A systematic review and meta-analysis of studies comparing muscle-in-vein conduits with autologous nerve grafts for nerve reconstruction

Johannes C. Heinzel[1,2,3*], **Mai Quyen-Nguyen**[2,3], **Laura Kefalianakis**[1], **Cosima Prahm**[1], **Adrien Daigeler**[1], **David Hercher**[2,3], **Jonas Kolbenschlag**[1]

[1] Department of Hand-, Plastic, Reconstructive and Burn Surgery, BG Klinik Tuebingen, Eberhard Karls University, Schnarrenbergstraße 95, Tuebingen, Germany

[2] Ludwig Boltzmann Institute for Experimental and Clinical Traumatology, Donaueschingenstraße 13, Vienna, Austria

[3] Austrian Cluster for Tissue Regeneration

*** Correspondence:**
Johannes C. Heinzel
hannes.heinzel@gmx.de

Supplementary Material

Supplementary Table 1 – Search terms and results of the literature research according to the PRISMA guidelines.

Search term(s)	Results from PubMed	Results from Web of Science
muscle-in-vein AND conduit	6	10
muscle-in-vein AND graft	8	13
muscle-vein AND conduit	13	15
muscle-vein AND graft	22	26
muscle-vein AND nerve	26	48
muscle-in-vein AND nerve	10	14
“muscle and vein conduit”	4	1
“muscle and vein conduits”	5	1
“muscle and vein graft”	1	0
“muscle and vein grafts”	3	0
“muscle-stuffed vein”	3	6
“vein filled with muscle”	5	6
“vein” AND "muscle graft*"	22	48
“vein conduit*” AND “nerve”	55	80
Total	183	268

Supplementary Table 2 – Excluded preclinical studies**.**

Study	Reason for exclusion
Battiston [1]	No control group (ANG) featured
Couturier [2]	No control group (ANG) featured
Di Benedetto [3]	No control group (ANG) featured
Fernandes [4]	Full-text not available in English
Fornaro [5]	Reported outcome measures not relevant for synthesis
Geuna [6]	Reported outcome measures not relevant for synthesis
Geuna [7]	Full-text not available
Geuna [8]	Reported outcome measures not relevant for synthesis

Geuna [9]	Reported outcome measures not relevant for synthesis
Li [10]	No control group (ANG) featured
Mohammadi [11]	No control group (ANG) featured
Nicolino [12]	No control group (ANG) featured
Nijhuis [13]	Non-standardized way to prepare the MVCs
Pagnotta [14]	Reported outcome measures not relevant for synthesis
Raimondo [15]	Reported outcome measures not relevant for synthesis
Tos [16]	Reported outcome measures not relevant for synthesis
Tos [17]	Reported outcome measures not relevant for synthesis
Tos [18]	Reported outcome measures not relevant for synthesis
Tuncel [19]	Non-standardized way to prepare the MVCs
Manthou [20]	No control group (ANG) featured
Jemnoschi-Hreniuc ([21]	Non-standardized way to prepare the MVCs

Supplementary Table 3 – Excluded clinical studies.

Study	**Reason for exclusion**
Battiston [22]	No control group (ANG) featured
Battiston [23]	No control group (ANG) featured
Marcoccio [24]	No control group (ANG) featured
Schiefer [25]	No control group (ANG) featured

1. Battiston, B., Tos, P., Geuna, S., Giacobini-Robecchi, M.G. & Guglielmone, R. Nerve repair by means of vein filled with muscle grafts. II. Morphological analysis of regeneration. *Microsurgery* **20**, 37-41 (2000).
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3. Di Benedetto, G., *et al.* Nerve regeneration through a combined autologous conduit (vein plus acellular muscle grafts). *Biomaterials* **19**, 173-181 (1998).
4. Fernandes, M., *et al.* Comparative study between autogenous graft and muscular graft covered with autogenous vein tube in Wistar rats' tibial nerves using the Fluoro-Gold® as a neuronal marker. *Acta Ortopédica Brasileira* **15**, 97-100 (2006).
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13. Nijhuis, T.H., *et al.* Natural conduits for bridging a 15-mm nerve defect: comparison of the vein supported by muscle and bone marrow stromal cells with a nerve autograft. *J Plast Reconstr Aesthet Surg* **66**, 251-259 (2013).

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16. Tos, P., *et al.* Tissue specificity in rat peripheral nerve regeneration through combined skeletal muscle and vein conduit grafts. *Microsurgery* **20**, 65-71 (2000).

17. Tos, P., *et al.* Use of muscle-vein-combined Y-chambers for repair of multiple nerve lesions: experimental results. *Microsurgery* **24**, 459-464 (2004).

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20. Manthou, M.E., *et al.* Facial nerve repair by muscle-vein conduit in rats: functional recovery and muscle reinnervation. *Tissue Eng Part A* (2020).

21. Jemnoschi-Hreniuc, I., *et al.* Prolonging Nerve Grafts Using Chemical Extracted Muscle-in-vein with Vein Window Method Chemical acellular nerve grafts. *Revista de Chimie -Bucharest- Original Edition-* **December**(2017).

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