership is interested on the impact of their units

Data

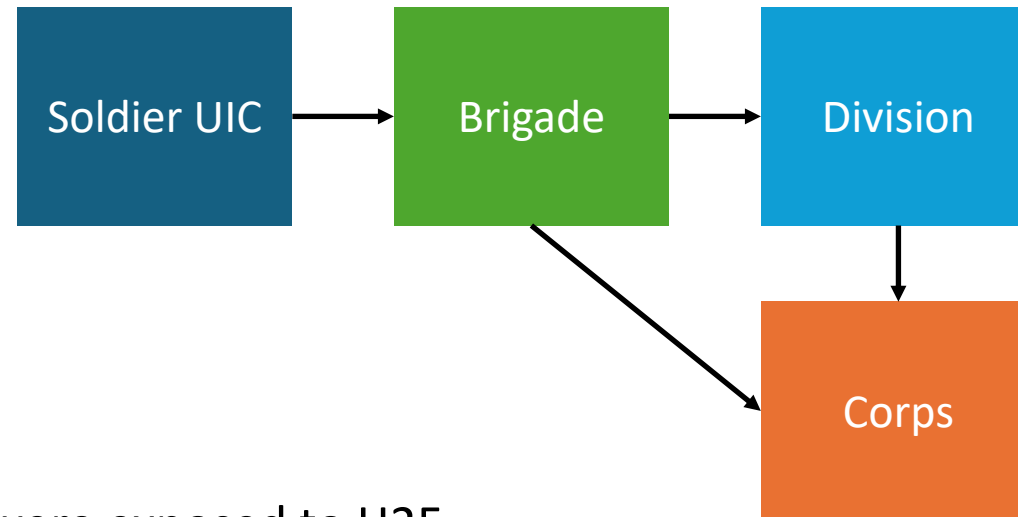
- Data extracted from the **Soldier Performance, Health, and Readiness Database** (SPHERE) house at USARIEM
- The SPHERE aggregates and maintains a historical record of over 25 U.S. Department of War systems of record



Population Identification



- Created monthly Army rosters from FY18-FY25 (43,872,919 Soldier-month records)
- Army roster data identifies the Soldier's Company Unit Identification Codes (UIC)
- FMSWeb was used to map all Soldiers company UIC to their Brigade, Division, and Corps
- Since H2F is a Brigade-level asset, we used their Brigade identifier to determine if a Soldier was in an H2F resourced Brigade in a given month



- **Treatment Group:** Soldiers that were exposed to H2F
- **Control Group:** Soldiers that never served in an H2F resourced brigade
- *Some Soldiers PCS from H2F to non-H2F Brigade. We have tested the results with and without that group.*

Statistical Methodology

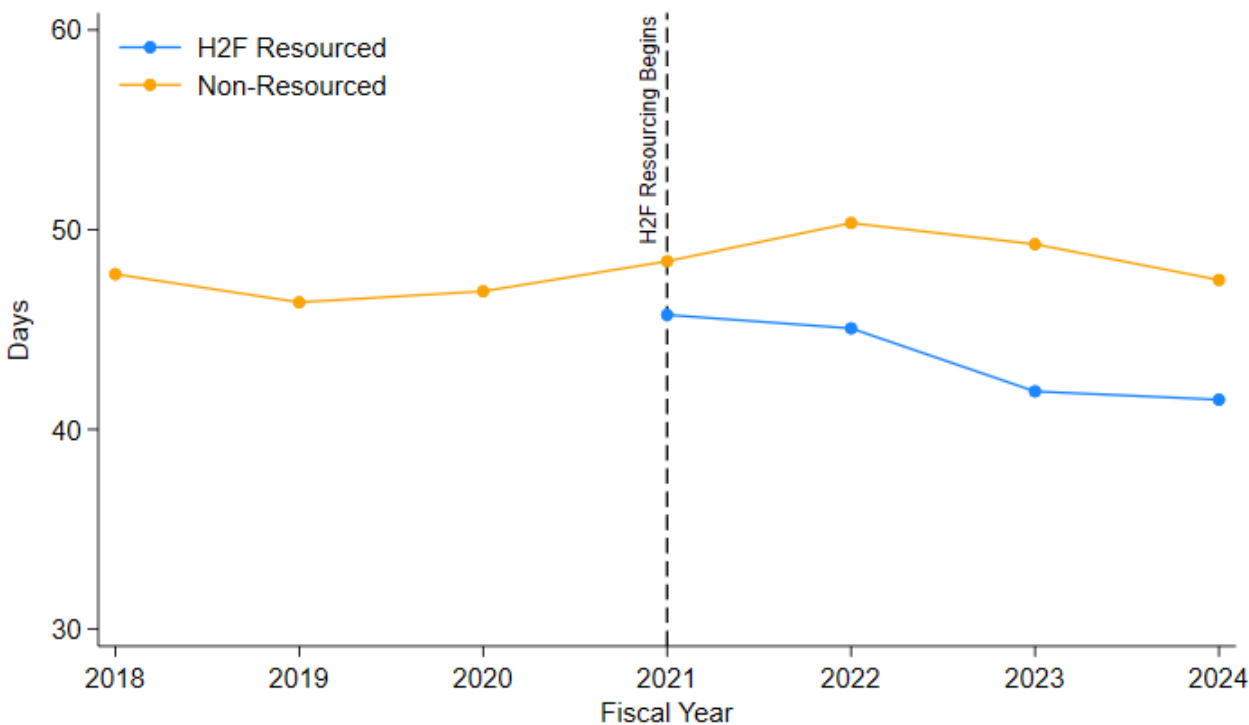


Inverse Probability Weighting (IPW)	- When treatment assignment is not random, there can be systematic differences between the treated untreated groups, leading to biased estimates of the treatment effect - IPW assigns an inverse probability weight to the control group to balance confounders between treatment and control group to mimic a randomized-control trial
Difference in Differences	- Quasi-Experimental statistical method that estimates the Average Treatment Effect on the Treated (ATET) for interventions that are implemented at different times across units - The ATET measures the average causal effect of a treatment, intervention, or policy for those who received treatment - Fixed effects control for omitted variable bias by isolating and removing the influence of unobserved characteristics
Extended Two-Way Fixed Effects Event Study	- Dynamic Difference in Differences method accounting for staggered adoption of treatment - Controls for cohort-specific trends
Kaplan-Meier Survival Curves	- Non-parametric estimate of the probability of an event occurring over time - Used to evaluate return to duty following injury - Log-Rank test used to statistically compare groups
Proportional Hazard Models (Cox Regression)	- Estimates the hazard ratio for return-to-duty following MSKI injury - Hazard ratios measure how often a particular event happens in the treatment group compared to the control group
Clustered Standard Errors	- All standard errors are clustered at the UIC level to account for unit specific effects that would artificially reduce standard errors - Reduces likelihood of Type I error

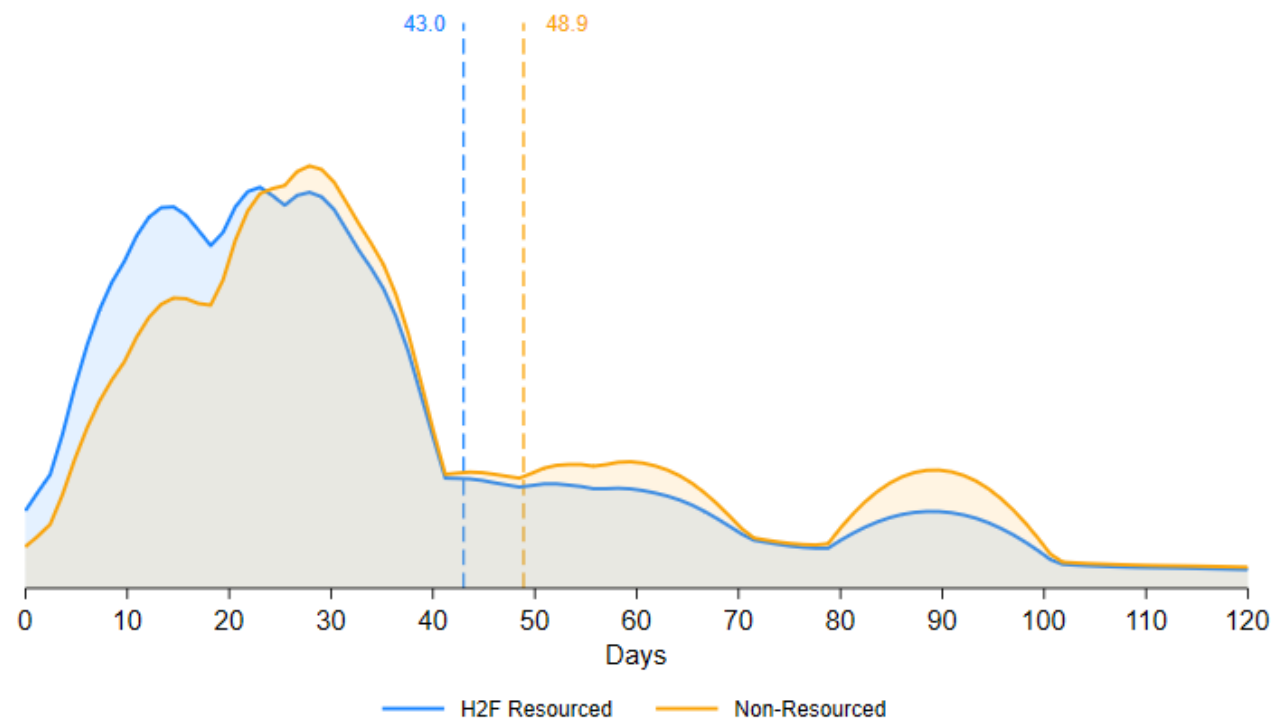
Limited Duty Days from MSKI



Average Days on Limited Duty



Distribution of Limited Duty Days



Limited Duty Days from MSKI



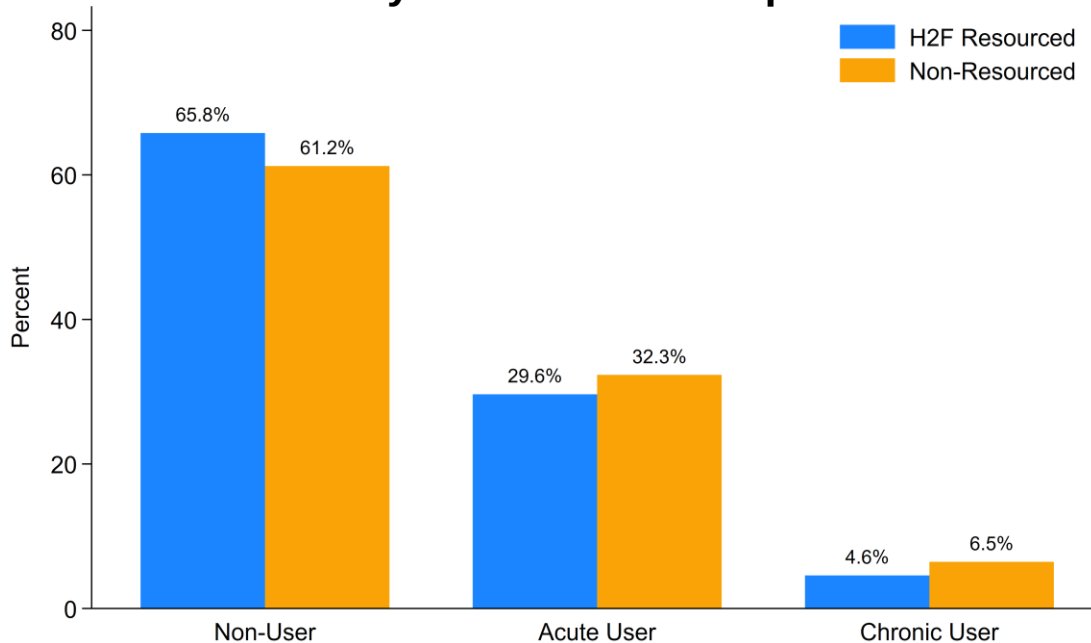
- H2F resourced Soldiers were 0.8 percentage points (95% CI: [0.007,0.009]; $p < 0.001$) more likely to be on an MSKI temporary profile
 - What would be expected with increased access to care and early intervention
- H2F resourced Soldiers spent ~5.9% fewer days (95% CI: [-7.221, -4.578]; $p < 0.001$) on temporary profile
 - Lower body injuries: 6.9% fewer days (95% CI: [-8.585, -5.180]; $p < 0.001$)
 - Upper body injuries: 3.8% fewer days (95% CI: [-5.627, -1.904]; $p < 0.001$)
 - Training related injuries: 5.6% fewer days (95% CI: [-7.534, -3.680]; $p < 0.001$)
- Army-wide H2F resourcing would have saved 660,000-800,000 annual days lost to limited duty since FY21, which would have yielded a direct economic value of \$93-164 million in annual labor value for Compo 1

Prescriptions of Pain Medication

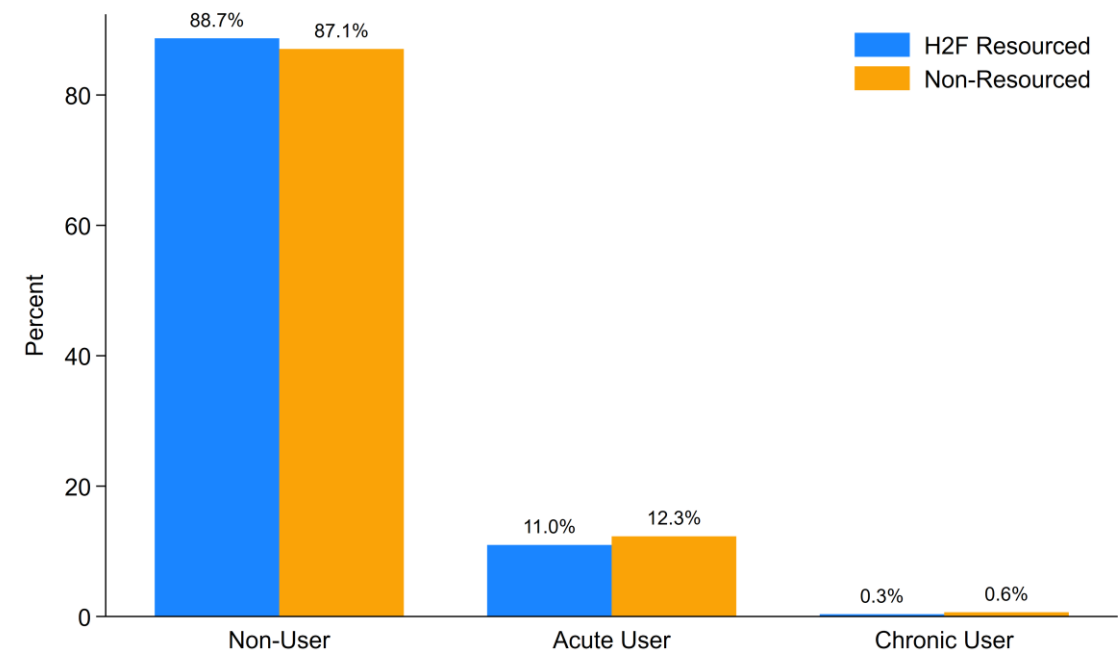


- H2F Resourced Soldiers were 4.6 percentage points less likely to be prescribed NSAIDs
 - 2.7 percentage points less likely to have acute prescriptions
 - 1.9 percentage points less likely to have chronic prescriptions each year
- H2F Resourced Soldiers are 1.6 percentage points less likely to be prescribed opioids
 - 1.3 percentage points less likely to have acute prescriptions
 - 0.3 percentage points less likely to have chronic prescriptions each year

Probability of NSAID Prescriptions



Probability of Opioid Prescriptions

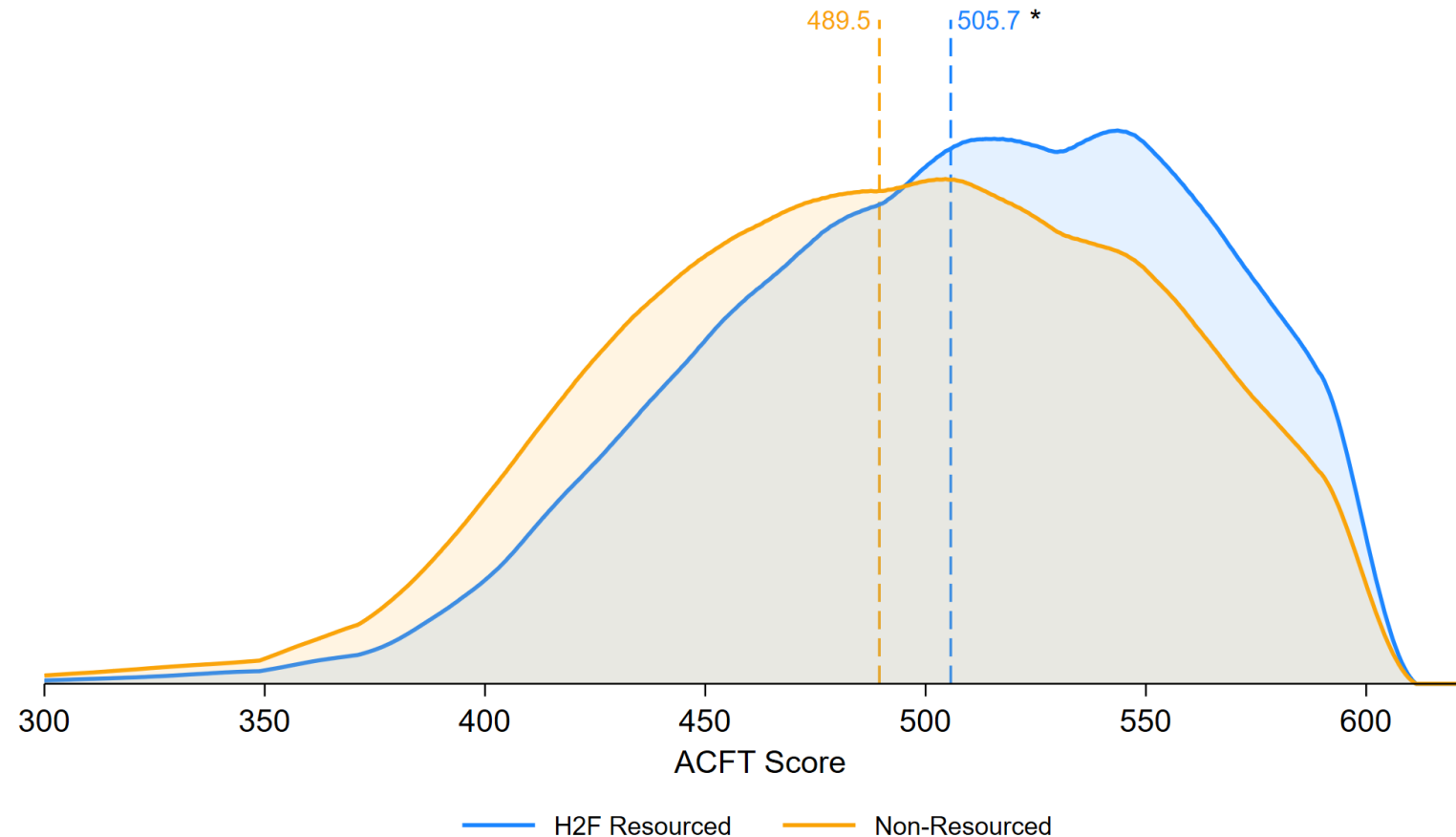


ACFT Performance



- H2F resourced Soldiers scored higher and performed better on all six ACFT events compared to non-resourced Soldiers

Distribution of Total ACFT Scores

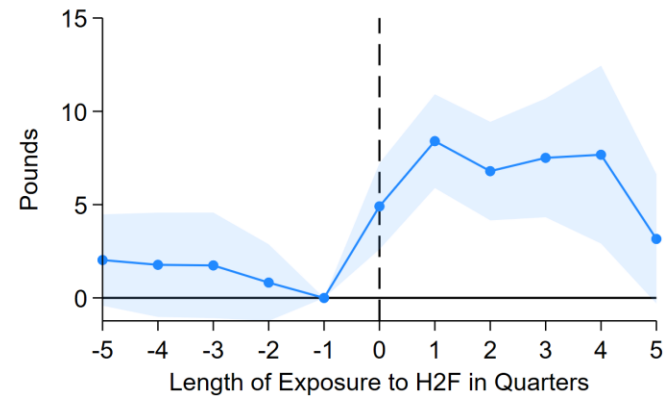


ACFT Performance

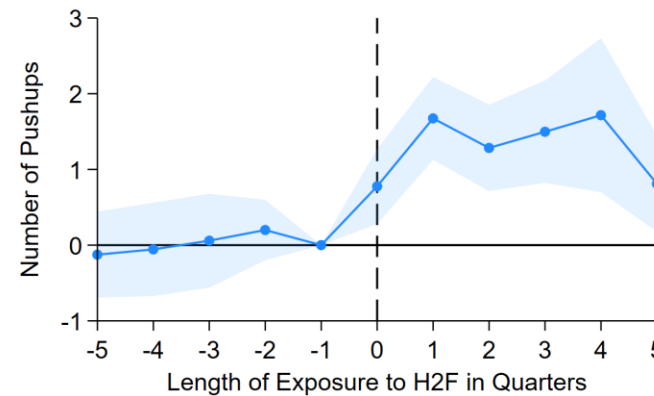


- H2F resourced Soldiers scored higher and performed better on all six ACFT events compared to non-resourced Soldiers

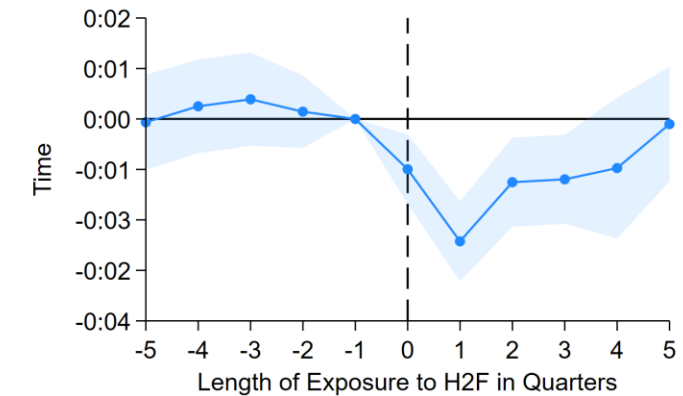
A. Three-Rep Maximum Deadlift



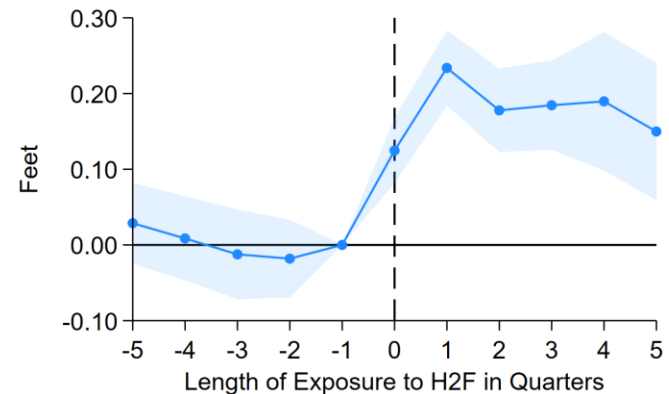
B. Hand Release Pushups



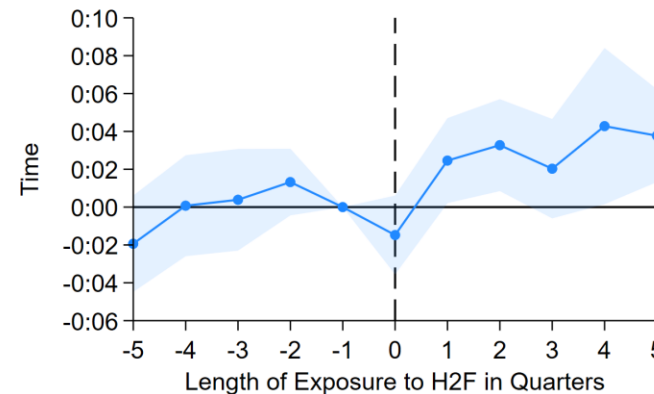
C. Sprint-Drag-Carry



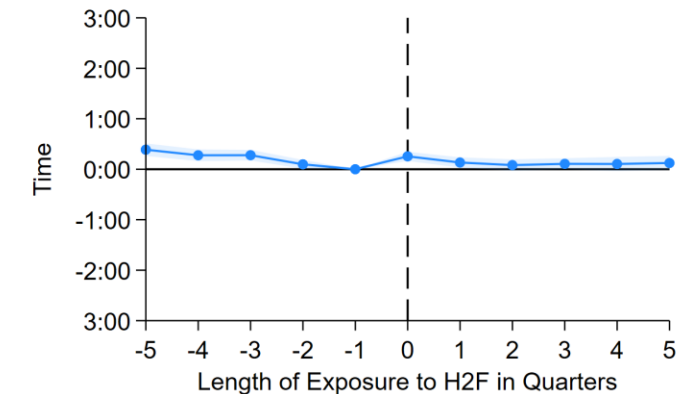
D. Standing Power Throw



E. Static Plank



F. Two-Mile Run



Weapons Qualification

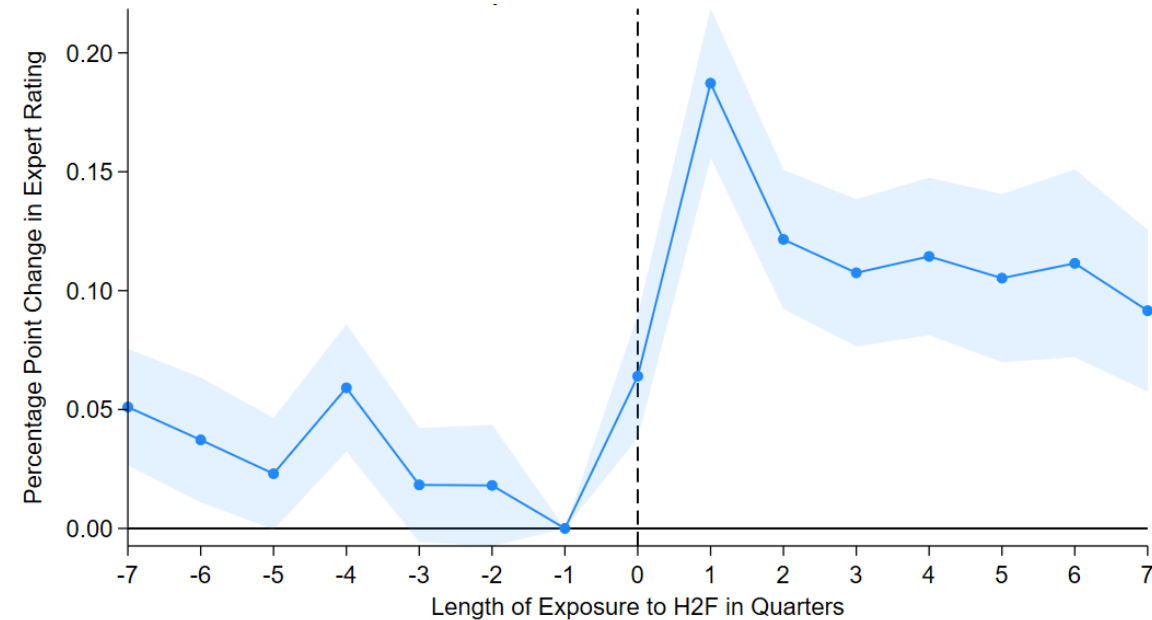


- H2F resourced Soldiers were more likely to qualify as “expert” with their assigned weapon system

Weapon	Impact of H2F
Rifle (e.g., M4)	↑ 8.4 percentage points
Pistol (e.g., SIG)	↑ 7.3 percentage points

Increases can be seen after one quarter of exposure to H2F

Impact of H2F on Expert Qualification



Evaluation used N=1,714,126 rifle and 421,431 pistol weapons cards from FY18-FY25. Results statistically significant $p < 0.01$.

Conclusions



- Embedded performance teams can address modifiable determinants of MSK injury risk, including load management, progressive rehabilitation, nutritional adequacy, sleep optimization, and environmental risk mitigation
(Bulathsinhala et al., 2017; Hughes et al., 2018; Knapik et al., 2012; Lovalekar et al., 2021)
- By colocating injury prevention and rehabilitation services within the training and operational environment, the H2F model shifts care from reactive referral-based treatment to proactive, early-intervention infrastructure.
- Soldiers that have access to H2F have improved physical performance, faster recovery times from MSKI, and are more likely to qualify as expert on their assigned weapons system, demonstrating a positive ROI for Soldiers



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THANK YOU.



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