

Exercise sensitizes skeletal muscle to extracellular ATP for IL-6 expression in mice

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Active skeletal muscle synthesizes and releases interleukin-6 (IL-6), which plays important roles in the organism's adaptation to exercise. Autocrine/paracrine ATP signaling has been shown to modulate IL-6 expression. The aim of this study was to determine whether a period of physical activity modifies the ATP-induced IL-6 expression. BalbC mice were either subject to 5 weeks voluntary wheel running (VA) or kept sedentary (SED). Flexor digitorum brevis muscles were dissected, stimulated with different ATP concentrations (0-100 μ M) and IL-6 mRNA levels were measured using qPCR. ATP evoked a concentration-dependent rise in IL-6 mRNA in both SED and VA mice. VA mice however, had significantly higher ATP sensitivity (pD₂ pharmacological values: VA=5.58 \pm 0.02 vs. SED=4.95 \pm 0.04, p<0.05). Interestingly, in VA mice we observed a positive correlation between the level of physical activity and the IL-6 mRNA increase following fiber stimulation with 10 μ M ATP. In addition, there were lower P2Y₂- an