



Special Warfare Training Wing



Saving the Tactical Athlete:

*A Data-Informed Approach to Reducing Attrition in the
U.S. Air Force Special Warfare Training Wing*

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Learning Objectives



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1. Identify Interventions

Identify data-informed human performance and nutritional interventions used to mitigate the cost of injury in a tactical population.

2. Analyze Trends

Analyze trend data to distinguish random fluctuation from meaningful programmatic change and support resource allocation.

3. Translate for Leaders

Translate statistical outputs into concise operational narratives that guide decisions in a human performance setting.



Programmatic Approach Definitions^{1,2}

Background

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Multidisciplinary

- *Professionals from various specialties work independently, evaluating the patient separately.*
- *Care is parallel; each provider treats specific aspects, and they meet to coordinate a combined treatment plan.*
- *Communication and coordination among team members may be more sequential than simultaneous compared to interdisciplinary and transdisciplinary approaches.*

Interdisciplinary

- *Team members from different disciplines work collaboratively and intentionally communicate to harmonize their approaches.*
- *While each provider retains their specific professional identity and expertise, they collaborate to create a single, unified care plan.*
- *Encourages the synthesis of knowledge and skills, allowing for a more seamless and unified approach to intervention.*

Transdisciplinary

- *Providers share roles, skills, and tasks across traditional boundaries.*
- *Professionals cross-train to provide a unified, holistic care plan, minimizing disciplinary silos.*
- *Involves shared decision-making and a collective understanding of the needs, with professionals engaging in fluid communication and contributing collaboratively to all aspects of assessment and intervention.*

1. Choi, B.C.K., and Pak, A.W.P. Multidisciplinarity, interdisciplinarity, and transdisciplinarity in health research, services, education and policy: 1. Definitions, objectives, and evidence of effectiveness. *Clinical Investigative Medicine*; 29(6): 351-354. Dec 2008.

2. Kuruvilla, R.M., Rajan, S.K., and Joseph, J. Multidisciplinary, Interdisciplinary, and Transdisciplinary Approaches to Neurodevelopmental Disability Interventions: A Brief Overview. *Annals of Indian Psychiatry*; (8)4: p 353-357, Oct-Dec 2024.



Background

Bone Stress Injury Drives Lost Training Time

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Diagnosed BSI cases

297

Across FY23 to FY25

FY23 cohort

118

Retrospective sample

FY24 cohort

80

Retrospective sample

FY25 cohort

99

Retrospective sample

Operational Concern

- BSI was a primary contributor to trainees being removed from SWTW or labeled *'training ineffective'*.
- Each profile episode can prolong pipeline time, increase support cost burden, and disrupt progression toward graduation.

Why it Matters

- This is not simply injury surveillance problem.
- BSI degrades readiness, resource allocation, and creates student throughput and production bottleneck for a high-demand tactical training enterprise.

The core question: *Can coordinated, transdisciplinary interventions improve return to training and reduce attrition pressure?*



Retrospective Cohort Analysis

Methods



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Study design

- Program evaluation using trainees with medically confirmed bone stress injury.
- Three fiscal-year cohorts: FY23, FY24, and FY25.
- Primary outcomes: return to training (RTT), reclassification (RC), and average days on training restriction (ADTR).

Statistical approach

- Chi-square test compared the distribution of final training outcomes across years.
- ANOVA tested for differences in average days on training restriction.
- Interpretation focused on practical direction of change plus statistical significance.

Cohort	FY23	FY24	FY25
n with confirmed BSI	118	80	99
Outcome focus	%RTT, RC, ADTR	%RTT, %RC, ADTR	%RTT, %RC, ADTR

%RTT = (# Returned / # Removed for BSI) * 100 ; %RC = (#Reclassified / #BSI diagnosis NOT reclass) * 100



A Phased Multi-Domain Response Across FY's

Intervention package



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FY23 Shift

Baseline and fundamental shift in approach.
Research aggregating local trends and methods to provide care.

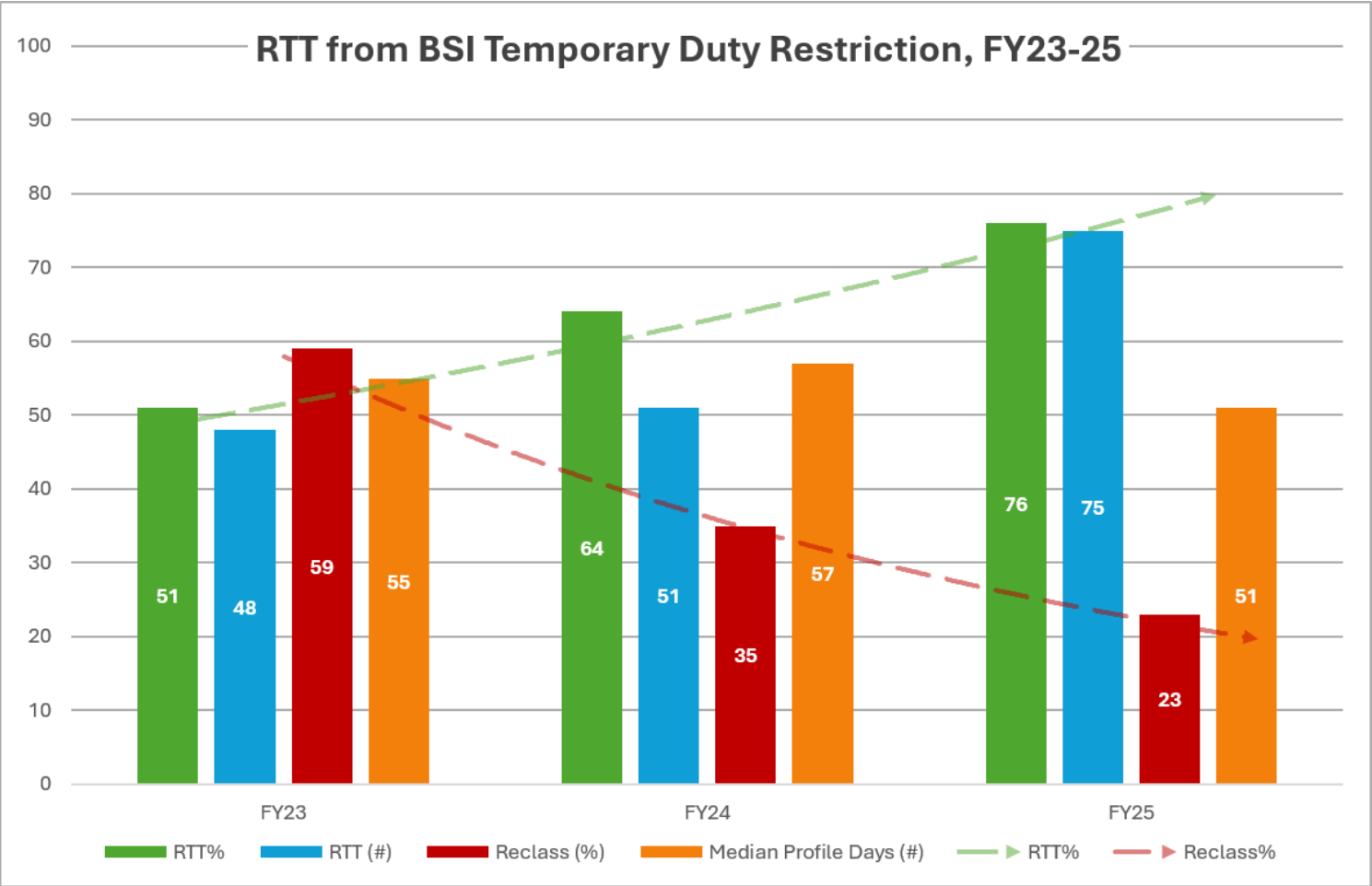
FY24 Enhancement

Processes were expanded and refined with stronger began with transdisciplinary implementation

Alternate Workouts (S&C/DPT), Blood Flow Restriction (BFR) Provider Running Analysis, Load Carriage Progression, Supplemental Plyometric Program.

FY25 Sustainment / Expansion

Immediate lifestyle counseling w/ < 0 DEXA Z-score, Integration of food models in first course, SWTW Dietary Survey (Athlete Diet Index), and consistent, transdisciplinary messaging





Return to Training Improved across Years

Results

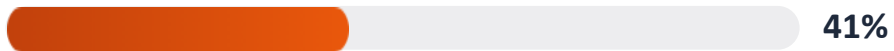
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Final outcomes differed significantly across FY23 to FY25: Chi-square (4) = 31.26, $p < 0.001$.

Return-to-Training (RTT) Percentage

FY23



41%

FY24



64%

FY25



76%

Absolute Gain

35%

Percentage-point increase from FY23 to FY25

Interpretation

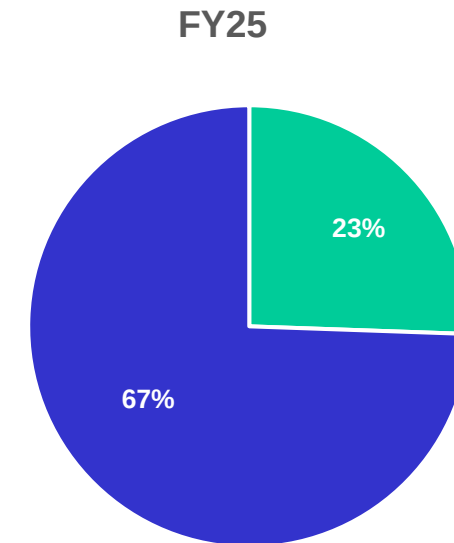
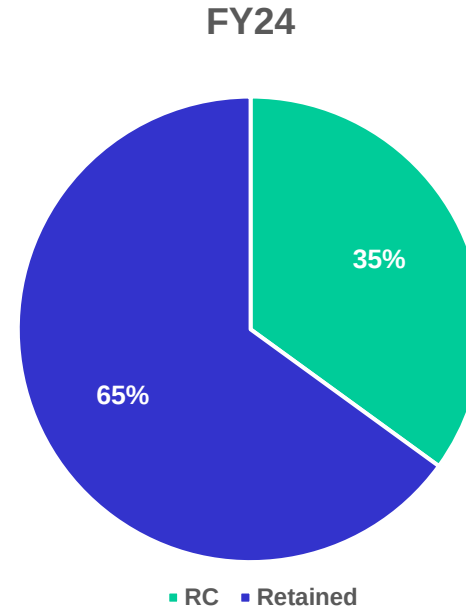
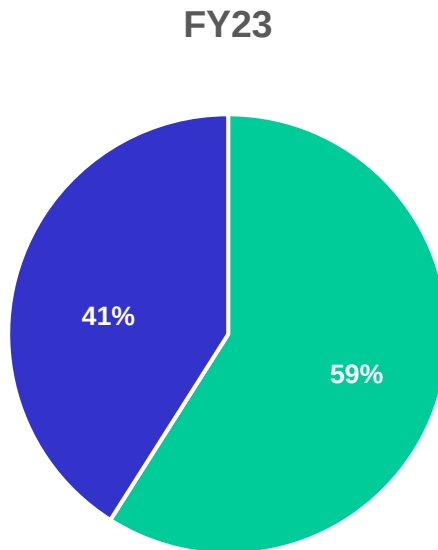
The program increasingly returned profiled trainees to active progression instead of losing them to immediate attrition outcomes.



Reduced Potential Loss to other Career Fields



Takeaway: Returned 26% more possible pipeline graduates from occupational reclassification; larger pool for subsequent pipeline attrition mitigation.





Profile Days Trended Down, without Statistical Significance

Results



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FY23 ADTR

60

days on profile

FY24 ADTR

62

days on profile

FY25 ADTR

52

days on profile

ADTR = Average Days on Training Restriction

Statistical Readout

ANOVA did not detect a strict, significant difference in average days on training restriction across fiscal years, with $p = 0.09$.

Leadership Message

The direction is encouraging, but the more defensible headline is improved training outcomes rather than a proven reduction in profile duration.

Significance was not met but measurable fiscal effect can be extrapolated; NEXT SLIDE.



Why These Findings Matter to the Training Wing

Operational impact



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Estimated cost savings

\$300k

Reduced logistical burden of supporting training ineffective trainees

Signal of value

\$300k + Availability

Estimated positive return on investment, but only part of story. The primary mission is student graduation, not cost savings.

Primary gain

76%

FY25 return-to-training rate. Increase available pool to produce.

Attrition pressure

41 → 76%

RTT improvement across FY23 to FY25; three-year trend with qualified interventions and quantified outcomes.

Leadership Translation

The practical message is straightforward: *Better coordination across physical development, rehabilitation, running analysis, and nutrition appears to keep more injured trainees on a path back to graduation while reducing the support burden tied to time-loss injuries.*



Questions

Reducing bone stress injury attrition requires more than treatment alone; it requires a measurable, coordinated system that returns more Special Warfare Students to the pipeline faster.