



**SIEMENS**

CT Clinical  
Engines  
2013  
Edition

[www.siemens.com/ct-cardiology](http://www.siemens.com/ct-cardiology)

# Get further. With the CT Cardio-Vascular Engine.

Driving progress for therapy planning and solid evaluations

International version. Not for distribution in the U.S.

Answers for life.

## What is a CT Clinical Engine?

- A powerful combination of software applications and scanner features – tailored to meet your clinical challenges
- A solution that helps you get the most from your CT scanner

With a CT Clinical Engine, you can continually enhance speed, workflow efficiency, and diagnostic information.





# How far can you get with your CT?

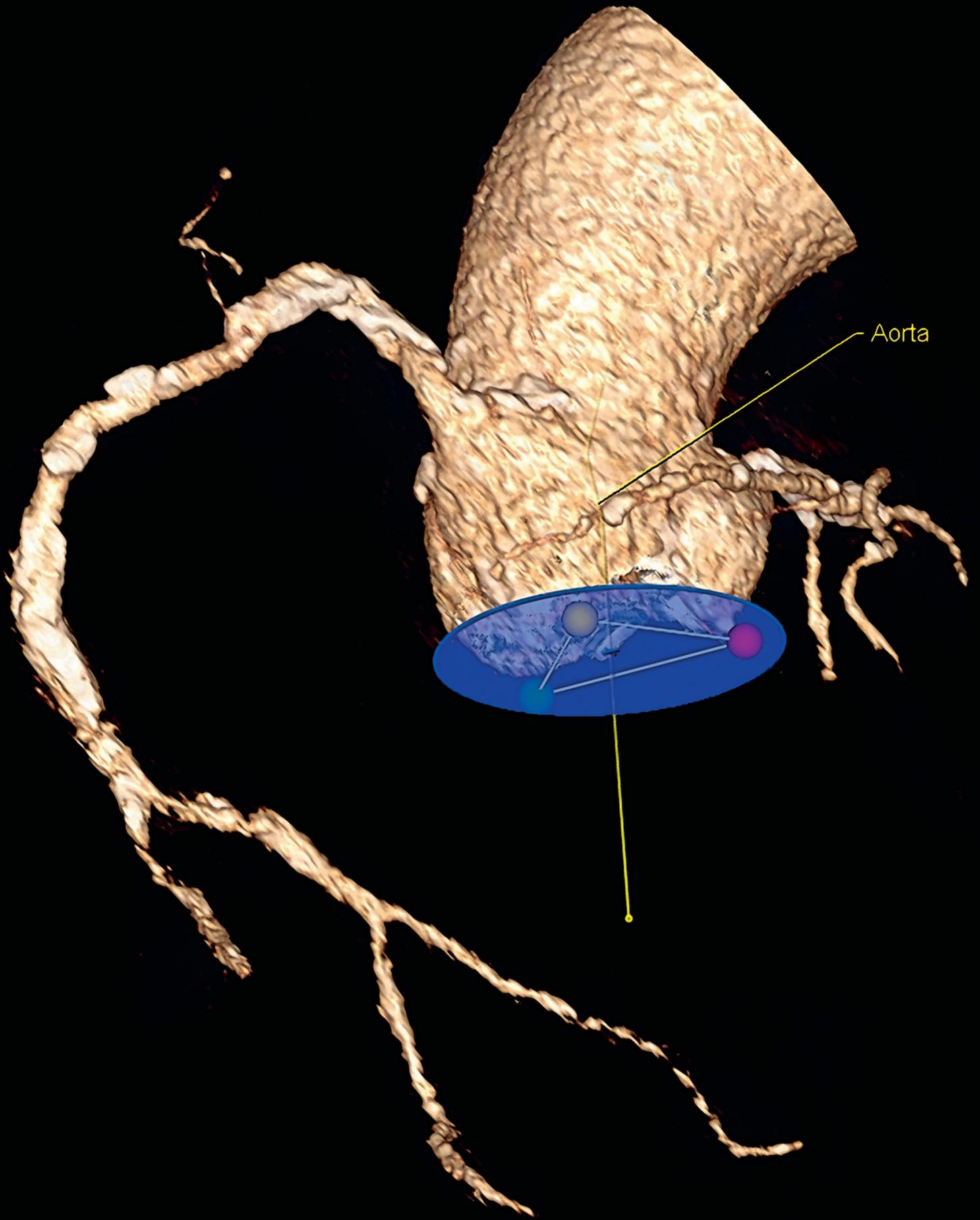
Rising patient expectations, increasing efficiency needs: The best way to meet these challenges is to get detailed diagnostic information faster.

The CT Cardio-Vascular Engine is a fine-tuned bundle that combines most innovative scanner features for superior specificity and highly advanced software applications for speed in routine. Rule-out of coronary heart disease, stenosis evaluation of peripheral vessels, and TAVI planning are routine tasks in many institutions. The CT Cardio-Vascular Engine helps accelerate the automated anatomical evaluation, quantification, and functional assessment of CT angiography images – while allowing manual interaction for challenging cases at any time.

**Driving progress for therapy planning and solid evaluations.**

# Zero-click display and zero-delay quantitative assessment of the aortic annulus.\*

\* Optional. The information about this product is being provided for planning purposes. The product is pending 510(k) review, and is not yet commercially available in the U.S.





# For an appropriate valve selection

## **syngo.CT Cardiac Function – Valve Pilot\***

The optimal selection of a suitable aortic valve implant device heavily relies on the accurate quantitative assessment of the aortic annulus. Crucial for exact measurements is the correct visualization of the annulus plane. Manual navigation to the annulus plane can be tedious and manual measurements may not yield the true short and long axes and effective diameter, leading to TAVI planning that is error-prone.

syngo.CT Cardiac Function – Valve Pilot finds the annulus plane and provides minimum, maximum, and effective diameters of the aortic annulus as the case is opened. The two ostia views help you in assessing their distance to the annulus plane. syngo.CT Cardiac Function – Valve Pilot helps save time and your TAVI planning results become more precise and reproducible.

\* Optional and not commercially available in the U.S.



**A powerful symbiosis for safer TAVI procedures**  
**The SOMATOM Definition Flash and *syngo.via***

With the SOMATOM Definition Flash and *syngo.via*, Siemens paves the way for safer and more reliable pre-procedural TAVI planning. The high pitch Flash Spiral of the SOMATOM Definition Flash makes it possible to acquire the relevant anatomy with only 40 mL of contrast agent. Scan lengths of 580 mm covering both the aortic root and the iliac arteries are scanned in as little as 1.37 s. Conventional scan protocols require at least two scans with 140 mL of contrast. The low amount of contrast is decisive, because many of the patients undergoing the

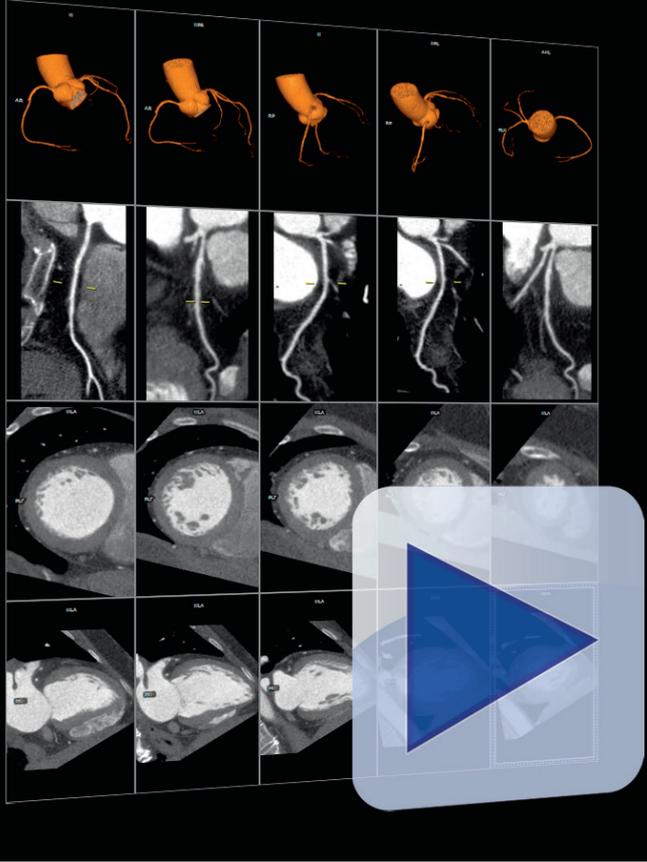
TAVI procedure have decreased renal function. Higher doses of contrast may lead to renal failure.

The dedicated workflow CT TAVI Planning facilitates the choice of a suitable access route and integrates *syngo*.CT Cardiac Function – Valve Pilot for a zero-delay quantitative assessment of the aortic annulus.

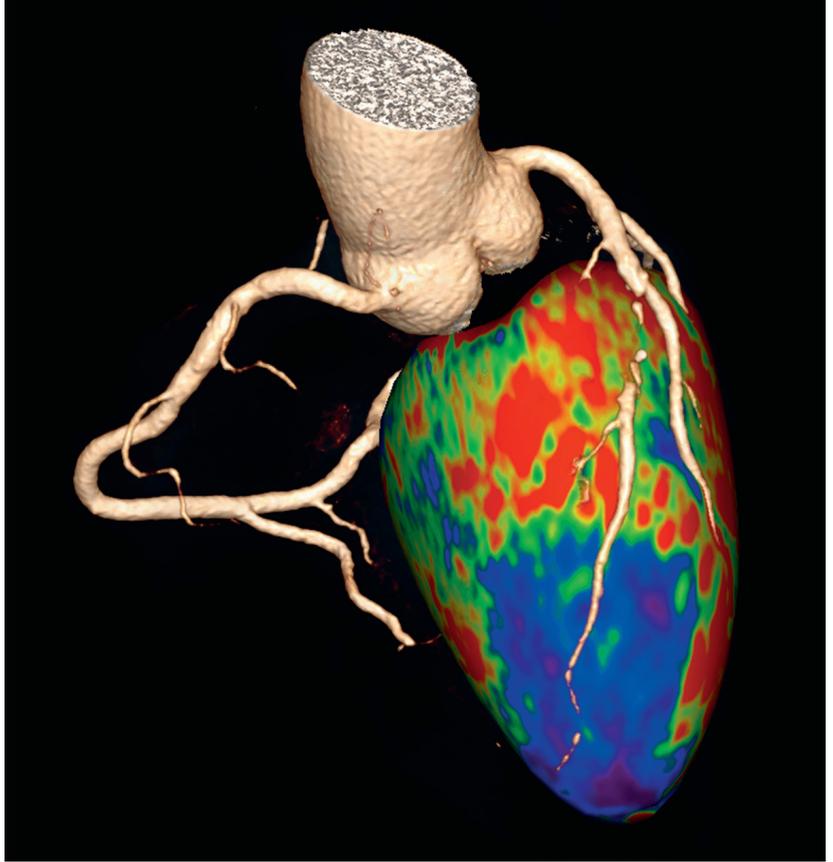
In order to save contrast agent during the interventional procedure, the C-arm angulations are provided and can be automatically transferred to the cath lab.\*

Learn more about CT TAVI Planning at [www.siemens.com/CT-TAVI](http://www.siemens.com/CT-TAVI)

\* *syngo* X Workplace VB21 required



Rapid Results Technology



syngo.CT Cardiac Function – Enhancement

# Rapid and solid evaluations

## Standardize and automate image creation for reproducible results and efficient reading Rapid Results Technology

When assessing coronary artery disease, manual preparation of different reformats and visualizations of the coronary vessels is time-consuming and rarely standardized.

With Rapid Results Technology you can automatically generate visualizations of the coronary and general vessels in various types and orientations. Be creative and design your own personal protocols that suit your daily work best. Save time for reading other cases by letting Rapid Results Technology create just the right amount of information – standardized and reproducible.

## Localize the perfusion defect – assess the hemodynamic relevance syngo.CT Cardiac Function – Enhancement\*

A coronary CTA might yield an intermediate coronary stenosis with unclear hemodynamic relevance. The evaluation in standard cardiac planes may be challenging, since the correlation to the coronary vessel in question can be difficult.

syngo.CT Cardiac Function – Enhancement solves this issue. It features AHA-compliant 17-segment polar maps for first pass myocardial perfusion data. Perfusion defects are easily localized and the overlay with the VRT in the Hybrid View helps to correlate a defect with the supplying coronary artery.

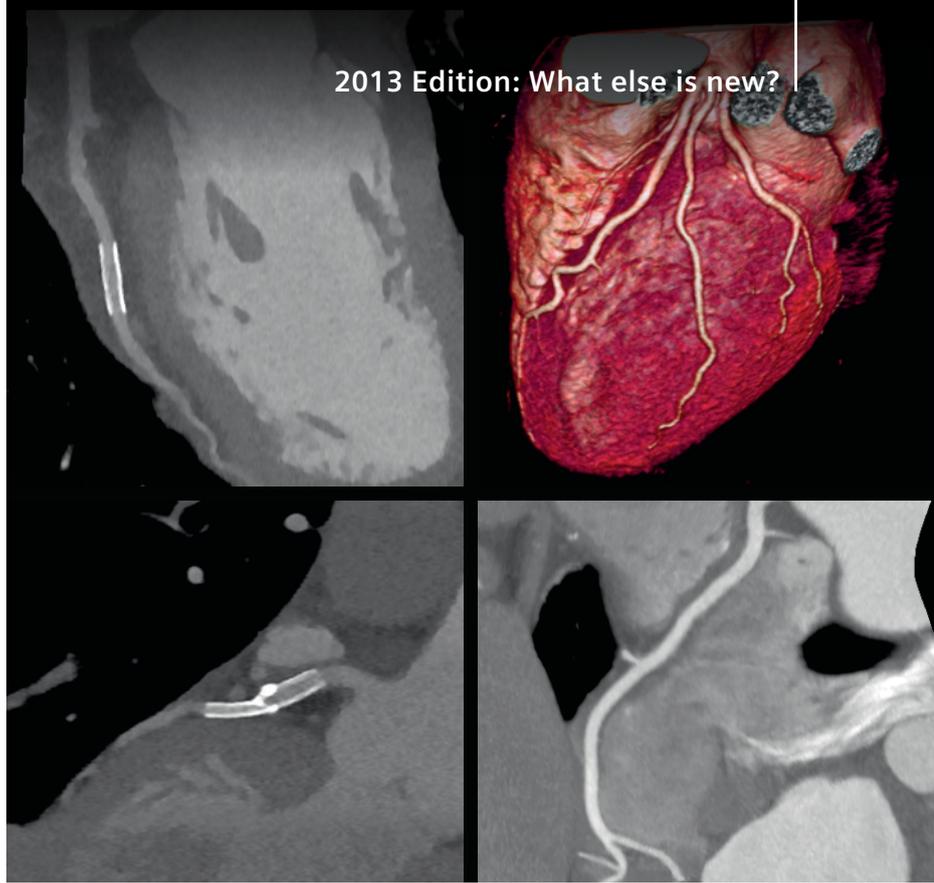
## Rule out coronary artery disease in less than a minute syngo.CT Coronary Analysis

When suspecting an acute coronary syndrome, it is essential to assess the entire coronary tree. Severe stenoses may impair a detailed visualization of the coronary vessels. Nevertheless, you may need to make a confident decision in a very short period of time.

syngo.CT Coronary Analysis now features a robust segmentation of the coronary vessels and provides a comprehensive visualization of the coronary tree, despite high-grade stenoses. You can reliably assess the case and make a sound decision – even when time is close.



syngo.CT Coronary Analysis



Superior specificity in cardiac imaging

**Comprehensive length and diameter measurements for therapy planning**

**syngo.CT Vascular Analysis**

Accurate measurement is key to reliable AAA and TAA stent planning. Inexact placement of start and end points of a distance measurement compromises the optimal choice of the implant device. The calculation of the effective vessel diameter can be cumbersome, since vessel cross sections are usually noncircular.

In *syngo.CT Vascular Analysis*, reference markers are now displayed in the VRT, enabling an easy placement at, e.g. ostia or the iliac bifurcation. The exact position can now be fine-tuned through direct scrolling in cross sections along the curved centerline. Also, the system automatically provides effective vessel diameters, based on cross-sectional area and perimeter.

**Superior specificity in cardiac imaging**

**The SOMATOM Scanners and *syngo.via* help reduce false positive findings\***

Numerous publications have proven that cardiac CT reliably rules out coronary artery disease. However, specificity in coronary stenosis assessment can be affected by

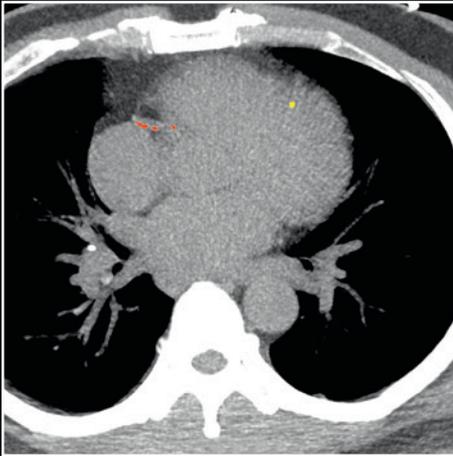
blooming artifacts from calcified lesions. This may hinder a reliable evaluation of the vessel lumen. Motion artifacts may further degrade the image quality. Both effects may provoke false positive findings, leading to unnecessary further testing or treatment.

Siemens has introduced a set of powerful features to reduce false positives and boost specificity in cardiac CT imaging. As the two most important aspects are motion-free and sharp visualizations of the coronaries, the solutions deliver highest temporal and unprecedented spatial resolution.

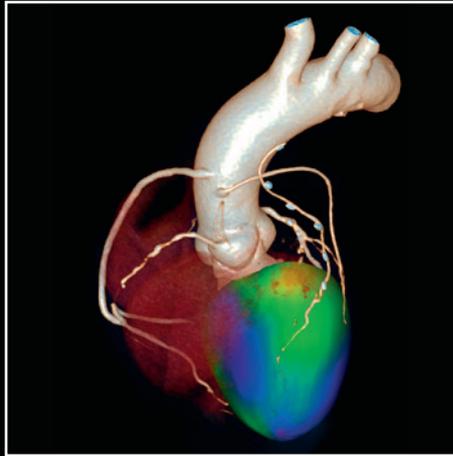
\*Optional

**Your benefits at a glance**

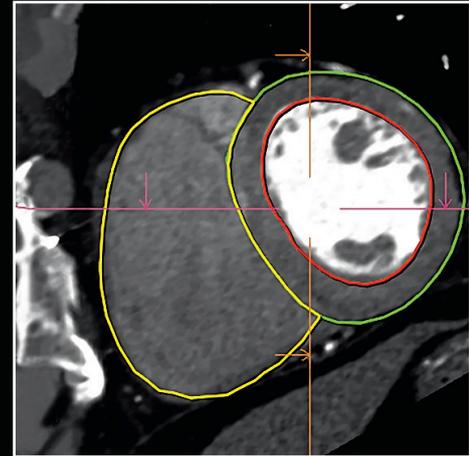
- Faster – generate reproducible images for increased standardization
- Easier – detect perfusion defects and correlate them with the supplying coronary artery
- Sounder – experience robust coronary segmentation despite high-grade stenoses



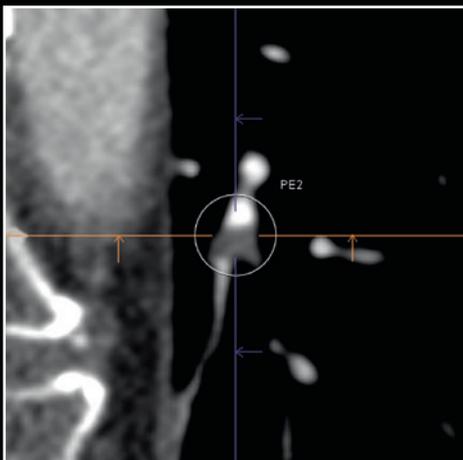
Quick risk assessment and coronary age calculation  
 syngo.CT CaScoring



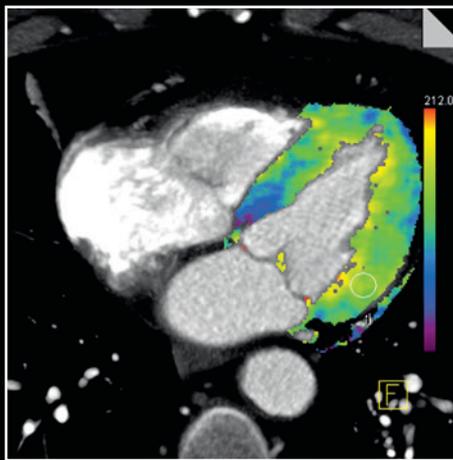
Comprehensive global and local left ventricular analysis  
 syngo.CT Cardiac Function



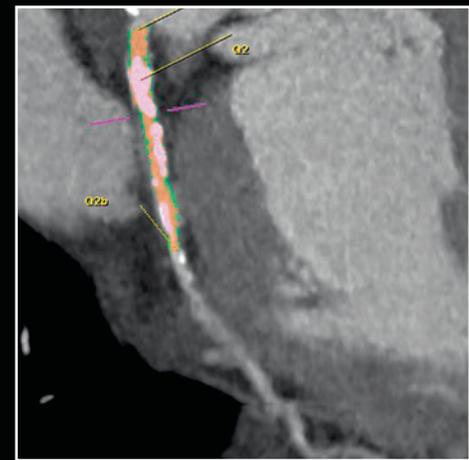
Right ventricular analysis – even with MinDose data  
 syngo.CT Cardiac Function – Right Ventricular Analysis\*



Automatic detection of pulmonary filling defects  
 syngo.CT PE CAD\*\*

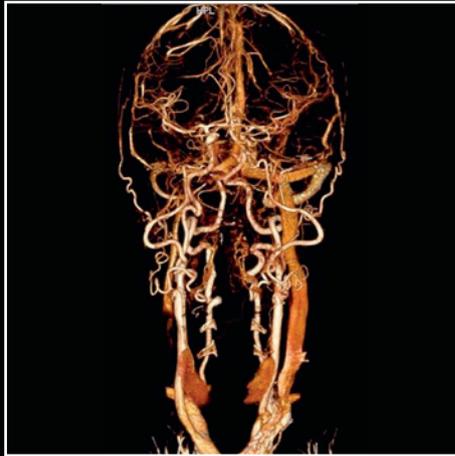


Dynamic quantitative myocardial perfusion assessment  
 syngo Volume Perfusion CT Body – Myocardium\*

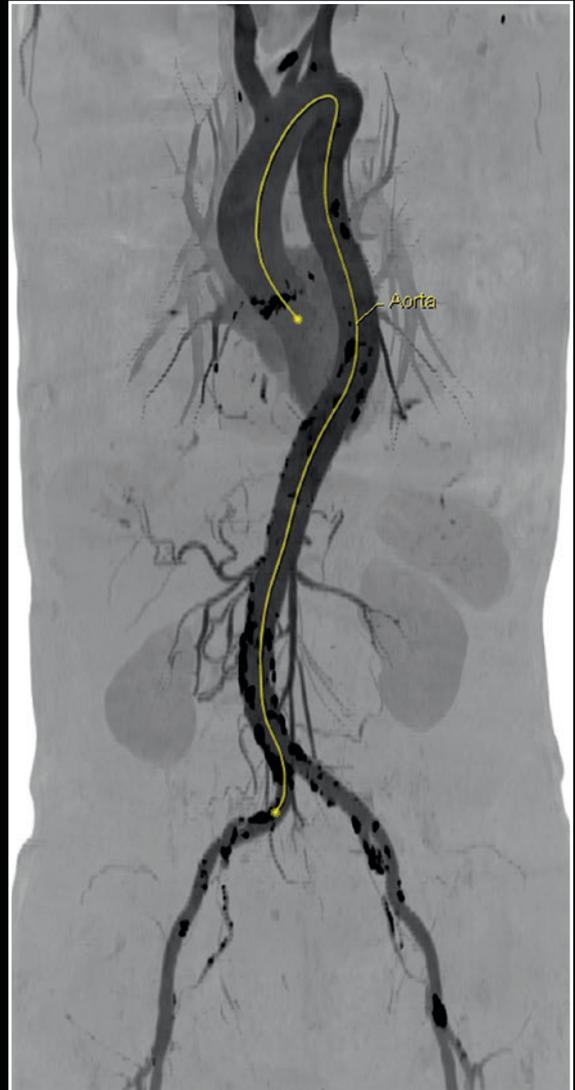


Volumetric quantification and differentiation of lipid, fibrous, and calcified plaques  
 syngo Circulation Plaque Analysis\*

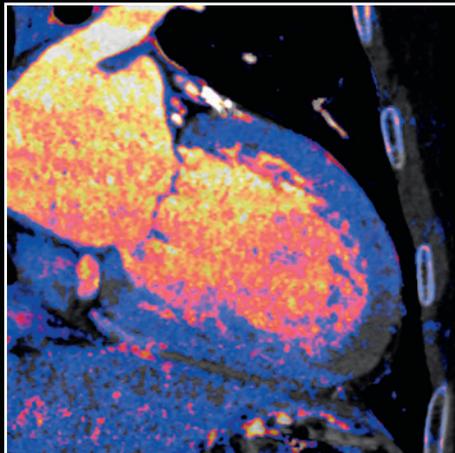
# Get further – with our CT Cardio-Vascular Engine



Accurate bone removal with Dual Energy  
*syngo.CT DE Direct Angio\**



Zero-click tracing of the main  
general vessels  
*syngo.CT Vascular Analysis –  
Autotracer\**



Quantification of myocardial iodine uptake  
with Dual Energy  
*syngo.CT DE Heart PBV\**

\* Optional  
\*\* Optional and not commercially  
available in the U.S.

# and optional applications

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