Deterioration of Left Ventricular Chamber Performance After Bed Rest

To the Editor:

Perhonen et al. estimate changes in the left ventricular (LV) diastolic rest volume before and after bed rest. By definition, diastolic rest volume is that volume which exists at zero transmural LV diastolic pressure (LVP tm). Although they acknowledge the potential role of pericardial constraint in their discussion, they ignore this effect by assuming LVP tm is approximately equal to pulmonary capillary wedge pressure (PCWP) in their analysis. When intracardiac and extracardiac diastolic pressures are both carefully measured, the resulting curves relating LVP tm to LV volume have a relatively flat portion near zero pressure. The diastolic pressure-volume curves presented by Perhonen et al. do not show this characteristic, suggesting an error in their assumption that pericardial constraint pressure is negligible. This methodological concern raises doubts about the main findings of their study.

Right atrial pressure (RAP) may be used to approximate LVP tm as PCWP–RAP. Although this method remains controversial, if simultaneous RAP data are available to the authors, it would be worthwhile to repeat their analysis using this approximation.

Chester M. Boltwood, Jr, MD
Valley Heart Associates Medical Group
Modesto, Calif

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Chester M. Boltwood, Jr

Circulation. 2001;104:e158
Circulation is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
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Print ISSN: 0009-7322. Online ISSN: 1524-4539

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