

EVIDENCE BASED STATEMENT

DOMAIN **12**, Statement **05**

TOPIC: “**Physical activity for venous-lymphatic disease patients.**”

SEARCH TERMS & SOURCES

(physical activity) AND (chronic venous disease)
(physical activity) AND (lymphedema)

INCLUSION CRITERIA

- Lower limb only
- Systematic Reviews, Meta-Analysis, Reviews, RCT
- Publication < 10 years, only ENG

SEARCH RESULT BEFORE - AFTER SELECTION

78/4 117/5

PERTINENT LITERATURE NOT IDENTIFIED BY THE LITERATURE SEARCH

1. Schmidt AC, Gomes LPOZ, Marinelli CM, et al. Effects of strengthening the surae triceps muscle on venous pump function in chronic venous insufficiency. J Vasc Bras. 2021 Aug 16;20:e20200197.
2. Oliveira NL, Botton CE, De Nardi AT, et al. Methodological quality and reporting standards in systematic reviews with meta-analysis of physical activity studies: a report from the Strengthening the Evidence in Exercise Sciences Initiative (SEES Initiative). Syst Rev. 2021 Dec 2;10(1):304.
3. Forner-Cordero I, Forner-Cordero A, Szolnoky G. Update in the management of lipedema. Int Angiol. 2021 Aug;40(4):345-357.
4. Espeit L, Rimaud D, Le Mat F, et al. Fatigue, physical activity and quality of life in people self-reporting symptoms of chronic venous disease. J Vasc Surg Venous Lymphat Disord. 2022 Jun 14:S2213-333X(22)00257-8.
5. Kiloatar H, Aras O, Korkmaz M, et al. An evaluation of quality of life, physical activity level and symptoms in patients with early stages of chronic venous disease. J Vasc Nurs. 2021 Dec;39(4):108-113
6. Fukushima T, Tsuji T, Sano Y, et al. Immediate effects of active exercise with compression therapy on lower-limb lymphedema. Support Care Cancer. 2017 Aug;25(8):2603-2610.
7. Padberg FT Jr, Johnston MV, Sisto SA. Structured exercise improves calf muscle pump function in chronic venous insufficiency: a randomized trial. J Vasc Surg. 2004 Jan;39(1):79-87.
8. Kan YM, Delis KT. Hemodynamic effects of supervised calf muscle exercise in patients with venous leg ulceration: a prospective controlled study. Arch Surg. 2001 Dec;136(12):1364-9.

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IDENTIFIED REFERENCES

1. Hayes SC, Singh B, Reul-Hirche H, et al. The Effect of Exercise for the Prevention and Treatment of Cancer-related Lymphedema: A Systematic Review with Meta-analysis. *Med Sci Sports Exerc.* 2022 Mar 22.
2. da Silva JL, Lima AG, Diniz NR, et al. Effectiveness of therapeutic exercises for improving the quality of life of patients with chronic venous insufficiency: a systematic review. *J Vasc Bras.* 2021 Jun 16;20:e20200248.
3. Abboud A, Blum J, Butta Z, et al. Lower Limb Lymphedema: An Exploration of Various Treatment Methods. *Clin Podiatr Med Surg.* 2021 Oct;38(4):589-593.
4. Morris RI, Sobotka PA, Balmforth PK, et al. Iliocaval Venous Obstruction, Cardiac Preload Reserve and Exercise Limitation. *J Cardiovasc Transl Res.* 2020 Aug;13(4):531-539.
5. Johansson K, Hayes S. A historical account of the role of exercise in the prevention and treatment of cancer-related lymphedema. *Lymphology.* 2020;53(2):55-62. PMID: 33190428.
6. Jones WS, Vemulapalli S, Parikh KS, et al. Treatment Strategies for Patients with Lower Extremity Chronic Venous Disease (LECVD) [Internet]. Rockville (MD): Agency for Healthcare Research and Quality (US); 2017 Apr 6. PMID: 30222278.
7. Araujo DN, Ribeiro CT, Maciel AC, et al. Physical exercise for the treatment of non-ulcerated chronic venous insufficiency. *Cochrane Database Syst Rev.* 2016 Dec 3;12(12):CD010637.
8. Morris C, Wonders KY. Concise review on the safety of exercise on symptoms of lymphedema. *World J Clin Oncol.* 2015 Aug 10;6(4):43-4.
9. Chang CJ, Cormier JN. Lymphedema interventions: exercise, surgery, and compression devices. *Semin Oncol Nurs.* 2013 Feb;29(1):28-40.

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TEXT FOR INCLUSION IN THE DOCUMENT

DOMAIN 12, Statement 05, TOPIC: “**Physical activity for venous-lymphatic disease patients.**”

Activation of the lower limb muscle masses is pivotal for venous-lymphatic drainage. The same activation of the thoraco-abdominal pump can influence venous-lymphatic return. Appropriate physical exercise activity demonstrated potentials in both subjective

[da Silva JL, Lima AG, Diniz NR, et al. Effectiveness of therapeutic exercises for improving the quality of life of patients with chronic venous insufficiency: a systematic review. J Vasc Bras. 2021 Jun 16;20:e20200248].

and objective measures of leg drainage.

Physical activity demonstrated to be a meaningful addition to compression in lower limb lymphedema patients, even in advanced stage.

***[Fukushima T, Tsuji T, Sano Y, et al. Immediate effects of active exercise with compression therapy on lower-limb lymphedema. Support Care Cancer. 2017 Aug;25(8):2603-2610].**

The need of an exercise regimen is included also in the latest indications for lipedema management.

***[Forner-Cordero I, Forner-Cordero A, Szolnoky G. Update in the management of lipedema. Int Angiol. 2021 Aug;40(4):345-357].**

Despite the above mentioned potentials of physical exercise, the literature is still lacking properly collected data supporting the recommendation of a specific protocol for the different vein-lymphatic conditions and related stages.

Future research should take into consideration standardization and reproducibility, in particular concerning intensity, frequency and time of the exercise.

Sample size, blinding and disease severity homogeneity must also be taken into consideration.

***[Araujo DN, Ribeiro CT, Maciel AC, et al. Physical exercise for the treatment of non-ulcerated chronic venous insufficiency. Cochrane Database Syst Rev. 2016 Dec 3;12(12):CD010637].**

Indeed, a recent publication focused on the importance of increasing adherence to methodological quality for physical activity report in order not to downgrade the results of available studies on the important topic of the physical exercise as health tool.

[Oliveira NL, Botton CE, De Nardi AT, et al. Methodological quality and reporting standards in systematic reviews with meta-analysis of physical activity studies: a report from the Strengthening the Evidence in Exercise Sciences Initiative (SEES Initiative). Syst Rev. 2021 Dec 2;10(1):304].

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STATEMENT FOR PUBLIC EVIDENCE-BASED AWARENESS

DOMAIN 12, Statement 05

“Physical activity requiring progressive, gentle activation of leg calf muscle can facilitate venous drainage. Physical activity requiring sudden activation of the calf muscle, possible leg constriction or trauma can harm venous drainage.. A specialist consult can help identifying the correct exercise type.”

SELECTED REFERENCES

1. da Silva JL, Lima AG, Diniz NR, et al. Effectiveness of therapeutic exercises for improving the quality of life of patients with chronic venous insufficiency: a systematic review. *J Vasc Bras.* 2021 Jun 16;20:e20200248
2. *Fukushima T, Tsuji T, Sano Y, et al. Immediate effects of active exercise with compression therapy on lower-limb lymphedema. *Support Care Cancer.* 2017 Aug;25(8):2603-2610
3. *Forner-Cordero I, Forner-Cordero A, Szolnoky G. Update in the management of lipedema. *Int Angiol.* 2021 Aug;40(4):345-357
4. *Araujo DN, Ribeiro CT, Maciel AC, et al. Physical exercise for the treatment of non-ulcerated chronic venous insufficiency. *Cochrane Database Syst Rev.* 2016 Dec 3;12(12):CD010637
5. Oliveira NL, Botton CE, De Nardi AT, et al. Methodological quality and reporting standards in systematic reviews with meta-analysis of physical activity studies: a report from the Strengthening the Evidence in Exercise Sciences Initiative (SEES Initiative). *Syst Rev.* 2021 Dec 2;10(1):304

identified LITERATURE BIAS

Lack of standardization and reproducibility in the assessed exercise types

SUGGESTED NEXT LINES OF RESEARCH

Validation of specific exercise protocols