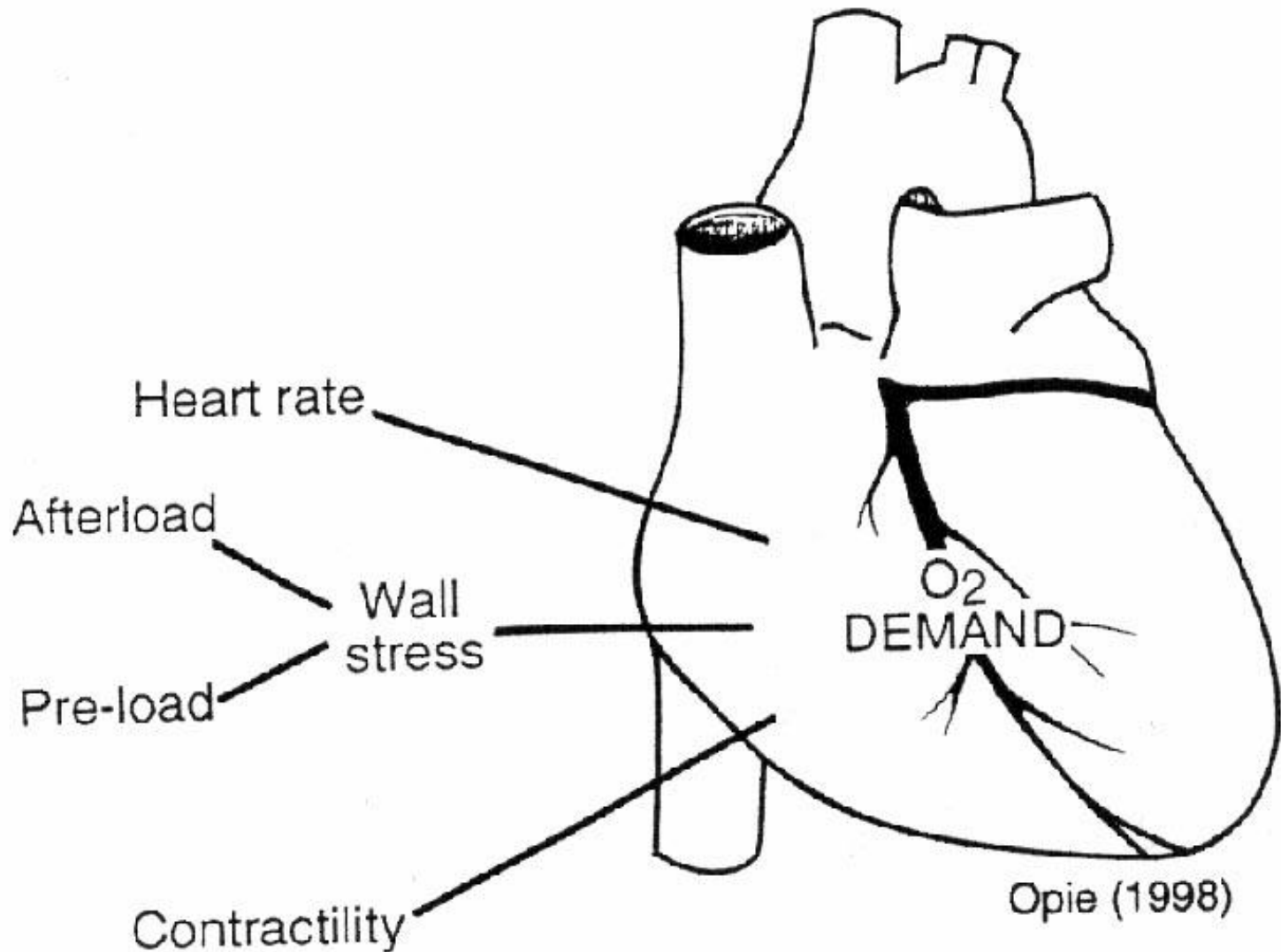


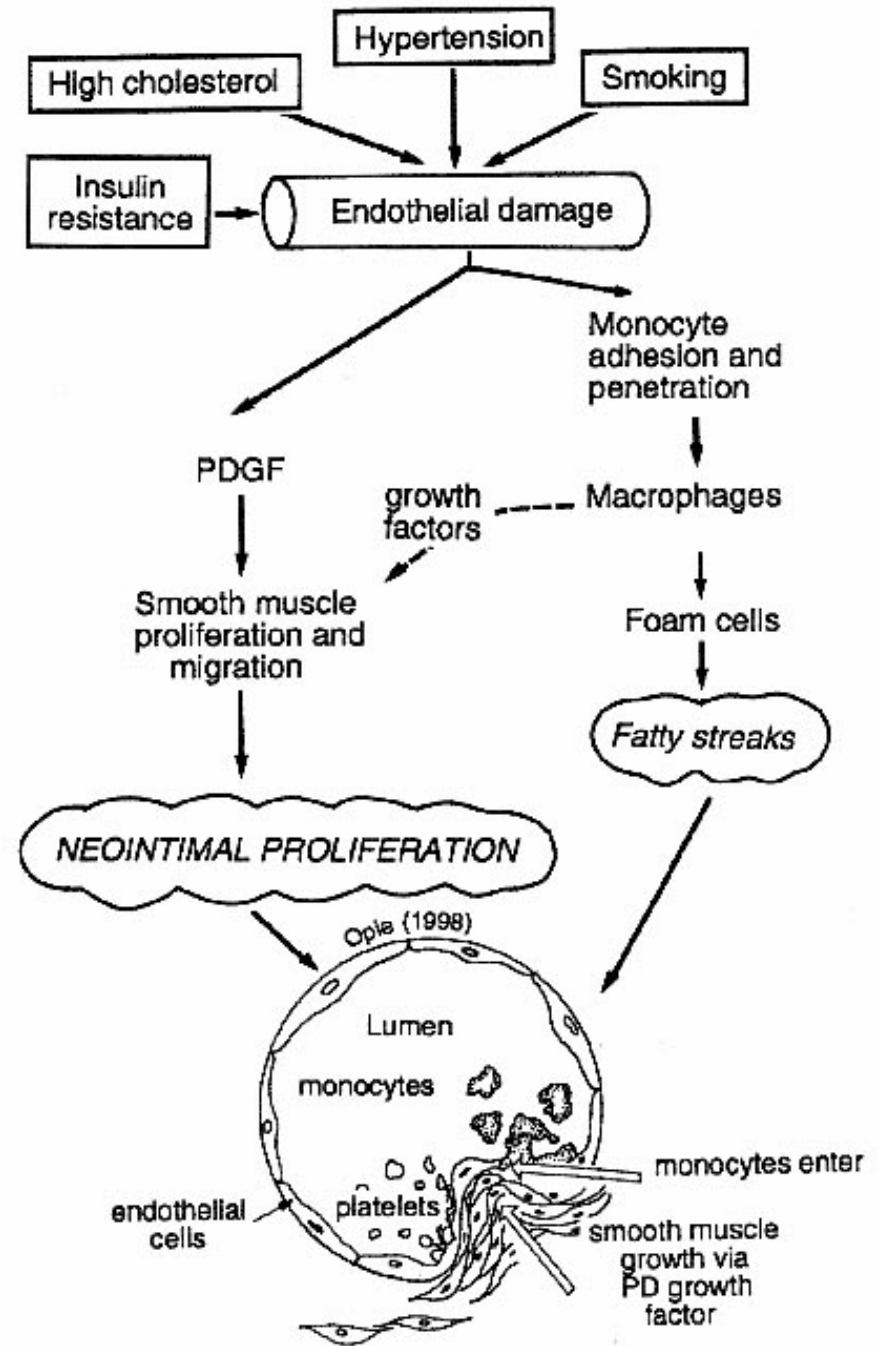
# **Myocardial ischaemia, myocardial infarction, and new ischaemic syndromes**

**Dr. Zoltán Papp**  
**UD Department of Cardiology**  
**Division of Clinical Physiology**

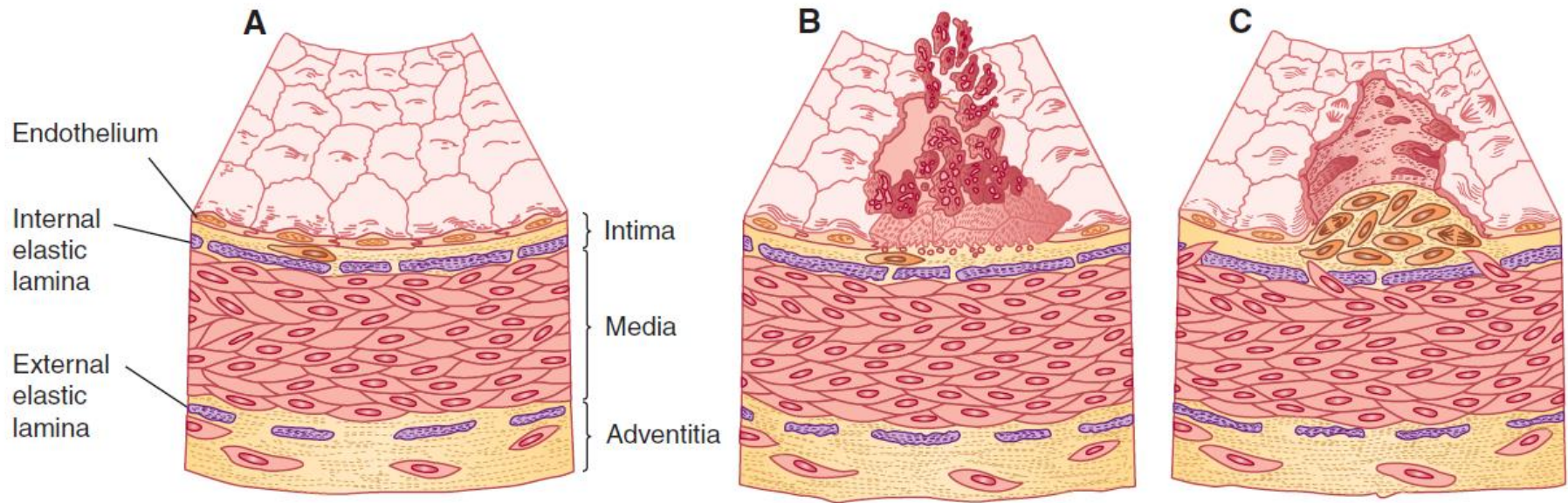
# Determinants of myocardial O<sub>2</sub> demand



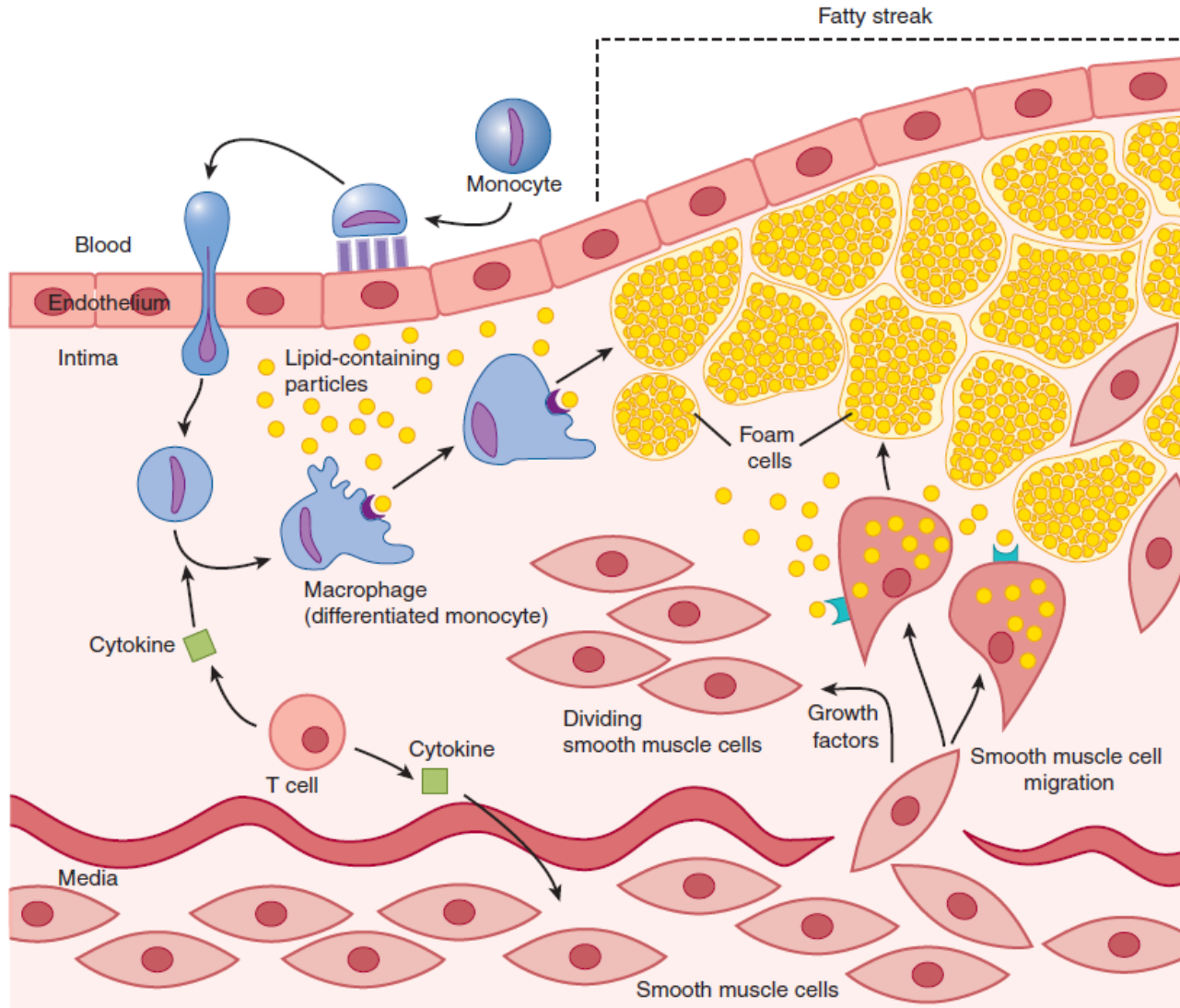
# Coronary artery disease and plaque formation



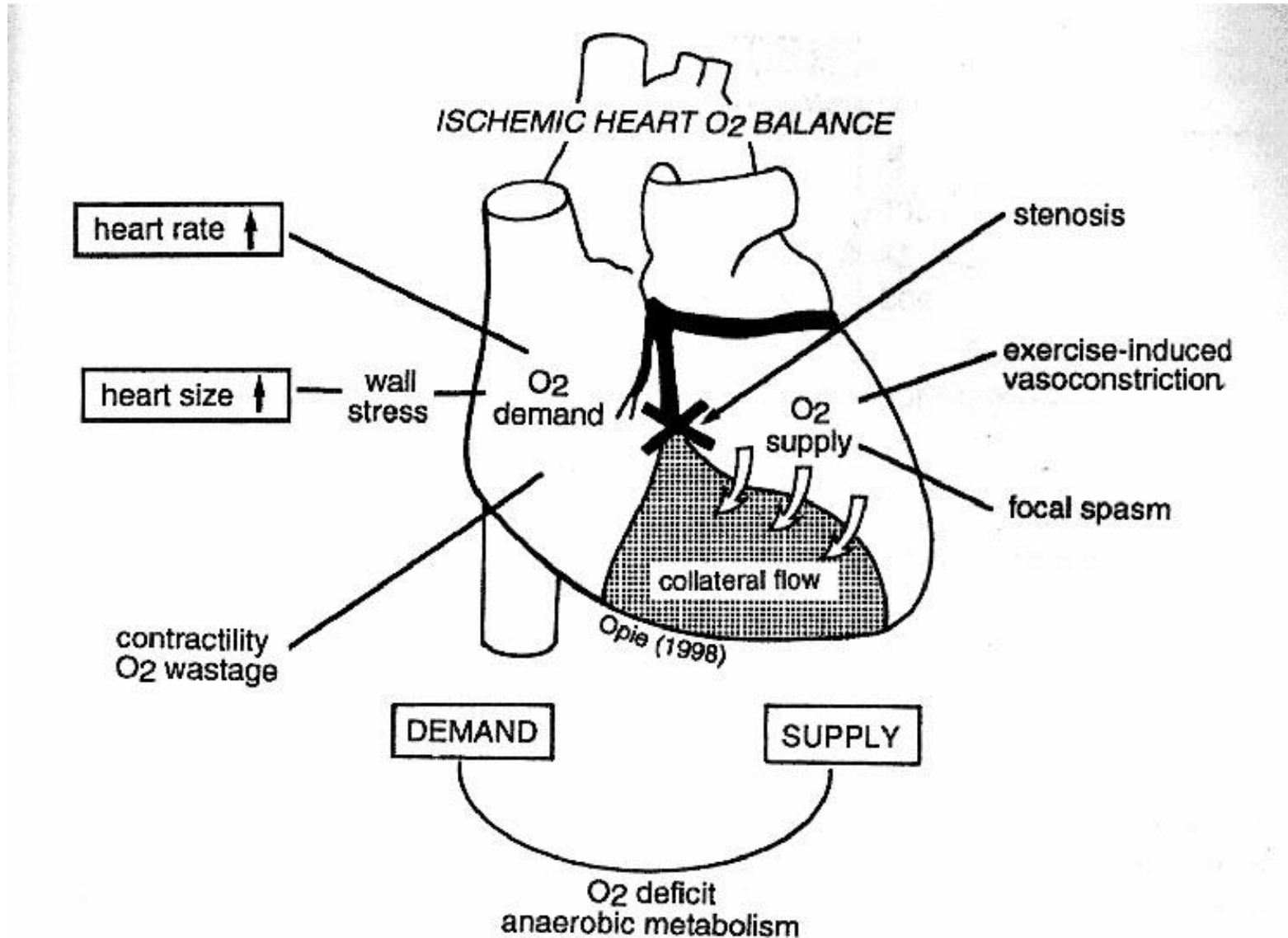
# Mechanisms of production of atheroma



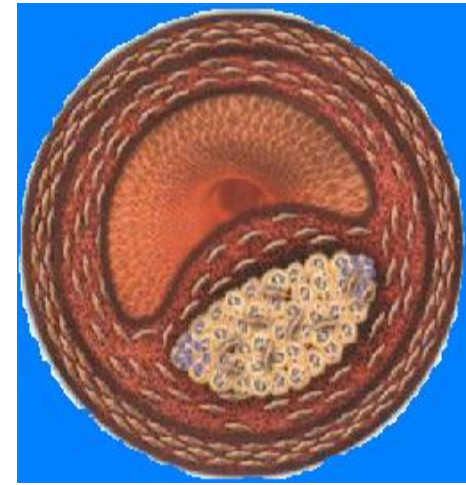
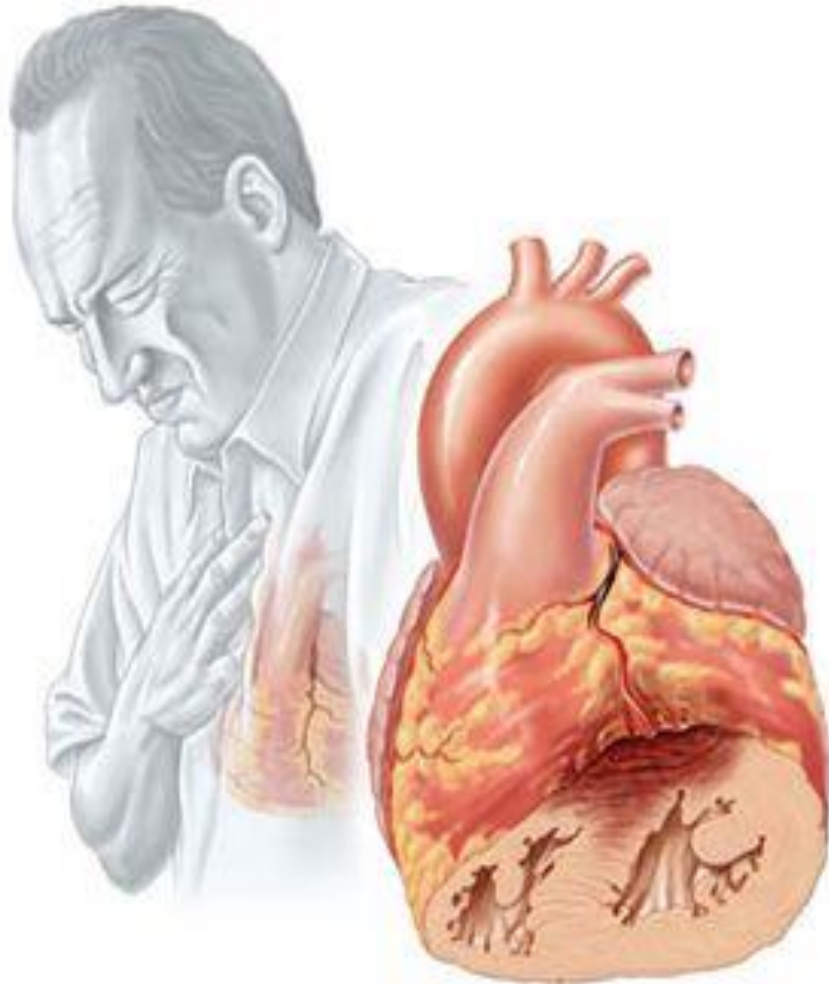
# Formation of a fatty streak in an artery



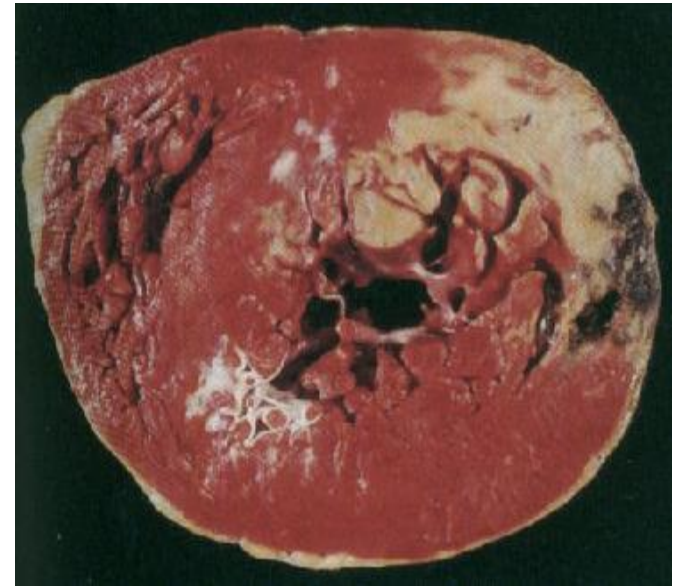
# Determinants of myocardial O<sub>2</sub> demand during coronary stenosis



# PATHOPHYSIOLOGY OF MYOCARDIAL ISCHAEMIA

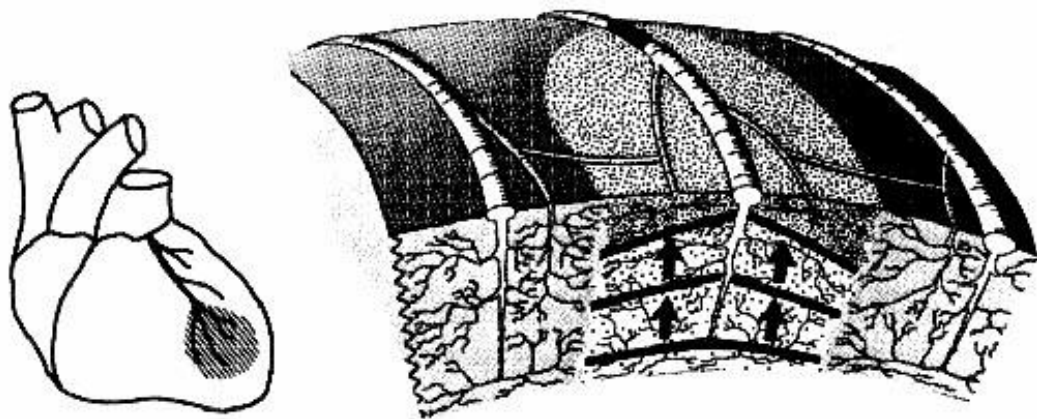
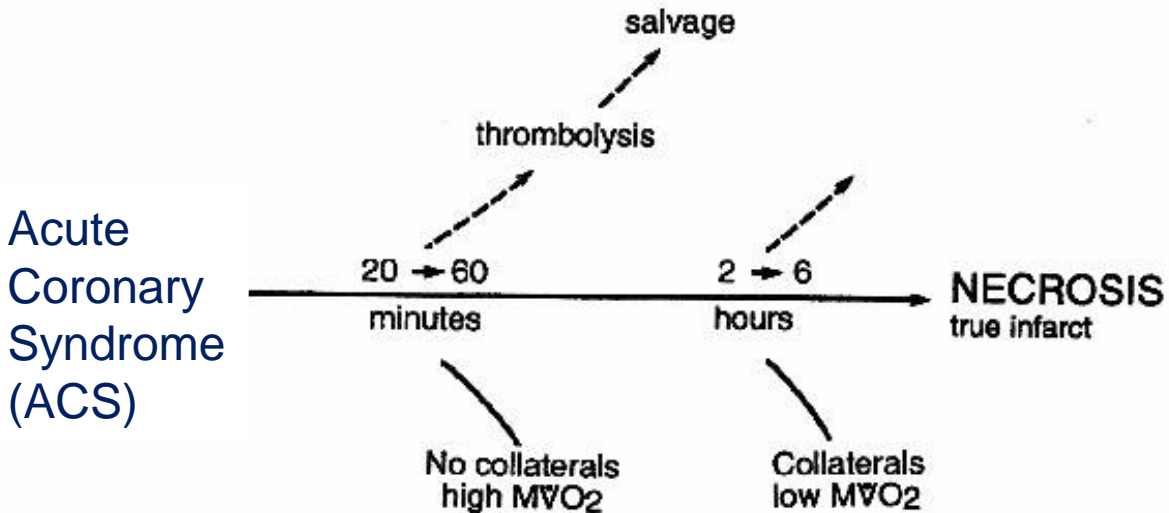


Atherosclerotic plaque



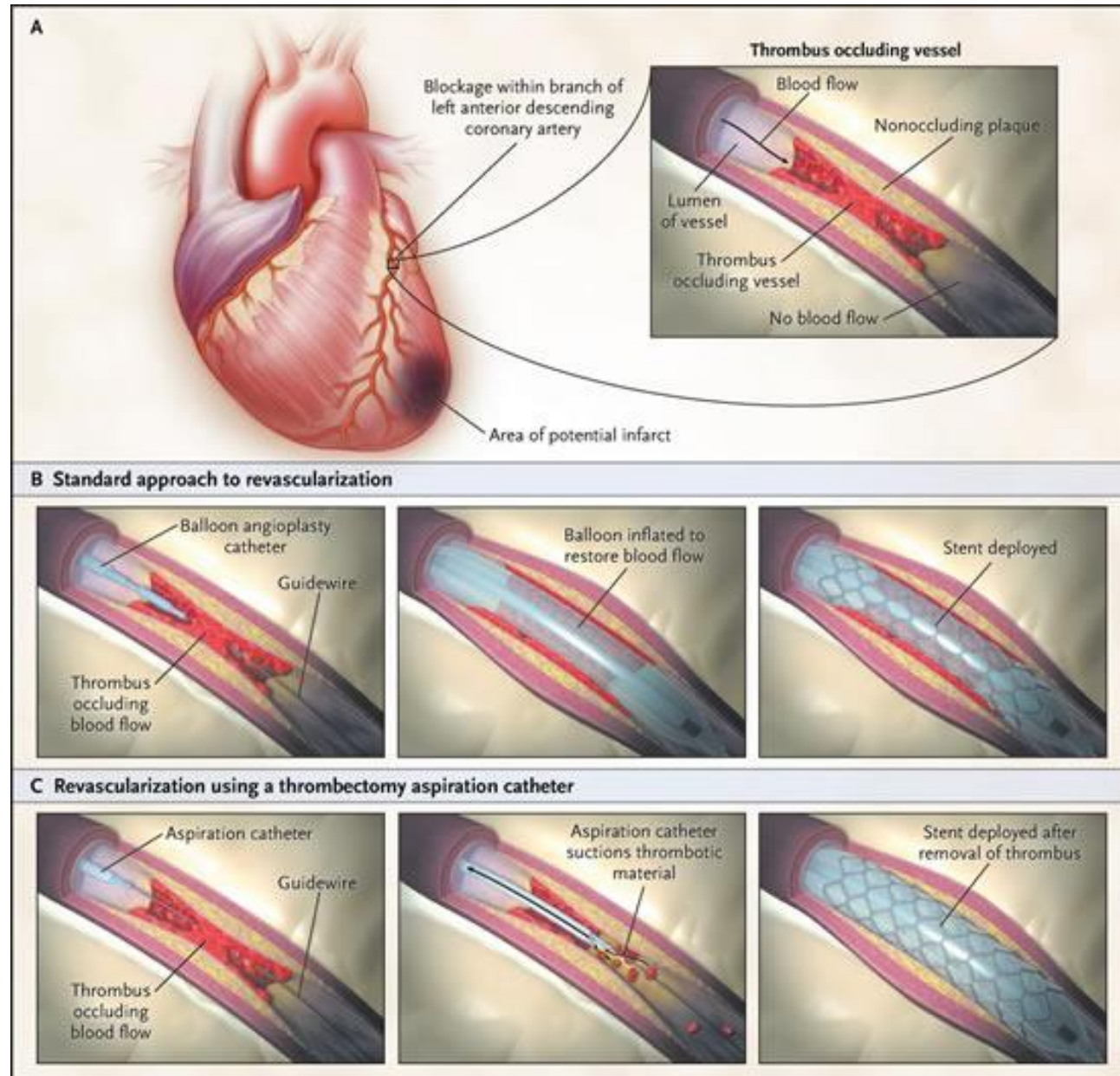
Myocardial necrosis (infarction)

# Possible outcomes of myocardial ischaemia

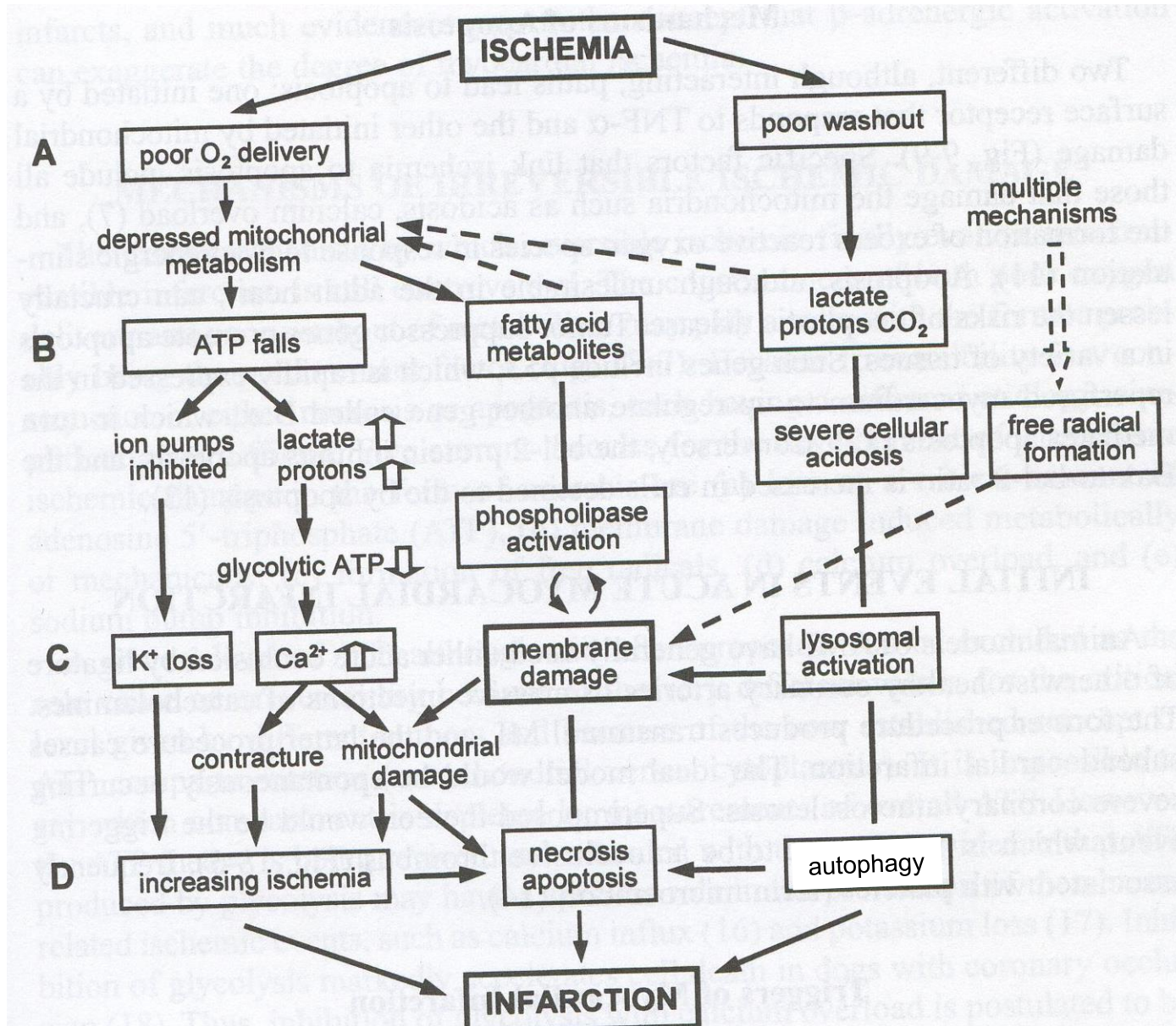




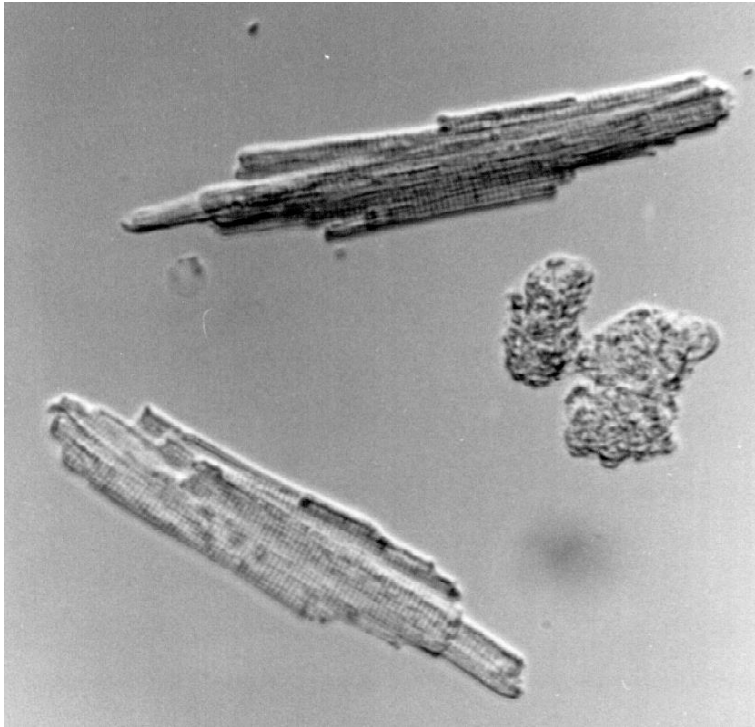
# Improving Reperfusion in Patients with Myocardial Infarction



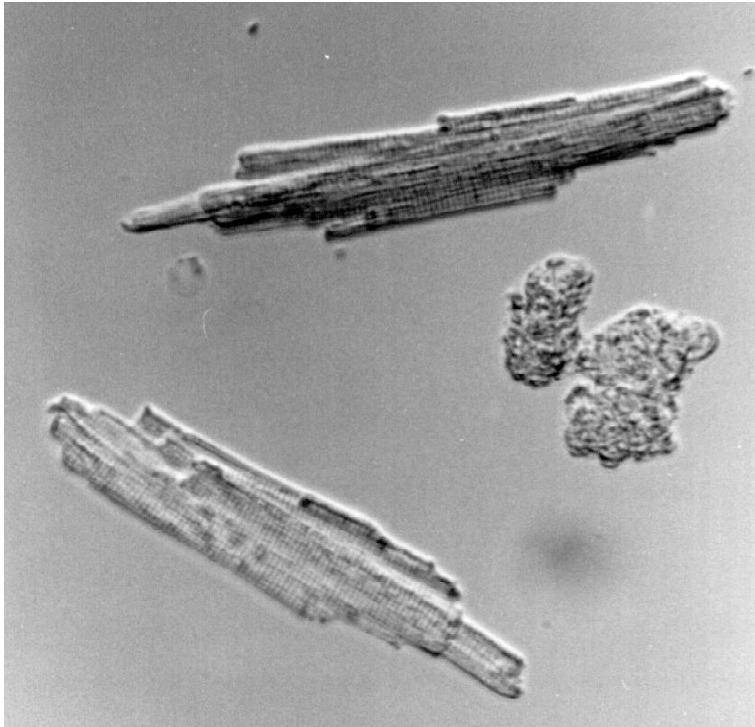
# Ischaemia and infarction



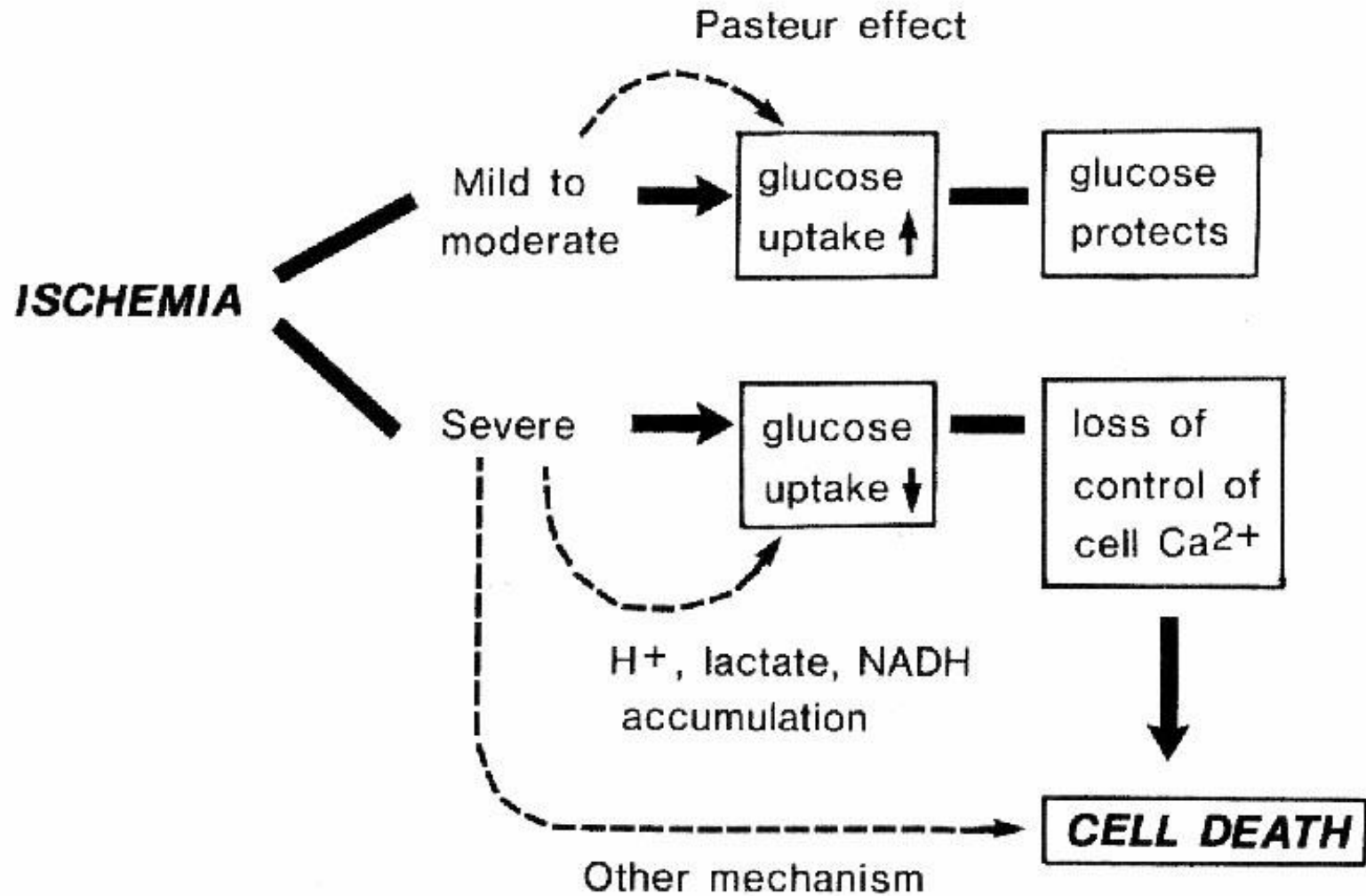
**How many cardiomyocytes do you see?**



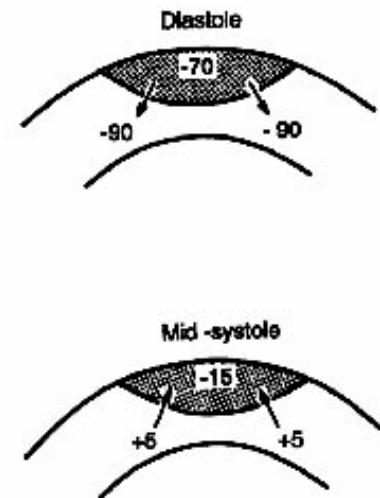
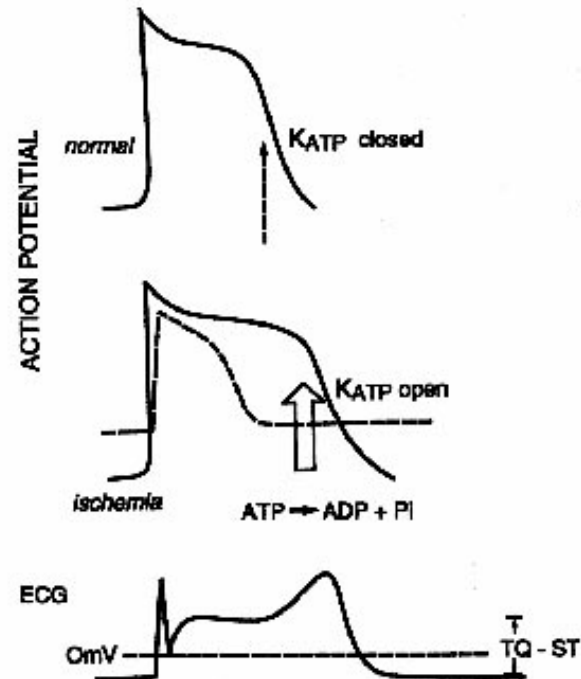
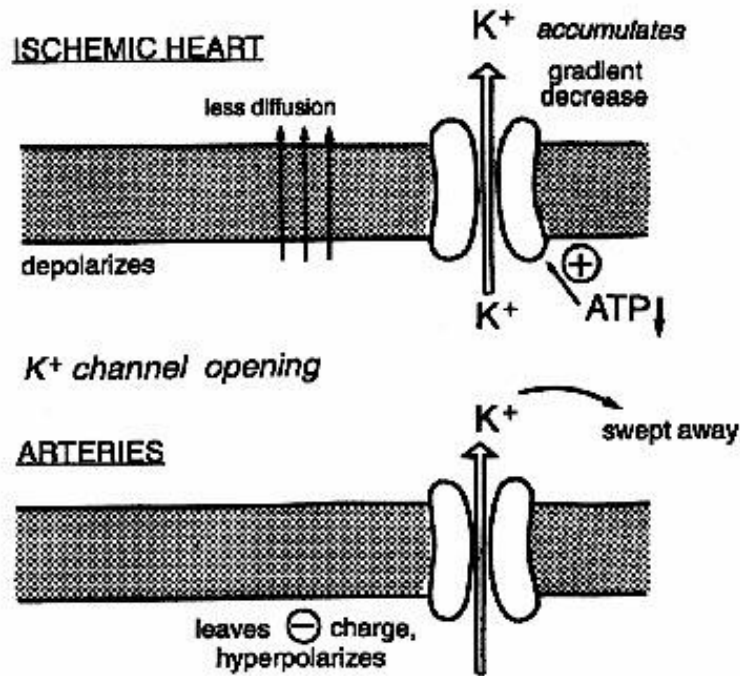
# How many cardiomyocytes do you see?



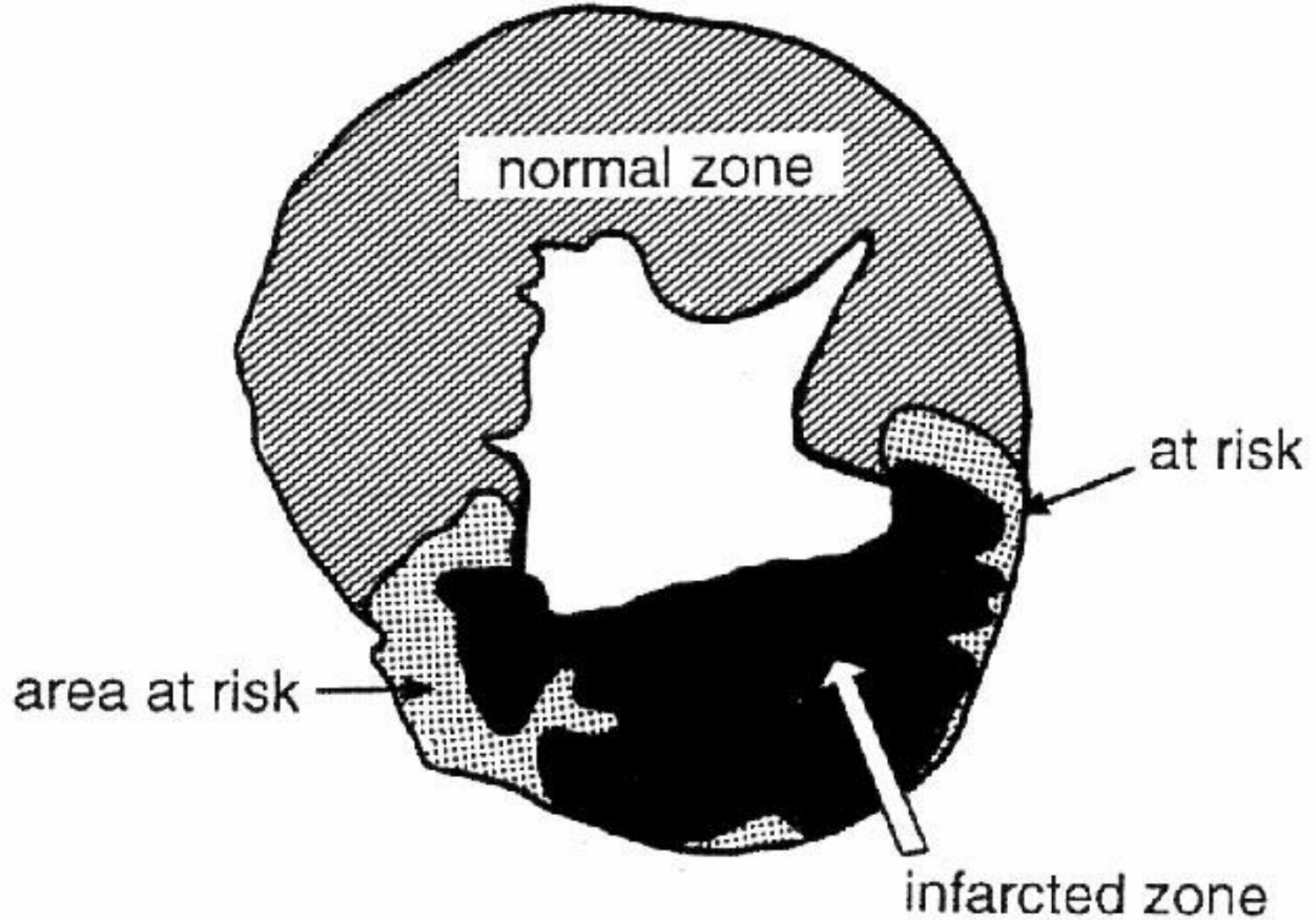
# Ischaemic tolerance and glucose homeostasis



# Electrical changes during ischaemia

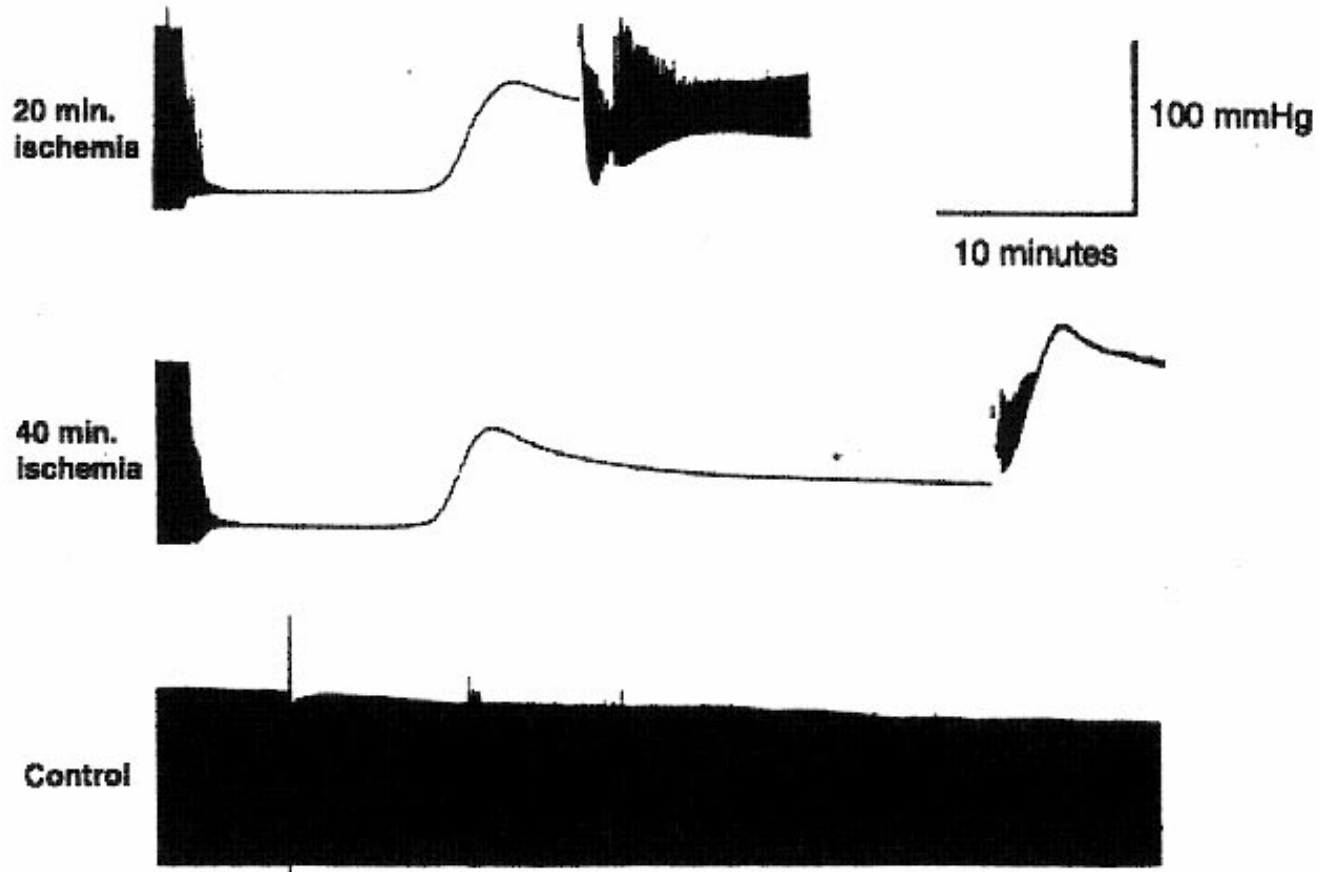


# Area at risk



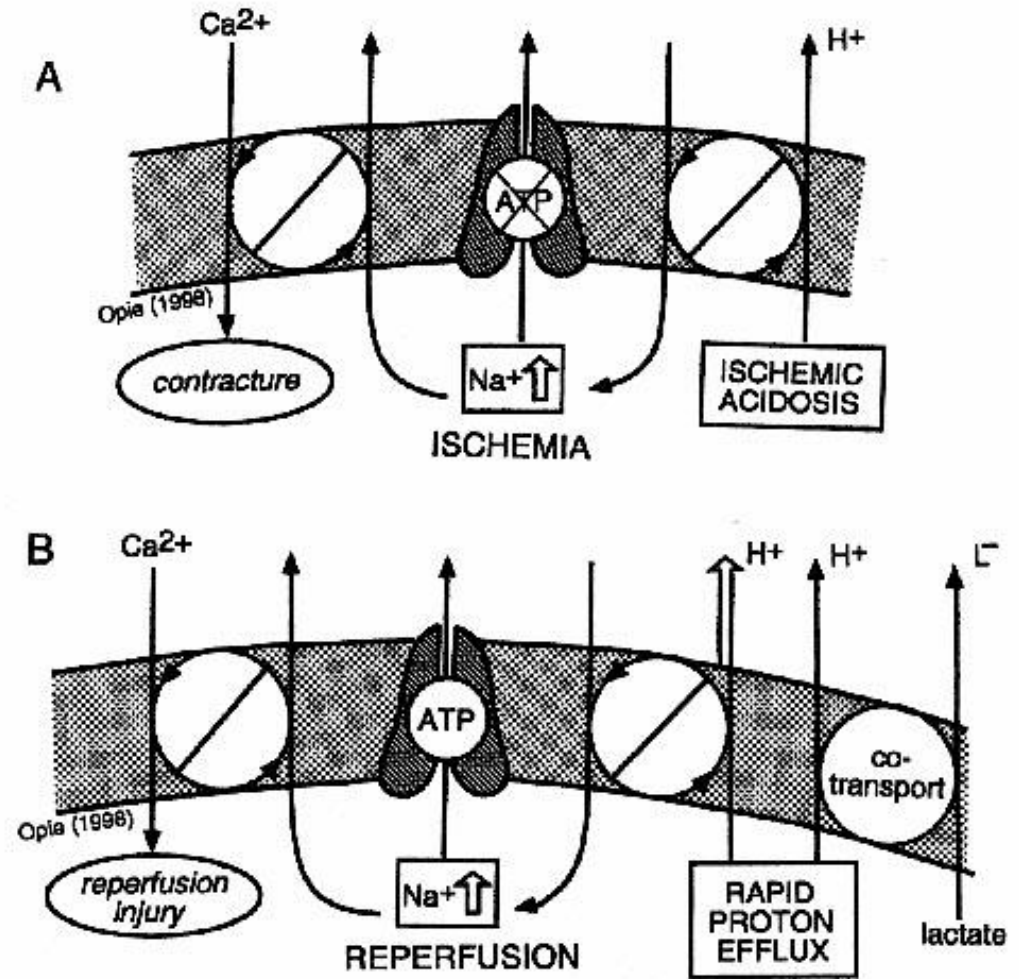
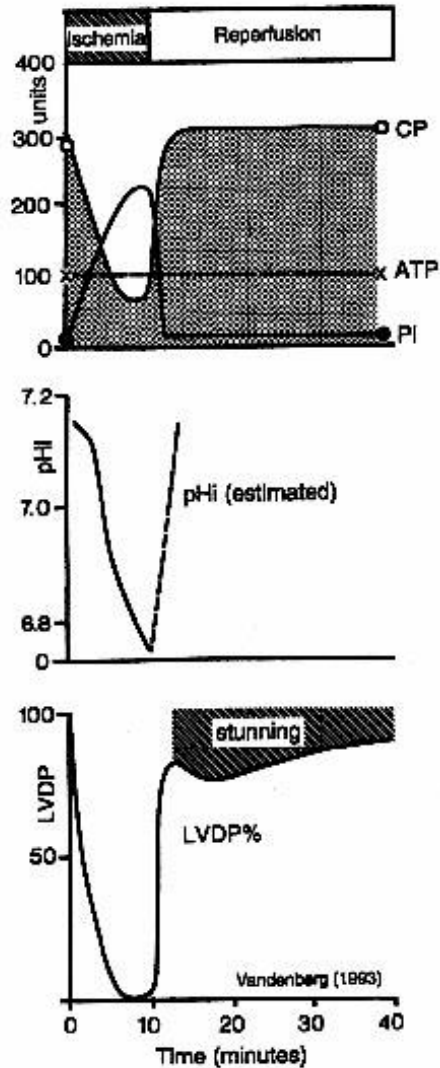
# Ischaemia and reperfusion

Experiments with ischemic/reperfused rat hearts

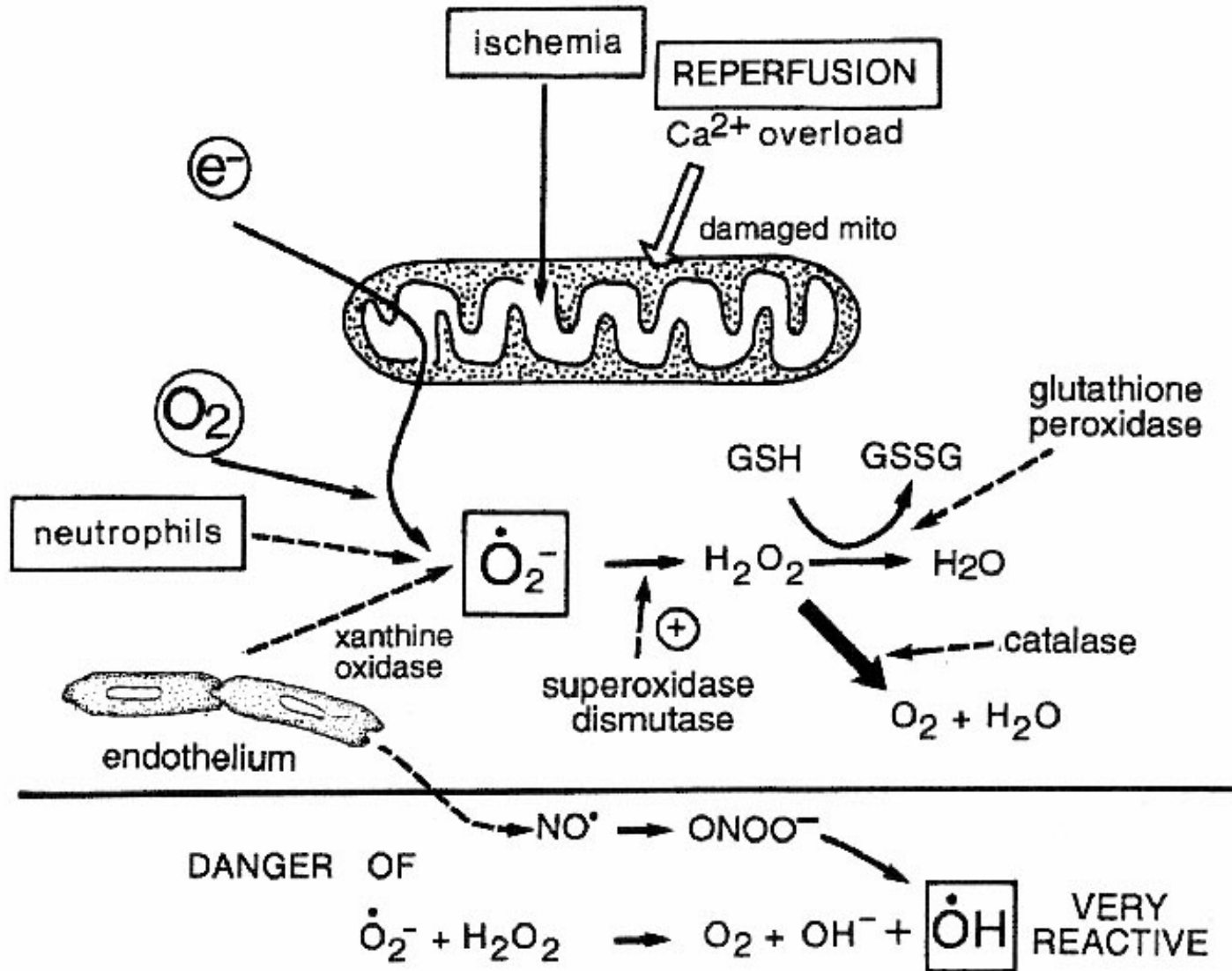




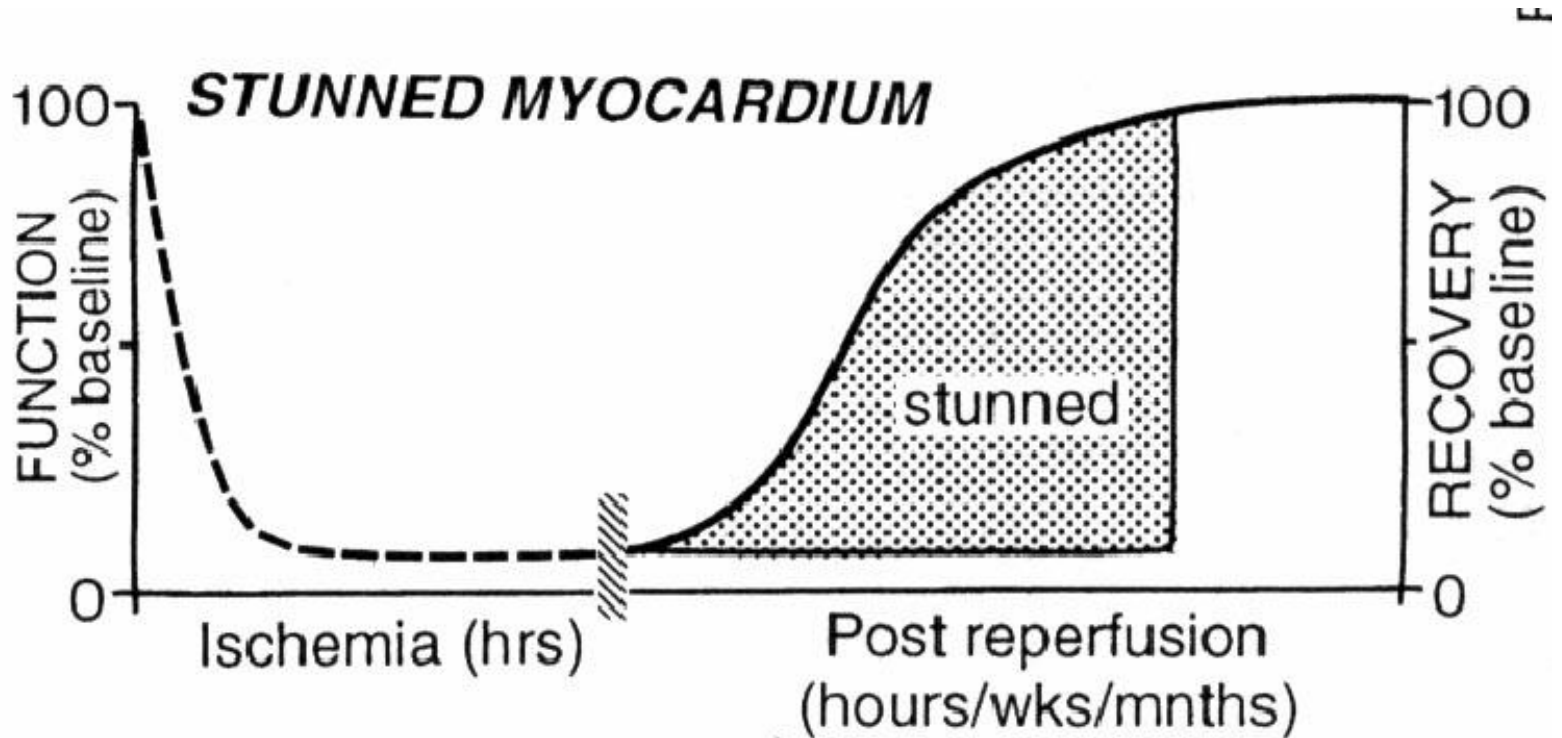
# Metabolic changes during ischaemia and reperfusion



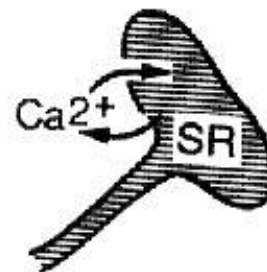
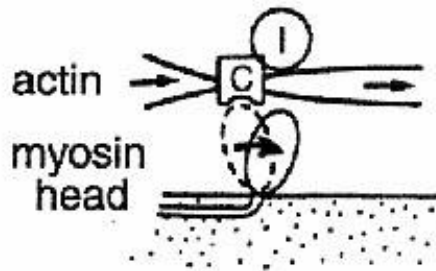
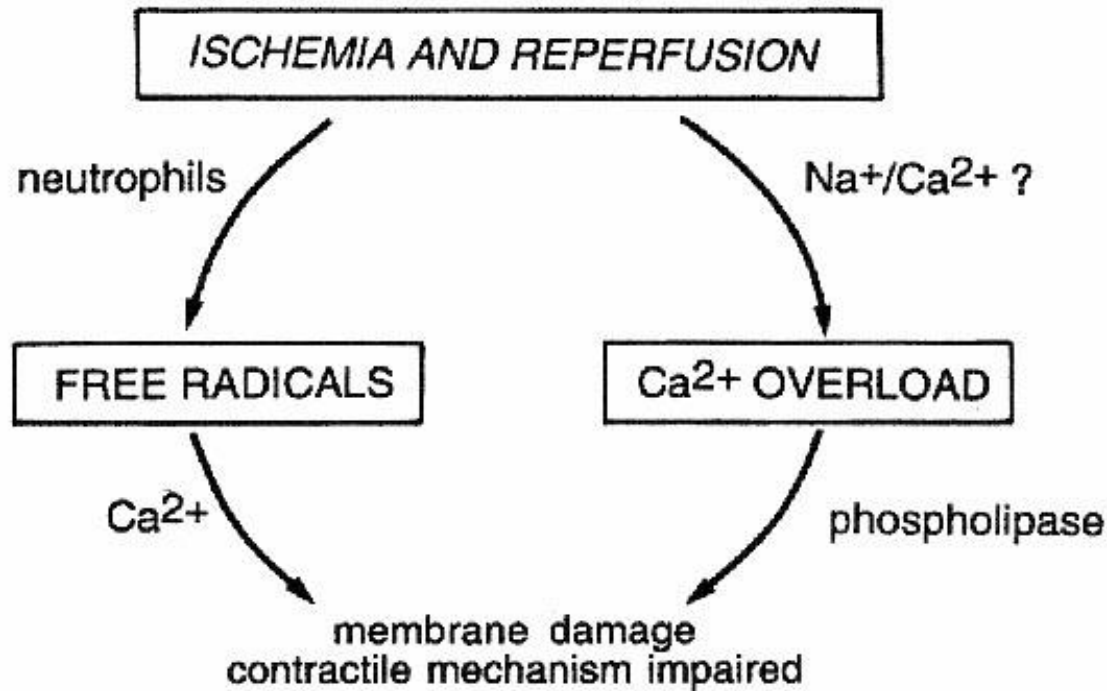
# Free radical damage



# Myocardial stunning

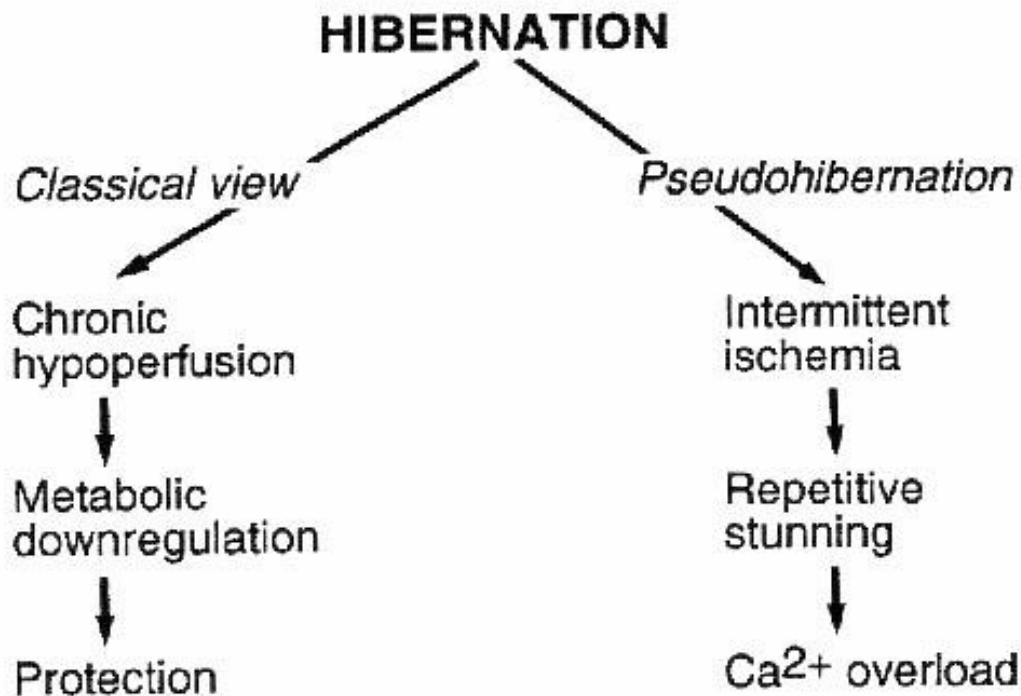
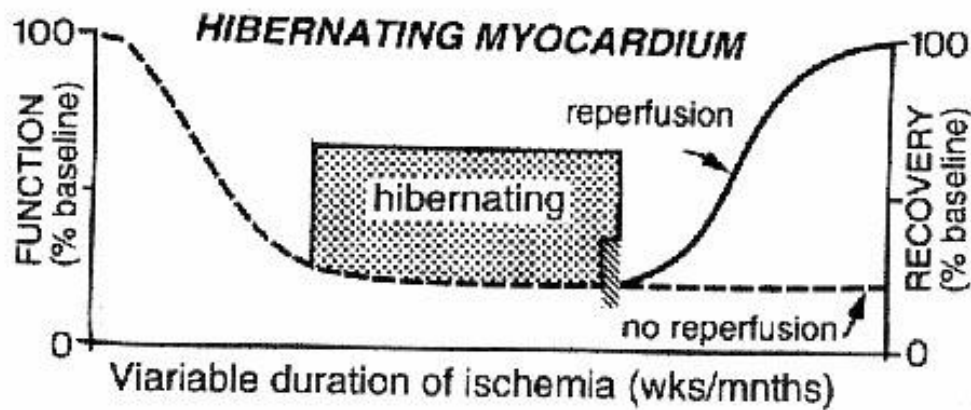


# The mechanism of myocardial stunning

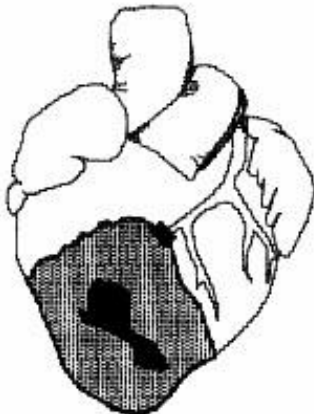
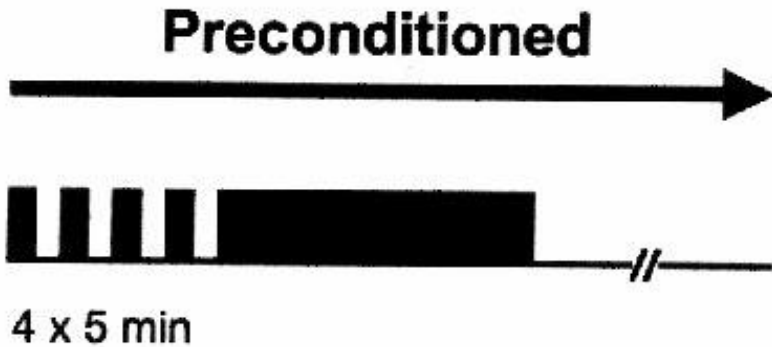
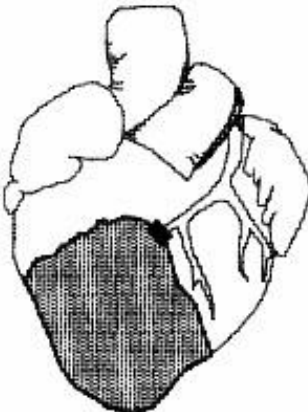
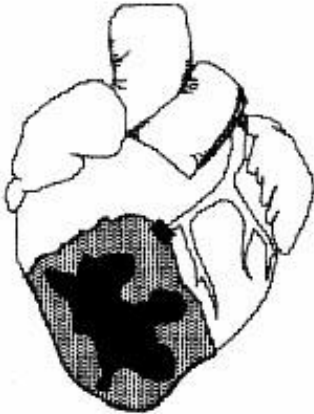
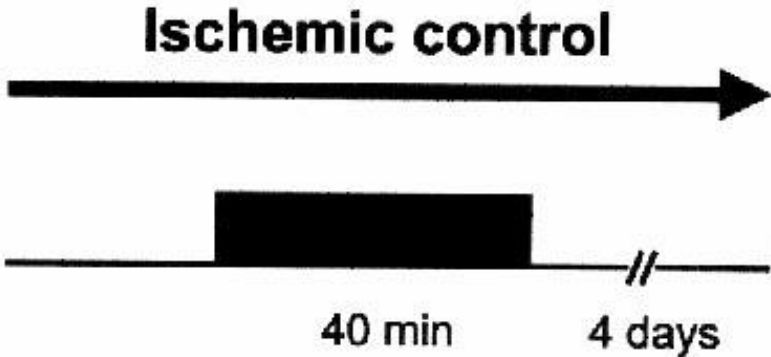
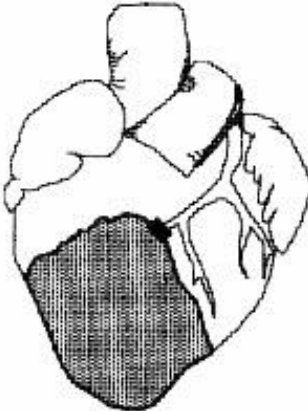


RELATIVE Ca<sup>2+</sup> INSENSITIVITY

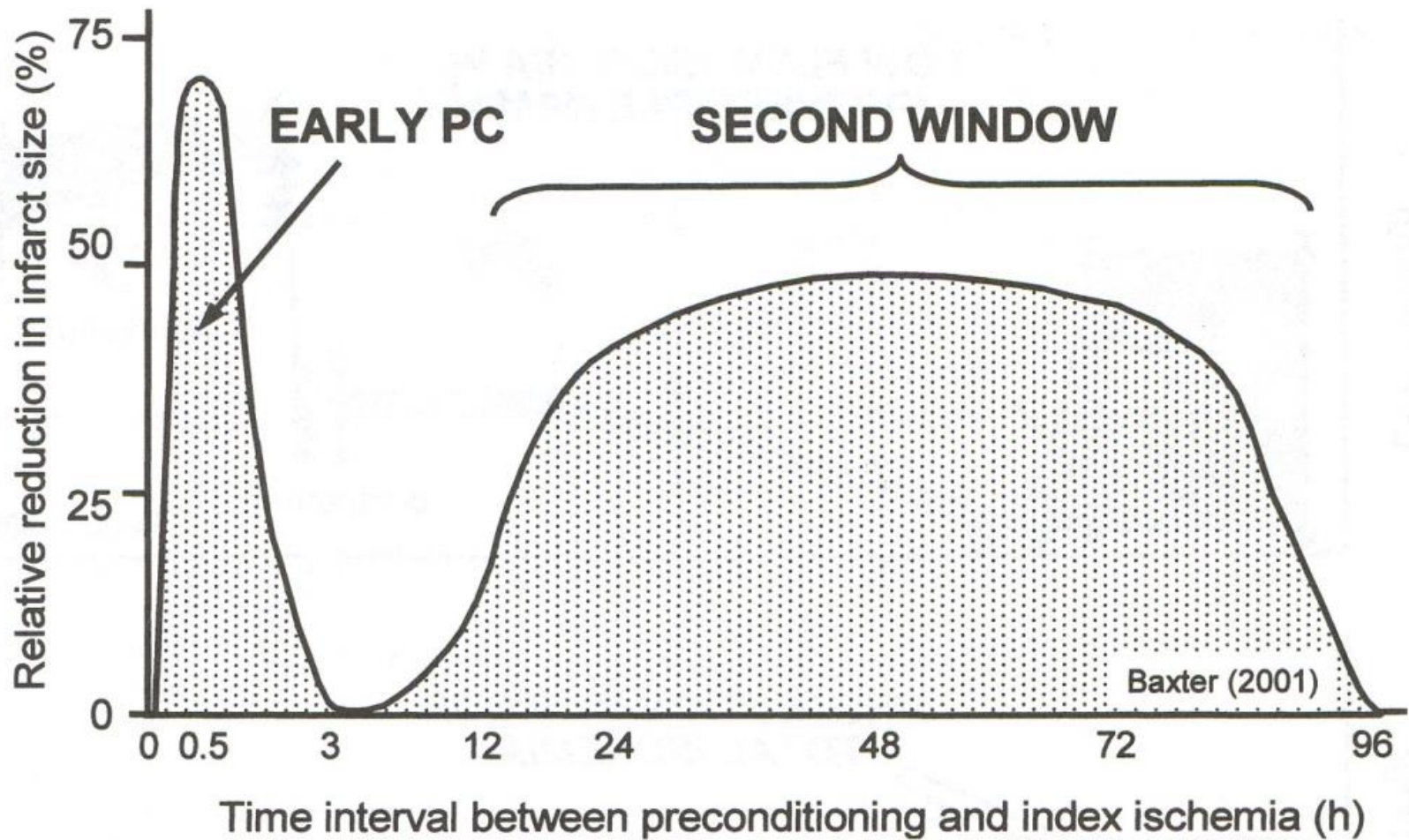
# Myocardial hybernation



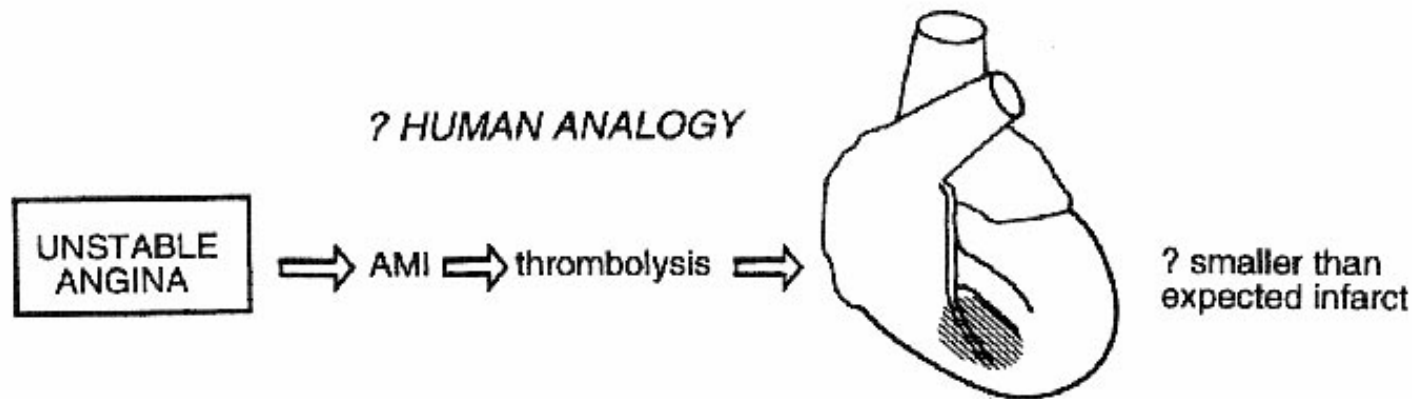
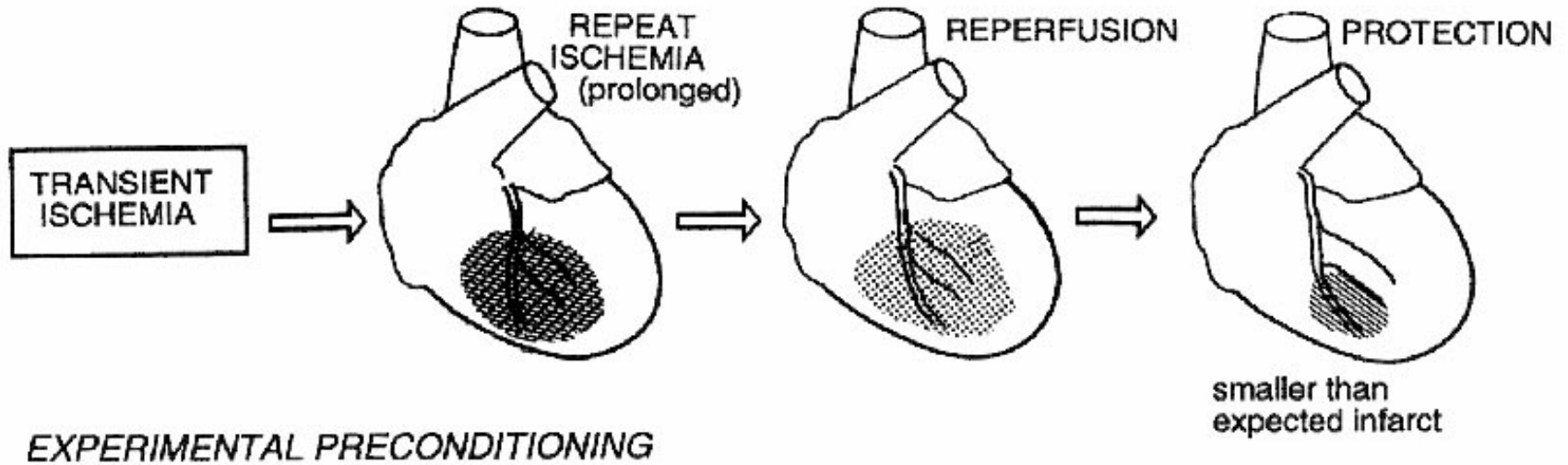
# Ischaemic preconditioning



# Two phases of preconditioning (PC) early and late

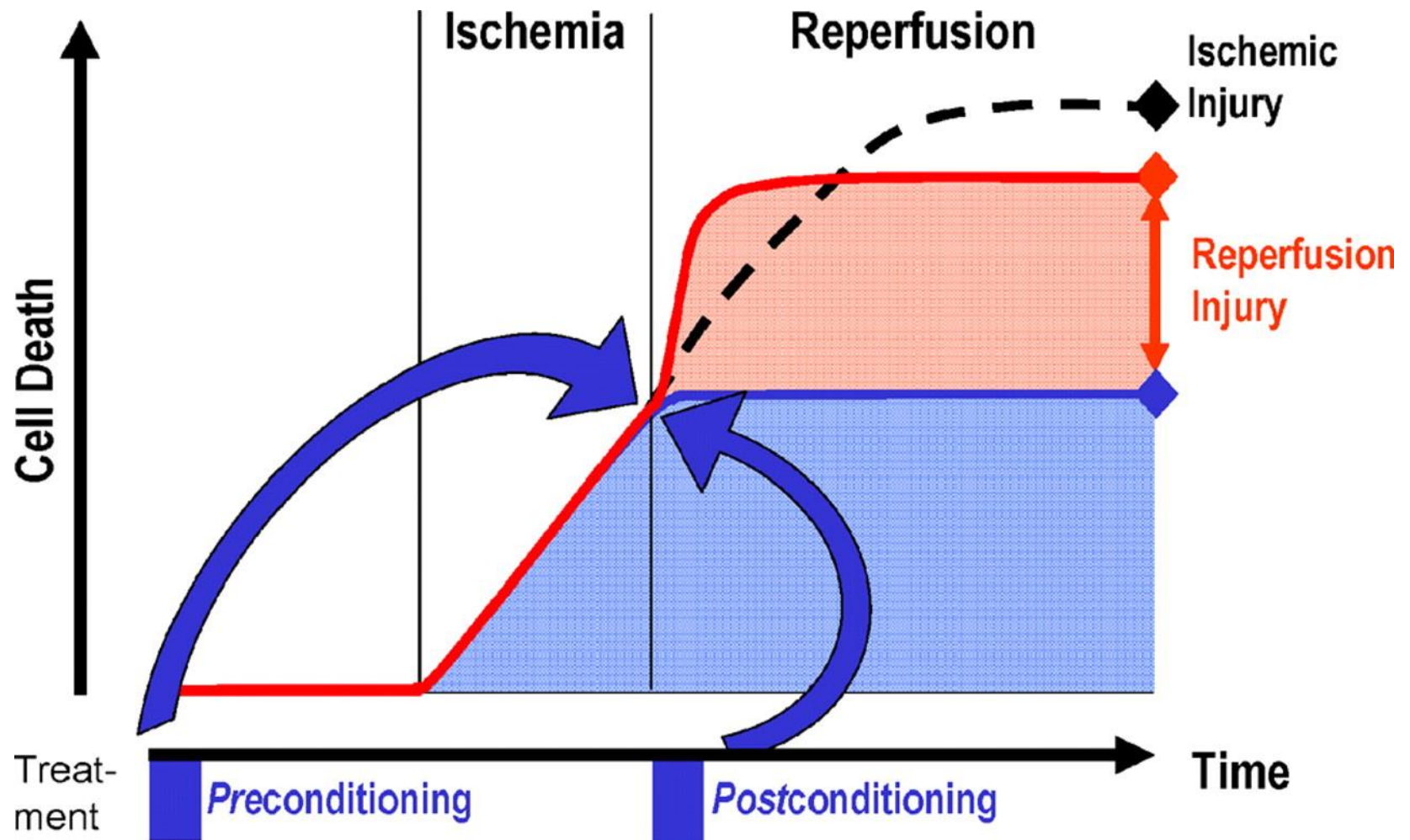


# Preconditioning at the clinical settings





# Cardioprotection vs. ischemia/reperfusion injury



Cardiovascular Research

# The mechanism of ischaemic preconditioning

