Mechanical effects of heart contraction on coronary flow

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The mechanical effects of heart contraction on coronary flow were studied in the dog heart by implanting vessels in the subendocardial and subepicardial layers of the left ventricular wall and perfusing them independently of the aortic pressure. At a perfusion pressure of 4 kPa (30 mm Hg), with spontaneous aortic pressure and heart rate, subendocardial flow was 40% less than subepicardial flow. Increasing the aortic pressure or the heart rate produced a comparatively larger decrease of the subendocardial flow. The results suggest that these changes are due to variations of the period of systolic time during which the vessels remain closed.