

## Effects of Aerobic Training on MicroRNA Let-7a Expression and Levels of Tumor Tissue IL-6 in Mice With Breast Cancer

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**Abstract :** Aim: The aim of this study was to assess The effects of aerobic training on microRNA let-7a expression and levels of tumor tissue IL-6 in mice with breast cancer. Method: Twenty BALB/c c mice (4-5 weeks,17 gr mass) were cancerous by injection of estrogen-dependent receptor breast cancer cells MC4-L2 and divided into two groups: tumor-training(TT) and tumor-control(TC) group. Then TT group completed aerobic training for 6 weeks, 5 days per week (14-18 m/min). After tumor emersion, tumor width and length were measured by digital caliper every week. 48 hours after the last exercise subjects were killed. Tissue sampling were collected and stored in -70°. Tumor tissue was homogenized and let-7a expression and IL-6 levels were accounted with Real time-PCR and ELISA Kit respectively. Statistical analysis of let-7a was conducted by the REST software. Repeated measures and independent tests were used to assess tumor size and IL-6, respectively. Results: Tumor size and IL-6 levels were significantly decreased in TT group compare with TC group ( $p < 0.05$ ). microRNA let-7a was increased significantly in TT against control group respectively ( $p = 0/000$ ). Conclusion: Reduction in tumor size, followed by aerobic exercise can be attributed to the loss of inflammatory factors such as IL-6; It seems that regarding to up regulation effects of aerobic exercise training on let-7a and down regulation effects of that on IL-6 in mice with breast cancer, This type of training can be used as adjuvant therapy in conjunction with other therapies for breast cancer.

**Keywords :** breast cancer, aerobic training, microRNA let-7a, IL-6

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