

ω-3 系多価不飽和脂肪酸濃縮油のラット血清と 肝臓中脂質濃度におよぼす投与方法の差異の影響

Effects of Polyunsaturated Fatty Acid Concentrates on Lipids
in the Serum and Liver of Rats

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Two kinds of test oils were given to male young Sprague-Dawley rats by two different administration methods, examining the effects on the concentration of serum and liver lipids. Two test oils used in the experiments were ω-3 polyunsaturated fatty acid concentrates which were 66% ethyl-eicosapentaenoate (EPAconc) and 76% ethyl-docosahexaenoate concentrate (DHAconc). These oils were administered to rats for 2 weeks.

The two administration methods, the free access of an experimental diet containing 3% test oil (dietary method) and the infusion by stomach tube of test oil corresponding to 3% of a basal diet previously received (stomach tube method), were compared. Control groups in both methods were administered 5% olive oil by each method.

When rats were administered EPAconc by the dietary method, serum triglyceride levels were significantly depressed than that of DHAconc or linoleate, but total cholesterol levels in the liver and heart were less depressed. On the other hand the dietary administration of DHAconc showed little effect on serum triglyceride levels. The administration of EPAconc or DHAconc by the stomach tube method was generally similar to those of the effects by the dietary administration of the test oil, although the effects of EPAconc on serum triglyceride levels were emphasized by stomach tube method. Serum phospholipid levels were lowered by the administration of EPAconc and DHAconc by both methods. Lipid peroxide values (TBA value) in the serum and liver of rats fed with the diet containing EPAconc increased, but it did not change by the stomach tube method. DHAconc administration by both methods showed marked elevation of serum and liver lipid peroxide levels. These results indicated that the effects of both methods resembled each other in general.

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