

patients with CTS. These findings create several avenues for future research. Specifically, the effect of osteopathic manipulative treatment on patients with CTS should be studied and compared with the effects of surgical procedures and multimodal manual therapy. (doi:10.7556/jaoa.2017.095)

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Osteopathic Manipulative Therapy for Foot-Pain: How Many Sessions? How Often?

Kaufmann J, Larsen S. How do the number and duration between osteopathic treatments influence the effect on patients suffering from foot-related pain: a dose-response study. *Int J Pharm Sci Scient Res*. 2016;2(5):209-216.

Osteopathic manipulative therapy (OMTh; manipulative care provided by foreign-trained osteopaths) is used for the management of various musculoskeletal conditions, including low back, neck, and extremity pain and dysfunction.¹ Of these conditions, foot-related pain is one of the 3 most common reasons behind visits to general health care practitioners. Researchers in Norway conducted an observer-blinded, randomized, single-center trial with a 3² factorial design to investigate the combination of the number of and intervals between OMTh sessions that maximizes the response to OMTh.

Fifty-four patients with palpatory evidence of somatic dysfunction from Achilles tendinitis, plantar fasciitis, or ankle arthritis and pain greater than 2.5 cm on a 10-cm visual analog scale were recruited from orthopedic clinics and general health practitioners. The patients were randomly assigned into 9 groups. The selected levels for the

number of treatments for the groups were 3, 4, or 5 treatments, and the selected levels for treatment intervals for the groups were 7, 10, or 14 days. Patients underwent standardized, 40-minute OMTh sessions that included a variety of OMTh procedures (high-velocity, low-amplitude; springing; muscle energy; soft tissue; functional; strain-counterstrain; facilitated positional release; Still; cranial; and lymphatic techniques). The primary outcome measures were pain at rest and pain at load, and they were reported before each session, 1 day after the final session, and 4 weeks after the final session.

Using analysis of covariance, it was discovered that the optimal combination for reduction of pain at rest was 4 sessions (pain was reduced from 3.3 [95% CI, 1.9-4.7] to 1.7 [95% CI, 0.7-2.7]) with a 7-day interval between sessions (pain was reduced from 2.9 [95% CI, 1.8-4.0] to 1.4 [95% CI, 0.5-2.3]); the dominant factor was the number of treatments. For pain while bearing weight, 4 treatments (pain was reduced from 5.7 [95% CI, 4.7-6.8] to 3.1 [95% CI, 1.9-4.4]) with a 10-day interval between treatments (pain was reduced from 5.2 [95% CI, 4.2-6.0] to 2.7 [95% CI, 1.7-3.7]) was the optimal combination for reduction of pain.

The importance of finding an optimal combination of number of OMTh sessions and time interval between sessions will help to ensure adequate management of symptoms of musculoskeletal conditions. The results of this study suggest that more dose-response studies that examine the effect of manual therapy (including OMTh) are warranted. (doi:10.7556/jaoa.2017.096)

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1. Hasselström J, Liu-Palmgren J, Rasjö-Wrååk G. Prevalence of pain in general practice, *Eur J Pain*. 2002;6(5):375-385.

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