

## **Left Ventricular Ejection Fraction: An Index of Left Ventricular Systolic Function?**

**Professor Dr Filippos K. Triposkiadis**

*Director, Department of Cardiology; Larissa University Hospital  
Larissa, Greece*

The limited myocardial fiber thickening and shortening alone cannot explain the marked left ventricular (LV) volume reduction during LV ejection. This can only be achieved with LV helical (spiral) orientation of the myocardial fibers, which is determined by the non-contractile LV myocardial components (cytoskeleton, extracellular matrix). Preservation of LV ejection fraction (LVEF) in heart failure (HFpEF) is due to the presence of normal ellipsoid LV configuration and spiral myocardial fiber orientation. Conversely, reduction of LVEF in heart failure (HFrEF) results from spherical LV configuration associated with impaired myocardial fiber orientation. Thus, a) LVEF is dependent not only on LV myocardial fiber shortening but LV geometrical factors as well, b) current classification of HF based on LVEF should be revised, and c) future therapy of HF should focus on interventions affecting the non-contractile LV myocardial components rather than on LV myocardial contractility.