

## The Effects of Chamomile on Serum Levels of Inflammatory Indexes to a Bout of Eccentric Exercise in Young Women

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**Abstract :** Aim: Changes in stress hormones can be modify response of immune system. Cortisol as the most important body corticosteroid is anti-inflammatory and immunosuppressive hormone. Normal levels of cortisol in humans has fluctuated during the day, In other words, cortisol is released periodically, and regulate through the release of ACTH circadian rhythm in every day. Therefore, the aim of this study was to determine the effects of Chamomile on serum levels of inflammatory indexes to a bout of eccentric exercise in young women. Methodology: 32 women were randomly divided into 4 groups: high dose of Chamomile, low dose of Chamomile, ibuprofen and placebo group. Eccentric exercise included 5 set and rest period between sets was 1 minute. For this purpose, subjects warm up 10 min and then done eccentric exercise. Each participant completed 15 repetitions with optional 20 kg weight or until can't continue moving. When the subject was no longer able to continue to move, immediately decreased 5 kg from the weight and the protocol continued until cause exhaustion or complete 15 repetitions. Also, subjects received specified amount of ibuprofen and Chamomile capsules in target groups. Blood samples in 6 stages (pre of starting pill, pre of exercise protocol, 4, 24, 48 and 72 hours after eccentric exercise) was obtained. The levels of cortisol and adrenocorticotrophic hormone levels were measured by ELISA way. K-S test to determine the normality of the data and analysis of variance for repeated measures was used to analyze the data. A significant difference in the  $p < 0/05$  accepted. Results: The results showed that Individual characteristics including height, weight, age and body mass index were not significantly different among the four groups. Analyze of data showed that cortisol and ACTH basic levels significantly decreased after supplementation consumption, but then gradually significantly increased in all stages of post exercise. In High dose of Chamomile group, increasing tendency of post exercise somewhat less than other groups, but not to a significant level. The inter-group analysis results indicate that time effect had a significant impact in different stages of the groups. Conclusion: The results of this study, one session of eccentric exercise increased cortisol and ACTH hormone. The results represent the effect of high dose of Chamomile in the prevention and reduction of increased stress hormone levels. As regards use of medicinal plants and ibuprofen as a pain medication and inflammation has spread among athletes and non-athletes, the results of this research can provide information about the advantages and disadvantages of using medicinal plants and ibuprofen.

**Keywords :** chamomile, inflammatory indexes, eccentric exercise, young girls

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