

# Echocardiography in left ventricular dysfunction

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## **Abstract**

Left ventricular (LV) function is an important predictor of cardiac morbidity and mortality. The role of echocardiography in the assessment of LV function is well established and has been expanded over the last few years with the development of new methodologies.

Echocardiography can assess LV global and regional function, as well as systolic and diastolic function. It has the ability to measure volumes, including cardiac output, pressures, LV mass, dP/dt. It can also assess regional dysfunction using the wall motion score. However quantitation by standard echo can be limited, due to poor endocardial definition, time-consuming, and reproducibility, lack of accuracy, particularly considering it takes a lot of geometric assumptions.

Therefore, new methodologies have been recently developed to increase echo accuracy. These include the introduction of second harmonics, which is becoming a standard in most equipments; the use of contrast echo to improve LV opacification and endocardial border definition; color kinesis, which allows automated segmental motion analysis; tissue Doppler imaging, which can help in the assessment of regional and diastolic function; and more recently the ability to assess strain and strain rate. This last technology has the ability to quantify local myocardial deformation and it has shown to be a potential strong marker of ischemia, as well as a predictor of LV myocardial recovery postrevascularization.

In conclusion, echocardiography is widely used to assess LV function. The recent developments of new ultrasound-related technologies have further increased the interest and importance of echocardiography in the assessment of LV function.

## **Keywords**

Echocardiography; Left ventricular function; Tissue Doppler imaging.