



To review the effectiveness of compression garments on post exercise for athletes over the age of eighteen with consideration of maximal performance-based measures, perceived soreness, fatigue and running economy.

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Relevant discipline	Physiotherapy
Sources searched	Cochrane Library, DARE, Embase (Embase classic + Embase), JBI EBP Database, Medline, PROSPERO and Pubmed. This search was conducted on 13/04/2021
Highest level of Evidence found	NHMRC level I
Quality appraisal of the body of Evidence	Strength of Evidence: High (All evidence is NHMRC level 1)
	Quality of Evidence: Moderate
	Statistical significance: Low, except evidence pertaining to perceived soreness
	Clinical significance: Moderate effect size for effects on perceived soreness
	External validity/applicability: Highly relevant to the clinical question
Summary of Evidence findings	The results indicate that out of the six studies included in the review, most focus on the effectiveness of compression garments (CGs) on post competition recovery. There was some overlap in the effectiveness of CGs in peak performance. Altarriba-Bartes et. al. (2020) focused on a variety of recovery strategies including compression garments on post-game performance and found that they offer significant positive effects only in jumping performance, but greater positive effects on muscle damage. On the contrary, a systematic review and meta-analysis on lower limb CGs displayed minimal association with high intensity exercise and performance and physiological changes (da Silva et. al. 2018). The other four studies, Dupuy et. al. (2018), Hill et. al. (2014), Marqués-Jiménez et. al. (2016), and Mota et. al. (2020), focused more on how CGs have a positive impact on delayed onset muscle soreness (DOMS) and muscle damage leading to a more efficient recovery. Collaboratively, each study found that CGs have a small positive impact on perceived muscle soreness, however, Dupuy et. al. (2018) found that massage was the most effective method. These results suggest that the application of CGs may aid in the recovery of DOMS and muscle damage, although the findings need corroboration.
Conclusions	While evidence suggests that CGs have no effect on the recovery on maximal performance based measures, they can have an effect on the athletes perceived recovery. Thus we highly recommend that CGs could be worn to aid in the recovery of muscle soreness however current evidence suggests they have no significant effect on other areas of recovery for athletes.
Implications for clinical practice	Despite some evidence supporting the application of CGs on recovering athlete's following exercise, it is recommended that the therapist should consider the multiple factors associated with performance and physiological changes prior to prescribing CGs. It is important to note the results from this paper cannot be directly generalised to the public due to population differences. The therapist should use this paper as a guide to understand the implications of the lack of effectiveness of using CGs on post exercise recovery and make a clinical decision for each client.

1. Altarriba-Bartes, A., Peña J., Vicens-Bordas J., Milà-Villaroel R. & Calleja-González, J. (2020). Post competition recovery strategies in elite male soccer players. Effects on performance: A systematic review and meta-analysis, *PLoS ONE*, 15(10), 240135–240135.
2. Dupuy, O., Douzi, W., Theurot, D., Bosquet, L., & Dugué, B. (2018). An evidence-based approach for choosing post-exercise recovery techniques to reduce markers of muscle damage, soreness, fatigue, and inflammation: a systematic review with meta-analysis, *Frontiers in Physiology*, 9(403), 1-15.
3. da Silva, C.A., Helal, L., da Silva, R.P., Belli, K.C., Umpierre, D. & Stein, R. (2018). Association of lower limb compression garments during high-intensity exercise with performance and physiological responses: a systematic review and meta-analysis, *Sports Medicine*, 48, pp. 1859–1873.
4. Hill, J., Howatson, G., van Someren, K., Leeder, J. & Pedlar, C. (2014). Compression garments and recovery from exercise-induced muscle damage: a meta-analysis', *British Journal of Sports Medicine*, 48, 1340-1346.

This evidence summary has been prepared by undergraduate students as part of the HLTH 3057 Advanced Evidence Based Practice course. Due to limitations of assignment requirements reviews are limited to a maximum of 8 evidence sources. Conclusions and implications for clinical practice reported are provisional based on the evidence identified in this review and should be contextualized to local practice, clinical expertise and patient values. For further information on the review process please contact steve.milanese@unisa.edu.au



5. Marqués-Jiménez, D., Calleja-González, J., Arratibel, I., Delextrat, A. & Terrados, N. (2015). Are compression garments effective for the recovery of exercise-induced muscle damage? A systematic review with meta-analysis, *Physiology & Behavior*, 153, 133–148.
6. Mota, G.R., Simim, M.A.M, Dos Santos, I.A., Sasaki, J.E. & Marocolo, M. (2020). Effects of wearing compression stockings on exercise performance and associated indicators: a systematic review, *Open Access Journal of Sports Medicine*, 11, 29–42.

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