TACSM Abstract

Minimal Differences Between Males and Females in Exercise-Induced Increase of Circulating T Cells Subsets in Older Adults

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ABSTRACT

PURPOSE: To examine potential differences between older adult males and females' acute post-exercise circulating T cell response. **METHODS**: Participants were healthy older adults with an average age of 63.0 ± 1.0 years (n= 24, females = 70.8%) and BMI of 24.7 ± 0.7 $kg \cdot m^{-2}$. All females were post-menopausal. A single bout of cardiorespiratory exercise at ~70% heart rate reserve and a separate bout of eight resistance exercises at ~70% 1 repetition maximum were conducted at least one week apart. T cell count changes were determined via blood sample at rest and immediately post-exercise for each bout. Multi-color flow cytometry was used for T cell counts of each subset. Subsets in the project included CD3+, CD8+, and CD4+ naïve, central and effector memory, and cytotoxic T cells, as well as Th17 cells. Multilinear regression models were utilized to determine predictors and covariates of the exercise-induced T cell differences. **RESULTS**: In total, 16 T cell types were analyzed for response to both acute CRE and RE bouts of exercise. Although there was a varying response to each acute exercise bout, CD8+ EMRA T cell subset was the only one influenced by male (pre- to post-exercise difference: 56.41 ± 0.81 cells/μL) or female (pre- to post-exercise difference: 18.89 ± 0.27 cells/μL) sex in response to the CRE bout (sex difference p=0.0113). There were no other T cell subsets where the model selection included sex as a covariate. **CONCUSSION**: EMRA CD8+ T cells after a CRE bout were the only studied T cells with sex included in the model selection for post-exercise increase to either acute CRE or RE. Given the small effect size and it being the only effected T cell subset, it is possible that the sex influence is an artifact in the model. These results support that sex may not be considered a primary influence on post-exercise T cell response in either CRE or RE acute bouts for healthy older adults where all the females are post-menopausal.