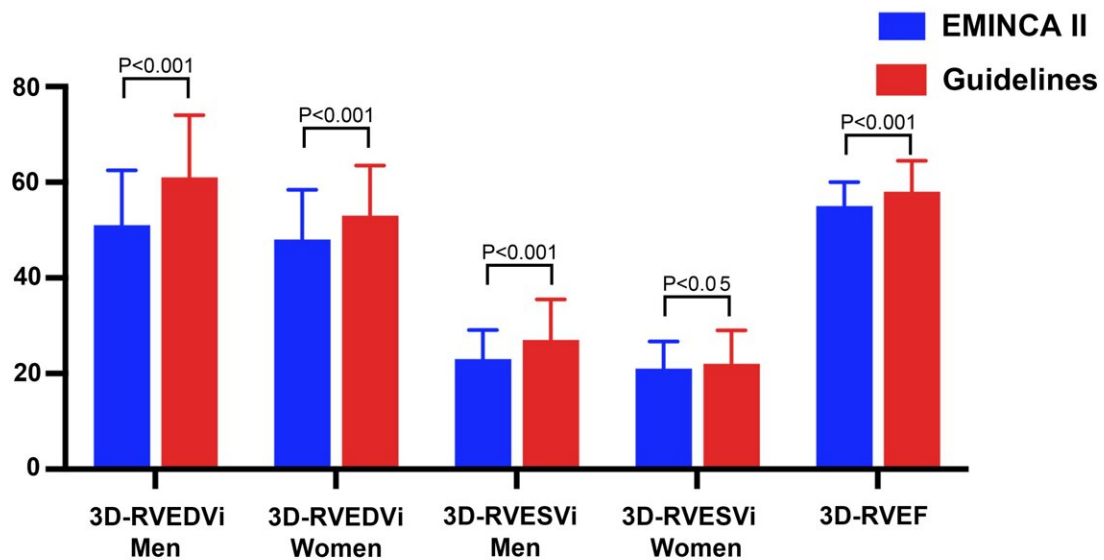
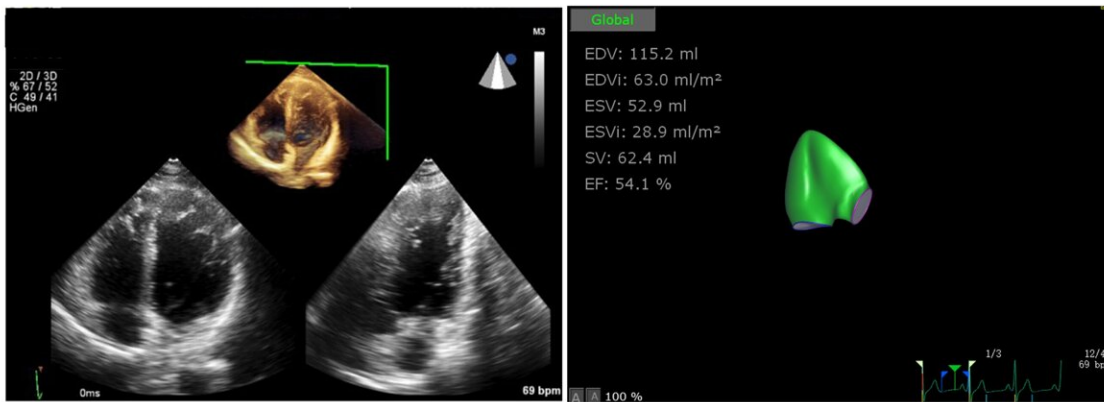


# Study reports normal values of 3D echocardiographic right ventricular volume established in Chinese adults

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A set of normal values of three-dimensional echocardiographic right ventricular volume and function was first established in a large Chinese population, which was significantly smaller than those recommended by the international guidelines and affected by sex, age and vendors. Credit: *MedComm* (2024). DOI: 10.1002/mco2.550

Three-dimensional (3D) echocardiography is an emerging technique for assessing right ventricular (RV) volume and function, but the normal values of RV volume and function by 3D echocardiography in the Chinese population are still lacking.

A prospective and multicenter study was led by Dr. Yun Zhang and Dr. Mei Zhang (Qilu hospital of Shandong university). The paper is [published](#) in the journal *MedComm*. Previous research by this team (Echocardiographic Measurements in Normal Chinese Adults, EMINCA) reported normal values of two-dimensional echocardiographic and Doppler echocardiography in healthy Chinese adults.

The EMINCA II study was designed and conducted from September 2016 to February 2020, with the purpose of establishing normal reference values of left and right ventricular and atrial size and function by 3D [echocardiography](#) in a large cohort of healthy Han volunteers, and examining the physiological and instrumental factors that may affect these normal values.

A total of 1117 healthy Han Chinese volunteers aged 18 to 89 years were enrolled from 28 collaborating laboratories in 20 provinces and municipalities of China. 3D-RV images from 747 volunteers with optimal image quality were qualified for final analysis by Dr. Yu and Dr. Ying-bin Wang from the core laboratory in a blinded way.

The results showed that men had larger RV volumes than women in the whole population, even after indexing to body [surface area](#), and the elderly had smaller RV volumes. The normal values of RV volumes were significantly smaller than those recommended by ASE/EACVI guidelines in both sexes. There were significant differences in 3D RV measurements between two vendor's ultrasound systems and between different software platforms.

Based on these results, a set of normal values of 3D-RV volume and function in a large Chinese population was first presented. 3D-RV enlargement was defined as  $RVEDVi > 76 \text{ ml/m}^2$  in men and  $RVEDVi > 72 \text{ ml/m}^2$  in women, and 3D-RV systolic dysfunction was defined as RVEF

In view of the significant difference in normal ranges of 3D-RV [volume](#) and function reported by EMINCA II and ASE/EACVI guidelines, the criteria of 3D-RV enlargement and systolic dysfunction defined by EMINCA II should be adopted in clinical diagnosis of cardiac disease involving RV in clinical practice.

**More information:** Yu Zhang et al, Right ventricular volume and function by three-dimensional echocardiography: results of the echocardiographic measurements in normal Chinese adults (EMINCA) II, *MedComm* (2024). [DOI: 10.1002/mco2.550](https://doi.org/10.1002/mco2.550)

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