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The relation between afterload and ventricular pump function has been examined in fetal and newborn lambs by several investigators *(Hawkins et al., 1989 and Van Hare et al., 1990).* In human preterm infants, however, the relation of the left ventricular pump function to afterload has not been investigated.

The shortening fraction and ejection fraction remain the most used echocardiographic indexes of the left ventricular performance. They can be readily calculated from 2 dimesional and M- mode images and are obtainable in most patients. Unfortunately, both these indexes are sensitive to alteration in loading conditions and heart rate. *(Colan et al., 1984 and Kass et al., 1987).* Their validity becomes questionable when disease processes or natrual physiologic states result in significant alterations in these variables.

To assess contractility more accurately newer non invasive derivatives of end-systolic pressure-volume relation have been developed. The rate corrected velocity of circumferential fibre shortening (VCFc)-end systolic wall stress (ESWS) relation havebeen used to estimate left ventricular contractile state noninvasively. *(Daniel and Howard 1995).* The relation between wall stress and VCF has been established in normal newborn *(Igarashi et al., 1991)* infants, children *(Kimball et al., 1991)* and adults, *(Colan et al., 1984),* however, to our knowelge it has not been studied in preterm infants.