

عنوان مقاله:

The effect of regular resistance exercise, vitamin D, and calcium supplements on the gastrocnemius muscle in rats in the post-menopausal period: An experimental study

محل انتشار:

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خلاصه مقاله:

Background: Menopause is the natural termination of menstruation which affects the quality and important aspects of women's life. **Objective:** To evaluate the effect of regular resistance training (Ex) with vitamin D (Vit. D) and calcium (Ca) supplements in the postmenopausal period on muscle tissue in rats. **Materials and Methods:** In this experimental study, 72 female Wistar rats (8-10-wk old) were randomly divided into control, placebo, Vit. D, Ca, Ex, Ca + Vit. D, Ex + Ca, Ex + Vit. D, and Ex + Ca + Vit. D groups. Control and placebo groups were fed with a standard diet and sesame oil, respectively. Two month after the ovariectomy, Ex, Ca (35 mg/kg), and Vit. D (10000 IU) were administered in all groups except the control. The number of muscle and inflammatory cells, fiber diameter, endomysium thickness, and degenerative collagen fiber area were assessed through hematoxylin-eosin staining. **Results:** Muscle cell number was increased in the Ex + Vit. D + Ca, Vit. D + Ex, and Vit. D groups compared to the control group; also, inflammatory cell number showed significant increase in the Ex + Vit. D + Ca (12 ± 5.46), Vit. D + Ex (14 ± 3.25), Ex (13 ± 4.08), Vit. D (11 ± 3.26), Ca + Vit. D (10 ± 1.01), and Ca + Ex (9 ± 2.87) groups. Muscle fiber diameter in the Ex + Vit. D + Ca and Vit. D + Ex groups was higher than the other groups. Endomysium thickness was significantly decreased in the Ex + Vit. D + Ca and Vit. D + Ex groups compared to the control and placebo groups ($p < 0.001$). Degenerative collagen fiber area showed a significant increase in the Ex + Vit. D + Ca and Vit. D + Ex groups ($p \leq 0.001$) comparison with the control group. **Conclusion:** Regular resistance exercise, Vit. D, and Ca supplements can improve muscle morphological features in the postmenopausal period.

کلمات کلیدی:

Menopause, Muscle, Vitamin D, Calcium, Exercise, یائسگی, عضله, ویتامین D, کلسیم, ورزش.

