



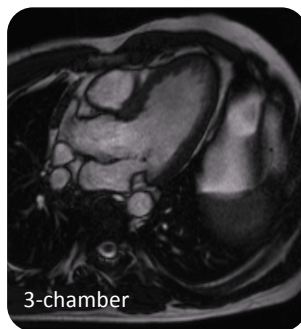
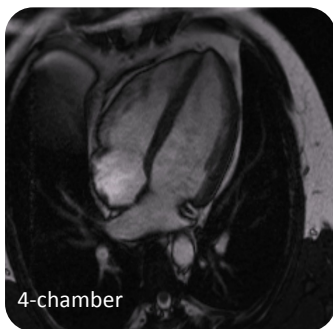
# Cardiac MRI Essentials

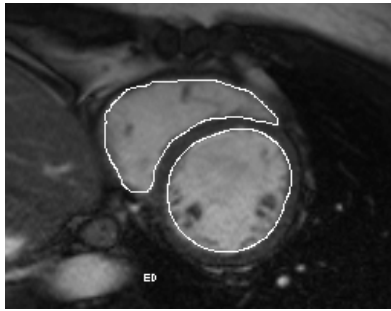
## Right ventricular size & function

CMR allows us to assess the following aspects of the right ventricle:

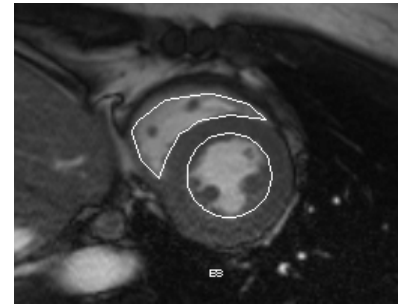
- RV morphology
- RV size
  - RV end-diastolic & end-systolic volume
- RV global function
  - RV stroke volume & ejection fraction
- RV regional wall motion
  - Inflow, apex, outflow
- RV wall thickness
- RV myocardial mass
- RV myocardial fatty infiltration/fibrosis

The right ventricle should be assessed in multiple views (4-, 3-chamber, short axis, RV inflow-outflow, and RV outflow tract):





To quantify RV volumes, stroke volume and ejection fraction, the endocardium is highlighted at end-diastole (left) and end-systole (right) in the series of short axis slices. The software then makes the calculations.

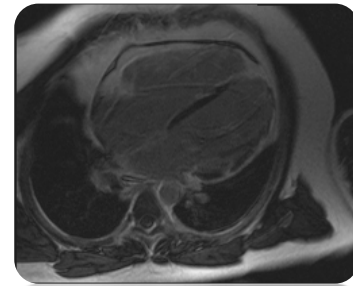


## Quantifying right ventricular myocardial mass

To quantify right ventricular myocardial mass, both the endocardium and epicardium are highlighted. The software then quantifies the myocardial volume and, by applying a standard value for the density of myocardial tissue, can calculate the myocardial mass.

## Myocardial fibrosis

Assessment of the right ventricle should include a late gadolinium enhancement study to identify any regions of myocardial fibrosis.



## How do we assess RV size & function using CMR?

- Three-, four-chamber views
- Right ventricular inflow/outflow view
- Right ventricular outflow tract view
- Short axis and/or transaxial cine stack
  - Quantify right ventricular end-diastolic and end-systolic volumes
  - Calculate right ventricular stroke volume and ejection fraction
  - Quantify right ventricular myocardial mass
- Late gadolinium enhancement
  - Right ventricular fibrosis

## Further reading

Right ventricular cardiovascular magnetic resonance imaging: normal anatomy and spectrum of pathological findings. *Insights imaging* 2013; **4**: 213-223 [[click here to access online](#)]