# [Serial Follow-Up of Two Surgical Strategies for the Repair of Tetralogy of Fallot.](https://www.ncbi.nlm.nih.gov/pubmed/30616004)

Simon BV, Subramanian S, Swartz MF, Wang H, Atallah-Yunes N, Alfieris GM.

Semin Thorac Cardiovasc Surg. 2019 Jan 5. pii: S1043-0679(18)30418-0. doi: 10.1053/j.semtcvs.2019.01.006. [Epub ahead of print]

PMID: 30616004

[Similar articles](https://www.ncbi.nlm.nih.gov/pubmed?linkname=pubmed_pubmed&from_uid=30616004)

Select item 30704940

**Take-Home Points:**

* A limited right ventriculotomy approach during tetralogy of Fallot repair was associated with favorable 10-year event rate, greater exercise capacity at 20 years, and less RV dilation at 30 years compared to a more extensive approach.
* Overall long-term survival was excellent in both groups, and there was no difference in arrhythmias over time between groups.



***Commentary from Dr. Jeremy Herrmann (Indianapolis), section editor of Congenital Heart Surgery Journal Watch:*** The fate of the right ventricle after tetralogy of Fallot (TOF) repair remains a key question for the management of these patients. Evidence supports utilizing a valve-preserving repair whenever possible, but frequently a hypoplastic pulmonary valve and right ventricular (RV) outflow tract necessitate a transannular repair with patch enlargement.  The group from University of Rochester Medical Center provides further information about the long-term consequences relating to the degree of the transannular incision during TOF repair.

The authors compared outcomes of children who underwent TOF repair with either an extended or limited right ventriculotomy between January 1976 and December 1985. The extended approach was primarily performed between 1976-1981 while the limited approach was primarily utilized between 1982-1985. The extended right ventriculotomy approach included incising the RV infundibulum to the RV mid-body followed by muscle bundle resection and VSD closure. In general, a transannular patch was used if the predicted postoperative RV pressure was greater than 3/4 of the systemic pressure based on catheter or intraoperative assessment. For the limited approach, the VSD was closed transatrially and a 2 cm or less incision made in the RV at the point of maximal obstruction as seen on preoperative catheterization. This opening was then closed with a patch. They excluded patients who underwent pulmonary valve replacement at the initial repair and those who were lost to follow-up after less than 5 years. Primary outcomes included reoperation, arrhythmia, or death. Secondary outcomes included arrhythmias, exercise capacity, and echocardiographic parameters

There were 21 and 17 patients in the extended and limited right ventriculotomy groups, respectively. The median follow-up for the entire group was 30.9 years. Patients in the limited ventriculotomy group were younger (2.7 versus 3.8 years, respectively) and were less likely to undergo transannular patch placement (58.8% versus 85.0%, respectively). The overall survival at 30 years was excellent at 93.6% and was similar between groups. Freedom from reoperation at 10 years was higher for the limited ventriculotomy group (94.1% versus 57.1%). There were no differences in QRS duration or incidence of arrhythmias between groups over time. In the Cox proportional hazards model for 10-year cumulative events, only the limited ventriculotomy approach was associated with a lower event rate.

The authors conclude that the limited ventriculotomy technique was associated with a lower event rate at 10 years, greater, exercise capacity in the second decade (but not the third), and smaller RV end-diastolic diameter Z score at 30 years. The study limitations include its single center nature and the small patient groups. However, this is a truly long-term follow-up period and one of the longest published. In essence, the authors evaluated a generation of patients, many of whom have proceeded with at least one pulmonary valve replacement. It is possible that the surgical approach and patient selection changed over time, and it is unclear Questions as to what is an acceptable residual RVOT gradient at the time of repair. Most TOF patients do not need routine preoperative catheterization, and using the authors’ method of comparing PA pressure to systemic pressure may not be practical in all cases. However, it is reasonable to conclude that limiting the transannular incision may be beneficial long-term.

​