Keele UNIVERSITY
Impact Accelerator Unit

Keele Critically Appraised Topic (CAT Form)

Clinical Question

In adults with low back pain and leg length discrepancy (LLD), does the use of a correctional foot orthosis compared to no correctional foot orthosis improve pain?

Due to insufficient high quality evidence, we cannot currently recommend the use of heel raises to address LLD to help patients with LBP.

Clinical bottom line

There is currently insufficient high-quality evidence specific to answer this question.

There is low quality evidence that shoe lifts in patients with LLD improve common musculoskeletal (MSK) conditions, but not specifically low back pain (LBP).

There is low quality evidence in a specific population of factory workers that shoe lifts improve pain scores in those patients with LLD and LBP.

Why is this important?

In musculoskeletal practice, leg length discrepancy is anecdotally thought to contribute to low back pain. There are varying perceptions as to what classifies as a significant leg length discrepancy and whether correcting it is beneficial. It is acknowledged that leg length discrepancy can be a normal finding in the large majority of population.

Due to patients being referred into MSK practice to specifically address leg length discrepancy by correcting it with a foot orthosis (i.e. insert into a shoe). We are interested to explore if the cost involved in prescribing orthosis is justified.
In addition, is the assessment of leg length a skill that should be built into our clinical pathways.

Please include: Jason Curtis, Edwina Alcock.
South Staffordshire CAT group, produced December 2023; review date 2028

Search timeframe 2000 to 2023

Search criteria

Population Intervention Comparison Outcomes (PICO) themes	**Description**	**Search terms**
Population and Setting		Adult Mechanical low back pain Non-specific low back pain Degenerative back pain Leg length discrepancy / LLD
Intervention or Exposure		Orthotics, Orthosis, Insoles, Shoe Raise, Heel raise, Inserts
Comparison, if any		No correction LLD Usual care of LBP
Outcomes of interest		Pain reduction Symptom improvement Functional improvement/gain
Types of studies		RCT's Systematic reviews

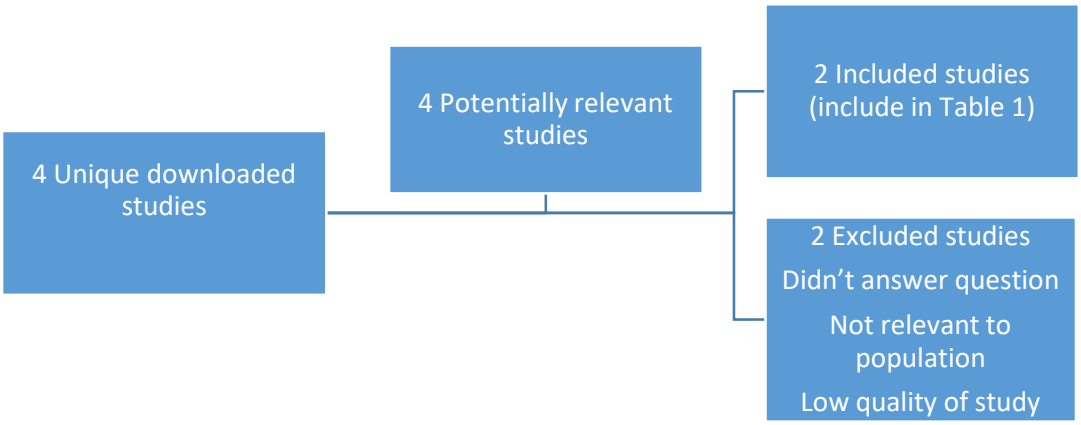
Databases searched

Clinical Knowledge Summaries, PEDro, BMJ Updates, Clinical Evidence, TRIP, Database,NICE,HTA,Bandolier,The,CochraneLibrary,Medline,Cinahl,Embase,PsycInfo,Professional websites. Joanna Briggs Institute, Web of science, Sports discus and Pub med

Date of search

4.1.2023

Results of the search: include the number in each box



There were 4 unique downloaded studies. There were 2 relevant studies. There were 2 studies included and their critical appraisal is included in Table 1. There were 2 excluded studies.

Table 1- Detail of included studies

First author, year and type of study	**Population and setting**	**Intervention or exposure tested**	**Study results**	**Assessment of quality and comments**
Campbell et al 2018 Systematic Review	Adult population over 18 Musculoskeletalrelated complaints and LLD	Shoe lifts	Shoe lifts did not reduce pain and improve function in patients with LLD and common painful musculoskeletal conditions including low back pain	Outcomes were not specific to LBP only

Rannisto et al 2019 RCT	Over 35 years old LLD >5mm Meat cutters factory workers	Corrective insoles for LLD N=42	Workers in the intervention group showed greater improvements in pain and function scores.	Low sample size Very specific population Performance Bias likely – no blinding of personnel

Summary

There is insufficient evidence available to answer the question of using correctional foot orthosis for people with LLD and LBP as an effective intervention.

One recent study has shown possible benefits from using heel raises in patients with LLD and LBP but this is a very specific population and small study size making it difficult to apply to our demographic.

High-quality research evaluating a threshold for LLD to correct and a strategy to do so against an appropriate comparison group is necessary. Work to link the prevalence of people with LLD that also suffer from LBP in a normal population would also lay foundations for future work in this area.

Implications for practice

We cannot currently recommend a change in practice to utilise heel raises to help manage LBP in people who have a leg length discrepancy. We do not advise changing clinical pathways at this time.

There is no evidence to suggest that using heel raises to address LLD as the cause of LBP will harm.

A shared decision conversation with the patient around the findings of this research is encouraged when considering issuing heel raises, and it should be made clear that best practice guidelines for management of LBP should still be followed.

What would you post on X (previously Twitter)?

Due to insufficient high-quality evidence, we cannot currently recommend the use of heel raises to address LLD to help patients with LBP.

Please include: Jason Curtis, Edwina Alcock.
South Staffordshire CAT group, produced December 2023; review date 2028

References

Campbell, T.M., Ghaedi, B.B., Tanjong Ghogomu, E. and Welch, V. (2018). Shoe Lifts for Leg Length Discrepancy in Adults With Common Painful Musculoskeletal Conditions: A Systematic Review of the Literature. *Archives of Physical Medicine and Rehabilitation*, 99(5), pp.981-993.e2. doi:10.1016/j.apmr.2017.10.027.

Rannisto, S., Okuloff, A., Uitti, J., Paananen, M., Rannisto, P.-H., Malmivaara, A. and Karppinen, J. (2019). Correction of leg-length discrepancy among meat cutters with low back pain: a randomized controlled trial. *BMC Musculoskeletal Di*

-2478-3

Please tick the box that best reflects your clinical bottom line and include the picture on page 1

CAT image	Evidence quality	Checkbox
	Good quality evidence to support use….	☐
	Insufficient or poor quality evidence OR substantial harms suggest intervention used with caution after discussion with patient…	☑
	No good quality evidence, do not use until further research is conducted OR Good quality evidence to indicate that harms outweigh the benefits….	☐

If you require this document in an alternative format, such as large print or a coloured background, please contact health.iau@keele.ac.uk

Please include: Jason Curtis, Edwina Alcock.
South Staffordshire CAT group, produced December 2023; review date 2028