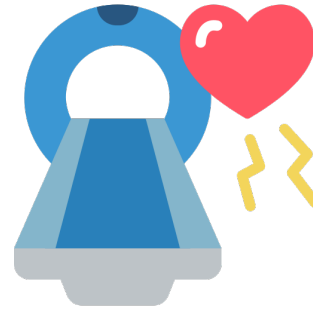# Myocardial Perfusion Imaging (MPI) and Balanced Ischemia

MPI uses radioactive tracers to visualize myocardial perfusion at rest and after stress (either exercise or a vasodilator).

MPI with SPECT detects _relative_ changes in perfusion.

This is why SPECT can miss perfusion defects in those with severe multivessel disease due to balanced ischemia.

MPI with PET overcomes this by measuring _absolute_ blood flow
→ higher sensitivity than SPECT.

Dvorak RA, Brown RK, Corbett JR. Interpretation of SPECT/CT myocardial perfusion images: common artifacts and quality control techniques. _Radiographics_. 2011 Nov;31(7):2041-57.
Mc Ardle BA et al. Does rubidium-82 PET have superior accuracy to SPECT perfusion imaging for the diagnosis of obstructive coronary disease? A systematic review and meta-analysis. _JACC_. 2012 Oct 30;60(18):1828-37.
Lima RS et al. Incremental value of combined perfusion and function over perfusion alone by gated SPECT myocardial perfusion imaging for detection of severe three-vessel coronary artery disease. _JACC_. 2003 Jul 2;42(1):64-70.
Berman et al. Underestimation of extent of ischemia by gated SPECT myocardial perfusion imaging in patients with left main coronary artery disease. _Journal of Nuclear Cardiology_. 2007 Jul;14(4):521-8.

IM FAST FACTS

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