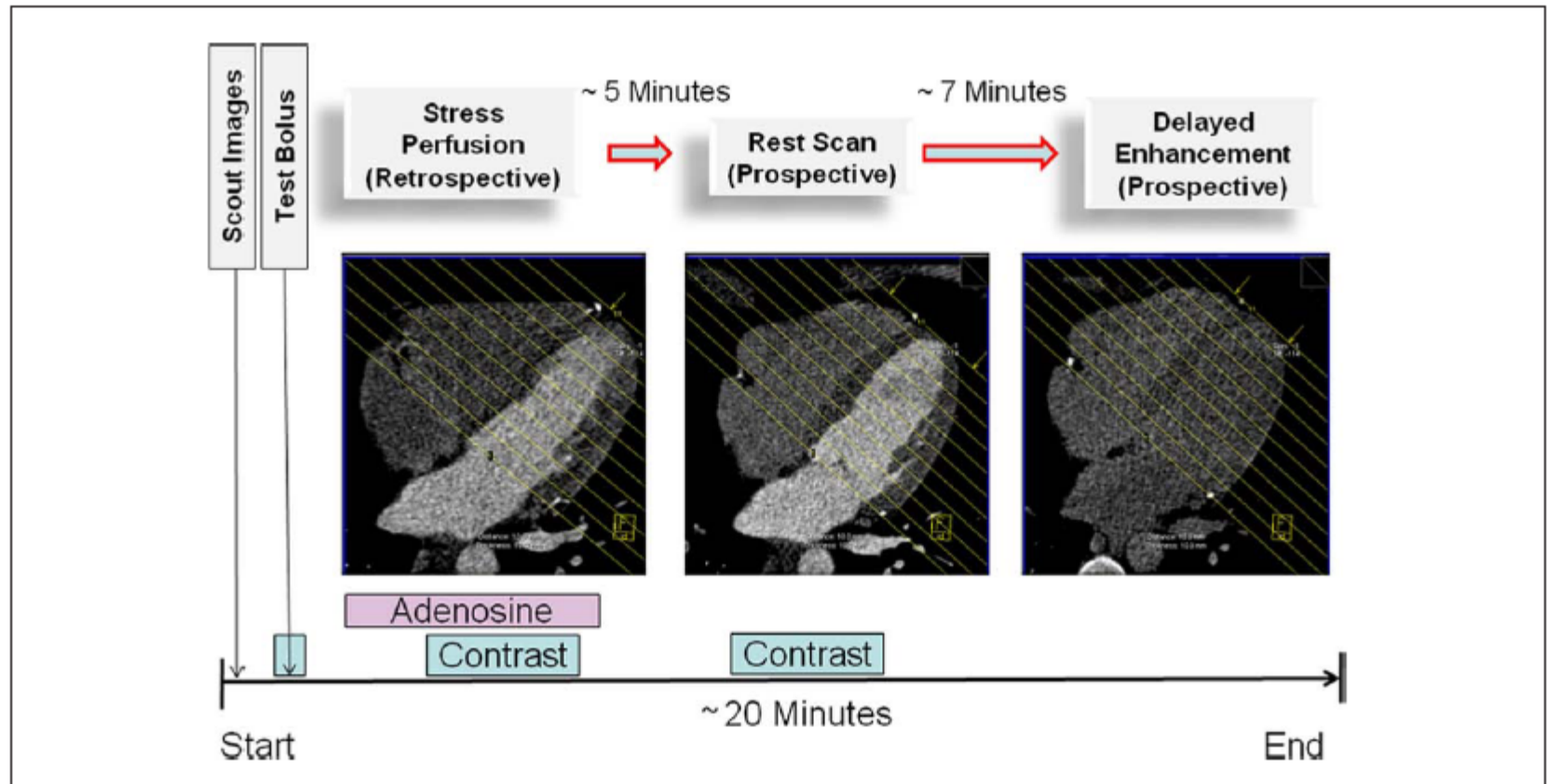


# DSCT Stress Myocardial Perfusion Imaging



**Figure 2** Comprehensive Computed Tomography Protocol

See the Methods section for detailed explanation. After scout images and test bolus were performed, adenosine infusion was started at  $140 \mu\text{g}/\text{kg}/\text{min}$ . Three minutes later, a contrast-enhanced stress perfusion scan was acquired using retrospective gating and tube current modulation. Once the heart rate returned to baseline, the rest perfusion scan was acquired. This was a contrast-enhanced scan using prospective triggering. Approximately 7 min later, a low tube voltage, prospectively triggered delayed enhancement scan was acquired.

# Computation of $FFR_{CT}$

## Patient-Specific Hyperemic Flow and Pressure:

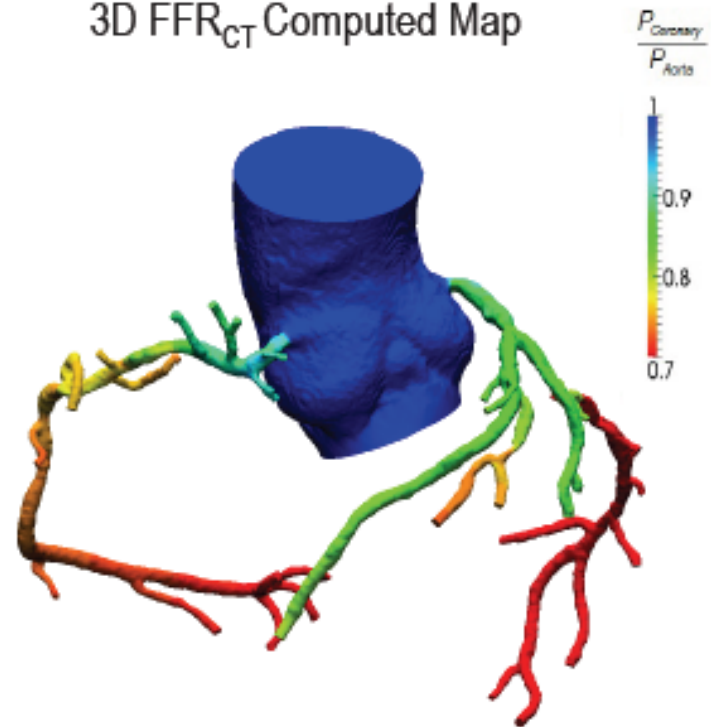
1. Numerical method using governing equations
2. Obtain solution for velocity and pressure throughout coronary vascular bed
3. Simultaneous solution of millions of non-linear partial differential equations
4. Repeat process thousands of time intervals within cardiac cycle

## $FFR_{CT}$ does not require:

1. Modification to imaging protocols (i.e., prospective / retrospective ECG gating; fast pitch helical; FBP or IR)
2. Administration of adenosine
3. Additional image acquisition (i.e., no additional radiation)
4. Single-point assessment (i.e.,  $FFR_{CT}$  selectable on any point in coronary vascular bed)

$FFR_{CT}$  derived from a typically acquired CT

3D  $FFR_{CT}$  Computed Map

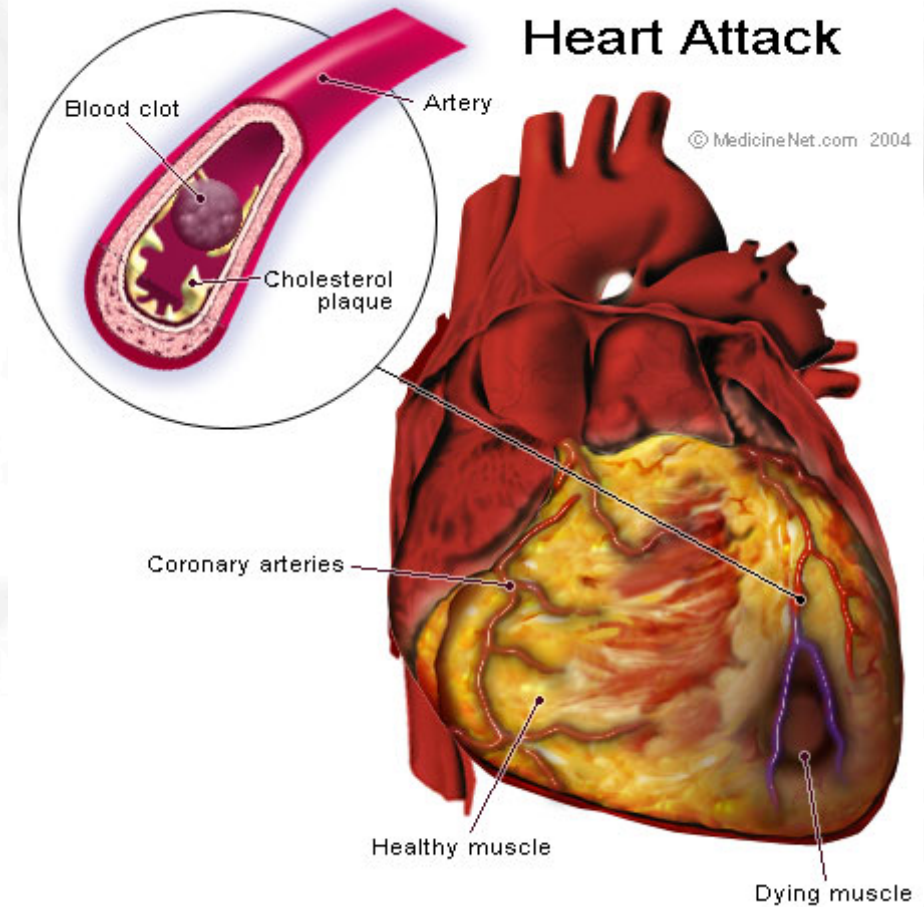


$FFR_{CT} = 0.72$   
(can select any point on model)

# 糖尿病是冠心病等危症

2  
型  
糖  
尿  
病

=



# Diabetic Patients have more severe and extensive CAD

**Table 2**

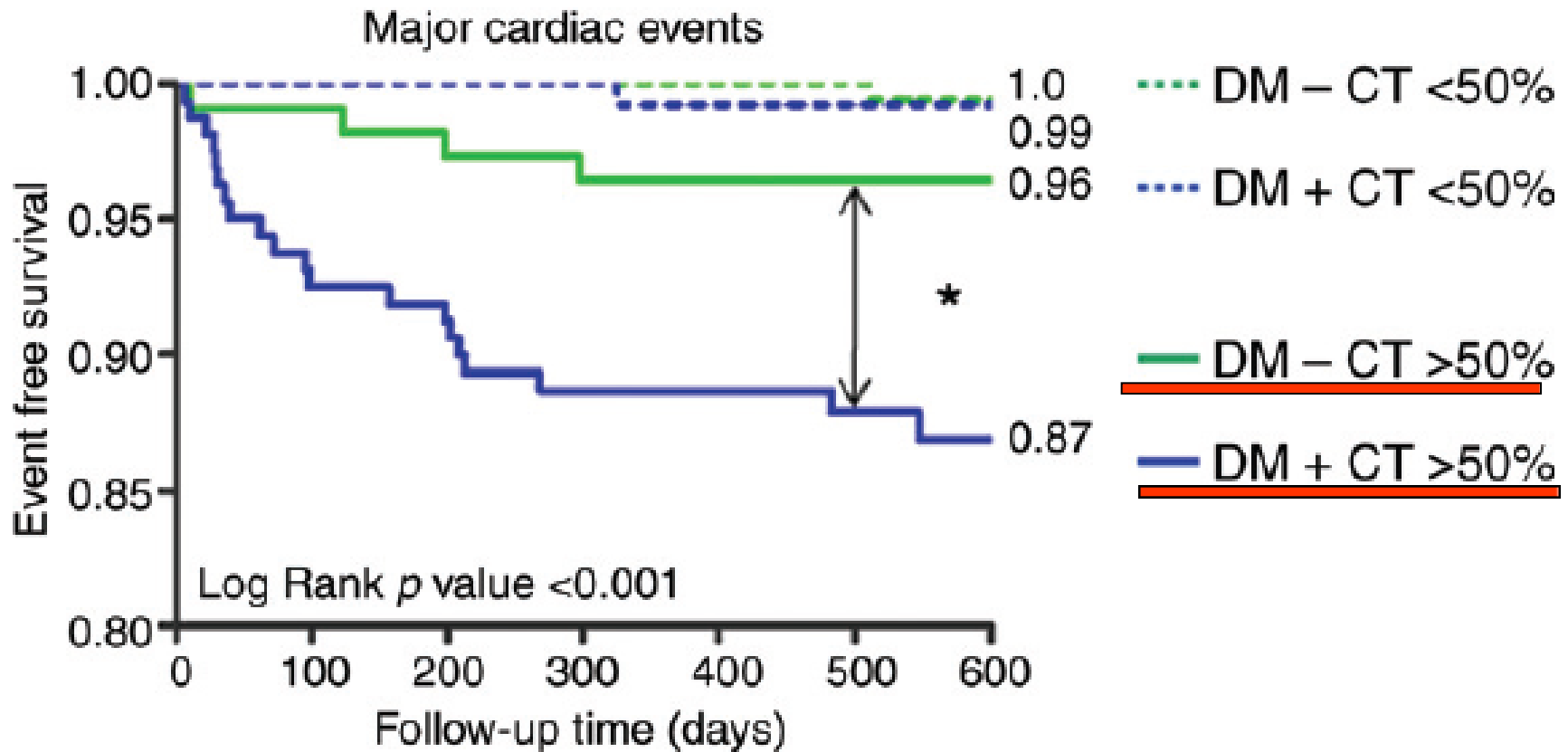
## Multidetector CT Coronary Angiography Findings in Diabetic and Nondiabetic Patients

Finding	Diabetic Patients ( <i>n</i> = 313)	Nondiabetic Patients ( <i>n</i> = 303)	<i>P</i> Value
CAD			
Absent	59 (19)	79 (26)	.04
Nonobstructive	94 (30)	112 (37)	.08
Obstructive	→ 160 (51)	112 (37)	<.001
Total Agatston score*	440 ± 786	195 ± 404	<.001
Segments*			
No. of diseased segments	→ 5.6 ± 4.8	4.4 ± 4.5	.001
No. of segments with obstructive plaques	1.7 ± 2.8	1.2 ± 2.4	.01
No. of segments with nonobstructive plaques	3.9 ± 3.9	3.1 ± 3.3	.005

Note.—Unless otherwise specified, data are numbers of patients, with percentages in parentheses.

\* Data are means ± standard deviations.

# Diabetic CAD patients have poorer outcome





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Congress & 7th EFOST  
Congress 2012  
[ details ]

Feb 3, 2012



# Diagnostic Accuracy of CCTA

**CCTA is the most accurate non-invasive diagnostic modality for the **detection** and, of equal import, **exclusion of CAD** in chest pain patients.**



# 患心血管病之因素

