

HIP FACTS FROM THE LITERATURE #96

dr.alisongrimaldi.com

STRIDE WIDTH IN GAIT INFLUENCES HIP JOINT CONTACT FORCES, ADDUCTION MOMENTS AND MUSCLE ACTIVITY



Normal Stride Width
101 ±28 mm



Double Stride Width
176 ±36 mm



Triple Stride Width
255 ±53 mm

Stride width: measured from mid-heel to mid-heel in frontal plane

Compared with Normal Stride Width	HJCF	HAM	GMed Activity
Double Stride Width	↓ 8%	↓ 8%	↑ 5%
Triple Stride Width	↓ 15%	↓ 18%	↑ 24%

HJCF: Hip Joint Contact Force (mid-late stance); HAM: Hip Adduction Moment (mid-late stance) - external forces acting to adduct the hip; GMed Activity - change in % of maximal voluntary contraction over stance phase

Changing stride width can be a powerful tool for altering hip joint and abductor loads and activity

Do you routinely observe stride width during your gait assessment?

Assessing functional tasks in our physical examination is just so important, not only to see if you can reproduce their pain during that task, but to see if you can gain any insights as to 'why?'. Can you see any potential mechanisms that might be adding to some form of overload in the painful area?

Walking is one of the most common tasks that people with hip pain will report as an aggravating factor or a restricted task. There are a number of movement variations that might shift load to various regions of the hip.

Walking with a narrow base results in weightbearing in greater hip adduction. This increases hip joint contact forces, loading of rim structures around the lateral/anterolateral acetabulum (like the labrum) and increases the external hip adduction moment (which needs to be absorbed internally by the hip abductors and their tendons).

Walking in more adduction will also increase compressive loads around the greater trochanter - adding to irritation of grumpy gluteal tendons and bursae.

HIP FACTS FROM THE LITERATURE #96

dralisongrimaldi.com

This study showed that walking with the feet wider apart reduced hip joint contact forces and hip adduction moments, while increasing gluteus medius activity. So, here is a simple strategy to reduce both joint and trochanteric loads in gait. This strategy is also very helpful for ischiofemoral impingement - one cause of lower buttock pain.

For those with hip pain and a narrow base, trial small increases in stride width and check the response.

Different cues/strategies work for different people, that's why it's important to look for specific impairments and try cues tailored for the individual - test and see the effect

Jiang L, Iwamoto Y, Ezumi S, Ishii Y, Kita S, Takahashi M. Effect of wider step-width gait on hip joint contact force. J Biomech. 2025 Jun;186:112742. doi: 10.1016/j.jbiomech.2025.112742. Epub 2025 May 3. PMID: 40344919.