

Diagnosoft® SENC

Cardiac MRI Analysis With One-Step Image Processing

What if ... you could accurately assess cardiac regional function?

What if ... you could have a definitive way to measure mechanical dyssynchrony?

What if ... you could do both in a fast, automated and user-independent way?

Current Challenges

Since the advent of cardiac MRI, assessing regional function of the heart, or segmental wall motion, has been mostly qualitative. This creates challenges:

- Accuracy depends on the skills of the reader and image quality.
- Localization of the dysfunctional region is challenging, and detecting dysfunction caused by sub-endocardial infarcts may even be more difficult.
- Visual assessment cannot determine the exact degree of mechanical dyssynchrony, or differences in timing of local myocardial contraction and relaxation.
- The motion, or lack of motion of a segment in the myocardium does not correlate well with the degree of the dysfunction.

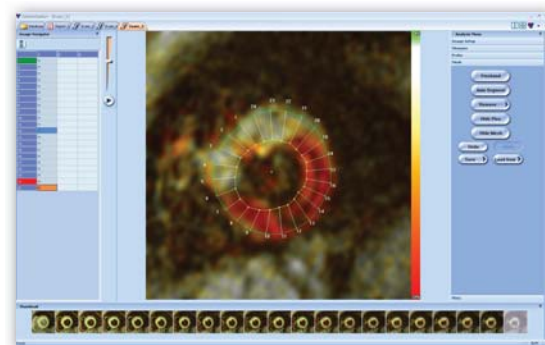
Overview

Diagnosoft SENC helps physicians and researchers overcome the drawbacks inherent in cardiac MRI assessment, facilitating greater consistency of diagnosis, helping in proactive intervention, and providing quantitative feedback about the effectiveness of cardiovascular therapy.

Strain-encoding, or SENC, is a new MR imaging technique designed to help physicians measure regional contraction, or relaxation, of the heart's myocardium. In conjunction

with Diagnosoft's other two software products, Diagnosoft® HARP® or Diagnosoft® PLUS, Diagnosoft® SENC enables precise quantification of data to improve diagnosis and to guide and monitor therapy of coronary artery disease. Ultimately, SENC provides an objective way to assess regional variations in muscle contraction due to ischemia, myocardial infarction, or other causes.

SENC's highly detailed and direct quantitative assessment of the myocardium far surpasses traditional subjective methods. By providing quantification with the fine spatial resolution necessary for assessing the regional function of fine structures, such as the right ventricle's thin wall, the technique can reveal small regional anomalies in contractility.



Visualizing and measuring regional strain with SENC

Eliminating Breath Holds

Most cardiac MRI procedures require patients to hold their breath. SENC images can be acquired in a split second, mapping regional function with unprecedented speed. As a result, it can be used in combination with tests and maneuvers that allow patients to breathe normally. That means SENC is perfectly suited for stress tests and is particularly advantageous for pediatrics patients.

Diagnosoft® SENC Benefits

Accuracy: By “measuring” the motion of the segments of the heart, Diagnosoft SENC eliminates the ambiguity associated with qualitative assessment.

Precision: Strain maps produced by Diagnosoft SENC show the degree and exact location of regional dysfunction, and help visualize and localize sub-endocardial infarcts.

Definitive dyssynchrony assessment: Strain measurements for all the segments during the cardiac cycle enable proper assessment of the different timings and quantification of mechanical dyssynchrony.

Localization: Strain is a quantity that reflects the actual regional contraction, or lack of contraction, of the myocardium.

Sensitivity: Diagnosoft SENC measurements enable the detection of subtle changes in regional function that are nearly impossible to detect otherwise.

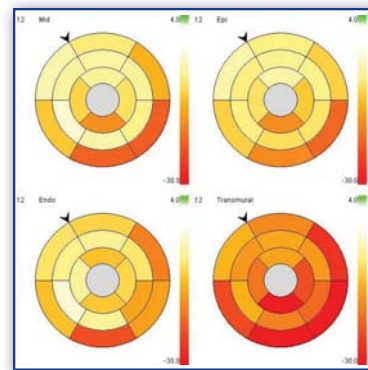
Speed and automation: Using SENC, results can be produced rapidly with minimal user interaction.

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The Future is Now

Technically, SENC is a special pulse sequence that currently runs on the Philips MRI platform. Today, it reads and analyzes SENC raw images in DICOM and PAR-REC (Philips) formats.

Diagnosoft SENC employs a graphical user interface for importing and analyzing images, supports exporting the results as movies, images, tables, and reports, and can export measurements to Excel files, bull's-eye and time-resolved graphs, and other representations of the heart.



Strain on 17-segment model of heart

About Diagnosoft®

Diagnosoft, Inc., based in North Carolina, is a privately held company specializing in cardiac MR image analysis. Diagnosoft develops and markets a suite of software solutions that assists hospitals, medical research centers, and healthcare institutions in diagnosis, staging and therapeutic monitoring of cardiovascular disease. The company's overriding objectives are to increase physician productivity and accuracy, improve patient outcomes, and enhance research and drug development advances.

Diagnosoft, Inc.

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