Effects of dietary oxidized frying oil on immune responses of spleen cells in rats

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Abstract

To investigate the effect of oxidized frying oil on immune responses of spleen cells, two groups of weanling Long-Evans male rats were respectively fed with diets containing either 15% fresh soybean oil (control) or 15% oxidized frying oil. After six weeks of feeding, immune responses including spontaneous and mitogen-stimulated proliferation, prostaglandin E2 (PGE2) production, levels of α-tocopherol and thiobarbituric acid reactive substance (TBARS) of spleen cells were examined. The results showed that the 3H-thymidine incorporation in the absence of mitogen and in the presence of lipopolysaccharide (LPS, 5 μg/ml) stimulation, was significantly higher ($p < 0.05$) in the oxidized frying oil group than in the controls. The PGE2 production of spleen cells from the oxidized frying oil group tended to be higher than that of the control group, but not significantly different. The decrease in α-tocopherol level and increase in lipid peroxidation were not significant in the spleen cells from the oxidized frying oil group. The results indicated that dietary oxidized frying oil may increase spontaneous spleen cell proliferation and B cell activation, which may have significance in the development of altered immunological functions.