

17. MRI & CT Imaging in Cardiology

TWO CT TECHNOLOGIES

1. **Single and MDCT**-Multiple detector Scanner (300 msec rotation)(GE, Siemens, Phillips)
 - a. Newest MDCT 16 Slice to 64-detector-row MSCT, called VCT
 - b. EKG Gating Retrospective and Prospective (Excellent Z axis).
 - c. 3D reconstructions, dynamic and static views 2D, 3D, 4D. Types of 3D: 1) VRT, 2) MPI, 3) MPR
2. **EBCT Electron beam** (GE Imatron)

MRI MACHINES

- Madigan has 1.5 & 3.0 Tesla
- Currently clinical useful very limited for most ADULT cardiology
- Great for Pediatric Congenital Heart
- Dynamic perfusion imaging at rest and with stress are promising
- Cost make routine use unlikely

Coronary Artery Calcium Scoring

GE SmartScore
 0 and 10 low risk
 10 and 99 moderate risk
 100 and 399 high risk
 > 400 highest risk
 Standard Agatston/Janowitz AJ-130 Method
 Radiation dose for Calcium Score is 1.3 mSv
 Radiation for Cardiac CT is 10 mSv
 Absence of coronary artery calcium is consistent with the absence of luminal obstructive disease

