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Review

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Anatomic and functional leg-length inequality: A review and recommendation for clinical decision-making. Part II, the functional or unloaded leg-length asymmetry

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Abstract

Background: Part II of this review examines the functional "short leg" or unloaded leg length alignment asymmetry, including the relationship between an anatomic and functional leg-length inequality. Based on the reviewed evidence, an outline for clinical decision making regarding functional and anatomic leg-length inequality will be provided.

Methods: Online databases: Medline, CINAHL and Mantis. Plus library searches for the time frame of 1970–2005 were done using the term "leg-length inequality".

Results and Discussion: The evidence suggests that an unloaded leg-length asymmetry is a different phenomenon than an anatomic leg-length inequality, and may be due to suprapelvic muscle hypertonicity. Anatomic leg-length inequality and unloaded functional or leg-length alignment asymmetry may interact in a loaded (standing) posture, but not in an unloaded (prone/supine) posture.

Conclusion: The unloaded, functional leg-length alignment asymmetry is a likely phenomenon, although more research regarding reliability of the measurement procedure and validity relative to spinal dysfunction is needed. Functional leg-length alignment asymmetry should be eliminated before any necessary treatment of anatomic LLI.

Review

In Part I of this review, the literature regarding the prevalence, magnitude, effects and clinical significance of anatomic leg-length inequality (LLI) was examined. Using data on leg-length inequality obtained by accurate and reliable x-ray methods, the prevalence of anatomic inequality was found to be 90%; the mean was 5.2 mm (SD 4.1). The evidence suggested that, for most people, anatomic leg-length inequality is not clinically significant until the magnitude reaches ~20 mm (~3/4"). The phenomenon of the functional "short leg" will be considered in Part II of this review. The objective is to define functional "short leg", how it differs from anatomic LLI and explore any association with neuromuscular dysfunction. In addition we will review the apparent efficacy of heel