



Pain Reduction Effects According to Simultaneous Application of Plantar Fascia Self-myofascial Release Therapy and Achilles Tendon Taping of Pedionalgia Patients

**Sung Bum Ju*

Department of Physical Education, Busan National University of Education, Busan, South Korea

***Correspondence:** Email: accent@bnue.ac.kr

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Dear Editor-in-Chief

In Korea, more than 270,000 patients were treated for plantar fasciitis in relation to pedionalgia in 2019, and the number of patients is on the rise every year (1). People with plantar fasciitis visit hospitals due to pedionalgia and complain about difficulties in daily life and pain when they walk. Plantar fasciitis is a disease that needs life-long care so prevention and post-care are important. The main causes of pedionalgia are continuous pressure and stimulation to specific parts of the foot due to thin fat layers protecting the fascia and improper walking habits. Pedionalgia causes inflammation to the plantar fascia and Achilles tendon (2).

This research aimed to find an optimal treatment combination to ease plantar fascia and Achilles tendon inflammation, which is the most important cause of pedionalgia.

Some authors aimed to reduce the effect of pedionalgia by simultaneously applying plantar fascia self-myofascial release therapy used for plantar fasciitis treatment (3, 4) and Achilles tendon taping used for Achilles tendinitis treatment (5, 6).

By analyzing pain reduction through simultaneous application of plantar fascia self-myofascial release therapy and Achilles tendon taping to patients with pedionalgia, this research can provide

implications to public health research by offering proactive information about pain prevention and reduction for pedionalgia patients around the world, including Korea.

This study was conducted with the WMA Declaration of Helsinki in 2021. Members in their 40s to 50s currently complaining about pedionalgia for more than six months after receiving orthopedic treatment related to pedionalgia were enrolled. They were randomly divided into an experimental group and a control group. A three-week treatment was applied to the experimental group. The subjects in the experimental group performed plantar fascia self-myofascial release therapy by walking in the same place and giving stimulation to the planta pedis using a 12 cm Blackroll Duoball (BLACKROLL, Germany) for 10 min, three times a day. For the Achilles tendon taping, three layers of 5 cm Kinesio tape (Kinesiology Tape, Nitto Denko, Japan) were applied to a wide range by fully extending from the calcaneus along the Achilles tendon to maximize the effect.

Pain reduction was analyzed using a 5-point Likert scale for current pain and a 4-point Likert scale for satisfaction with pain control. Paired *t*-tests were carried out to compare each group's



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pre- and post-application scores using the SPSS 23.0 (IBM Corp., Armonk, NY, USA) statistical program with the significance level set to 0.05.

The experimental group showed significant pain reduction in the pre- and post-application analysis ($P=0.001$) and the satisfaction with pain control was significantly high ($P=0.001$). However, no significant change was confirmed in the control group. This research confirmed that the reduction of pedionalgia and satisfaction with pain control were high due to the simultaneous application of plantar fascia self-myofascial release therapy and Achilles tendon taping.

The simultaneous application of plantar fascia self-myofascial release therapy and Achilles tendon taping should be considered for effective treatment and care to reduce pain in patients with pedionalgia. This research offered a new direction and information to the public health field for a conservative pedionalgia reduction and care treatment program.

Conflict of interest

The author declares that there is no conflict of interests.

References

1. Kim SM, Kim YI (2020). 2019 National Health Insurance Statistical Yearbook. Health Insurance Review and Assessment Service & National Health Insurance Service.
2. Carla S, Marco C, Veronica M, Aldo M, et al (2013). Plantar fascia anatomy and its relationship with Achilles tendon and paratenon. *J Anat*, 223(6): 665-676.
3. Back WY, Ju SB (2019). The effect of duoball self-myofascial release therapy on pain reduction in patient with chronic planter fasciitis. *The Korean Journal of Sport*, 17(4): 837-843.
4. Laffaye G, Da Silva DT, Delafontaine A (2019). Self-myofascial release effect with foam rolling on recovery after high-intensity interval training. *Front Physiol*, 10: 1287.
5. Bridget LF, Paul D, Elizabeth RD, Jeremy SL, & Caroline MA (2010). The effect of kinesiotape on function, pain, and motoneuronal excitability in healthy people and people with Achilles tendinopathy. *Clin J Sport Med*, 20(6): 416-21.
6. Lee JH, Yoo WG (2012). Treatment of chronic Achilles tendon pain by Kinesio taping in an amateur badminton player. *Phys Ther Sport*, 13(2): 115-9.