

**Effect of trilinolein on superoxide dismutase activity  
and left ventricular pressure in isolated rat hearts  
subjected to hypoxia and normoxic perfusion.**

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摘要

**Abstract**

Oxygen-derived free radicals have been implicated in the development of myocardial injury during hypoxia/reperfusion. Antioxidants can effectively inhibit the formation of free radicals and ameliorate the myocardial damage which may occur during hypoxia/reperfusion. Trilinolein is a triacylglycerol recently purified from the traditional Chinese medicinal plant *Panax pseudo-ginseng*. It has linoleic-acid residues as the only type of fatty acid residue in all three esterified positions of the triacylglycerol. It has been proposed that decreased endogenous superoxide dismutase (SOD) activity may contribute to free radical-mediated reperfusion injury of the ischemic myocardium. In the present study, when isolated rat hearts were subjected to hypoxia for 10, 30, 60 and 90 min without normoxic perfusion, a significant decrease in Mn-SOD activity was shown throughout the period of hypoxia, whereas the Cu·Zn-SOD activity was increased at 10 and 30 min but was not different from the baseline at 60 and 90 min of hypoxia. In rat hearts pretreated with 10<sup>-7</sup> mol/l trilinolein and subjected to 60 min of hypoxia without normoxic perfusion, Cu·Zn-SOD was augmented compared with baseline and compared with hearts subjected to 60 min of hypoxia without trilinolein, whereas Mn-SOD activity was still reduced compared with baseline, although less so than after 60 min of hypoxia without trilinolein. Pretreatment with trilinolein was associated with better preservation of left ventricular function during hypoxia and more rapid return to recovery during normoxic perfusion. This myocardial protective effect may be related to an antioxidant effect through potentiation of SOD, particularly Cu·Zn-SOD during hypoxia.