

M6 Changes in the gene expression of inflammation-related genes in PBMC of older women after three months of strength training

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Abstract title	Changes in the gene expression of inflammation-related genes in PBMC of older women after three months of strength training
Abstract body	<p>Purpose: To investigate the changes of inflammation-related gene-expression in PBMC by strength training at different modalities.</p> <p>Methods: Fourteen women aged ≥ 65 years were randomized into 3 months of either 3x/week intensive strength training (IST: 3x10rep at 80% 1RM), strength endurance training (SET: 2x30reps at 40% 1RM) or control (CON: 3x30sec stretching). RNA was extracted from isolated PBMC before and after 3 months training. Targeted RNA sequencing including 407 inflammation-related genes was performed and differentially expressed genes (fold change ≤ 0.5 or ≥ 1.5) were identified. Pathway analysis was performed using IPA.</p> <p>Results: 85 genes, mostly pro-inflammatory (n=56), showed significant exercise-induced changes in expression. IST and SET altered 9 genes in similar direction (e.g. MXRA5 FC IST=23.54 and FC SET=6.78) whereas 26 genes were altered in opposite direction (e.g. IL1A FC IST=0.15 and FC SET=2.27). Compared to CON, IST induced changes in expression of 5 genes in the same direction, and for 15 genes in the SET group (e.g. ILTRAPL2 FC IST=20.52, FC SET=6.94 and FC CON=5.54). Likewise, 13 and 7 genes were oppositely expressed for respectively IST and SET compared to CON (e.g. MXRA5 FC CON=0.29). For IST and SET, pro-inflammatory pathways were inhibited such as dendritic cell maturation pathway and sirtuin pathway. None of the pathways overlapped between IST and SET. LXR/RXR and TREM1 pathways were enriched oppositely in both training groups.</p> <p>Conclusion: Three months strength training at high and moderate external load can both induce changes in CLIP-related gene expression in PBMC, but by affecting different genes and related pathways.</p>