Abstract Purpose of review: Clinical studies suggested that 3-hydroxyl-3-methylglutaryl coenzyme A reductase inhibitor (statin) therapy has an additional cardiovascular protective activity that may function independently of the ability of statins to lower serum cholesterol.Notwithstanding, the clinical relevance of these serum lipid-independent effects is not fully understood.The mechanisms underlying these serum lipid-independent statin effects are not completely understood, but there is increasing evidence that statins improve endothelial function through molecular mechanisms that mediate an increase in endothelium-derived nitric oxide.Recent findings: Experimental studies have clearly shown that statins protect against ischaemia-reperfusion injury of the heart, and exert pro-angiogenic effects by stimulating the growth of new blood vessels in ischaemic limbs of normocholesterolemic animals.