

Resistance Training and Ginger Consumption on Cytokines Levels

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Abstract : Regular body trainings cause adaption in various system in body. One of the important effect of body training is its effect on immune system. It seems that cytokines usually release after long period exercises or some exercises which cause skeletal muscular damages. If some of the cytokines which cause responses such as inflammation of cells in skeletal muscles, with manipulating of training program, it can be avoided or limited from those exercises which induct cytokines release. Ginger plant is a kind of medicinal plants which is known as a anti inflammation plant. This plant is as most precedence medicinal plants in medicine science especially in inflammation cure. The aim of the present study was the effect of selected resistance training and consumption of ginger extract on IL-1 α and TNF α untrained young women. The population includes young women interested in participating in the study with the average of 30 \pm 2 years old from Abbas Abad city among which 32 participants were chosen randomly and divided into 4 four groups, resistance training (R), resistance training and ginger consumption(RG), Ginger consumption(G)and Control group(C). The training groups performed circuit resistance training at the intensity of 65-75% one repeat maximum, 3 days a week for 6 weeks. Besides resistance training, subjects were given either ginseng (5 mg/kg per day) or placebo. Prior to and 48 hours after interventions body composition was measured and blood samples were taken in order to assess serum levels of IL-1 α and TNF α . Plasma levels of cytokines were measured with commercially available ELISA Kits.IL-1 α kit and TNF α kit were used in this research. To demonstrate the effectiveness of the independent variable and the comparison between groups, t-test and ANOVA were used. To determine differences between the groups, the Scheffe test was used that showed significant changes in any of the variables. we observed that circuit resistance training in R and RG groups can significant decreased in weight and body mass index in untrained females (p<0.05). The results showed a significant decreased in the mean level of IL-1 α levels before and after the training period in G group (p=0.046) and RG group (p=0.022). Comparison between groups also showed there was significant difference between groups R-RG and RG-C. Intergroup comparison results showed that the mean levels of TNF α before and after the training in group G (p=0.044) and RG (p=0.037), significantly decreased. Comparison between groups also showed there was significant difference between groups R-RG , R-G ,RG-C and G-C. The research shows that circuit resistance training with reducing overload method results in systemic inflammation had significant effect on IL-1 α levels and TNF α . Of course, Ginger can counteract the negative effects of resistance training exercise on immune function and stability of the mast cell membrane. Considerable evidence supported the anti-inflammatory properties of ginger for several constituents, especially gingerols, shogaols, paradols, and zingerones, through decreased cytokine gene TNF α and IL-1A expression and inhibition of cyclooxygenase 1 and 2. These established biological actions suggest that ingested ginger could block the increase in IL-1 α .

Keywords : resistance training, ginger, IL-1 α , TNF α

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