

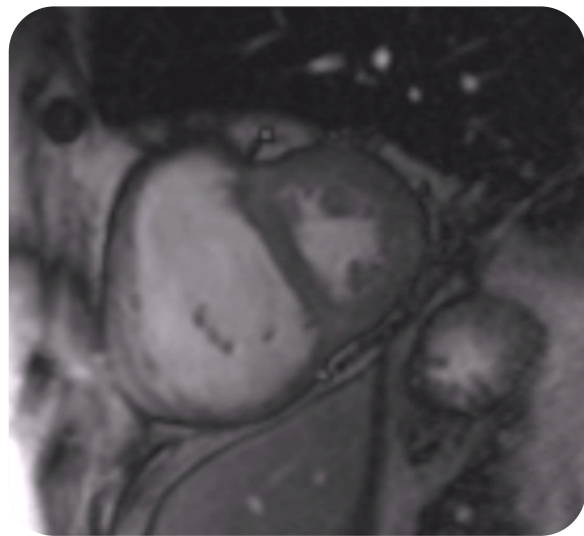


Cardiac MRI Essentials

Pulmonary hypertension

- Pulmonary hypertension is a mean pulmonary artery pressure ≥ 25 mmHg
- Other imaging modalities have a greater emphasis in current PH guidelines, but nonetheless CMR can offer:
 - Quantification of right ventricular size and function
 - Quantification of right ventricular mass
 - Quantification of shunts
 - MR angiography of the pulmonary artery.

Characteristic D-shaped LV due to septal flattening in pulmonary hypertension (RV pressure overload)

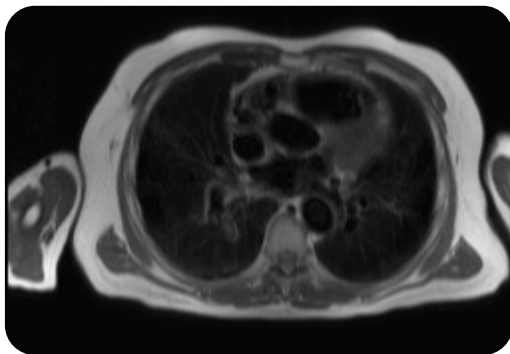


Right Ventricle - Absolute				
Cardiac Function			Normal Range (M)	Units
			(MRI)	
Ejection Fraction	EF	25.0	47.00 ... 74.00	%
End Diastolic Volume	EDV	249.0	98.00 ... 227.00	ml
End Systolic Volume	ESV	186.8	23.00 ... 103.00	ml
Stroke Volume	SV	62.2	52.00 ... 138.00	ml
Cardiac Output	CO	5.04	2.82 ... 8.82	l/min
Myocardial Mass (at ED)		----	----	g
Myocardial Mass (Avg)		----	----	g
Filling and Ejection Data				
Peak Ejection Rate		----	n.a.	ml/sec
Peak Ejection Time		----	n.a.	msec
Peak Filling Rate		----	n.a.	ml/sec
Peak Filling Time from ES		----	n.a.	msec

Right ventricular assessment

- Quantify RV volume
- Calculate RV ejection fraction
- Evaluate RV hypertrophy and measure myocardial mass

MR angiography of the pulmonary artery



Pulmonary fibrosis

- In patients with pulmonary hypertension secondary to pulmonary fibrosis, MRI may incidentally reveal the abnormal lung fields

How can we assess pulmonary hypertension with CMR?

CMR assessment in pulmonary hypertension can include:

- Quantification of right ventricular size and function
- Quantification of right ventricular mass
- Evaluation for any evidence of RV pressure overload
- Shunt assessment
 - Identification of shunts (e.g. ASD, VSD)
 - Quantification of shunts
- MR angiography of pulmonary artery.

Further reading

Cardiovascular magnetic resonance in pulmonary hypertension. *Journal of Cardiovascular Magnetic Resonance* 2012; **14**: 6 [[click here to access online](#)]