

Vein Graft Interposition

Microsurgical [interposition](#) of [vein grafts](#) is an extraordinarily filigree surgical technique, which requires both sound theoretical knowledge and solid manual [skills](#). Although there are a large number of training models, the majority of these are either relatively expensive, technically complex, or employ synthetic materials with poor resemblance to human tissue. The authors' model allows training of ex vivo vein graft interposition on gradually thawed cryopreserved vessels and it, therefore, is cost-efficient and readily available when needed. Furthermore, it respects the 3R-principle (Reduce-Refine-Replace), as it is based on rat cadaveric vessels.

Three [trainees](#) with basic microsurgical experience, but without prior performance of vein graft interpositioning, were chosen to perform 20 femoral vein graft (5 mm) interpositions into femoral artery defects. The patency and leakage rate served as qualitative variable and operation time as a quantitative variable for efficiency control.

For the first half of [trials](#), the trainees had a patency failure rate of 50% and for the second half a rate of 13.3%. The leakage rate noticeably decreased from 44.4% in the first half of trials to 10% in the second half. Although the trainees needed 60 minutes on average for their first 10 trials, they improved to 51 minutes for their last 10 anastomoses.

Safis et al., microsurgical model offers a simple, low-cost simulation training, specifically designed for learning of vein graft interposition into arterial defects. The model is associated with a high learning curve, based on an objective control of the anastomoses by assessment of the patency, leakage, and operation time ¹⁾.

¹⁾

Safi AF, Safi S, Tayeh M, Gojowy D, Timmer M, Goldbrunner R, Kauke M. Vein Graft Interposition: A Training Model Using Gradually Thawed Cryopreserved Vessels. J Craniofac Surg. 2019 Feb 9. doi: 10.1097/SCS.0000000000005197. [Epub ahead of print] PubMed PMID: 30845093.

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