# [Right and Left Ventricular Strain Patterns After the Atrial Switch Operation for D-Transposition of the Great Arteries-A Magnetic Resonance Feature Tracking Study.](https://www.ncbi.nlm.nih.gov/pubmed/31024933)

Burkhardt BEU, Kellenberger CJ, Franzoso FD, Geiger J, Oxenius A, Valsangiacomo Buechel ER.

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**Take Home Points:**

* In patients with transposition of the great arteries (TGA) after atrial switch operation the longitudinal strain of the systemic right ventricle is impaired compared to both a normal subpulmonary right ventricle and a systemic left ventricle.
* Free wall ventricular strain values for both ventricles were higher compared to global strain values in TGA patients.



**Comment from Dr. Inga Voges (Kiel, Germany), section editor of Pediatric Cardiology Journal Watch:** This is a Magnetic Resonance feature tracking study in adult patients with TGA after atrial switch operation. The authors included 29 adult patients with TGA after atrial switch operation and 19 healthy controls. Cardiac Magnetic Resonance (CMR) cine images were used for the feature tracking analysis and to measure ventricular volumes, ejection fraction (EF) as well as mitral and tricuspid annular plane systolic excursion. Cine phase contrast imaging was applied for internal validation of stroke volumes. The feature tracking analysis included the measurement of longitudinal and circumferential strain of both ventricles. Regional strain values for the left ventricle (LV) were measured using the American Heart Association 17-segment model; for the right ventricle (RV) a “mirror imaged” model for defining the RV segments was used. Cardiopulmonary exercise (CPEX) data were also collected.

The main findings include that the RV in the systemic position had larger volumes and lower EF than the systemic LV in healthy controls. Furthermore, the subpulmonary LV in patients was smaller and had a higher EF than the RV in healthy controls. In TGA patients, annular plane systolic excursion of the systemic and subpulmonary ventricles were lower compared to the corresponding systemic and subpulmonary ventricle in the control group. Global longitudinal strain of the systemic RV in patients was lower compared to the RV in controls (Figure 2). Compared to the systemic LV in healthy subjects the systemic RV in patients had both, lower global circumferential and longitudinal strains (Figure 3). The subpulmonary LV had a lower global circumferential strain compared to the systemic LV in controls (Figure 2). However, when compared to the subpulmonary RV in controls global circumferential strain of the subpulmonary LV was increased (Figure 3). Regional strain values in TGA patients after atrial switch were higher in the free wall compared to global strain values (Table 3). CPEX data did not correlate with ventricular strain values.

Overall this study increases our knowledge about the global and regional function of the systemic RV in TGA patients after atrial switch operation and opens the way for further studies in this field.



