



# The Use of Dry Needling and Myofascial Meridians in a Case of Plantar Fasciitis

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## Abstract

**Objective:** The purpose of this case report is to describe the use of dry needling based on myofascial meridians for management of plantar fasciitis.

**Clinical features:** A 53-year-old man presented with bilateral chronic foot pain for more than 2 years. After 2 months of conventional treatment (ultrasound, plantar fascia and Achilles tendon stretching, and intrinsic foot strengthening), symptoms eventually improved; however, symptoms returned after prolonged standing or walking. Almost all previous treatment methods were localized in the site of pain that targeted only the plantar fascia. Initial examination of this individual revealed that multiple tender points were found along the insertion of Achilles tendon, medial gastrocnemius, biceps femoris, semimembranosus, and ischial tuberosity.

**Intervention and outcome:** Dry needling of the trigger points was applied. After 4 treatments over 2 weeks, the patient felt a 60% to 70% reduction in pain. His pressure pain threshold was increased, and pain was alleviated. The patient returned to full daily activities. The rapid relief of this patient's pain after 2 weeks of dry needling to additional locations along the superficial back line suggests that a more global view on management was beneficial to this patient.

**Conclusion:** Dry needling based on myofascial meridians improved the symptoms for a patient with recurrent plantar fasciitis.

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## Introduction

The plantar surface of the foot is often a source of pain.<sup>1</sup> Plantar fasciitis (PF) or plantar heel pain is one of the most common conditions in runners or in individuals whose work requires long-term standing as well as sedentary populations.<sup>2,3</sup> It also makes up 8% of all injuries to people participating in sport activities.<sup>4</sup> The evaluation and management of PF continue to be a source of debate.<sup>5</sup>

Irving et al<sup>6</sup> indicated that patients with chronic heel pain have inability to undertake physical activities, less energy to do daily tasks, and lower quality of life. There are many factors such as trauma; inflammation; heel spur; and degenerative, metabolic, nutritional, and psychological disorders that have been introduced for PF.<sup>7,8</sup> However, myofascial pain syndrome or myofascial meridians involvement is recently believed to be an explanation for the pathological process of PF.<sup>9</sup> Myofascial trigger point (MTrP) is a hyperirritable spot in skeletal muscle and is associated with a hypersensitive palpable nodule in a taut band and may result in characteristic referred pain, tenderness, motor dysfunction, and autonomic phenomena.<sup>10</sup>

Additionally, the lower parts of superficial back line (SBL) contains plantar fascia, Achilles tendon, gastrocnemius, hamstrings, sacrotuberous ligament, and erector spinae. Strain or tenderness in the above-mentioned anatomical trains' line might be considered in treating PF.<sup>9</sup>

Numerous rehabilitative interventions have been described for the treatment of PF that includes the following: orthotic devices,<sup>11</sup> taping,<sup>12</sup> injection,<sup>13</sup> modalities,<sup>14</sup> stretching and strengthening exercises,<sup>15</sup> manual therapy,<sup>16</sup> and dry needling (DN).<sup>17</sup>

Dry needling is a popular treatment technique in myofascial pain syndrome that involves inserting a fine filament needle into the trigger points of soft tissues.<sup>7</sup> There is limited evidence supporting DN for PF.<sup>18</sup> Moreover, there is a lack of studies specifically related to PF and DN based on myofascial meridians.

## Case Report

A 53-year-old man with no known injury presented with bilateral foot pain. At first, he experienced a sharp, stabbing pain associated with feeling of fluid exit beneath the metatarsal heads during prayer stretch approximately 2½ years ago. His pain was worse in the morning when he first stepped out of bed. His pain (as measured using a 10-point numeric pain scale) was

8 for the right side and 6 for the left one. The patient spent most of his day sitting in front of the computer on a stool or swivel chair with a faulty position (Fig 1). Standing for more than 20 minutes exacerbated his pain. He was diagnosed with PF.

After 2 months of conventional treatment (ultrasound, plantar fascia and Achilles tendon stretching, and intrinsic foot strengthening), symptoms eventually became slightly better. However, his symptoms returned after prolonged standing or walking, after getting up from a seated position, and at the beginning of an activity and worsened by the end of the day and led him to go for further considerations. The next program included extracorporeal shockwave therapy, low-level laser therapy, ice, insoles and shoe modifications, and self-management for 2 months, which did not help relieve the condition.

The patient had a recurrence of PF that began 2 months prior to presentation to this clinic. The symptoms had disturbed patient's daily activities and affected his full-time job. The situation became worse after a month, and he could not walk more than 10 minutes without having symptoms.

Upon physical examination, the patient experienced tenderness during palpation of the calcaneal attachment of the plantar fascia and the transverse arch below the first and fifth metatarsal heads. There was also moderate tenderness along the lower parts of the SBL. The SBL is a line of fascia that starts at the plantar surface and connects along the posterior of the body, ending in the frontal area of the head. Tender points were located 10 cm above insertion of Achilles tendon, 10 cm above previous point on medial gastrocnemius, about 5 cm above femoral condyles on biceps femoris and semimembranosus, and ischial tuberosity. Hip, knee, and ankle ranges of motion



**Fig 1.** The patient's sitting position on a stool. (Color version of figure is available online.)

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