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## **ETJ005**

### **3D Cine for the Assessment of the Heart: A Systematic Literature Review**

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**Introduction:** Cardiac CINE MRI is used to obtain cardiac morphology and function. Conventional CINE MRI, a 2D CINE MRI, shows several drawbacks, which are not feasible for the patient and require multiple image acquisitions, resulting in increased planning and scanning time. 3D CINE MRI has been introduced to improve the performance of CINE imaging, along with algorithms and techniques to obtain the best cardiac information and give superior comfort to the patient. Therefore, this aims to analyse the image acquisition in CINE imaging, then explore the algorithms and techniques used in the 3D CINE MRI and the diagnosis by the 3D CINE MRI. **Methods:** This systematic review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) using electronic databases, PUBMED and SCOPUS. **Results:** Ten papers within five years of publication (2019 – 2024) are included in this review. Image acquisition of the CINE imaging is done in two modes: the free-breathing and breath-holding series. Most of the studies were done in free-breathing mode to provide the best comfort to the patient. The algorithms and techniques approach with the 3D CINE MRI help improve image acquisition and reconstruction. The use of 3D CINE MRI varies among healthy individuals and patients with cardiovascular diseases. The differences in ventricular measurements can be analysed for each condition of the heart. **Conclusions:** The approaches by the studies have their own strengths and limitations, but most of them are able to give superior comfort to the patient.

**Keywords:** 3D CINE, cardiac assessment, algorithm, cardiovascular disease