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Cocke, Charles; Dawes, James; Orr, Rob Marc

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# The Impact of Two Different Conditioning Programs on Fitness Characteristics of Police Academy Cadets



**Charles Cocke<sup>1</sup>, Jay Dawes<sup>2</sup>, Orr RM<sup>3</sup>**

**1 Health Sciences and Medicine Bond University, AUST**

**2 University of Colorado; Colorado Springs, USA**

**3 Tactical Research Unit, Bond University, AUST**





# Introduction

- Tactical athletes serve in a physically demanding occupation<sup>1</sup>
- Adequate conditioning is needed as preparation for occupational duties<sup>1</sup>
- Trainees have an increased risk of injury<sup>2,3,4</sup>
  - Recruiting and training a new police officer: \$85k<sup>9</sup>
- Used adhoc /randomised PT
- Would a structured periodised program be better?



# Methods

- Design
  - Retrospective data of Police Cadet training collected pre- and post- training programs
- Intervention
  - 6 month voluntary physical fitness training
  - 2 programs
    - Random, “workout-of-the-day,” 4 classes (n = 65)
    - Periodised, 1 class (n = 25)



# Methods

- **Anthropometric Measures**
  - Body weight / Fat mass / Lean body mass
- **Muscular Fitness Measurements**
  - Bench press 1RM
  - Push-up reps and Sit-ups in 1 min
  - Vertical jump height / Power production
- **Metabolic Fitness Measures**
  - Anaerobic sprint (300 m) / Aerobic run (2.4 km)





# Methods

- Statistics
  - Paired t-test within group changes
  - Independent sample t-tests for between group differences
  - ANOVA for between individual RTG and the PG differences
- Ethical approval provided by:
  - UCCS IRB (15-074)
  - BUHREC (RO 1927)

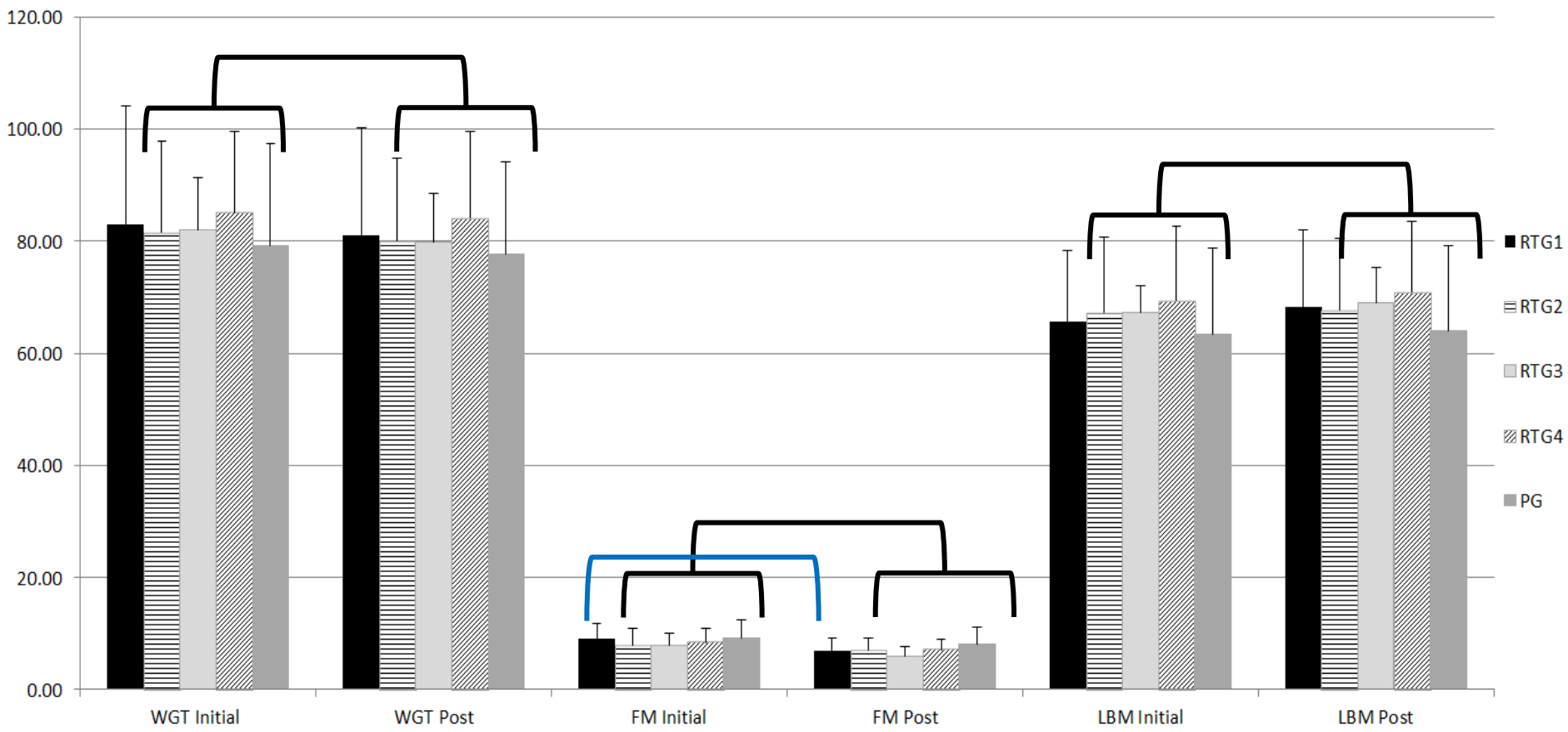


# Results

- 4 RTG (n=65),
  - age= $28.96 \pm 6.34$  yrs
  - weight= $79.44 \pm 18.06$  kg
  - LBM= $63.41 \pm 15.45$  kg
- 1 PG (n=25),
  - age= $21.76 \pm 5.37$  yrs
  - weight= $83.15.66$  kg
  - LBM= $67.55 \pm 11.62$  kg



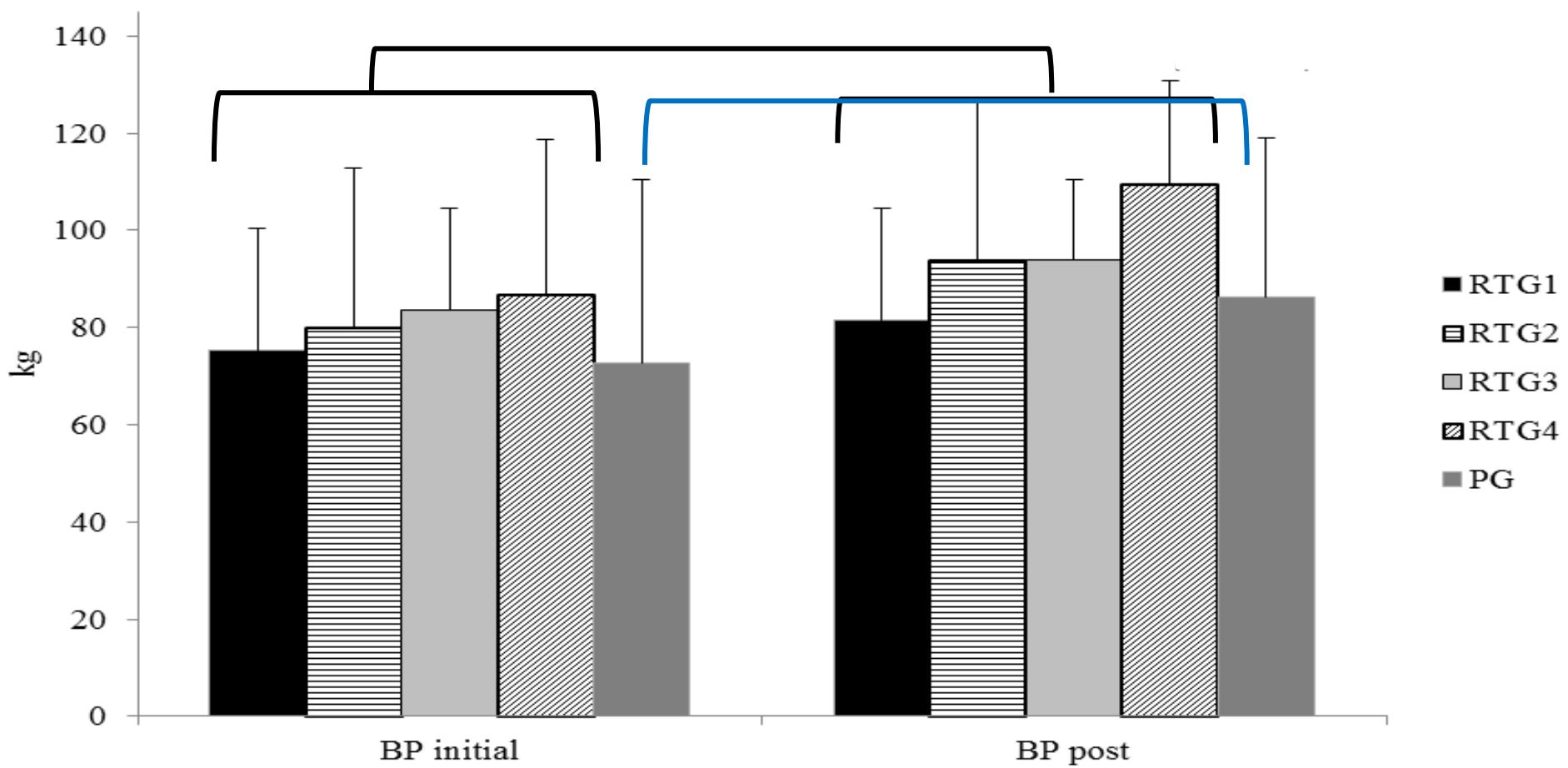
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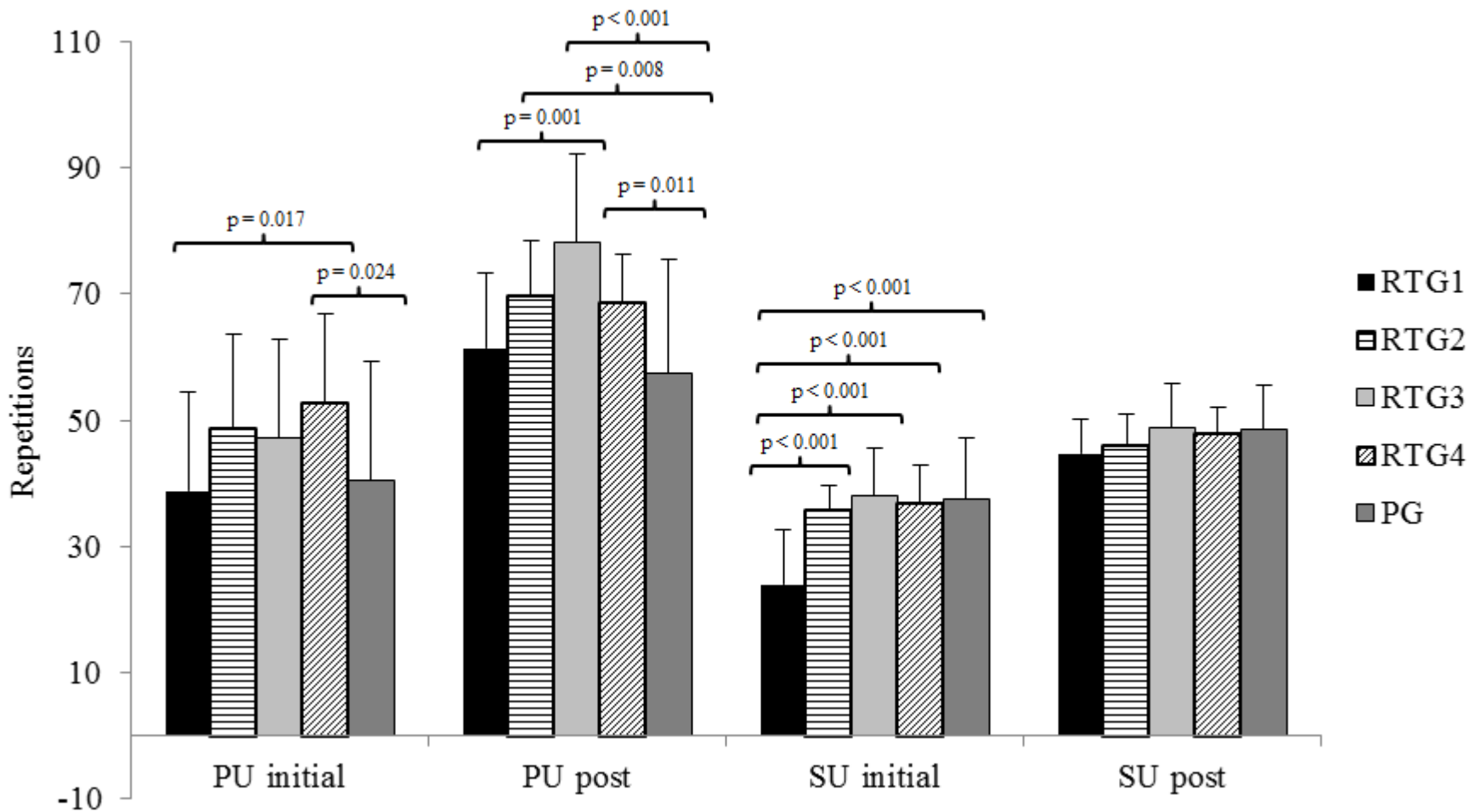


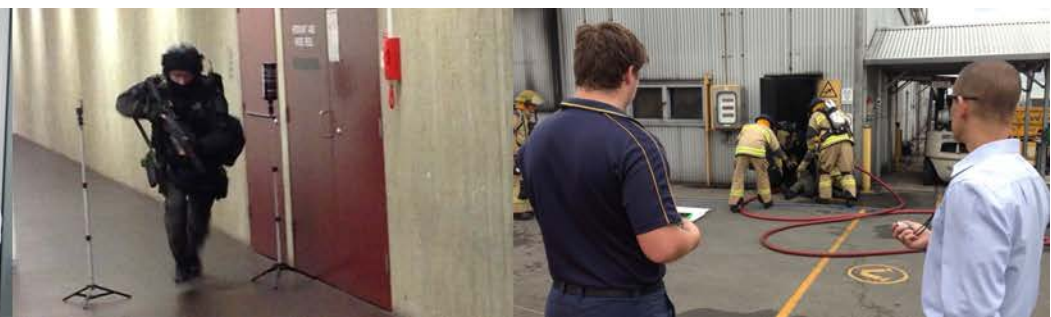




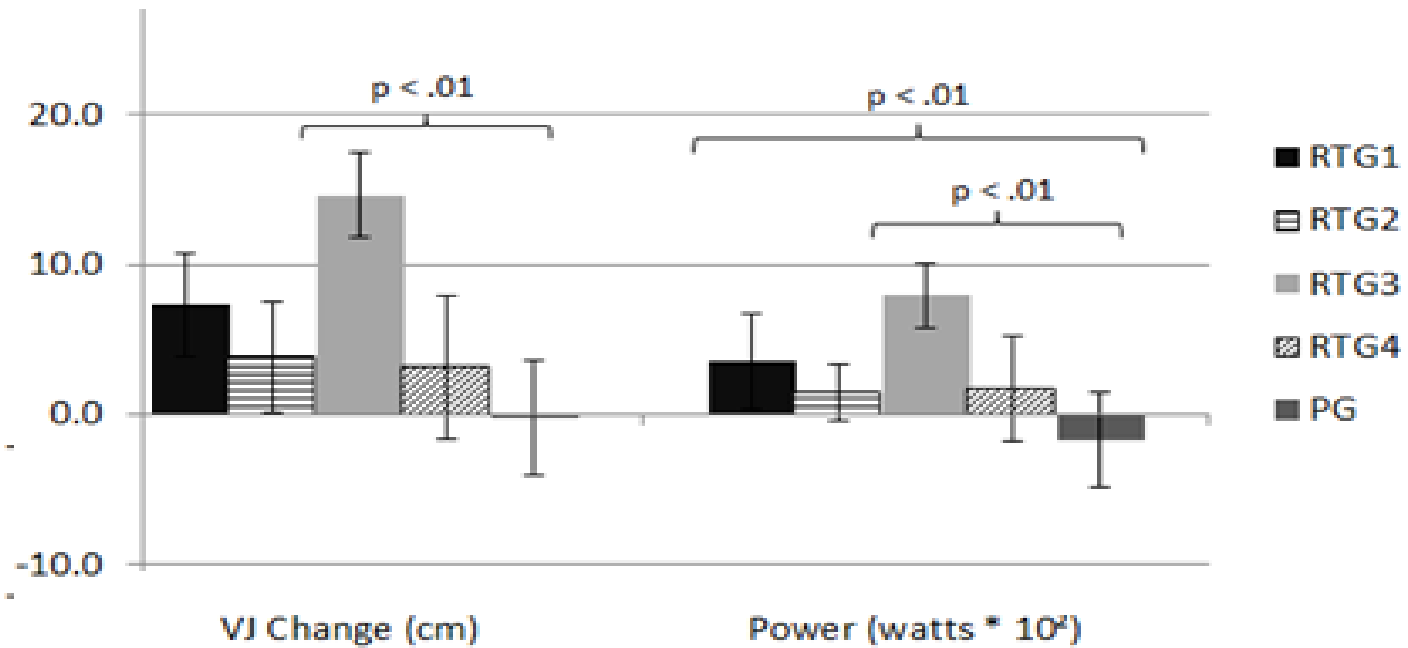
# Results





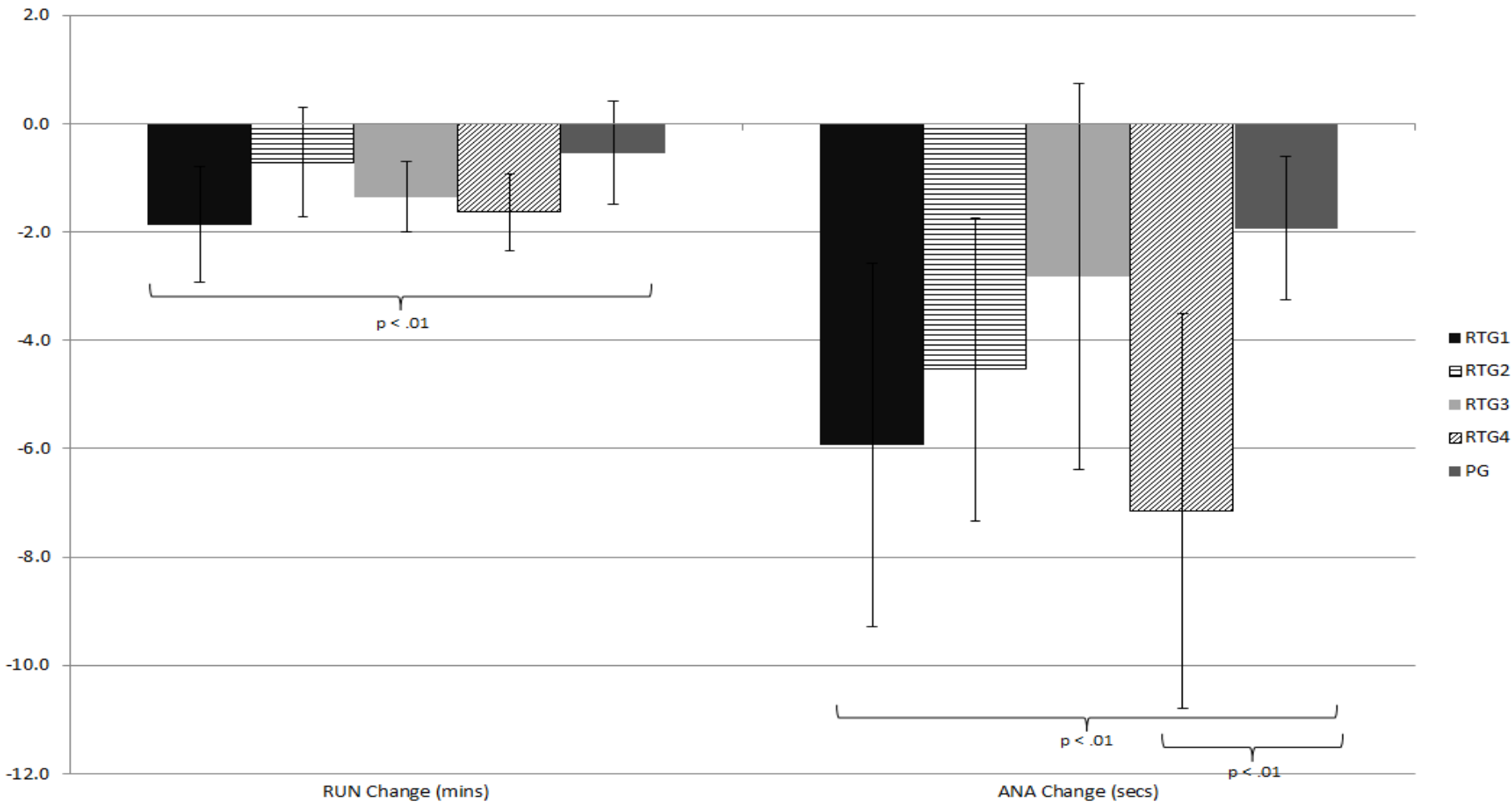


# Results





# Results





# Discussion

- RTG and PG approaches both resulted in improvements
  - In general RTG > PG
- Previous research has shown periodised programs to be of greater benefit than a traditional basic training program in a military population<sup>5,7</sup>
  - Push-up and sit up repetitions, long distance runs
  - Injury rate, attrition rate, and pass rate on a specific aggregated military fitness testing standard



# Conclusion

- Standard Periodised programs may not be as effective for tactical athletes who are required to perform across a spectrum of activities
- PT programs – regardless of format – can improve the physical fitness of tactical personnel
  - **PT is of benefit to new trainees and should remain part of their initial training**



# References

1. Plat MJ, Frings-Dresen MHW, and Sluiter JK. A systematic review of job-specific workers' health surveillance activities for fire-fighting, ambulance, police and military personnel. *Int Arch Occup Environ Health* 84: 839-857, 2011.
2. Booth CK, Probert B, Forbes-Ewan C, and Coad RA. Australian army recruits in training display symptoms of overtraining. *Military medicine* 171: 1059-1064, 2006.
3. Kaufman KR, Brodine S, and Shaffer R. Military training-related injuries: surveillance, research, and prevention. *American journal of preventive medicine* 18: 54-63, 2000.
4. Knapik J, Darakjy S, Scott SJ, Hauret KG, Canada S, Marin R, Rieger W, and Jones BH. Evaluation of a standardized physical training program for basic combat training. *Journal of strength and conditioning research / National Strength & Conditioning Association* 19: 246-253, 2005.
5. Knapik JJ, Grier T, Spiess A, Swedler DI, Hauret KG, Graham B, Yoder J, and Jones BH. Injury rates and injury risk factors among federal bureau of investigation new agent trainees. *BMC Public Health* 11: 1-16, 2011.



# References

6. Knapik JJ, Reynolds KL, and Harman E. Soldier load carriage: historical, physiological, biomechanical, and medical aspects. *Military medicine* 169: 45-56, 2004.
7. Orr RM, Johnston V, Coyle J, and Pope R. Reported Load Carriage Injuries of the Australian Army Soldier. *Journal of occupational rehabilitation*, 2014.
8. Park H, Branson D, Kim S, Warren A, Jacobson B, Petrova A, Peksoz S, and Kamenidis P. Effect of armor and carrying load on body balance and leg muscle function. *Gait & Posture* 39: 430-435, 2014.
9. Weatherburn D. *Law and Order in Australia: Rhetoric and Reality*. Sydney: The Federation Press, 2004.



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