ABSTRACT

The purpose of this study was determined what duration and intensity of different types of exercises induce OS and muscle soreness. Furthermore, the possible effect, the optimal dosage and the effective timing of commercially produced green tea extract consumption on the reduction of OS and muscle soreness will be measured. This study also aims to determine whether longer and milder exercises or vigorous and intense ones can induce more muscle soreness. Another important purpose of this study is to determine whether the same duration of different exercise activities cause different levels of OS and muscle soreness. The subjects will be selected from 8000 ordinary students from Azad University, Khorramabad of Iran. The total number of subjects is 221 ordinary university students who are unaccustomed to the selected exercises of this study. Only male subjects aged between 20-25 years are selected after a thorough medical check-up. The indicators of oxidative stress and muscle soreness in these groups compared with those of the commercially produced green tea extract groups and the control group. Blood samples (10mL) were collected by venous puncture from the antecubital vein with the subject seated, after an overnight fast (8-12h), both at rest and 24 Hr after finishing the trial. Differences between pre- and post test scores within the three experimental groups were determined by one–way ANOVA. In all analyses, the 95 % level of confidence (p < 0.05) will apply as the minimum to interoperate significant differences among sets of data. The results showed that treadmill running downhill group recorded maximum increase. And jogging group recorded least increase in the mean (CK, MDA, LDH) values. It is evident that treadmill running downhill group has maximum increase in mean scores (2.40) and control group has least increase in mean scoring (0.20) of DOMS values. Conclude that the 35 min treadmill running downhill has most effect on stress oxidative markers and DOMS. The results showed that short vigorous group recorded maximum increase and control group recorded least increase in the mean CK, MDA LDH DOMS values. There was no significant difference between the three groups about SOD, CAT and GPx. Also the results show that the use of green tea after exercise reduces the sense of muscle soreness and increase some antioxidant markers such as GSH.
The results showed that green tea has more effect on stress oxidative and antioxidant markers rather than other groups. According to our findings with increasing the dosage and frequency of commercially produced green tea extract, the amount of stress oxidative markers such as Ck, LDH and MDA decrease. The degree of delayed muscle soreness also decreases with increasing the dosage and frequency of commercially produced green tea extract. The results showed that with increasing the dosage and frequency of commercially produced green tea extract, the amount of antioxidant markers such as SOD and CAT increase. But in relation to GSH this order did not seen. In conclusion, tea flavonoids (catechin) are potent antioxidants that are absorbed from the gut after consumption and significantly increase the antioxidant capacity of the blood. Beneficial effects of increased antioxidant capacity in the body may be the reduction of oxidative damage to important molecules.