



# The Eagle Tactical Athlete Program Reduces Musculoskeletal Injuries in the 101st Airborne Division (Air Assault)



Timothy C. Sell<sup>1</sup>, John P. Abt<sup>1</sup>, Takashi Nagai<sup>1</sup>, Jennifer B. Deluzio<sup>1</sup>, Mita Lovalekar<sup>1</sup>, Michael D. Wirt<sup>2</sup>, Scott M. Lephart<sup>1</sup>, FACSM

Department of Sports Medicine and Nutrition, School of Health and Rehabilitation Sciences, University of Pittsburgh, Pittsburgh, PA; <sup>2</sup>U.S Army's 101st Airborne Division (Air Assault), Fort Campbell, KY

## ABSTRACT

The Eagle Tactical Athlete Program (ETAP) was scientifically developed specifically for the U.S Army's 101st Airborne Division (Air Assault) to counter the significant number of sustained unintentional musculoskeletal injuries. ETAP was previously demonstrated to improve human performance characteristics, but the capability of ETAP to reduce injuries had not been studied. **PURPOSE:** To determine if ETAP would reduce unintentional musculoskeletal injuries in garrison in a group of 101st Airborne Division (Air Assault) Soldiers. **METHODS:** Non-commissioned officers led their respective units during physical training following certification in the training components of ETAP as taught during an ETAP Instructor Certification School. A total of 1641 Soldiers were enrolled (N = 1106 experimental group, N = 540 control group) to evaluate changes in injury data. Injuries were tracked for 5 months prior to and after ETAP participation during a pre-deployment workup phase. ICD-9CM codes were used to categorize preventable musculoskeletal injuries (total, regional distribution, acute or overuse). A McNemar analysis was conducted to evaluate the effect of ETAP on the overall injury rate within each group. **RESULTS:** There was a significant reduction in overall injury rates (pre-ETAP: 209/1106 (18.9%), post-ETAP: 177/1106 (16.0%), p = 0.045) in the experimental group while no differences in the control group were found. A reduction in injury rates were also observed in overuse injuries and specific injuries to the lower extremity, knee, and lumbopelvic region in the experimental group. **CONCLUSION:** The Eagle Tactical Athlete Program was scientifically designed to optimize performance and reduce injuries. The current analysis demonstrated that ETAP reduces preventable musculoskeletal injuries in garrison. The capability of ETAP to reduce injuries confirms the vital role of a scientifically designed training program on force readiness and health.

## INTRODUCTION

- Eagle Tactical Athlete Program (ETAP) was scientifically developed specifically for the U.S Army's 101st Airborne Division (Air Assault) to counter the significant number of sustained unintentional musculoskeletal injuries
- ETAP was previously demonstrated to improve human performance characteristics, but the capability of ETAP to reduce injuries had not been studied

## PURPOSE

- To determine if ETAP would reduce unintentional musculoskeletal injuries in garrison in a group of 101st Airborne Division (Air Assault) Soldiers



## EXPERIMENTAL DESIGN AND METHODS

### STUDY DESIGN

- Experimental, pre-test/post-test, control group design

### LOCATION AND SUBJECTS

- The study was conducted on-site with U.S Army's 101st Airborne Division (Air Assault) in Ft. Campbell, KY
- A total of 1641 Soldiers were consented and enrolled (N = 1106 experimental group, N = 540 control group) to evaluate changes in injury data

### PRODECURES

- The Eagle Tactical Athlete Program (ETAP) was the intervention for the experimental group (see Figure 1 (below))
- The experimental group's intervention was led by non-commissioned officers at their respective units during physical training following certification in the training components of the ETAP as taught during an ETAP Instructor Certification School (see Figure 2 (right))
- The control group participated in their regular Army physical training
- Injuries were tracked for 5 months prior to and after ETAP participation began during a pre-deployment workup phase



Figure 2. Instructor Certification School



Figure 1. Soldiers Participating in the Eagle Tactical Athlete Program

### STATISTICAL ANALYSIS

- ICD-9CM codes were used to categorize preventable musculoskeletal injuries (total, regional distribution, acute or overuse)
- A McNemar analysis was conducted to evaluate the effect of ETAP on the proportion of Soldiers injured within each group by comparing the proportion of Soldiers injured pre-ETAP versus post-ETAP

## RESULTS

- The Table below represents the number of injuries and proportion of Soldiers injured (in parentheses) for each category followed by the p-value for the McNemar test
- There was a significant reduction in the proportion of injured subjects (pre-ETAP: 209/1106 (18.9%), post-ETAP: 177/1106 (16.0%), p = 0.045) in the experimental group
- A reduction in proportion of injured subjects were also observed in overuse injuries and specific injuries to the lower extremity, knee, and lumbar spine in the experimental group
- No differences in the control group were found

	Experimental Group			Control Group		
	Pre-ETAP	Post-ETAP	p-value	Pre-ETAP	Post-ETAP	p-value
All Injuries	209 (18.9%)	177 (16.0%)	0.045	105 (19.4%)	96 (17.8%)	0.460
Lower Extremity	120 (10.8%)	99 (9.0%)	0.117	60 (11.1%)	48 (8.9%)	0.207
Knee	59 (5.3%)	46 (4.2%)	0.208	31 (5.7%)	32 (5.9%)	1.000
Ankle	50 (4.5%)	42 (3.8%)	0.434	22 (4.1%)	14 (2.6%)	0.169
Lumbar Spine	75 (6.8%)	69 (6.2%)	0.606	38 (7.0%)	41 (7.6%)	0.775
Acute	107 (9.7%)	90 (8.1%)	0.213	55 (10.2%)	45 (8.3%)	0.302
Overuse	59 (5.33%)	44 (3.98%)	0.086	26 (4.8%)	20 (3.7%)	0.451

## SUMMARY AND CONCLUSIONS

- The current analysis demonstrates that ETAP reduces preventable musculoskeletal injuries in garrison
- These results combined with previous analyses confirms that the Eagle Tactical Athlete Program improves physical readiness and performance and has the capability to reduce unintentional musculoskeletal injury - confirming the vital role of a scientifically designed training program on force readiness and health

This work was supported by the US Army Medical Research and Materiel Command. Research grant USAMRMC/TATRC #W81XWH-06-2-0070/W81XWH-09-2-0095/W81XWH-11-2-0097. Opinions, interpretations, conclusions, and recommendations are those of the author/presenter and not necessarily endorsed by the US Army.