

**Response of right ventricular systolic function to exercise stress:  
Effects of pulmonary vascular resistance  
on right ventricular systolic function**

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To elucidate factors influencing responses of right ventricular systolic function to exercise stress, we evaluated the right ventricular ejection fraction and peak ejection rate with two different loading conditions, atrial septal defect and mitral stenosis, at rest and during exercise by means of gated equilibrium blood pool radionuclide ventriculography. In both atrial septal defect and mitral stenosis, strong correlations between changes in the right ventricular ejection fraction with exercise and pulmonary vascular resistance at rest ( $r = -0.97, p < 0.001$ ;  $r = -0.86, p < 0.0005$ ; respectively) were found. Significant correlations between changes in the right ventricular peak ejection rate with exercise and pulmonary vascular resistance at rest ( $r = -0.85, p < 0.05$ ;  $r = -0.75, p < 0.01$ ; respectively) were found in atrial septal defect and mitral stenosis. Both the right ventricular ejection fraction and peak ejection rate were lower during exercise than at rest when pulmonary vascular resistance at rest was more than  $200 \text{ dynes}\cdot\text{sec}\cdot\text{cm}^{-5}\cdot\text{m}^2$  in both atrial septal defect and mitral stenosis. In conclusion, right ventricular systolic function responding to exercise stress was influenced by the pulmonary vascular resistance in both atrial septal defect and mitral stenosis.

**Key words:** right ventricular systolic function, mitral stenosis, atrial septal defect, pulmonary vascular resistance