Title

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A COMPARISON OF METHODS FOR DETERMINING
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Digital processing of coronary angiograms may provide a simpler method for quantitating the degree of coronary stenoses. In order to determine which digital image processing algorithm is more accurate for computing percent stenosis, we performed measurements on an aluminum phantom which varied from 4.0 to 1.0mm in diameter. The density of the phantom corresponds to an iodine concentration of 20% Renografin 76. Analysis of percent stenosis was determined by comparing the ratio of the actual diameters (Act %) with ratios determined by edge detection from unsubtracted (Unsub) images and edge detection or videodensitometric analysis (video) from mask-mode subtracted (Sub) images. Mean values for five repetitive measurements are as follows:

Act (%)	Video	Edge Detection Unsub	Sub
50 (4-2.0mm)	52.3±0.7	53.3±0.0	55.8±1.8
63 (4-1.5mm)	66.8±1.8	61.3±3.0	69.1±3.3
75 (4-1.0mm)	80.3±0.9	69.3±6.0	88.2±4.0

These data indicate that videodensitometry has accuracy comparable to edge detection from unsubtracted images down to lumen diameters of 1.0mm. However, when the edge detection method is applied to subtracted images, a significant overestimation of percent stenosis occurs.