

Corticosterone Levels in Sedentary, Wheel, and Treadmill Acclimated Mice following a Bout of Forced Treadmill Running

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Murine models have been used to study the immune response to exercise under various diet and training interventions. Our laboratory has previously studied the effect of forced exercise versus voluntary exercise on fasting blood glucose measurements. However, forced exercise may result in increased corticosterone levels. This may affect glucose levels and subsequent weight gain. Male, wild-type CD-1 mice were randomly divided into the following groups: forced exercise, wheel running, and sedentary. After a 8- weeks of the intervention, all mice were placed on a treadmill and forced to run for 30 minutes. Blood was collected from the mice prior to exercise, immediately following exercise, and one hour post exercise. Plasma corticosterone levels were assessed using an ELISA. 3-color flow cytometry was used to assess blood leukocytes. We found that despite treadmill acclimation in the forced exercise group, there was no significant difference between groups in corticosterone or leukocyte levels when forced to run on a treadmill. All groups showed a spike in corticosterone levels immediately following exercise which returned to baseline at one-hour post.

