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FRUITS AND FRUIT JUICE CONSUMPTION REDUCE OXIDATIVE DNA DAMAGE IN LYMPHOCYTES OF KOREAN HEALTHY YOUNG ADULTS

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It is generally thought that continuous oxidative damage to DNA is a major contributor to the risk of cancer development. Epidemiological studies suggest that fruits and vegetables might reduce the risk of cancer through their antioxidant properties. This study was designed to investigate the protective effect of fruits and fruit juice consumption against the oxidative DNA damage in lymphocytes of healthy subjects. Information on the frequency of fruits and fruit juice consumption was collected from 109 Korean healthy young volunteers using food frequency questionnaire. Blood samples were taken from the subjects, and the oxidative DNA damage in peripheral lymphocytes was determined using Comet assay (single cell gel electrophoresis) and quantified by measuring comet tail length (TL) and tail moment (TM). The comet TM was significantly reduced in the group, which consumes fruits daily, compared to those in the group consumes fruits 2-3 times per week or in the group consumes fruits very rarely. The subjects who consume more than two cups of fruit juice per week showed significantly lower oxidative DNA damage (TM) than those who consumes less than two cups of fruit juice per week. The results suggest that daily intake of fruits and more than two cups of fruit juice per week reduce the oxidative DNA damage in peripheral lymphocytes of Korean population.