

Effects of exercise training on leukocytes infiltration in adipose tissues

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Obesity is associated with adipose tissue inflammation, which has been attributed to changes in the number and types of leukocytes infiltrated in adipose tissues. In particular, macrophages play an essential role in the development of adipose tissue inflammation. Interestingly, neutrophils produce macrophage specific chemokines, which enhance infiltration of macrophages into adipose tissues. In contrast, eosinophils are reduced in adipose tissue in obesity, which inhibit activation of macrophages in adipose tissues.

Exercise training is thought to be important for the reduction of adipose tissue inflammation, but the mechanisms by which this may occur are incompletely understood. This study aimed to evaluate the effects of exercise training on infiltration of neutrophils

and eosinophils in adipose tissues.

Four-week-old male C57BL/6J mice were randomly assigned to four groups that received a normal diet (ND) plus sedentary, an ND plus exercise training, a high-fat diet (HFD) plus sedentary, and an HFD plus exercise training. Mice were fed the ND or the HFD from 4 to 20 wk of age. Mice in the exercise groups ran on a treadmill for 60 min/day, 5 times/week with the same time. Body weights were significantly increased in the HFD group than in the ND group ($p < 0.01$). However, body weights were significantly decreased in the HFD plus exercise training group than in the HFD plus sedentary groups ($p < 0.01$). At present, we are investigating flow cytometry analyses to clarify infiltration of neutrophils and eosinophils in adipose tissues.