# [Serial assessment of postoperative ventricular mechanics in young children with tetralogy of Fallot: Comparison of transannular patch and valve-sparing repair.](https://www.ncbi.nlm.nih.gov/pubmed/30989806)

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**Take-Home Points:**

* **This study utilized certain echocardiographic parameters to assess ventricular function and mechanics following tetralogy of Fallot repair with either a transannular patch or valve-preserving technique with follow-up of up to 7 years.**
* **Global longitudinal strain and RV:LV basal dimension ratio parameters may be helpful in following ventricular dimensions and mechanics, especially when other typical parameters are within normal limits.**
* **Early ventricular dilatation was observed after both repairs though was more significant after transannular patch repair. However, ventricular dilatation improved over time but did not reach normal parameters.**
* **Significant pulmonary regurgitation was associated with worse LV global longitudinal strain and was more pronounced after transannular patch repair across all time points.**
* **How these parameters may be practically applied to clinical decision-making (i.e., timing of pulmonary valve replacement) remains to be seen.**



***Commentary from Dr. Jeremy Herrmann (Indianapolis), section editor of Congenital Heart Surgery Journal Watch:*** The authors evaluated various right ventricular mechanics following tetralogy of Fallot (TOF) repair using echocardiographic methods with the aim of trying to understand the trajectory of ventricular function and mechanics over time beyond the early period after repair. Specifically, they compared RV parameters for patients who underwent a valve-sparing (VS) versus transannular patch (TAP) repair of TOF. Patients who underwent complete TOF repair <12 years at their center between January 2002 and September 2015 were included. Overall, 150 echo studies for 42 patients were analyzed. Of these patients, 45% underwent VS repair and 55% underwent TAP repair at a mean age of 2.1 months.

Concomitant RVOT procedures during VS repair included infundibular myectomy 89%), pulmonary valvotomy 42%, patch augmentation of the main pulmonary artery (37%), and a subvalvar RVOT patch (21%).

Moderate or severe PR was present in nearly all TAP patients across all time points, though the proportion of patients with severe PR following VS repair increased over time. There was gradual RV dilation over time in the TAP group but not the VS group. LV EF was lower in the VS group early but improved over time. LV and RV dysfunction were present postoperatively in both groups and did not fully recover during the study period. Significant PR was associated with lower LV global longitudinal strain.

A total of 10 patients underwent surgical or transcatheter reintervention (8 in the TAP group, 2 in the VS group). Of these, 7 involved surgical PVR and 1 transcatheter PVR.​ However, it is not clear how the echocardiographic parameters utilized in the study were applied to these specific patients.

The authors conclude that ventricular function tends to improve over time after TOF repair. TAP repair tends to be associated with more RV dilatation, and global longitudinal strain correlated inversely with the presence of pulmonary regurgitation. Importantly, ventricular parameters improved over time, but did not reach normal limits. Certain parameters such as and RV:LV basal dimension ratio may provide objective data for following patients, especially before LV function is impacted.

How these parameters may factor into further decision-making (i.e., timing of pulmonary valve replacement), is not yet clear. Perhaps more importantly, long-term trends in these parameters may help clinicians weigh initial surgical options for TOF repair.