

EVIDENCE BASED STATEMENT

DOMAIN **12**, Statement **06**

TOPIC: “Graduated compression in occupational and sport settings.”

SEARCH TERMS & SOURCES

(compression stockings) AND (occupational)
(compression stockings) AND (sport)

INCLUSION CRITERIA

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

SEARCH RESULT BEFORE - AFTER SELECTION

7/2 14/5

PERTINENT LITERATURE NOT IDENTIFIED BY THE LITERATURE SEARCH

1. Négyesi J, Hortobágyi T, Hill J, et al. Can Compression Garments Reduce the Deleterious Effects of Physical Exercise on Muscle Strength? A Systematic Review and Meta-Analyses. Sports Med. 2022 Apr 27.
2. Montoye AHK, Mithen AA, Westra HL, et al. The Effect of Compression Socks on Maximal Exercise Performance and Recovery in Insufficiently Active Adults. Int J Exerc Sci. 2021 Aug 1;14(7):1036-1051.
3. Hecko S, Lutze S, Arnold A, et al. Improvement of occupational leg edema and discomforts (RCT). Clin Hemorheol Microcirc. 2022 Jul 6.
4. Won YH, Ko MH, Kim DH. Intermittent pneumatic compression for prolonged standing workers with leg edema and pain. Medicine (Baltimore). 2021 Jul 16;100(28):e26639.
5. Giancesini S, Raffetto JD, Mosti G, et al. Volume control of the lower limb with graduated compression during different muscle pump activation conditions and the relation to limb circumference variation. J Vasc Surg Venous Lymphat Disord. 2020 Sep;8(5):814-820.
6. Giancesini S, Mosti G, Sibilla M, et al. Lower limb volume in healthy individuals after walking with compression stockings. J Vasc Surg Venous Lymphat Disord. 2019 Jul;7(4):557-561
7. Giancesini S, Tessari M, Menegatti E, et al. Comparison between the effects of 18- and 23-mmHg elastic stockings on leg volume and fatigue in golfers. Int Angiol. 2017 Apr;36(2):129-135.
8. Bieuzen F, Brisswalter J, Easthope C, et al. Effect of wearing compression stockings on recovery after mild exercise-induced muscle damage. Int J Sports Physiol Perform. 2014 Mar;9(2):256-64.

EVIDENCE BASED STATEMENT

Domain 12; Statement 6

IDENTIFIED REFERENCES

1. Mota GR, Simim MAM, Dos Santos IA, et al. Effects of Wearing Compression Stockings on Exercise Performance and Associated Indicators: A Systematic Review. *Open Access J Sports Med.* 2020 Jan 22;11:29-42.
2. Guedes PM, Saldanha NA, Matos PM, et al. Occupational leg edema-use of compression stockings. *Porto Biomed J.* 2020 Nov 24;5(6):e093.
3. Al Bimani SA, Gates LS, Warner M, et al. Factors influencing return to play following conservatively treated ankle sprain: a systematic review. *Phys Sportsmed.* 2019 Feb;47(1):31-46.
4. da Silva CA, Helal L, da Silva RP, et al. Association of Lower Limb Compression Garments During High-Intensity Exercise with Performance and Physiological Responses: A Systematic Review and Meta-analysis. *Sports Med.* 2018 Aug;48(8):1859-1873.
5. Brown F, Gissane C, Howatson G, et al. Compression Garments and Recovery from Exercise: A Meta-Analysis. *Sports Med.* 2017 Nov;47(11):2245-2267.
6. Nédélec M, McCall A, Carling C, et al. Recovery in soccer : part ii-recovery strategies. *Sports Med.* 2013 Jan;43(1):9-22.
7. Robertson L, Yeoh SE, Kolbach DN. Non-pharmacological interventions for preventing venous insufficiency in a standing worker population. *Cochrane Database Syst Rev.* 2013 Oct 15;2013(10):CD006345.

EVIDENCE BASED STATEMENT

Domain 12; Statement 6

TEXT FOR INCLUSION IN THE DOCUMENT

DOMAIN 12, Statement 06, TOPIC: “**Graduated compression in occupational and sport settings**”

Occupational activities characterize by prolonged standing up or sitting can lead to swelling and discomfort also in subjects not affected by venous insufficiency.

Certified graduated compression stockings have demonstrated to potentially counteract both the related oedema and symptomatology.

***[Guedes PM, Saldanha NA, Matos PM, et al. Occupational leg edema-use of compression stockings. Porto Biomed J. 2020 Nov 24;5(6):e093]**

Large studies are needed to assess the possibility of reducing the risk of developing chronic venous insufficiency in this population, together with the cost-efficacy of an appropriate compression prescription.

[Robertson L, Yeoh SE, Kolbach DN. Non-pharmacological interventions for preventing venous insufficiency in a standing worker population. Cochrane Database Syst Rev. 2013 Oct 15;2013(10):CD006345]

A recent randomized comparative trial demonstrated how 18-21 mmHg graduated compression stockings might be effective in occupational swelling and symptomatology control, yet further studies are needed to compare the effect of different compression types (graduated vs progressive) and doses.

[Hecko S, Lutze S, Arnold A, et al. Improvement of occupational leg edema and discomforts (RCT). Clin Hemorheol Microcirc. 2022 Jul 6].

Further investigations are needed also to define the objective benefit brought by certified graduated compression into the sport world.

Heterogeneous outcomes have been reported on the topic also by the most recent reviews, with data showing no benefit

***[Négyesi J, Hortobágyi T, Hill J, et al. Can Compression Garments Reduce the Deleterious Effects of Physical Exercise on Muscle Strength? A Systematic Review and Meta-Analyses. Sports Med. 2022 Apr 27].**

while others demonstrated a positive impact on muscle performance and symptomatology.

[Mota GR, Simim MAM, Dos Santos IA, et al. Effects of Wearing Compression Stockings on Exercise Performance and Associated Indicators: A Systematic Review. Open Access J Sports Med. 2020 Jan 22;11:29-42].

Specific research was done also on not athletic subjects reporting potential benefit of graduated compression on exercise performance also in this kind of population.

[Montoye AHK, Mithen AA, Westra HL, et al. The Effect of Compression Socks on Maximal Exercise Performance and Recovery in Insufficiently Active Adults. Int J Exerc Sci. 2021 Aug 1;14(7):1036-1051]

A strong focus on the type of compression used and of related physical activity should be developed in order to avoid reviewing data coming from too heterogeneous settings.

EVIDENCE BASED STATEMENT

Domain 12; Statement 6

STATEMENT FOR PUBLIC EVIDENCE-BASED AWARENESS

DOMAIN 12, Statement 06

“Certified properly prescribed graduated compression can improve perceived exertion after walking and subjective comfort after prolonged sitting. Indication by a health-professional is recommended.”

SELECTED REFERENCES

1. *Guedes PM, Saldanha NA, Matos PM, et al. Occupational leg edema-use of compression stockings. Porto Biomed J. 2020 Nov 24;5(6):e093
2. Robertson L, Yeoh SE, Kolbach DN. Non-pharmacological interventions for preventing venous insufficiency in a standing worker population. Cochrane Database Syst Rev. 2013 Oct 15;2013(10):CD006345
3. Hecko S, Lutze S, Arnold A, et al. Improvement of occupational leg edema and discomforts (RCT). Clin Hemorheol Microcirc. 2022 Jul 6
4. *Négyesi J, Hortobágyi T, Hill J, et al. Can Compression Garments Reduce the Deleterious Effects of Physical Exercise on Muscle Strength? A Systematic Review and Meta-Analyses. Sports Med. 2022 Apr 27
5. Mota GR, Simim MAM, Dos Santos IA, et al. Effects of Wearing Compression Stockings on Exercise Performance and Associated Indicators: A Systematic Review. Open Access J Sports Med. 2020 Jan 22;11:29-42
6. Montoye AHK, Mithen AA, Westra HL, et al. The Effect of Compression Socks on Maximal Exercise Performance and Recovery in Insufficiently Active Adults. Int J Exerc Sci. 2021 Aug 1;14(7):1036-1051

identified LITERATURE BIAS

Lack of standardization of «long standing up workers» definition
Heterogeneous sport activity and related compression type and dose

SUGGESTED NEXT LINES OF RESEARCH

Multi-center occupational studies in homogeneous study populations
Specific sport activities data review and implementation