

How does MCG Compare?

Modality	Measures	Sensitivity for 40-50% (Partial Occlusion)	Sensitivity for 50-70% (Partial Occlusion)	Sensitivity for >70% (Stenosis)	Specificity	Time Required	Objective	Comparison Reference
Angiogram	Coronary Anatomy	Gold Standard	Gold Standard	Gold Standard	85-90%	Long prep and testing time	No	The "Gold Standard", angiography was able to detect atheromas only 3.0% of the time in 17% of those under 20 years. 37% of those aged 20 to 29, and 60% of those aged 30 to 39 years. This means that angiography results were negative in 97% of these populations when they in fact had atheromas in their coronary arteries.
EST**/EKG Typical EKG	Physical Stress induced EKG Changes	N/A	N/A	68%	77%	30-40 minutes	No	
EST**/EKG True EKG	Physical Stress induced EKG Changes	N/A	N/A	45%	85%	30-40 minutes	No	
EST**/Echo	Physical Stress Induced Echo Changes	N/A	N/A	31-90+%	46-100%	30-40 mintypically demanding	No	Resting ECG analysis, including 12-lead ECG, typically has significantly less sensitivity in detecting ischemia. Clinical studies report a wide range for sensitivity from 20 to 70% for Acute Myocardial Infarction (AMI) and typically even less for hemodynamically significant CAD Ischemia.
EST**/Nuclear	K+ Channel Effect from Physical Stress	N/A	N/A	4-91%	31-90%	~6 hours	No	
12 Lead Resting EKG	Vectorized Time Domain and Voltage in 2-D	N/A	20% CAD (1)	20% CAD 52% MI	97% CAD 99% MI	Minimal lag time	No	
Troponin	Heart Muscle Enzymes	N/A	N/A	N/A	N/A	A few minutes	Yes	Even in the event of myocardial infarction troponin markers become positive only after a significant lag time.
MRI-Angiogram***	Coronary Anatomy	N/A	74%	54%	75% (patient analysis)	A few minutes	Yes	Expensive and not universally available. 13-18% noise rejections.
CT***	Coronary Anatomy	N/A	82-92%	82%	79%(patient analysis)	A few minutes	Yes	Expensive and not universally available plus radiation exposures (12.3 mSv), intravenous contrast exposure, and 7% noise rejections.
MCG	Myocardial Systems Expression	80+ to 90%	90+ to 95%	95+to 100%	80+ to 90%	1-5 minute lag time	Yes	There is a positive correlation between the increasing severity of the CAD and the sensitivity of MCG in detecting ischemia. Additionally, an overall score for myocardial disease severity is given to each individual to aid in immediate diagnosis.

Information (except MCG data) from: Cleveland Clinic Intensive Cardiology Review Course, 2001

* Percentage of Coronary Artery Luminal Encroachment by the Atherosclerotic Plaque.

** EST indicates Exercise-Stress-Testing

***Ann. Intern Med. 2006; 145:407-415

What the Experts are Saying About MCG



"MCG provides the highest positive and negative predictive values of all CAD screening tools. It allows to distinguish between patients who need immediate coronary angiography and those who do not."

-Dr. Michael Imhoff
In an evaluation of the MCG for a major European electronics manufacturer

"The MCG computerized ECG made a diagnosis of 'congenital heart disease' in a patient of mine, a man who clinically appeared to have only mitral valve prolapse but who turned out to have an entirely silent atrial septal defect."

-H. Robert Sliverstein
M.D., Division of Cardiology,
Hartford Hospital

"The evidence shows that this device can identify early onset coronary artery disease before clinical presentation and this provide opportunity for aggressive preventative measures for a first myocardial infraction due to silent myocardial ischemia. The MCG analysis is the most accurate current means of detection of heart disease non-invasively."

-Doctors Hickey, Mayes, Long, Lenns,
Hart, Petty II.
Heritage Medical Center
Board Certified Internal Medicine.

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