

# **INTERACTION BETWEEN LEFT VENTRICLE MECHANICS AND MYOCARDIAL BLOOD FLOW**

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The interaction between coronary circulation and left ventricular mechanics has been studied in animal models as well as investigated in humans. Here we review the results of experimental studies performed at the Institute of Clinical Physiology: the separate contribution of preload and after load on coronary pressure-flow, pressure-volume and volume-flow relationships; single beat as well as averaged instantaneous loops, both during autoregulation and under maximal vasodilation. We then present the results of animal studies on estimate of functional microvascular architecture and its relationship with myocardial blood flow heterogeneity. Finally, we report on clinical applications performed in various models of left ventricular dysfunction as myocardial ischemia, hypertrophic cardiomyopathy, dilated cardiomyopathy and secondary hypertrophy, aimed at investigating the interaction between coronary flow and abnormal left ventricular mechanics.

Keywords: coronary circulation, left ventricular mechanics animal models, clinical studies