

## Supplementary Tables

**Supplementary Table 1. Article search strategy**

Database	Date Searched	Applied Database Supplied Limits	Number of Results	Full Search Strategy
Embase	11/12/2021	None	430	{'lymphedema'/exp OR [lymphedema OR lymphoedema OR lymphooedema]:ti,ab,kw OR [(lymph OR lymphatic OR lymphostatic) NEAR/3 (edema OR oedema)]:ti,ab,kw OR [lymphedematous NEAR/2 (limb* OR extremi*)]:ti,ab,kw} AND {'vascularized lymph node transfer'/exp OR 'lymph node transfer'/exp OR ['lymph node' NEAR/3 (transfer* OR flap* OR transplantation*)]:ti,ab,kw}
Ovid Medline	11/12/2021	None	387	{exp Lymphedema/ OR [lymphedema OR lymphoedema OR lymphooedema].ti,ab,kf. OR [(lymph OR lymphatic OR lymphostatic) ADJ3 (edema OR oedema)].ti,ab,kf. OR [lymphedematous ADJ2 (limb* OR extremi*)].ti,ab,kf.} AND {[lymph node ADJ3 (transfer* OR flap* OR transplantation*)].ti,ab,kf.)

Scopus	11/12/2021	None	452	{[TITLE-ABS-KEY (lymphedema OR lymphoedema OR lymphoedema)] OR {TITLE-ABS-KEY[(lymph OR lymphatic OR lymphostatic) W/3 (edema OR oedema)]} OR {TITLE-ABS-KEY[lymphedematous W/2 (limb* OR extremit*)]} AND {TITLE-ABS-KEY[“lymph node” W/3 (transfer* OR flap* OR transplantation*)]}
The Cochrane Library	11/12/2021	None	CENTRAL 11  CDSR 1	{(mh “Lymphedema”) OR (lymphedema OR lymphoedema OR lymphoedema):ti,ab,kw OR [(lymph OR lymphatic OR lymphostatic) NEAR/3 (edema OR oedema)]:ti,ab,kw OR [lymphedematous NEAR/2 (limb* OR extremit*)]:ti,ab,kw} AND {[“lymph node” NEAR/3 (transfer* OR flap* OR transplantation*)]:ti,ab,kw}
ClinicalTrials.gov	11/12/2021	None	20	Lymphedema AND (“lymph node transfer”)

**Supplementary Table 2. Comparison of study methodologies in obtaining clinical outcomes**

<b>Author, Year of Publication</b>	<b>Level of Evidence</b>	<b>Intervention Groups (if multiple)</b>	<b># of Patients</b>	<b>Donor Site</b>	<b>Recipient Site</b>	<b>Limb Measurement Type</b>	<b>Location of Measurements</b>
Engel <i>et al.</i> , 2018 <sup>[1]</sup>	3	I: VLNT	34	Groin, Submental	Wrist, Elbow	Circumference (cm)	10 cm above and below elbow
		II: VLNT + MBR	11	Groin			
Ciudad <i>et al.</i> , 2019 <sup>[2]</sup>	3	-	68	Groin, Omentum, Supraclavicular	Dorsal foot	Circumference reduction rate (%)	20 cm above knee, 10 cm above and below the knee, 10 cm above the ankle, and at the mid-foot
Maruccia <i>et al.</i> , 2019 <sup>[3]</sup>	3	-	16	Omental	Ankle	Circumference reduction rate (%)	10 cm above and below knee

Ngo <i>et al.</i> , 2020 <sup>[4]</sup>	4	-	10	Groin, Supraclavicular	Axilla, Elbow	Volume (mL)	Truncated cones method (Volume)
Lin <i>et al.</i> , 2020 <sup>[5]</sup>	2	-	100	Groin, Submental	Wrist	Circumference (cm)	10 cm above and below elbow
Poccia <i>et al.</i> , 2017 <sup>[6]</sup>	2	I: Platysma-sparing VLNT	10	Submental	N.R.	N.R.	N.R.
		II: Standard VLNT	10				
		III: Platysma-sparing VLNT + Standard VLNT	20				
Koide <i>et al.</i> , 2020 <sup>[7]</sup>	3	I: End-to-end venous anastomosis	70	Submental	Ankle	Circumference (cm)	15 cm above and below the knee

		II: End-to-side venous anastomosis					
Di Taranto <i>et al.</i> , 2021 <sup>[8]</sup>	2	I: VLNT + suction lipectomy	21	Omentum	Popliteal fossa/Ankle‡	Circumference reduction rate (%)	above the knee, below the knee, above the ankle, and at foot level
		II: VLNT + LVA + suction lipectomy	16				
Chang <i>et al.</i> , 2020 <sup>[9]</sup>	3	I: Vascularized submental lymph node flap + medial platysma harvest	17	Submental	Wrist, Ankle	N.R.	N.R.
		II: Vascularized submental lymph node flap	12				

Kaya <i>et al.</i> , 2020 <sup>[10]</sup>	2	-	17	Omentum	Wrist, Ankle, Popliteal fossa	Circumference (cm)	15 cm above and below knee/elbow, Ankle/wrist, Foot/hand
Maruccia <i>et al.</i> , 2019 <sup>[11]</sup>	3	I: VLNT + scar release	18	Omentum, Groin	Wrist	Circumference reduction rate (cm)	mid hand, wrist, elbow, 10 cm above and below elbow
		II: VLNT	21				
Manrique <i>et al.</i> , 2020 <sup>[12]</sup>	3	I: Laparoscopic-assisted gastroepiploic flap	126				10 cm above and below

		II: Open gastroepiploic flap	51	Omentum	Wrist, Ankle	Circumference reduction rate (%)	the elbow/knee, 10 cm above the wrist/ankle, and at the hand/foot
Di Taranto <i>et al.</i> , 2020 <sup>[13]</sup>	2	-	10	Omentum	Lower extremity	Circumference reduction rate (%)	above and below the knee, above the ankle, and at the foot level
Akita <i>et al.</i> , 2018 <sup>[14]</sup>	2	I: Conventional VLNT	21	Groin, Lateral Thoracic, Supraclavicular	Ankle	Lower extremity lymphedema index	the superior edge of the patella, 10 cm above and below the patella, lateral malleolus, and dorsum of the foot
		II: Multiple VLNT	13	Submental, Lateral Thoracic			
		III: VLNT with a prefabricated lympho-venous shunt	13	Groin, Lateral Thoracic, Supraclavicular			

Kraft <i>et al.</i> , 2019 <sup>[15]</sup>	3	-	29	Jejunal Mesenteric, Jejunal Mesenteric + Omentum	Upper and lower extremity	N.R.	N.R.
Frey <i>et al.</i> , 2020 <sup>[16]</sup>	2	-	5	Omentum	Axilla, Thigh, Ankle, Groin	N.R.	N.R.
Akita <i>et al.</i> , 2017 <sup>[17]</sup>	2	I: VLNT + DIEP	13	Groin	Axilla	Upper extremity lymphedema index	olecranon, 5-cm above and below the olecranon, wrist, dorsal hand
		II: VLNT	14				
Sapountzis <i>et al.</i> , 2014 <sup>[18]</sup>	3	-	24	Groin, Supraclavicular	Ankle	Circumference (cm)	N.R.



Becker <i>et al.</i> , 2007 <sup>[19]</sup>	3	-	24	Groin	Axilla	Circumference (cm)	wrist, 10 cm above the wrist, elbow, and 10 cm above the elbow
Koide <i>et al.</i> , 2020 <sup>[20]</sup>	3	I: Non-Delayed Primary retention suture technique	18	Submental	Ankle	Circumference (cm)	15 cm above and below the knee
		II: Delayed Primary retention suture technique	51				
Viitanen <i>et al.</i> , 2012 <sup>[21]</sup>	3	-	13	Groin	Axilla	Circumference (cm)	ankle, calf, knee, and thigh
Moon <i>et al.</i> , 2021 <sup>[22]</sup>	3	I: Upper extremity lymphedema group	37	Groin	Axilla	Circumference Difference Between Affected and	Upper third of arm/leg, lower third of arm/leg, elbow/knee, upper third of forearm/leg, lower third of forearm/leg

		II: Lower extremity lymphedema group	34	Lateral Thoracic	Thigh	Unaffected Limb (%)	
Patel <i>et al.</i> , 2015 <sup>[23]</sup>	2	I: Upper extremity lymphedema group	15	Groin, Submental	Wrist, Elbow	Circumferential reduction rate (%)	10 cm above and below the elbow
		II: Lower extremity lymphedema group	10	Submental	Ankle, Knee	Circumferential reduction rate (%)	thigh, 15 cm proximal and distal to the lower border of the patella, 10 cm proximal to the lateral malleolus
Mousavi <i>et al.</i> , 2020 <sup>[24]</sup>	3	-	24	Omentum	Forearm, Wrist	Circumference (cm)	Above and below elbow
Ciudad <i>et al.</i> , 2020 <sup>[25]</sup>	3	I: Upper limb lymphedema	30	Groin,	Wrist		10 cm below the elbow

		II: Lower limb lymphedema	53	Supraclavicular, Omentum, Appendicular, Ileocecal	Ankle	Circumference reduction rate (%)	or knee, 10 cm above the wrist or ankle, and at the mid-hand or mid-foot
Ciudad <i>et al.</i> , 2020 <sup>[26]</sup>	2	-	6	Omentum	Axilla	Circumference reduction rate (%)	10 cm below the elbow or knee, 10 cm above the wrist or ankle, and at the mid-hand or mid-foot
Asuncion <i>et al.</i> , 2018 <sup>[27]</sup>	3	-	15	Submental	Upper and lower extremity	Circumference (cm)	15 cm above and below knee, 10 cm above and below elbow
Granzow <i>et al.</i> , 2014 <sup>[28]</sup>	3	-	8	Groin	Axilla	Volume (mL), Circumference (cm)	Truncated cones method (Volume), 4-cm measurements along affected limb (Circumference)

Dionyssiou <i>et al.</i> , 2019 <sup>[29]</sup>	3	-	41	Groin	Axilla	Excess Volume Ratio (%)	Truncated cones method
Maldonado <i>et al.</i> , 2017 <sup>[30]</sup>	3	-	100	Supraclavicular	Axilla, Groin	Volume Difference Between Affected and Unaffected Limb (%)	N.R.
Chang <i>et al.</i> , 2020 <sup>[31]</sup>	3	-	21	Groin	Axilla	Volume Difference Between Affected and Unaffected Limb (%)	Optoelectronic limb volumeter (Perometer model and software; Pero-System, Wuppertal, Germany), which tabulates volume from 0.5 cm circumference measurements of the limb

Batista <i>et al.</i> , 2017 <sup>[32]</sup>	3	-	38	Lateral Thoracic, Groin, Neck*	Groin	Volume Difference Between Affected and Unaffected Limb (%)	ankle, 10 cm above and below ankle, 10 cm above and below knee, 20 cm above knee
Vignes <i>et al.</i> , 2013 <sup>[33]</sup>	2	-	26	Lateral Thoracic, Groin	Axilla, Groin	Volume (mL)	Truncated cones method
Cheng <i>et al.</i> , 2012 <sup>[34]</sup>	3	-	6	Submental	Ankle	Volume Reduction (%), Circumferential reduction rate (%)	15 cm above and below the knee, and 10 cm above the ankle
Lin <i>et al.</i> , 2009 <sup>[35]</sup>	2	-	13	Groin	Wrist	Circumference reduction rate (%)	10 cm proximal to the elbow

Arrivé <i>et al.</i> , 2017 <sup>[36]</sup>	3	-	15	Groin	Axilla	Circumference (cm)	5 cm and 10 cm above the wrist, 5 cm and 10 cm above the elbow.
Aljaaly <i>et al.</i> , 2019 <sup>[37]</sup>	3	I: Dorsal wrist recipient site	7	Submental	Wrist	Circumference (cm), Circumferential reduction rate (%)	10 cm above and below the elbow
		II: Volar wrist recipient site	8				
Nguyen <i>et al.</i> , 2015 <sup>[38]</sup>	2	-	29	Groin	Axilla	Volume Reduction (%)	infrared perometry (Pero-System, Wuppertal, Germany), which tabulates volume from 0.5 cm circumference measurements of the limb

Chilgar <i>et al.</i> , 2019 <sup>[39]</sup>	2	-	17	Supraclavicular	Dorsal foot	Circumference (cm)	15 cm above and below midpoint of patella, 10 cm above and below lateral malleolus
Saaristo <i>et al.</i> , 2012 <sup>[40]</sup>	3	-	9	Groin	Axilla	Circumference (cm)	10 cm above and below elbow
Gustafsson <i>et al.</i> , 2018 <sup>[41]</sup>	3	I: 1-2 lymph nodes detected in flap on u/s	10	Submental	Ankle	Circumference (cm)	15 cm above and below knee
		II: 3-4 lymph nodes detected in flap on u/s	14				
		III: 5-8 lymph nodes detected in flap on u/s	11				

Leppäpuska <i>et al.</i> , 2019 <sup>[42]</sup>	3	I: VLNT + liposuction	21	Groin	Axilla	Volume (ml)	Truncated cones model (volume), every 4 cm between the wrist and the axilla (Circumference)
		II: VLNT + MBR + liposuction	27				
Gratzon <i>et al.</i> , 2017 <sup>[43]</sup>	2	-	50	Groin, Lateral Thoracic, Supraclavicular	Axilla	Volume Difference Between Affected and Unaffected Limb (%)	Truncated cones method
Chen <i>et al.</i> , 2014 <sup>[44]</sup>	3	-	10	Groin	Axilla	Circumferential reduction rate (%)	Mid-upper arm, 10 cm above the elbow
Patel <i>et al.</i> , 2015 <sup>[45]</sup>	3	-	20	Groin, Submental	Wrist, Elbow, Ankle	Circumference reduction rate (%)	N.R.



De Brucker <i>et al.</i> , 2016 <sup>[46]</sup>	3	-	25	Groin	Axilla	N.R.	N.R.
Liu <i>et al.</i> , 2018 <sup>[47]</sup>	2	-	30	Groin	Axilla	Circumferential reduction rate (%)	mid-palm, wrist, 10 cm above the wrist, elbow, and 10 cm above the elbow
Dionyssiou <i>et al.</i> , 2016 <sup>[48]</sup>	2	I: VLNT + Physical Therapy/Compression	18	Groin	Axilla	Volume Difference Between Affected and Unaffected Limb (%)	Truncated cones method
		II: Physical Therapy/Compression	18	N/A	N/A		
Ciudad <i>et al.</i> , 2017 <sup>[49]</sup>	2	I: Upper limb recipient site	5	Omentum	Wrist	Volume Reduction (%)	10 cm above and below elbow, 10 cm above wrist, hand
		II: Lower limb recipient site	5	Omentum	Ankle		

Ciudad <i>et al.</i> , 2017 <sup>[50]</sup>	3	I: Groin VLNT	13	Groin	Ankle, Forearm	Circumference reduction rate (%)	10 cm above and below elbow/knee, , 10 cm above the wrist or ankle, mid-hand/mid-foot
		II: Supraclavicular VLNT	25	Supraclavicular			
		III: Gastroepiploic VLNT	42	Omentum			
		IV: Appendicular VLNT	1	Appendicular			
		V: Ileocecal VLNT	2	Ileocecal			
Ciudad <i>et al.</i> , 2019 <sup>[51]</sup>	2	-	16	Omentum	Wrist, Elbow, Ankle	Circumference reduction rate (%)	N.R.
Johnson <i>et al.</i> , 2019 <sup>[52]</sup>	3	-	7	Omentum	Forearm	Volume Reduction (%)	N.R.

Akita <i>et al.</i> , 2015 <sup>[53]</sup>	3	-	13	Lateral Thoracic, Groin, Supraclavicular	Thigh, Ankle	Circumference reduction rate (%)	the superior edge of the patella, 10 cm above and below the patella, the lateral malleolus, and the dorsum of the foot
Agko <i>et al.</i> , 2018 <sup>[54]</sup>	2	-	12	Omentum	Elbow/Wrist, Popliteal fossa/Ankle‡	Circumference reduction rate (%)	10 cm above and below elbow/knee, , 10 cm above the wrist or ankle, mid-palm/mid-foot
Tran <i>et al.</i> , 2018 <sup>[55]</sup>	3	-	21	Groin, Supraclavicular, Omentum	Upper and lower extremity	N.R.	N.R.
Dayan <i>et al.</i> , 2015 <sup>[56]</sup>	2	-	35	Groin, Lateral Thoracic	N.R.	N.R.	N.R.
Hamdi <i>et al.</i> ,	3	I: VLNT	24				

2021 <sup>[57]</sup>		II: VLNT + MBR	65	Groin	Overall: Axilla, Wrist, Elbow, Ankle	Volume (mL)	N.R.
Becker <i>et al.</i> , 2008 <sup>[58]</sup>	2	-	6	Groin	Axilla	N.R.	N.R.
Barrerio <i>et al.</i> , 2014 <sup>[59]</sup>	3	-	7	Lateral Thoracic	Axilla (Pedicle), Shoulder, Ankle	N.R.	N.R.
Smith <i>et al.</i> , 2017 <sup>[60]</sup>	3	-	21	Lateral Thoracic	Calf	N.R.	N.R.
Ciudad <i>et al.</i> , 2017 <sup>[61]</sup>	2	I: Supraclavicular Donor Site	54	Supraclavicular	Upper and	N.R.	N.R.
		II: Groin Donor Site	20	Groin			

		III: Open Gastroepiploic Technique	19	Omentum	lower extremity		
		IV: Closed Gastroepiploic Technique	17	Omentum			
Sachanandani <i>et al.</i> , 2018 <sup>[62]</sup>	3	-	15	Submental	Lower extremity	Circumference reduction rate (%)	Above and below the knee
Liu <i>et al.</i> , 2019 <sup>[63]</sup>	2	-	30	Groin	Axilla	N.R.	N.R.
Manrique <i>et al.</i> , 2020 <sup>[64]</sup>	3	I: Middle Inset upper extremity	13	Omentum	Wrist	Volume	Truncated cones
		II: Distal Inset upper extremity	13	Omentum	Ankle		

		III: Middle Inset lower extremity	13	Omentum	Wrist	reduction (%)	method
		IV: Distal Inset lower extremity	13	Omentum	Ankle		
Rannikko <i>et al.</i> , 2021 <sup>[65]</sup>	3	-	67	Gro11in	Axilla	Volume (mL), Circumference (cm)	Truncated cones method (Volume); 12, 20, 28, 36, and 44 cm from distal end of ulna (Circumference)
Visconti <i>et al.</i> , 2019 <sup>[66]</sup>	3	-	10	Supraclavicular	Knee/Calf‡	Lower extremity lymphedema index	N.R.

\* Unclear location.

‡ Locations of proximal and distal inset.

**Supplementary Table 3. Clinical outcomes**

<b>Author, Year of Publication</b>	<b>Intervention Groups (if multiple)</b>	<b>Donor Site</b>	<b>Recipient Site</b>	<b>Recipient Limb Reduction</b>	<b>Conservative Therapy Reduction</b>	<b>Infection Rate Reduction (episodes/y)</b>	<b>Mean Follow-up (months)</b>
Engel <i>et al.</i> , 2018 <sup>[1]</sup>	I: VLNT	Groin, Submental	Wrist, Elbow	+	N.R.	-2.6	58.3 ± 19.1
	II: VLNT + MBR	Groin		+	N.R.	-2.8	15.4 ± 1.8
Ciudad <i>et al.</i> , 2019 <sup>[2]</sup>	-	Groin, Omentum, Supraclavicular	Dorsal foot	+	100% discontinued therapy at 8 months	-3	29
Maruccia <i>et al.</i> , 2019 <sup>[3]</sup>	-	Omentum	Ankle	+	N.R.	-3.9	26.3 ± 3.2
Ngo <i>et al.</i> , 2020 <sup>[4]</sup>	-	Groin, Supraclavicular	Axilla, Elbow	+ (50%); - (50%)	80% reduction in therapy postoperatively	N.R.	46

Lin <i>et al.</i> , 2020 <sup>[5]</sup>	-	Groin, Submental	Wrist	N.R.	N.R.	-2	6
Poccia <i>et al.</i> , 2017 <sup>[6]</sup>	I: Platysma-sparing VLNT	Submental	N.R.	N.R.	N.R.	N.R.	6.2 ± 10
	II: Standard VLNT						15.1 ± 3.2
	III: Platysma-sparing VLNT + Standard VLNT						10.7 ± 6.5
Koide <i>et al.</i> , 2020 <sup>[7]</sup>	I: End-to-end venous anastomosis	Submental	Ankle	+	N.R.	-1.44	33.9 ± 26.4
	II: End-to-side venous anastomosis			+	N.R.	-0.37	18.7 ± 14.0
Di Taranto <i>et al.</i> , 2021 <sup>[8]</sup>	I: VLNT + suction lipectomy			+	N.R.	-1.3	2 ± 0.8



		Omentum	Popliteal fossa/Ankle‡				
	II: VLNT + LVA + suction lipectomy			+	N.R.	-1.4	2 ± 0.8
Chang <i>et al.</i> , 2020 <sup>[9]</sup>	I: Vascularized submental lymph node flap + medial platysma harvest	Submental	Wrist, Ankle	N.R.	N.R.	N.R.	42
	II: Vascularized submental lymph node flap						16
Kaya <i>et al.</i> , 2020 <sup>[10]</sup>	-	Omentum	Wrist, Ankle, Popliteal fossa	+	N.R.	N.R.	18.6
Maruccia <i>et</i>	I: VLNT + scar release			+	N.R.	-3.1	29 ± 4

<i>al.</i> , 2019 <sup>[11]</sup>	II: VLNT	Omentum, Groin	Wrist	+	N.R.	-2.9	32 ± 3
Manrique <i>et al.</i> , 2020 <sup>[12]</sup>	I: Laparoscopic-assisted gastroepiploic flap	Omentum	Wrist, Ankle	+	N.R.	N.R.	17.4
	II: Open gastroepiploic flap			+	N.R.	N.R.	17.5
Di Taranto <i>et al.</i> , 2020 <sup>[13]</sup>	-	Omentum	Lower extremity	+	N.R.	-0.6	24.1
Akita <i>et al.</i> , 2018 <sup>[14]</sup>	I: Conventional VLNT	Groin, Lateral Thoracic, Supraclavicular		+	N.R.	N.R.	6
	II: Multiple VLNT	Submental, Lateral Thoracic		+	N.R.	N.R.	6

	III: VLNT with a prefabricated lympho-venous shunt	Groin, Lateral Thoracic, Supraclavicular	Ankle	+	N.R.	N.R.	6
Kraft <i>et al.</i> , 2019 <sup>[15]</sup>	-	Jejunal Mesenteric, Jejunal Mesenteric + Omentum	Upper and lower extremity	N.R.	N.R.	N.R.	17.6
Frey <i>et al.</i> , 2020 <sup>[16]</sup>	-	Omentum	Axilla, Thigh, Ankle, Groin	N.R.	N.R.	N.R.	8.8
Akita <i>et al.</i> , 2017 <sup>[17]</sup>	I: VLNT + DIEP	Groin	Axilla	+	76.9% reduction in therapy postoperatively	N.R.	13.9 ± 6.5
	II: VLNT			+	21.4% reduction in therapy postoperatively	N.R.	13.2 ± 4.4

Sapountzis <i>et al.</i> , 2014 <sup>[18]</sup>	-	Groin, Supraclavicular	Ankle	N.R.	N.R.	N.R.	14
Becker <i>et al.</i> , 2006 <sup>[19]</sup>	-	Groin	Axilla	N.R.	62.5% discontinued therapy at 12 months	N.R.	99.7
Koide <i>et al.</i> , 2020 <sup>[20]</sup>	I: Non-Delayed Primary retention suture technique	Submental	Ankle	N.R.	N.R.	N.R.	N.R.
	II: Delayed Primary retention suture technique						
Viitanen <i>et al.</i> , 2012 <sup>[21]</sup>	-	Groin	Axilla	+	N.R.	N.R.	26
Moon <i>et al.</i> , 2021 <sup>[22]</sup>	I: Upper extremity lymphedema group	Groin	Axilla	+	N.R.	N.R.	18.1

	II: Lower extremity lymphedema group	Lateral Thoracic	Thigh	+	N.R.	N.R.	18.1
Patel <i>et al.</i> , 2015 <sup>[23]</sup>	I: Upper extremity lymphedema group	Groin, Submental	Wrist, Elbow	+	N.R.	-2.8	25.4 ± 8.4
	II: Lower extremity lymphedema group	Submental	Ankle, Knee	+	N.R.	-5.9	16.1 ± 4
Mousavi <i>et al.</i> , 2020 <sup>[24]</sup>	-	Gastroepiploic	Forearm, Wrist	+	100% discontinued therapy postoperatively	-6.7	12
Ciudad <i>et al.</i> , 2020 <sup>[25]</sup>	I: Upper limb lymphedema	Groin, Supraclavicular, Omentum, Appendicular, Ileocecal	Wrist	+	N.R.	-1.9	Overall: 32.8
	II: Lower limb lymphedema		Ankle	+	N.R.	-2.4	

Ciudad <i>et al.</i> , 2020 <sup>[26]</sup>	-	Omentum	Axilla	+	N.R.	N.R.	12.8±2.5
Asuncion <i>et al.</i> , 2018 <sup>[27]</sup>	-	Submental	Upper and lower extremity	+	N.R.	-1.9	12
Granzow <i>et al.</i> , 2014 <sup>[28]</sup>	-	Groin	Axilla	N.R.	75% discontinued therapy postoperatively	N.R.	32
Dionyssiou <i>et al.</i> , 2019 <sup>[29]</sup>	-	Groin	Axilla	+	N.R.	-1.12	42.5
Maldonado <i>et al.</i> , 2017 <sup>[30]</sup>	-	Supraclavicular	Axilla, Groin	N.R.	N.R.	N.R.	11
Chang <i>et al.</i> , 2020 <sup>[31]</sup>	-	Groin	Axilla	+	79.6% discontinued	N.R.	23.3 ± 17.5

					therapy postoperatively		
Batista <i>et al.</i> , 2017 <sup>[32]</sup>	-	Lateral Thoracic, Groin, Neck*	Groin	+	N.R.	N.R.	48.63 ± 28.75
Vignes <i>et al.</i> , 2013 <sup>[33]</sup>	-	Lateral Thoracic, Groin	Axilla, Groin	- (No Improvement)	N.R.	N.R.	Median: 40 (14–72)
Cheng <i>et al.</i> , 2012 <sup>[34]</sup>	-	Submental	Ankle	+	100% reduction in conservative therapy postoperatively	-3.8	8.7 ± 4.2
Lin <i>et al.</i> , 2009 <sup>[35]</sup>	-	Groin	Wrist	+	N.R.	N.R.	56.31 ± 27.12
Arrivé <i>et al.</i> , 2017 <sup>[36]</sup>	-	Groin	Axilla	+	N.R.	N.R.	Range: 6-42 months
Aljaaly <i>et al.</i> , 2019 <sup>[37]</sup>	I: Dorsal wrist recipient site			+	100% discontinued	-2.3	N.R.

		Submental	Wrist		therapy postoperatively		
	II: Volar wrist recipient site			+	100% discontinued therapy postoperatively	-14	N.R.
Nguyen <i>et al.</i> , 2015 <sup>[38]</sup>	-	Groin	Axilla	+	N.R.	N.R.	11
Chilgar <i>et al.</i> , 2019 <sup>[39]</sup>	-	Supraclavicular	Dorsal foot	+	N.R.	-3.5	12
Saaristo <i>et al.</i> , 2012 <sup>[40]</sup>	-	Groin	Axilla	+	33% discontinued therapy at 24 months	N.R.	N.R.
Gustafsson <i>et</i>	I: 1-2 lymph nodes			+	N.R.	-1.7	23.3 ± 11



<i>al.</i> , 2018 <sup>[41]</sup>	detected in flap on u/s	Submental	Ankle				
	II: 3-4 lymph nodes detected in flap on u/s			+	N.R.	-1.2	33 ± 14.7
	III: 5-8 lymph nodes detected in flap on u/s			+	N.R.	-1	32.4 ± 14.3
Leppäpuska <i>et al.</i> , 2019 <sup>[42]</sup>	I: VLNT + liposuction	Groin	Axilla	+	81.0% reduced therapy postoperatively	N.R.	48.9 ± 15.4
	II: VLNT + MBR + liposuction			+	N.R.	N.R.	
Gratzon <i>et al.</i> , 2017 <sup>[43]</sup>	-	Groin, Lateral Thoracic, Supraclavicular	Axilla	+	100% discontinued therapy at 12 months	-2.3	Median: 12
Chen <i>et al.</i> ,	-	Groin	Axilla	+	N.R.	N.R.	N.R.

2014 <sup>[44]</sup>							
Patel <i>et al.</i> , 2015 <sup>[45]</sup>	-	Groin, Submental	Wrist, Elbow, Ankle	+	N.R.	N.R.	27.3 ± 26.7
De Brucker <i>et al.</i> , 2016 <sup>[46]</sup>	-	Groin	Axilla	N.R.	44% discontinued therapy at 29 months	N.R.	29 ± 14
Liu <i>et al.</i> , 2018 <sup>[47]</sup>	-	Groin	Axilla	+	N.R.	N.R.	22.11 ± 7.83
Dionyssiou <i>et al.</i> , 2016 <sup>[58]</sup>	I: VLNT + Physical Therapy/Compression	Groin	Axilla	+	N.R.	-1.67	18
	II: Physical Therapy/Compression	N/A	N/A	No Improvement	N.R.	-1.45	N.R.
Ciudad <i>et al.</i> , 2017 <sup>[49]</sup>	I: Upper limb recipient site	Omentum	Wrist	+	N.R.	N.R.	14.4

	II: Lower limb recipient site	Omentum	Ankle	+	N.R.	N.R.	15
Ciudad <i>et al.</i> , 2017 <sup>[50]</sup>	I: Groin VLNT	Groin	Ankle, Forearm	+	N.R.	-1.25	36.5
	II: Supraclavicular VLNT	Supraclavicular		+	N.R.	-1.95	39.1
	III: Gastroepiploic VLNT	Omentum		+	N.R.	-2.45	31.8
	IV: Appendicular VLNT	Appendicular		+	N.R.	-4	24
	V: Ileocecal VLNT	Ileocecal		+	N.R.	-3	24
Ciudad <i>et al.</i> , 2019 <sup>[51]</sup>	-	Omentum	Wrist, Elbow, Ankle	+	N.R.	-2	14.2
Johnson <i>et al.</i> , 2019 <sup>[52]</sup>	-	Omentum	Forearm	+	N.R.	N.R.	7.9
Akita <i>et al.</i> ,	-	Lateral Thoracic,	Thigh, Ankle	+	N.R.	N.R.	15.1 ± 1.9

2015 <sup>[53]</sup>		Groin, Supraclavicular					
Agko <i>et al.</i> , 2018 <sup>[54]</sup>	-	Omentum	Elbow/Wrist, Popliteal fossa/Ankle‡	+	N.R.	-0.8*	23.5
Tran <i>et al.</i> , 2018 <sup>[55]</sup>	-	Groin, Supraclavicular, Omentum	Upper and lower extremity	N.R.	N.R.	N.R.	3.4
Dayan <i>et al.</i> , 2015 <sup>[56]</sup>	-	Groin, Lateral Thoracic	N.R.	N.R.	N.R.	N.R.	N.R.
Hamdi <i>et al.</i> , 2021 <sup>[57]</sup>	I: VLNT	Groin	Overall: Axilla, Wrist, Elbow, Ankle	N.R.	N.R.	N.R.	Overall: 62.4
	II: VLNT + MBR			N.R.	N.R.	N.R.	
Becker <i>et al.</i> , -	-	Groin	Axilla	N.R.	N.R.	N.R.	21

2008 <sup>[58]</sup>							
Barreiro <i>et al.</i> , 2014 <sup>[59]</sup>	-	Lateral Thoracic	Axilla (Pedicle), Shoulder, Ankle	N.R.	N.R.	N.R.	12
Smith <i>et al.</i> , 2017 <sup>[60]</sup>	-	Lateral Thoracic	Calf	N.R.	N.R.	N.R.	11
Ciudad <i>et al.</i> , 2017 <sup>[61]</sup>	I: Supraclavicular Donor Site	Supraclavicular	Upper and lower extremity	N.R.	N.R.	N.R.	33
	II: Groin Donor Site	Groin		N.R.	N.R.	N.R.	31.4
	III: Open Gastroepiploic Technique	Omentum		N.R.	N.R.	N.R.	26.6
	IV: Closed Gastroepiploic Technique	Omentum		N.R.	N.R.	N.R.	25.6

Sachanandani <i>et al.</i> , 2018 <sup>[62]</sup>	-	Submental	Lower extremity	+	N.R.	-2.5	30.1
Liu <i>et al.</i> , 2019 <sup>[63]</sup>	-	Groin	Axilla	N.R.	N.R.	N.R.	22.11 ± 7.83
Manrique <i>et al.</i> , 2020 <sup>[64]</sup>	I: Middle Inset upper extremity	Omentum	Wrist	+	N.R.	N.R.	6.5 ± 1.6
	II: Distal Inset upper extremity	Omentum	Ankle	+	N.R.	N.R.	8.1 ± 2.9
	III: Middle Inset lower extremity	Omentum	Wrist	+	N.R.	N.R.	6.6 ± 2.8
	IV: Distal Inset lower extremity	Omentum	Ankle	+	N.R.	N.R.	15.2 ± 5.5
Rannikko <i>et al.</i> , 2021 <sup>[65]</sup>	-	Groin	Axilla	+	42% discontinued at 36 months	-0.18	70 ± 17

Visconti <i>et al.</i> , 2019 <sup>[66]</sup>	-	Supraclavicular	Knee/Calf‡	+	N.R.	N.R.	12
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\*Unclear whether these are number of episodes annually

‡ Locations of proximal and distal inset

**Supplementary Table 4. Imaging outcomes**

<b>Author, Year of Publication</b>	<b>Intervention Groups (if multiple)</b>	<b>Donor Site</b>	<b>Recipient Site</b>	<b>Type of Imaging</b>	<b>Summary of Outcomes</b>
Maruccia <i>et al.</i> , 2019 <sup>[3]</sup>	-	Omentum	Ankle	Lymphoscintigraphy	Lymphoscintigraphy showed improvement of lymph flow in all cases
Poccia <i>et al.</i> , 2017 <sup>[6]</sup>	I: Platysma-sparing VLNT	Submental	N.R.	MRI, Ultrasound	I: 3.5 ± 1.9 lymph nodes transferred
	II: Standard VLNT				II: 4.4 ± 1.3 lymph nodes transferred
	III: Platysma-sparing VLNT + Standard VLNT				III: 4.0 ± 1.3 lymph nodes transferred
Kaya <i>et al.</i> , 2020 <sup>[10]</sup>	-	Omentum	Wrist, Ankle,	Lymphoscintigraphy	Lymphoscintigram showed decreased dermal backflow



			Popliteal fossa		
Maruccia <i>et al.</i> , 2019 <sup>[11]</sup>	I: VLNT + scar release II: VLNT	Omentum, Groin	Wrist	Lymphoscintigraphy	Postoperative lymphoscintigraphy showed improvement of the lymph flow in all cases
Manrique <i>et al.</i> , 2020 <sup>[12]</sup>	I: Laparoscopic-assisted gastroepiploic flap II: Open gastroepiploic flap	Omentum	Wrist, Ankle	Lymphoscintigraphy	Postoperative lymphoscintigraphy showed improvement in all viable flaps
Di Taranto <i>et al.</i> , 2020 <sup>[13]</sup>	-	Omentum	Lower extremity	Lymphoscintigraphy	Lymphoscintigraphy showed improvement of the lymphatic drainage and restoration of lymphatic network
Akita <i>et al.</i> , 2018 <sup>[14]</sup>	I: Conventional VLNT	Groin, Lateral Thoracic,	Ankle	Ultrasound	Ultrasound at 6 months demonstrated survival of lymph

	<p>II: Multiple VLNT</p> <p>III: VLNT with a prefabricated lympho-venous shunt</p>	<p>Supraclavicular</p> <p>Submental,</p> <p>Lateral</p> <p>Thoracic</p> <p>Groin, Lateral</p> <p>Thoracic,</p> <p>Supraclavicular</p>			nodes in all cases
Becker <i>et al.</i> , 2006 <sup>[19]</sup>	-	Groin	Axilla	Lymphoscintigraphy	Lymphoscintigraphies demonstrated the effectiveness of lymph node transplantation
Viitanen <i>et al.</i> , 2012 <sup>[21]</sup>	-	Groin	Axilla	Lymphoscintigraphy	Postoperative lymphoscintigraphy demonstrated minor changes in lymph flow in 6/10 patients and transport index was abnormal in 2/10 patients
Asuncion <i>et al.</i> , 2018 <sup>[27]</sup>	-	Submental	Upper and	MRI, Ultrasound, CT	Preoperative MRI is a useful tool

			lower extremity		for the detection of the largest number of lymph nodes available
Dionyssiou <i>et al.</i> , 2019 <sup>[29]</sup>	-	Groin	Axilla	Lymphoscintigraphy	Postoperative upper-limb lymphoscintigraphy showed functional activity of the transplanted lymph nodes in 13/22
Lin <i>et al.</i> , 2009 <sup>[35]</sup>	-	Groin	Wrist	Lymphoscintigraphy	Postoperative lymphoscintigraphy indicated improved lymph drainage of the affected arm, decreased lymph stasis and rapid lymphatic clearance
Arrivé <i>et al.</i> , 2017 <sup>[36]</sup>	-	Groin	Axilla	Magnetic Resonance Lymphography	Non-contrast magnetic resonance lymphography can be used to analyze the results of lymph node transplantation
Aljaaly <i>et al.</i> , 2019 <sup>[37]</sup>	I: Dorsal wrist	Submental	Wrist	ICG	Technetium-99

	recipient site II: Volar wrist recipient site			Lymphoscintigraphy	lymphoscintigraphy and indocyanine green lymphography are important in evaluating the patency of remaining lymphatic channels
Chilgar <i>et al.</i> , 2019 <sup>[39]</sup>	-	Supraclavicular	Dorsal foot	Lymphoscintigraphy	Lymphoscintigraphy showed improvement in lymph drainage and cleared dermal backflow
Saaristo <i>et al.</i> , 2012 <sup>[40]</sup>	-	Groin	Axilla	Lymphoscintigraphy	Postoperative lymphoscintigraphy demonstrated at least some improvement in the lymphatic drainage in 5/6 patients
Gustafsson <i>et al.</i> , 2018 <sup>[41]</sup>	I: 1-2 lymph nodes detected in flap on u/s II: 3-4 lymph nodes detected in flap on u/s III: 5-8 lymph nodes detected in flap on u/s	Submental	Ankle	Ultrasound	A mean of $3.9 \pm 1.9$ lymph nodes were postoperatively detected by ultrasonography in the transferred flaps

Leppäpuska <i>et al.</i> , 2019 <sup>[42]</sup>	I: VLNT + liposuction	Groin	Axilla	Lymphoscintigraphy	Postoperative lymphoscintigraphy showed improvement in lymph flow in 12/19 patients
	II: VLNT + MBR + liposuction				
Chen <i>et al.</i> , 2014 <sup>[44]</sup>	-	Groin	Axilla	Lymphoscintigraphy	Lymphoscintigraphy demonstrated deep lymphatic/collateral channel clearance, improved lymph return and decreased stasis
Patel <i>et al.</i> , 2015 <sup>[45]</sup>	-	Groin, Submental	Wrist, Elbow, Ankle	Lymphodynamic assessment with ICG	Lymphodynamic assessment with ICG showed distal migration of dye toward the flap and drainage through intrinsic lymphovenous connections in all patients

Liu <i>et al.</i> , 2018 <sup>[47]</sup>	-	Groin	Axilla	Lymphoscintigraphy	Postoperative lymphoscintigraphy demonstrated improvement in 11/30 patients; 7 cases had faster contrast transport and 4 with visualization of the transplanted node
Dionyssiou <i>et al.</i> , 2016 <sup>[48]</sup>	I: VLNT + Physical Therapy/Compression	Groin	Axilla	Lymphoscintigraphy	Postoperative lymphoscintigraphy demonstrated functional activity in 13/18 patients
	II: Physical Therapy/Compression	N/A	N/A		
Ciudad <i>et al.</i> , 2017 <sup>[49]</sup>	I: Upper limb recipient site	Omentum	Wrist	CT	Post-operative CT with contrast showed viable lymph nodes in the transferred flaps in all patients
	II: Lower limb recipient site	Omentum	Ankle		

Ciudad <i>et al.</i> , 2017 <sup>[50]</sup>	I: Groin VLNT II: Supraclavicular VLNT III: Gastroepiploic VLNT IV: Appendicular VLNT V: Ileocecal VLNT	Groin Supraclavicular Omentum Appendicular Ileocecal	Ankle, Forearm	Lymphoscintigraphy	Postoperative lymphoscintigraphy showed improved lymphatic function in 80/83 patients
Ciudad <i>et al.</i> , 2019 <sup>[51]</sup>	-	Omentum	Wrist, Elbow, Ankle	Lymphoscintigraphy	Lymphoscintigraphy demonstrated improvement in lymphatic transport
Tran <i>et al.</i> , 2018 <sup>[55]</sup>	-	Groin, Supraclavicular, Omentum	Upper and lower extremity	Intraoperative Ultrasound (IOUS)	IOUS aids in quantifying and mapping lymph nodes while allowing for avoidance of nodes in certain locations (femoral triangle) that could lead to precarious injuries and/or lower extremity lymphedema

Liu <i>et al.</i> , 2019 <sup>[63]</sup>	-	Groin	Axilla	Lymphoscintigraphy	Postoperative lymphoscintigraphy showed a fewer number of visualized groin lymph nodes in the donor limb
Manrique <i>et al.</i> , 2020 <sup>[64]</sup>	I: Middle Inset upper extremity II: Distal Inset upper extremity III: Middle Inset lower extremity IV: Distal Inset lower extremity	Omentum	Wrist Ankle Wrist Ankle	Lymphoscintigraphy	Postoperative lymphoscintigraphy demonstrated improved radiotracer transit time in 11/13 patients.
Rannikko <i>et al.</i> , 2021 <sup>[65]</sup>	-	Groin	Axilla	Lymphoscintigraphy	Lymphoscintigraphy demonstrated improved lymphatic function in all patients
Visconti <i>et al.</i> , 2019 <sup>[66]</sup>	-	Supraclavicular	Knee/Calf†	Lymphoscintigraphy	Postoperative lymphoscintigraphy demonstrated improvement in lymph flow and tracer appearance



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