

# Protection against in vivo liver ischemia-reperfusion injury by n-3 long-chain polyunsaturated fatty acids in the rat

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N-3 polyunsaturated fatty acids (n-3 PUFA) affect inflammatory processes. This study evaluated the effects of dietary supplementation with fish oil on hepatic ischemia-reperfusion (IR) injury in the rat. Parameters of liver injury (serum transaminases and histology) and oxidative stress (serum 8-isoprostanes and hepatic GSH and GSSG), were correlated with NF- $\kappa$ B DNA binding and FA composition and inflammatory cytokine release. N-3 PUFA supplementation significantly increased liver n-3 PUFA content and decreased n-6/n-3 PUFA ratios. IR significantly modified liver histology and enhanced serum transaminases, 8-isoprostanes and inflammatory cytokines, with net reduction in liver GSH levels and net increment in those of GSSG. Early increase (3 h) and late reduction (20 h) in NF- $\kappa$ B activity was induced. All IR-induced changes were normalized by n-3 PUFA supplementation. In conclusion, prevention of liver IR-injury was achieved by n-3 PUFA supplementation, with suppression of oxidative stress