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Title: Aerobic training reverses the inhibition in the expression of glucocorticoid receptors and decreases the Th2 allergic inflammation in asthma model

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Body: Aerobic training (AT) reduces the use of corticosteroids by asthmatics; however the anti-inflammatory effects are poorly known. Aim: Investigate the effect of AT in the expression of glucocorticoid receptor (GR) in an asthma animal model. Method: 96 Balb/c mice were divided in 4 groups (n=24 each): Control (CT), AT, Ovalbumin(OVA), OVA+AT. OVA groups received i.p. OVA+Al(OH)-3 and OVA-inhalations that continued during AT. AT (50% max. exercise capacity; 60 min.; 5 x week) begun after chronic airway inflammation and it was performed for 1, 3 or 7 days. After euthanasia, it was analyzed the expression of GR in the airway smooth muscle (ASM); eosinophil counting (BALF); and expression of IL-4, IL-5, NF-kB, eotaxin and RANTES by immunohistochemistry in tissue lung slices. Airway remodeling was quantified by ASM and epithelium thickness and collagen fiber content by image analysis. Results: OVA reduced the expression of GR and increased the eosinophil migration, expression of Th2 cytokines, and airway remodeling (p<0.05). AT reversed the decrease in OVA-induced expression of GR and reduced airway eosinophil migration and expression of Th2 cytokines, NF-kB, RANTES, and eotaxin as well as airway remodeling (p<0.05). Conclusion: AT modulates airway inflammation by increasing the expression of glucocorticoid receptor in a murine animal model.