An effective stretching regimen to prevent nocturnal leg cramps

Last year we published a randomised trial demonstrating that stretching before sleep reduces the frequency and severity of nocturnal leg cramps in older adults (Hallegraeff et al 2012). The results of that study align perfectly with the uncontrolled study of Daniell (1979). In a recent letter to this journal, Daniell and Pentrack (2013) proposed an alternative stretching procedure for preventing nocturnal leg cramps. Some major differences can be identified between their new stretching procedure and the procedure used in our study.

First, although they are not a commonly affected muscle group, the hamstrings can be the site of nocturnal leg cramps (Allen and Kirby 2012, Monderer et al 2010). Because of this, the stretching procedures in our study included stretches of the hamstrings, in contrast to the alternative stretching procedure of Daniell and Pentrack.

Second, we have concerns that the alternative stretching procedure proposed by Daniell and Penttrack may oppose correct execution of a full passive stretch to end of range and may lead to a higher risk of injuries. In their procedure, patients lower their heels independently from the edge of a low step or platform while holding a handrail. In our experience with this stretch, we have observed a tendency for some patients to tense the calf muscles due to proprioceptive stimulation, thus opposing the execution of a full passive stretch to end of range. If the end of range position is not achieved, the intensity of the stretching intervention is not controlled. There may be increased potential for injury if patients stretch while the muscle is contracting, or if patients were to fall from the edge of the low platform. In our regimen, the calf stretch in standing involves ‘flexing the front knee so that the trunk moves forward, keeping the trunk straight and the heels in contact with the floor’, as shown in Figure 1. In this stretch, patients can control their performance because the heels stay in ground contact through to the final stretch position, ensuring correct execution of a full passive stretch to end of range. Correct application of a full passive stretch may also be relevant in community dwelling elderly because insufficient stretching may promote tendon shortening, which may itself increase nocturnal leg cramps (Monderer et al 2010).

Finally, we note that the stretching regimen also differ in the duration of stretch and the time of the day that the stretches are applied. All these issues highlight that, while theoretical arguments can be raised to suggest modification of an intervention with proven effects, arguments against the modification can also be raised. Ultimately, physiotherapists should seek randomised comparisons of the procedures to decide whether to accept the modified version.

Note of caution for diagnosing nocturnal leg cramps

When considering a diagnosis of nocturnal leg cramps, physiotherapists should be careful to distinguish the symptoms from restless legs syndrome. Both disorders are reviewed in detail by Merlino and Gigli (2011), among a series of conditions in the ‘sleep–related movement disorders’ category of the International Classification of Sleep Disorders (ICSD-2). In this classification system, nocturnal leg cramps are termed ‘sleep-related leg cramps’ and are consistent with the International Classification of Diseases (ICD-9) code 327.52, which has the following definition: A painful sensation in the leg or foot is associated with sudden muscle hardness or tightness indicating a strong muscle contraction and the painful muscle contractions in the legs or feet occur during the sleep period, although they may arise from either wakefulness or sleep. Forceful stretching relieves the pain of the affected muscles and leg cramps are not explained by another current (medical) sleep disorder or medication use. All of these criteria should be present for a proper diagnosis. These criteria are essential to distinguish nocturnal leg cramps from restless legs syndrome (ICD-9 333.93), which is an urge to move the legs, usually accompanied or caused by uncomfortable and unpleasant sensations in the legs, which begin or worsen at rest. The urge to move whereby unpleasant sensations are partially or totally relieved by movement may be worse in the evening or night than during the day.

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References


Figure 1. Calf stretch in standing, which was one of three stretches in the regimen used in the trial by Hallegraeff et al (2012).