

1st Author	Year of Publication	Recipient Site	Number of anticoagulants used	Medication/method of administration	Time of application	Number of participants/ Flaps	Flap Loss-Total (*) %	Hemato-ma (*) %	Overall Compli-cation Rate (*) %
Prospective Cohort Study									
Abdelfattah et al.	2020	Chest	Total: 1	Group 1: NaCl Group 2: Simvastatin Group 3: Simvastatin and ASA	daily for 7 days daily for 7 days daily for 7 days	Group 1: 12/24 Group 2: 12/24 Group 3: 12/24	(6) 25% (3) 12.5% (2) 8.3%	0 0 1	N.a.
Chung et al.	2016	Lower extremity	Total: 4	Group 1: ASA and heparin Group 2: ASA, heparin and tirofiban Group 3: tirofiban Control group 4: isotonic saline	N.a.	Group 1: 20 Group 2: 20 Group 3: 20 Group 4: 20	N.a.	N.a.	30% 0% 70% 80%
Cox et al.	1992	Lower extremity	Total: 1	Control group 1: normal saline Group 2: heparinised saline (10U/ml) Group 3: heparinised saline (100U/ml) Group 4: heparinised saline (250U/ml) Group 5: heparinised saline (500U/ml)	intraoperative irrigation	Group 1: 8 Group 2: 8 Group 3: 8 Group 4: 8 Group 5: 8	N.a.	N.a.	(8) 100% (5) 62.5% (1) 12.5% (0) (1) 12.5%
Engrav et al.	1975	Lower extremity	Total: 2	Group 1: control group Group 2: 60IU heparin systemically  Group 3: magnesium dripped on the anastomosis  Group 4: 60IU heparin systemically, magnesium dripped on the anastomosis	Group 2: after opening the venous anastomosis Group 3: 20min with the artery being open intermittently and the vein continuously  Group 4: according to group 2+3	Group 1: 12 Group 2: 11  Group 3: 10  Group 4: 11	(3) 25% (1) 9%  (4) 40%  (2) 18%	N.a.	N.a.
Ezzat et al.	2010	Lower extremity	Total: 1	Group 1: rhTPFI (recombinant human tissue factor pathway inhibitor) Group 2: control group	Group 1: irrigation with rhTPFI (20µg/mL) Group 2: irrigation with saline	Group 1: 10 Group 2: 9	0 (4) 44%	0 (1) 11%	N.a.
Farina et al.	2006	Lower extremity	Total: 2	Group 1: control group Group 2: hemodiluted until hematocrit of +/- 30% Group 3: dextran Group 4: enoxaparin	Group 3: 3 doses in an interval of 20min, 5min before surgery  Group 4: 0.5mg/kg once a day	Group 1: 10 Group 2: 10 Group 3: 10 Group 4: 10	N.a.	N.a.	100% 50% 90% 100%
Greenberg et al.	1988	Lower extremity	Total: 1	Group 1: saline (control group) Group 2: heparin	Group 2: 500µl bolus, 45µl per hour after graft was completed	Group 1: 30 Group 2: 30	(30) 100% (35) 100%	0 (1) 3%	N.a.
Greenberg et al.	1991	Lower extremity	Total: 1	Group 1: saline (control group) Group 2: heparin intravenous Group 3: heparin intraarterial	Group 2: 500µl bolus, 45 units per hour Group 3: 500µl bolus, 25 units per hour	Group 1: 12 Group 2: 12 Group 3: 11	(9) 92% (6) 50% (2) 18%	0 (1) 8% (1) 9%	N.a.

Hudson et al.	2000	Lower extremity	Total: 1	Group 1: saline (control group) Group 2: 5000IU heparin	via catheter proximal to the anastomosis	Group 1: 10 Group 2: 10	(10) 100% (9) 90%	N.a.	N.a.
Kirschner et al.	1998	Lower extremity	Total: 1	Group 1: control group Group 2: low dose heparin systemically following secondary venous ischemia Group 3: low dose heparin locally into posts ischemic flap	Group 2 and 3: 5-6U/kg/h for 7 days	Group 1: 9 Group 2: 9 Group 2: 9	60.8% 62.1% 0	0 0 0	N.a.
Korompilias et al.	1996	Lower extremity	Total: 1	Group 1: systemic heparin 2x45IU Group 2: topical heparin 15IU/ml Group 3: topical heparin 45IU/ml Group 4: systemic 2x15IU/ml and topical 15IU/ml heparin Group 5: systemically 2x45IU/ml and topical 45IU/ml heparin	Group 1: systemically Group 2: topical irrigation Group 3: topical irrigation Group 4: systemically and topically Group 5: systemically and topically	Group 1: 20 Group 2: 20 Group 3: 20 Group 4: 20 Group 5: 20	(19) 95% (13) 65% (8) 40% (10) 37.5% (4 rats died) (5) 25%	N.a.	N.a.
Lan et al.	1992	Lower extremity	Group 1: 1 Group 2: 1 Group 3: 1	Group 1: saline Group 2: iloprost Group 3: heparin	postoperatively	Group 1: 48 Group 2: 48 Group 3: 48	N.a.	N.a.	N.a.
Lepore et al.	1994	Lower extremity	Total: 6	Group 1: Prostacyclin 200mg/kg Group 2: Nitrendipine 0.2mg/kg Group 3: Desferrioxamine 20mg/kg  Group 4: Urokinase 3000U/kg  Group 5: Streptokinase 3000U/kg  Group 6: Heparin 200U/kg  Group 7: Macrodex 80mg/kg Group 8: ATP-MgCl, 20mg/kg Group 9: Mixture PGI2 200ng/kg, Desferrioxamine 20mg/kg, ATP-MgCl 10mg/kg, Macrodex 1ml, Heparin 200 units/kg, Nitrendipine, 0.2mg/kg	intraoperatively		Group 1: 65%* Group 2: 62%*  Group 4: 65%*   Group 9: 87%*  *survival	N.a.	N.a.
Li et al.	1995	A./V. femoralis	Total: 1	Group 1: heparin (150 units/kg) Group 5: heparin (150 units/kg)  Group 2-4: no heparin/ex vivo perfusion Group 6: none	Group 1: 10min prior to raising the flap Group 5: after the ischemic period, immediately  Group 2-4: prior to recirculation of the flap via cannula with heparinised blood	Group 1: 6 Group 5: 6 Group 2-4: 3x6  Group 6: 6	100% 100% 100%  66.6%	N.a.	N.a.  33.3%
Maeda et al.	1990	A./V. epigastrica  A./V. femoralis	Group 1a: 0 Group 2a: 2 Group 3a: 0  Group 4a: 0 Group 1b: 0 Group 2b: 2	Group 1: none Group 2: heparin, urokinase Group 3: Ringer Lactat  Group 4: SOD, Catalase, Ringer Lactat Group 1b: none Group 2b: heparin, urokinase	30min before reperfusion after 10h  30min before reperfusion after 10h 30min before reperfusion after 10h  30min before reperfusion after 10h 30min before reperfusion after 12h  30min before reperfusion after 12h	12  10 10  Group 4a: 10 Group 1b:10  10	46%  0% 32%  47% 87%  73%	N.a.	N.a.

			Group 3b: 0 Group 4b: 0 Group 5b: 2	Group 3b: Ringer Lactat Group 4b: SOD, Catalase, Ringer Lactat Group 5b: heparin, urokinase, SOD, Catalase, Ringer Lactat	30min before reperfusion after 12h 30min before reperfusion after 12h 30min before reperfusion after 12h	10 10 10	84% 64% 5%		
Mayer et al.	1990	V. axillaris V. jugularis int. V. subscapularis	Group 1: 1 Group 2: 0	heparin coated	on surface of interposition connectors	Group 1: 20 anastomosis in 6 pigs Group 2: 30 anastomosis in 7 pigs			
Murthy et al.	2003	A./V. epigastrica inf.	Group 1: 0 Group 2: 1 Group 3: 1 Group 4: 2	control group pentoxifylline LMWH combined therapy (pentoxifylline and LMWH)	Group 2: 24mg/kg/day Group 3: 1.5mg/kg/day	Group 1: 15 Group 2: 15 Group 3: 15 Group 4: 15	66.67% 26.67% 26.67% 20%	N.a.	N.a.
Narayanan et al.	1991	A.femoralis  V.femoralis	Group 1: 0 Group 2: 1 Group 3: 1 Group 1: 0 Group 2: 1 Group 3: 1	saline heparin 1mg/ml in saline hirudin 1µg/ml in saline saline heparin 1mg/ml in saline hirudin 1µg/ml in saline	intraoperatively	Group 1: 25 Group 2: 25 Group 3: 25 Group 1: 10 Group 2: 10 Group 3: 10	20% 16% 8% 40% 50% 20%	N.a.	N.a.
Ozbeck et al.	1994	Ear	Group 1: 1 Group 2: 1 Group 3: 0	Group 1: rhTPFI 40µg/ml Group 2: heparin 50U/ml Group 3: control buffer (saline)	intraoperatively, intraluminal	Group 1: 30 Group 2: 10 Group 3: 20	3% 40% 80%	N.a.	N.a.
Ramelli et al.	2019	cervical, femoral, tail	Group 1: 0 Group 2: 1	Group 1: saline Group 2: UFH 5000UI/ml	intraoperatively, intraluminal	Group 1: 125 Group 2: 122	25% 13%	N.a.	N.a.
Reichel et al.	1987	A. femoralis	Group 1: 0 Group 2: 1 Group 3: 1 Group 4: 1 Group 5: 1 Group 6: 3 Group 7: 3	Group 1: Ringer solution Group 2: heparin Group 3: phentolamin Group 4: urokinase Group 5: TPA Group 6: TPA, phentolamin, heparin Group 7: heparin, urokinase, phentolamin	intraoperatively, intraluminal	Group 1: 40 Group 2: 40 Group 3: 20 Group 4: 20 Group 5: 40 Group 6: 40 Group 7: 20	90% 55% 65% 50% 85% 57.5% 45%	N.a.	N.a.
Ritter et al.	1998	A./V. femoralis	Group 1: 0 Group 2: 1 Group 3: 1	Group 1: Ringer solution Group 2: 100U/kg UFH in 1ml of saline Group 3: 1mg LMWH in 1ml of saline	intraoperatively	Group 1: 15 Group 2: 15 Group 3: 15	33.33% 13.33% 0%	N.a.	N.a.
Rumbolo et al.	1991	A./V. femoralis	Group 1: 0 Group 2: 1 Group 3: 1	Group 1: Ringer solution Group 2: Ringer with 20U/ml heparin Group 3: Ringer with 500U/ml urokinase	intraoperatively, intraluminal	Group 1: 16 Group 2: 16 Group 3: 16	27% 33% 43%	N.a.	N.a.
Sinclair	1980	A./V. femoralis	Group 1: 1 Group 2a: 0 Group 2b: 1 Group 3: 1	Group 1: heparinised saline irrigation Group 2a: saline irrigation and saline SC Group 2b: saline irrigation and heparin SC Group 3: heparinised saline irrigation	intraoperatively pre-, intra- and postoperatively pre-, intra- and postoperatively intraoperatively	Group 1: 10 Group 2: 5 Group 3: 5 Group 4: 10	20% 100% 100% 30%	N.a.	N.a.

Vlastou et al.	1983	Ear replantation	Group 1: 1 Group 2: 0	Group 1: heparin 1000UI IV Group 2: none	Intraoperatively	Group 1: 27 Group 2: 27	26% 66%	3.70% N.a.	N.a.	
Wallmichrath et al.	2015	Groin to Neck	Group 1: 0 Group 2: 0 Group 3: 1 Group 4: 1	Group 1: None Group 2: 1ml Ringer over 10min Group 3: 1ml heparin (100IU/kg) over 10min Group 4: 1ml rtPA (2mg/kg) over 10min	Intraoperatively, intra-arterial	Group 1: 10 Group 2: 10 Group 3: 10 Group 4: 10	90% 90% 20% 40%	N.a.	N.a.	
Wallmichrath et al.	2014	Groin to Neck	Group 1: 0 Group 2: 1	Group 1: 1ml Ringer Group 2: 1ml Antithrombin (50UI/kg)	Intraoperatively, intra-arterial over 10min	Group 1: 11 Group 2: 11	81.81% 27%	N.a.	N.a.	
Wolfort et al.	1992	A./V. femoralis	Group 1: 0 Group 2: 1	Group 1: 17cc/kg saline IV Group 2: 1gm dextran 70	30min preoperatively and every 8h for 72h postoperatively	Group 1: 8 Group 2: 7	75% 0%	N.a.	N.a.	
Yates et al.	2002	A./V. femoralis	Group 1: 0 Group 2: 1 Group 3: 1 Group 4: 2	Group 1: Ringer Group 2: tirofiban (50µg/ml), Group 3: heparin (100U/ml), Group 4: heparin (100U/ml) and tirofiban (50g/ml)	intraoperatively, intraluminal	Group 1: 20 Group 2: 22 Group 3: 10 Group 4: 10	90% 41% 80% 20%	20 22 10 10	N.a.	N.a.