RAPID RESEARCH

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Morton's Neuroma & Foot Injury Treatments

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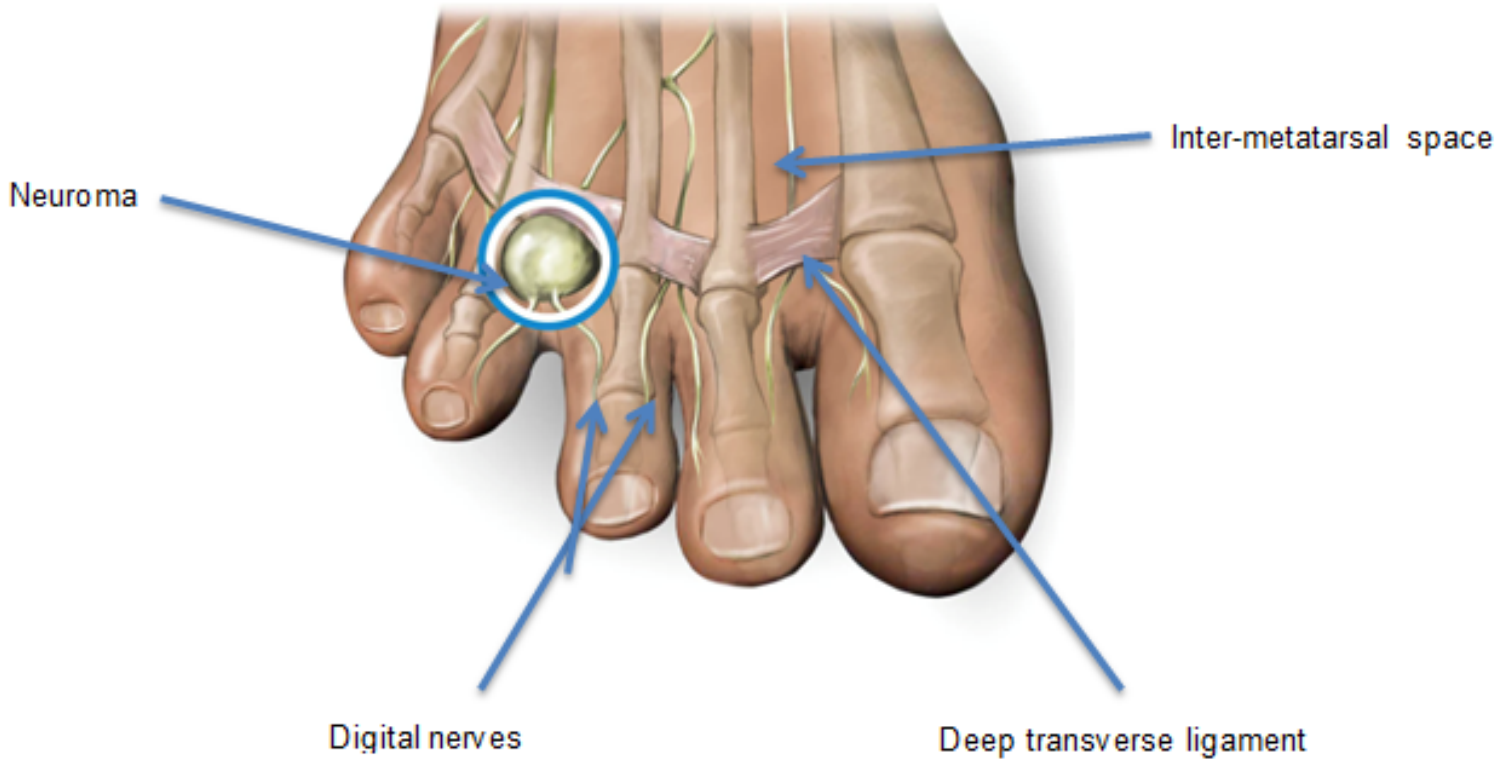
MORTON'S NEUROMA & THE DEEP TRANSVERSE METATARSAL LIGAMENT

JUNE 2023

Click for Full Text (Mar Ruiz-Herrera et al. 2022)

This research verified the relationship between MN and the space under the DTML between the metatarsal heads of the third (M3) and the fourth (M4) metatarsals using US.



KEY FINDINGS

100 subjects (200 measurements) were included
*Ultrasound visualization was not achieved in 22 out of 100 patients studied.

Statistically Significant Differences in US Measurements For:
Height or distance DTML-plantar skin **(13.0 mm) vs MN patients (11.4 mm).**
Base or inter-metatarsal distance M3 and M4
Surface of the parallelogram “h” × “b”)
**higher values found in controls.*

Sitting hours in an office chair were significantly higher in MN patients compared to controls, with a greater difference observed in women than in men.

Multivariate analysis indicated that inter-metatarsal distance M3 and M4, and patient's weight were statistically significant variables for differentiating between control and MN patients.

MAIN TAKEAWAYS

Measurements (b, h, and s) were larger in the control group and smaller in patients with Morton's neuroma (MN).

MN patients had lower h values compared to the control group, and this left laterality appeared in other variables, possibly due to equinus.

Women's predominant use of narrow shoes with high heels and thin soles may contribute to the development of MN, while men's high-impact physical activity and cycling can lead to compression neuropathies.

Weight and the size of metatarsal bases were strong predictors of MN, with a larger base size associated with a lower risk of MN. Ultrasound is valuable for diagnosing and surgically decompressing MN.

NEUROMA INJURIES IN ATHLETES

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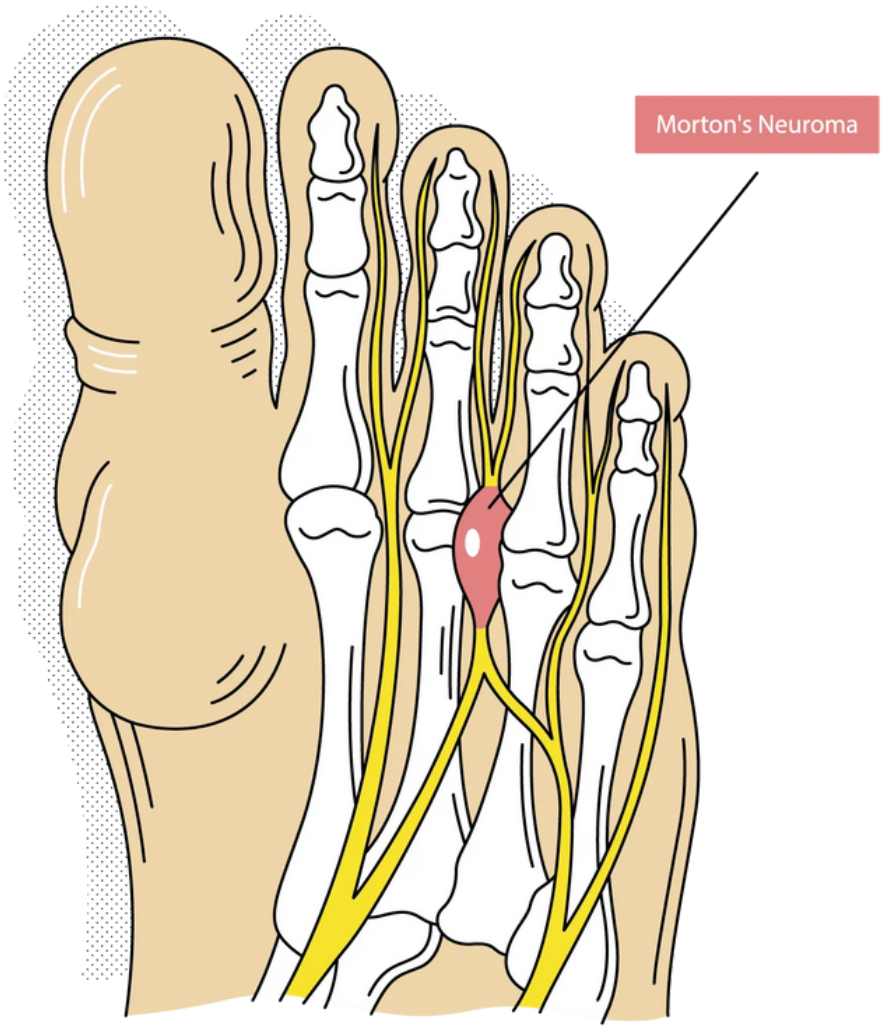
Click for Full Text (Carroll et al. 2022)

This research integrated a movement system approach in pathoanatomical, evaluation, and intervention considerations for athletes with common forefoot pathologies, including neuromas.



KEY FINDINGS

Biomechanical Considerations

Excessive pronation or supination of foot, can increase the risk of injuries.
Single leg squat & step-down tests can assess neuromuscular control and identify impairments in the trunk, pelvis, hip, knee, and ankle.

Neuromas

Morton's neuroma primarily affect 3rd interdigital nerve between the 3rd & 4th metatarsal heads, via repetitive trauma and tissue thickening.

Risk Factors Include:

Wearing narrow shoes, over-training with repetitive extension of the MTP joints, and abnormal pronation with a collapsed transverse arch.

Symptoms Include:

Neurogenic pain in the plantar aspect of the forefoot, tenderness, burning, tingling, numbness, and a sensation of walking on a lump.

Diagnostic tests:

Manual compression of the transverse arch and Mulder test

MAIN TAKEAWAYS

A comprehensive examination of forefoot pathology should include assessments of foot and ankle, static standing, gait, and functional movements, as well as a lower quarter screen to identify potential contributing impairments.

The Foot Posture Index-6 (FPI-6) can be used to assess foot alignment, and a movement system diagnosis of abnormal pronation or supination can assist in directing intervention strategies.

Treatment for abnormal pronation may include mobilization to the navicular, anti-pronation taping, neuromuscular reeducation, strengthening exercises for foot muscles, and exercises to stabilize the hip and lumbo-sacral spine.

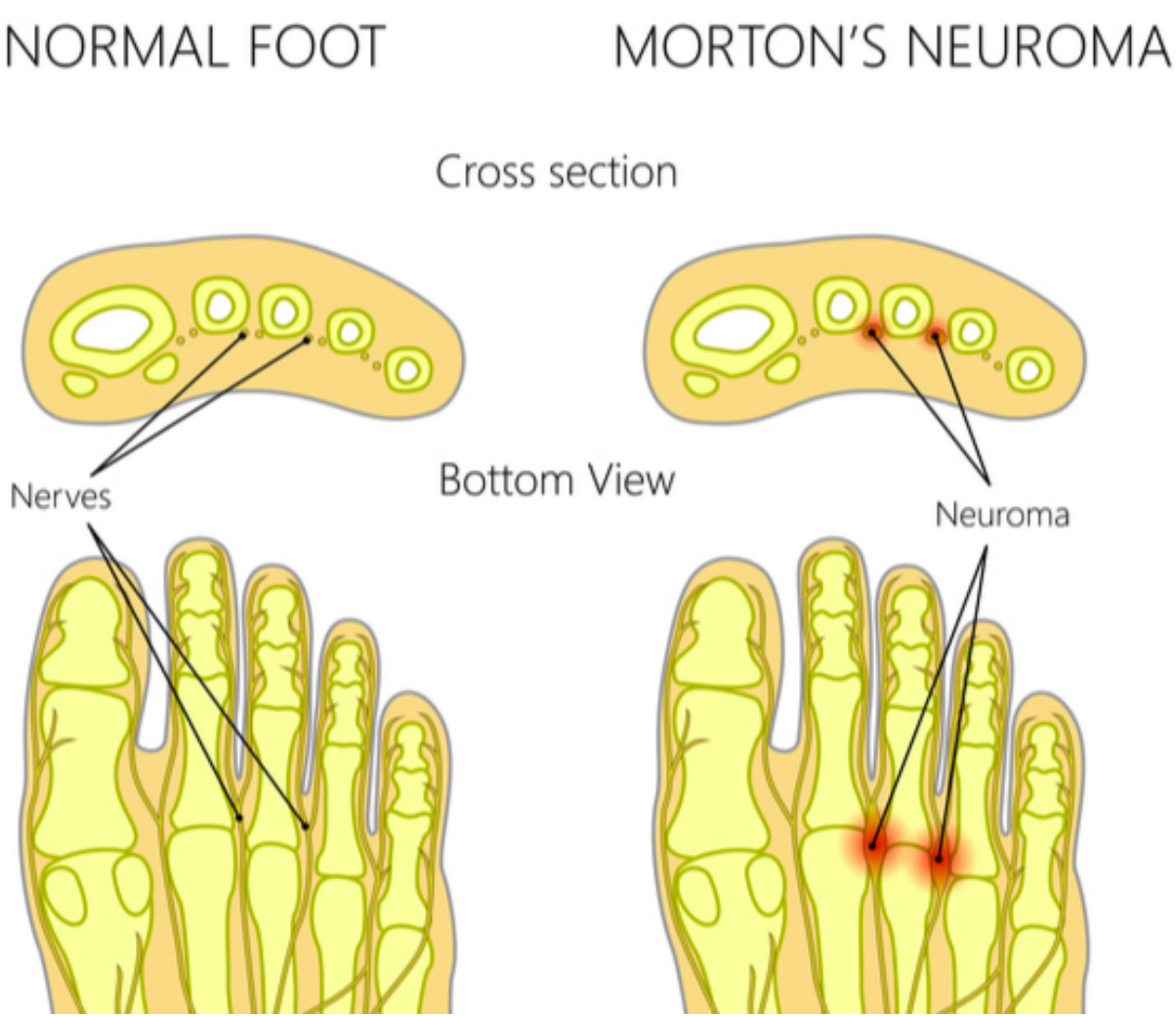
Treatment strategies should be individualized for each patient based on their limitations.

NON-SURGICAL INTERVENTIONS FOR MORTON'S NEUROMA

JUNE 2023

Click for Full Text (Matthews et al. 2019)

This research reviewednon-surgical interventions for MN, to evaluate the evidence base for the clinical management of MN.



KEY FINDINGS

25 studies included: 7 (RCTs) and 18 pre/post case series.

Corticosteroid or sclerosing injections were the most commonly reported interventions, with seven studies each.

A meta-analysis of 2 RCTs showed that corticosteroid injection was more effective in reducing pain compared to control based on pain scale.

Other RCTs reported the efficacy of manipulation/mobilization and extracorporeal shockwave therapy compared to control in reducing pain.

Treatment success was assessed for extracorporeal shockwave therapy versus control and corticosteroid injection versus footwear/padding, showing positive outcomes, but limited methodological quality was observed in case series studies investigating sclerosing and Botox injections, radiofrequency ablation, and cryoneurolysis.

MAIN TAKEAWAYS

Corticosteroid injections were found to be more effective in reducing pain compared to control.

Manipulation/mobilization showed some efficacy in reducing pain compared to control at 6 weeks.

Case series studies suggested potential pain reduction with sclerosing injections, radiofrequency ablation, cryoneurolysis, and Botox injections, but the evidence quality was limited and further research is needed.

Footwear and padding interventions showed low success rates compared to corticosteroid injections, although they had no reported adverse events.

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