

EVIDENCE BASED STATEMENT

DOMAIN **12**, Statement **07**

TOPIC: “**Graduated compression during prolonged travels.**”

SEARCH TERMS & SOURCES

(graduated compression) AND (travel)

INCLUSION CRITERIA

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

SEARCH RESULT BEFORE - AFTER SELECTION

8/5

PERTINENT LITERATURE NOT IDENTIFIED BY THE LITERATURE SEARCH

1. McKerrow Johnson I, Shatzel J, Olson S, et al. Travel-Associated Venous Thromboembolism. Wilderness Environ Med. 2022 Jun;33(2):169-178.
2. Giancesini S, Mosti G, Raffetto JD, et al. Case-control evaluation of the impact of below 20 mmHg elastic compression stockings on lower limb volume serial variations in standardized flights. Phlebology. 2020 Apr;35(3):199-206.
3. Lippi G, Favaloro EJ. Car Travel-Related Thrombosis: Fact or Fiction? Semin Thromb Hemost. 2018 Jun;44(4):327-333.
4. Gavish I, Brenner B. Air travel and the risk of thromboembolism. Intern Emerg Med. 2011 Apr;6(2):113-6.

EVIDENCE BASED STATEMENT

Domain 12; Statement 7

IDENTIFIED REFERENCES

1. McKerrow Johnson I, Shatzel J, Olson S, et al. Travel-Associated Venous Thromboembolism. *Wilderness Environ Med.* 2022 Jun;33(2):169-178.
2. da Silva LF, Porto MSR, de Sousa AB, et al. Graduated compression stockings as a prophylactic measure in venous thromboembolism and edema of lower limbs triggered by air travel: a systematic review of clinical trials. *J Vasc Bras.* 2021 May 10;20:e20200164.
3. Clarke MJ, Broderick C, Hopewell S, et al. Compression stockings for preventing deep vein thrombosis in airline passengers. *Cochrane Database Syst Rev.* 2021 Apr 20;4(4):CD004002.
4. Sachdeva A, Dalton M, Lees T. Graduated compression stockings for prevention of deep vein thrombosis. *Cochrane Database Syst Rev.* 2018 Nov 3;11(11):CD001484.
5. Clarke MJ, Broderick C, Hopewell S, et al. Compression stockings for preventing deep vein thrombosis in airline passengers. *Cochrane Database Syst Rev.* 2016 Sep 14;9(9):CD004002.

EVIDENCE BASED STATEMENT

Domain 12; Statement 7

TEXT FOR INCLUSION IN THE DOCUMENT

DOMAIN 12, Statement 07, TOPIC: “**Graduated compression during prolonged travels**”

Air travel longer than 4 hours has been recently confirmed to be a risk factor for venous thrombo-embolism, increasing proportionally with the same travel time. Patients with pre-existing venous disease and or other thrombotic risk factors might benefit from certified graduated compression use.

*[**McKerrow Johnson I, Shatzel J, Olson S, et al. Travel-Associated Venous Thromboembolism. Wilderness Environ Med. 2022 Jun;33(2):169-178**].

The air travel is associate with an increased thromboembolism risk not only for the prolonged sitting position, but also for the pressurized cabin atmosphere characteristics leading to possible traveler hypoxia and dehydration.

[**Gavish I, Brenner B. Air travel and the risk of thromboembolism. Intern Emerg Med. 2011 Apr;6(2):113-6**].

A recent review demonstrated that also after just 3 hours a benefit in edema and thrombotic risk management can be observed following the use of proper graduated compression. While high quality evidence supported the advantage in edema control, low quality data supported the compression use for thrombo-prophylaxis. Further studies are needed to clarify the objective benefit.

[**da Silva LF, Porto MSR, de Sousa AB, et al. Graduated compression stockings as a prophylactic measure in venous thromboembolism and edema of lower limbs triggered by air travel: a systematic review of clinical trials. J Vasc Bras. 2021 May 10;20:e20200164**].

Frequently, the topic of the long-travel potential impact on the venous system is contextualized only in the airline sector.

Nevertheless, recent literature has brought attention to the possible impact also of long road travels and future investigations on the topic are encouraged to clarify the role of the sitting position versus the locomotion type.

[**Lippi G, Favaloro EJ. Car Travel-Related Thrombosis: Fact or Fiction? Semin Thromb Hemost. 2018 Jun;44(4):327-333**].

Future investigations on long distance travel effects on venous-lymphatic circulation should be as standardized as possible in the data collection and includes same patients re-assessment considering the vast majority of investigations on this field enrolled the study population for only one trip, moreover with the assessment performed in different timings.

[**Gianesini S, Mosti G, Raffetto JD, et al. Case-control evaluation of the impact of below 20 mmHg elastic compression stockings on lower limb volume serial variations in standardized flights. Phlebology. 2020 Apr;35(3):199-206**].

EVIDENCE BASED STATEMENT

Domain 12; Statement 7

STATEMENT FOR PUBLIC EVIDENCE-BASED AWARENESS

DOMAIN 12, Statement 07

“Certified properly prescribed graduated compression stockings can reduce leg swelling after 4 hours flight. Patients at risk of venous-thrombembolism should wear certified compression stockings prescribed by an expert health-professional.”

SELECTED REFERENCES

1. ***McKerrow Johnson I, Shatzel J, Olson S, et al. Travel-Associated Venous Thromboembolism. Wilderness Environ Med. 2022 Jun;33(2):169-178**
2. **Gavish I, Brenner B. Air travel and the risk of thromboembolism. Intern Emerg Med. 2011 Apr;6(2):113-6**
3. **da Silva LF, Porto MSR, de Sousa AB, et al. Graduated compression stockings as a prophylactic measure in venous thromboembolism and edema of lower limbs triggered by air travel: a systematic review of clinical trials. J Vasc Bras. 2021 May 10;20:e20200164**
4. **Lippi G, Favaloro EJ. Car Travel-Related Thrombosis: Fact or Fiction? Semin Thromb Hemost. 2018 Jun;44(4):327-33**
5. **Gianesini S, Mosti G, Raffetto JD, et al. Case-control evaluation of the impact of below 20 mmHg elastic compression stockings on lower limb volume serial variations in standardized flights. Phlebology. 2020 Apr;35(3):199-206**

identified LITERATURE BIAS

Heterogenous timing in data collection

SUGGESTED NEXT LINES OF RESEARCH

Multicenter data collection on homogenous study populations traveling not only by plane