were randomized into 3 months of either 3×/week intensive
mimicking in-vitro an acute infection by lipopolysaccharide
(cells (PBMC) of older adults. Here we investigate if resist
chronic inflammation in peripheral mononuclear blood
strength training affect 18 canonical pathways related to
Ivan

CIRCULATING PBMC OF OLDER PERSONS
ALTERS LPS-INDUCED IMMUNE RESPONSES IN
THREE MONTHS OF STRENGTH TRAINING

Abstract citation ID: igad104.0133

BACKGROUND Recently, we showed that 3 months
strength training (IST: 3×10 rep at 80% 1RM), strength
endurance training (SET: 2×30 reps at 40% 1RM) or con-
trol (CON: 3×30 sec stretching). Before and after 3 months
training, PBMC were isolated and cultured with and without
LPS. Prior culture and after 24 hours of culture, RNA was
collected from pre-cultured, post-cultured and LPS chal-
enged PBMC’s, respectively. Targeted RNA sequencing
including 407 inflammation-related genes was performed.
Pathway analysis was performed with Ingenuity Pathway
Analyses using all 407 genes, a Benjamini-Hochberg p-value
< 0.05 and a z-score of ≤-2 or ≥2 were considered as sig-
nificant. RESULTS Strength training altered 23 pathways
in LPS-stimulated PBMC; (IST: 7 upregulated and 2 down-
regulated, SET: 5 upregulated and 10 downregulated). None
of the altered pathways overlapped between IST and SET.
The Cytotoxic T Lymphocyte-mediated Apoptosis of Target
Cells pathway was enriched oppositely in both training
groups (downregulated in IST versus upregulated in SET).
CONCLUSIONS Three months IST and SET can induce
changes in the inflammatory stress response of PBMC, but
by affecting different genes and related pathways. A balanced
exercise program altering both training regimes might there-
fore provide optimal immune adaptations in older persons.