

# **Effectiveness of a new non-thrombogenic bio-adhesive in microvascular anastomoses.**

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## **Abstract:**

Negatively-charged fibrin glue was successfully prepared by combining human cryoprecipitate with succinic anhydride. The resulting bio-adhesive was tested for thrombogenicity and tensile strength by applying it to three groups of Sprague-Dawley rat femoral-artery anastomoses (6 suture, 2 suture, and no suture anastomoses). Anastomoses were tested by a standard patency test over 7 days. Both the 6-suture and 2-suture anastomoses with negatively- charged fibrin glue had 100 percent patency rates and no pseudoaneurysm formation over 7 days. When positively-charged fibrin glue was applied to sutured anastomoses, patency rates decreased gradually to 50 percent over 7 days. Fibrin glue alone (whether negatively- or positively-charged) does not have the tensile strength to maintain an anastomosis without sutures. However, when applied to a two-suture anastomosis, the breaking strength of the anastomosis is more enhanced by the negatively-charged fibrin glue.