

This is my abstract title – it is limited to 30 words
 $\gamma\delta$ T cell responses to prolonged heavy endurance exercise

KAKANIS M^{1,3}, GRAY B¹, PEAKE J^{2,3}, SIMMONDS M¹, BRENU E⁴, MARSHALL-GRADISNIK S⁴

1. Faculty of Health Sciences and Medicine, Bond University, Queensland, Australia
2. School of Biomedical Sciences, Queensland University of Technology, Queensland, Australia
3. Centre of Excellence for Applied Sport Science Research, Queensland Academy of Sport, Queensland, Australia
4. School of Medical Sciences, Griffith University, Queensland, Australia

ABSTRACT

The focus of this study was to assess exercise-induced alterations in circulating $\gamma\delta$ T cell subpopulations and memory phenotypes after a prolonged heavy-intensity exercise bout. Ten highly-trained endurance cyclists (mean \pm SEM: age 24.0 \pm 1.3 years; height 1.81 \pm 0.02 m; body mass 73.3 \pm 1.8 kg; peak oxygen uptake 60.7 \pm 1.5 mL.kg⁻¹.min⁻¹) performed 2 h of cycling exercise at 90% of the second ventilatory threshold. Blood samples were collected before exercise, immediately post-exercise, 1 h, 2 h, 4 h, and 6 h post-exercise. Flow cytometry was used to examine $\gamma\delta$ T cell subsets, memory phenotypes and receptor expression. A significant decrease in cell concentration was observed in total $\gamma\delta$ T cells and the $\delta 2$ subset from pre-exercise to 1 h, 2 h, and 4 h post-exercise. Further analysis of the $\delta 2$ subset revealed a significant decrease from pre-exercise to 1 h, 2 h, and 4 h post-exercise in naive $\delta 2$ cells, and a significant decrease from pre-exercise to 1 h and 2 h post-exercise in central memory $\delta 2$ cells. A significant decrease was observed in $\gamma\delta$ T cells expressing CD11a^{high}, CD62L^{high} and CD94⁺ from pre-exercise to 1 h, 2 h, and 4 h post-exercise. Furthermore, a significant decrease was observed from pre-exercise to 1 h post-exercise in CD62L^{low} and CD94⁻ $\gamma\delta$ T cells. These results suggest an exercise-stress-induced redistribution of $\gamma\delta$ T cells from the circulation with greater propensity for antigen stimulation, tissue and lymph node homing potential for a duration of 4 h after the cessation of exercise.

Formatted: Font: (Default) Book Antiqua, 14 pt, Bold, Spanish (International Sort)

Formatted: Space After: 0 pt, Line spacing: single, Tab stops: Not at 72 pt