



## Different Sites of Lower Limb Tendinopathy Different Loading Program

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### Editorial

Patellar and Achilles tendinopathy are two of the most common tendinopathy of the lower limb. Patients with tendinopathy mainly complain of decreased function and increased pain, both of which may affect daily activities. Diagnosis is based on palpation and reproducing pain with specific clinical tests as well as defining pain features (e.g. localized or referred pain). Although the symptoms and signs of tendinopathy are relatively clear, to date, no ideal management has emerged. A plethora of physiotherapy maneuvers have been recommended for the management of Achilles and patellar tendinopathy such as Electrotherapeutic (ESWT, Laser, Iontophoresis, Ultrasound) and Non-Electrotherapeutic modalities (Soft tissue techniques, Acupuncture and Exercise programs).

Nowadays, eccentric loading of the “problematic” tendon is the most commonly used conservative approach in the management of tendon injury [1]. A recently systematic review concluded that physicians should consider eccentric-concentric training alongside or instead of eccentric training [2]. A Heavy Slow Resistance (HSR) program is proposed in the tendinopathy rehabilitation of lower limb [3,4]. Based on the research findings, the HSR program can be proposed as an alternative to the Alfredson eccentric loading lower limb tendinopathy management. Recently, isometric training have been proposed to decrease and manage Patellar and Achilles tendon pain and start muscle-tendon unit loading when symptoms and especially pain limits the ability to carry out isotonic training [5-7].

The question that arises is if loading training is effective for all sites of Patellar and Achilles tendinopathy and for all patients with the above two referred tendinopathy? Research has found that different sites of achilles tendinopathy are managed with different protocols of eccentric training. For example, eccentric loading with dorsiflexion has positive effects for mid-portion achilles tendinopathy patients [1,8-11], but eccentric loading without dorsiflexion is effective on patients with insertion achilles tendinopathy [12]. Loading in HSR are carried out in the full range of motion of ankle joint for achilles tendinopathy. Therefore, HSR may not to be an effective treatment for insertion Achilles tendinopathy unless range of motion is changed. Furthermore, It is seems that HSR program is proposed for active young people.

Squat is an effective treatment technique when the patellar tendinopathy is at the most common site of pain in patellar tendinopathy, at the inferior pole of the patella [13-15]; however, no studies have found the effectiveness of such a loading program on other sites of patellar tendinopathy such as at the superior pole of the patella, at the midportion of the tendon and at the tibial tuberosity. Therefore, more studies are needed to determine the effectiveness of loading program at other sites of patellar tendinopathy.

Isometric evidence is currently applied in the management of the lower limb tendinopathy. Five repetitions of 45 second isometric mid-range quadriceps exercise at 70% of maximal voluntary contraction have been found to decrease patellar tendon (patellar tendinopathy at the most common site) pain for 45 minutes post exercise. The last was also associated with a reduction in motor cortex inhibition of the quadriceps that was related to patellar tendinopathy [16]. Three sets of five repetitions of isometric gastrocnemius contractions with maximum ankle plantar flexion and full knee extension combined with eccentric-concentric loading showed positive effect in mid-portion Achilles tendinopathy [6]. However, the parameters of isometric training are based on clinical experience and their effect on patients’ symptoms with tendinopathy of lower limb in different sites needs further research.

Writing this article it is not the intention of the author to increase the knowledge of physical therapist but to generate queries about why they do not use the similar treatment protocol for the

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rehabilitation of all lower limb tendinopathy. Further well-designed trials are needed to find the appropriate parameters of loading for each site of pain. It is believed that even if exercise training is found for the rehabilitation of all tendinopathy of the lower limb, this training will not be used as a sole treatment.

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