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Abbreviations used in this issue

BMI = Body Mass Index
MRI = magnetic resonance imaging
OR = odds ratio

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Foot and Ankle Research Review

Welcome to Issue 30 of Foot and Ankle Research Review.

Thank you for your feedback on the previous issue of the review. In this issue I have highlighted a series of literature reviews based on recent conversations with colleagues. The reviews include treatment of ankle injuries, plantar plate injuries, Charcot arthropathy, bone marrow oedema and osteochondral lesions of the ankle. As you can see I have quite varied clinical conversations. I have also provided commentary on foot orthoses and back pain, and interventions for patellofemoral pain. I have also squeezed in a bit of dermatology based on two conditions I have recently managed.

I hope you enjoy the selection of studies in this review and I look forward to your feedback.

Kind regards,

Dr Matthew Carroll

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Metatarsophalangeal joint stability: a systematic review on the plantar plate of the lesser toes

Authors: Maas NM et al.

Summary: A systematic review was conducted to consider the anatomy of the plantar plate of the lesser toes (digi 2-5), and the relation between these and lesser metatarsophalangeal (MTP) joint stability. A total of nine studies were identified with five assessing plantar plate anatomy and four examining plantar plate integrity and related MTP joint stability. While the review identified the importance of plantar plate anatomy and integrity for MTP joint stability, it noted a lack of primary data.

Comment: Pain related to MTP joint instability presents the clinician with many challenges. This systematic review provides a good overview of lesions of the plantar plate morphology, histology and the plate's role in stability of the MTP joints. The review highlights the limited data that surrounds plantar plate anatomy of the lesser toes and MTP joint stability. For those who love their anatomy this review is well worth a read to sharpen your knowledge.

Reference: *J Foot Ankle Res.* 2016;9:32

[Abstract](#)

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Treatment and prevention of acute and recurrent ankle sprain: an overview of systematic reviews with meta-analysis

Authors: Doherty C et al.

Summary: This systematic overview of 46 intervention systematic reviews evaluated treatment and prevention strategies for acute ankle sprain and chronic ankle instability. The AMSTAR quality assessment tool gave the 46 reviews a mean score of 6.5/11. Evidence for preventing recurrence of an ankle sprain with bracing was strong while that for neuromuscular training was moderate. In the combined outcome of pain, swelling and function after acute sprain, evidence strongly supported non-steroidal anti-inflammatory drugs and early mobilisation, while moderate evidence supported exercise and manual therapy. The efficacy of surgery and acupuncture for the treatment of acute ankle sprains was conflicting, while evidence supporting ultrasound was insufficient.

Comment: This research presents an overview of systematic reviews surrounding ankle injuries. The review provides evidence surrounding surgical and non-surgical interventions, and pharmacological treatment of acute injury and chronic ankle instability. Meta-analysis was performed to evaluate the effects of exercise and external support interventions on re-injury in people with histories of ankle sprain. The best evidence synthesis of high-quality reviews indicates there is strong evidence for exercise therapy and bracing in preventing recurrence of an ankle sprain in those with chronic ankle instability. For the treatment of acute ankle sprain, strong evidence was found to support the use of non-steroidal anti-inflammatory drugs and early mobilisation to manage pain, swelling and restore function.

Reference: *Br J Sports Med.* 2016;Oct 8 [Epub ahead of print]

[Abstract](#)

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2016 Patellofemoral pain consensus statement from the 4th International Patellofemoral Pain Research Retreat, Manchester. Part 2: recommended physical interventions (exercise, taping, bracing, foot orthoses and combined interventions)

Authors: Crossley KM et al.

Summary: This article details six evidence-based recommendations made following the consensus meeting at the 4th International Patellofemoral Pain Research Retreat. The six recommendations apply to the use of exercise therapy, particularly combining hip and knee exercises, combined interventions and foot orthoses in patients with patellofemoral pain. Patellofemoral, knee and lumbar mobilisations and electrophysical agents were not recommended.

Comment: This evidence is drawn from a well conducted systematic review and consensus by a panel of experts. The recommendations advocate the use of exercise therapy to reduce pain and improve function, combining hip and knee exercises and foot orthoses to reduce pain in the short term. Interestingly, it was not clear to the expert panel assembled at this meeting if patellar taping is beneficial as a first line treatment option. This finding is also consistent with previously published Best Practice Guidelines.

Reference: *Br J Sports Med.* 2016;50(14):844-52

[Abstract](#)

Predictors of foot pain in the community: the North West Adelaide health study

Authors: Gill TK et al.

Summary: This Australian study sought to define factors that predict foot pain in a community-based sample using data derived from a longitudinal study (North West Adelaide Health Study) conducted in 2004-6 and repeated in 2008-10 that included 4056 randomly selected adults aged ≥18 years. Foot pain prevalence in 2004-6 was 14.9% (95% CI 13.6-16.4) while in 2008-10 it was 29.9% (95% CI 27.5-32.5). The variables providing the greatest sensitivity for the presence of foot pain in 2008-10 were: sex (female), self-reported arthritis, ever having back pain/stiffness, an obese BMI classification and foot pain in 2004-6. Individuals at highest risk of foot pain in 2008-10 were those with symptoms of depression, self-reported arthritis, upper limb pain and foot pain, or obese BMI.

Comment: The findings indicate the ever changing skill set the clinician must have when confronted with foot pain. This study provides great insight into predictors of foot pain and notes that those reporting depression, arthritis, previous foot pain, upper limb pain and a high BMI were at greater risk of reporting foot pain. It highlights the clinician's need to consider and address how BMI, depression and general joint health plays a role for patients who are significantly burdened by foot pain.

Reference: *J Foot Ankle Res.* 2016;9:23

[Abstract](#)

Independent commentary by Dr Matthew Carroll



Matthew graduated in podiatry at the CIT in Wellington. He undertook his postgraduate work at Otago University, Dunedin, New Zealand, Curtin University, Western Australia and Auckland University of Technology, Auckland, New Zealand. He is Head of Podiatry and Senior Lecturer at Auckland University of Technology, Director/Treasurer of the Australia New Zealand Podiatry Accreditation Council and a Board member of the Podiatrists Registration Board of New Zealand. He has a special interest in inflammatory arthritis and is active in research in rheumatoid arthritis, gout and lupus.

Foot orthotics for low back pain: The state of our understanding and recommendations for future research

Authors: Papuga MO and Cambron J

Summary: This review examined published literature to determine the efficacy of foot orthotics for low back pain. Foot orthotics remain experimental, investigational, or unproven for low back pain as there is insufficient evidence of clinical outcomes, with a lack of high quality randomised controlled trials (RCTs). However, extensive research on biomechanical mechanisms that may underlie benefits of orthotics may address this gap, and promising pilot studies and ongoing large-scale RCTs examining the effects of foot orthotics on chronic low back pain are beginning to emerge.

Comment: This is indeed a controversial area of practice mainly related to the lack of RCTs that have established clinical effectiveness. The article does not provide the clinician with an answer to the link between foot function, foot orthoses and lower back pain, but highlights the numerous difficulties that research faces to determine a causal link. The article does raise an interesting point surrounding the role of foot orthotic materials and their role in force dissipation. Is the material under the foot as important as the profile of the foot orthotic?

Reference: *Foot (Edinb) 2016;26:53-7*
[Abstract](#)

Bone marrow edema syndrome in the foot and ankle

Authors: Mirghasemi SA et al.

Summary: This review discussed bone marrow edema syndrome (BMES), an uncommon and self-limited syndrome characterised by extremity pain and swelling, which may occur during activity or at rest, usually at night, and is of unknown etiology. Affected sites in decreasing order of frequency are the bones of the hip, knee, ankle, and foot. BMES mostly affects middle-aged men and younger women who have pain in the lower extremities and is usually confirmed with MRI. Due to the low prevalence and nonspecific signs, the correct diagnosis of BMES in the foot and ankle is often delayed, resulting in impairment in function and quality of life. Options for treatment are limited and may include symptomatic treatment, pharmacologic treatment and surgery, with the goal to relieve pain and shorten disease duration.

Comment: Although this review is not systematic in nature it has some very thought-provoking content that must be considered by the clinician. BMES is not common but warrants inclusion as a differential diagnosis in cases where pain is unresponsive to basic analgesic treatment. The review provides a good overview of etiology, diagnosis, pathophysiology and treatment options.

Reference: *Foot & Ankle Int. 2016;Sep 1 [Epub ahead of print]*
[Abstract](#)

Charcot arthropathy of the foot and ankle

Authors: Strotman PK et al.

Summary: These authors have provided an informative review on Charcot foot arthropathy, a progressive, destructive inflammatory process secondary to diabetes mellitus. Charcot arthropathy severely reduces overall quality of life and dramatically increases the morbidity and mortality of patients. The review discusses the pathophysiology, diagnosis and treatment of this condition.

Comment: I particularly enjoyed this review as the authors have produced grades of recommendations for treatment options based on levels of evidence. The review provides a well-constructed summary of classification and a good account of operative and non-operative strategies. The authors also produce eight clear recommendations based on the review findings.

Reference: *Foot & Ankle Int. 2016;Oct 7 [Epub ahead of print]*
[Abstract](#)

Osteochondral lesions of the ankle

Authors: Wodicka R et al.

Summary: This review presents up-to-date information to assist in the diagnosis of osteochondral lesions and discusses an evidence-based approach for management of chronic osteochondral lesions.

Comment: I particularly enjoyed this review for the detail provided surrounding the anatomy and pathophysiology, the review of radiological classifications and the detail surrounding surgical management options. The review emphasises the limited evidence surrounding non-operative management for this condition. I found this to be a great overview of this clinical entity.

Reference: *Foot & Ankle Int. 2016;37(9):1023-43*
[Abstract](#)



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Palmoplantar psoriasis and palmoplantar pustulosis: Current treatment and future prospects

Authors: Raposo I and Torres T

Summary: Discussing the clinical presentation, pathophysiology and current treatment options for palmoplantar psoriasis and palmoplantar pustulosis, this review reported on the definitions of these conditions, highlighting the similarities and differences in terms of epidemiology, clinical presentation, histopathology, genetics and pathogenesis. Treatment options for both conditions include the use of potent topical corticosteroids, phototherapy, and/or acitretin. However, these agents have proven to be insufficient in the long-term control of extensive disease. Biologic agents have shown promising results in the treatment of palmoplantar psoriasis. Molecularly targeted therapeutics are a potential option in the future for these disease entities.

Comment: This article will provide you with a good review surrounding the clinical presentation, pathophysiology and current treatment options for palmoplantar psoriasis and palmoplantar pustulosis. I particularly found the treatment section covering topical therapies, retinoids through to the use of biologic agents up-to-date and very useful.

Reference: *Am J Clin Dermatol.* 2016;17(4):349-58
[Abstract](#)

Hereditary palmoplantar keratoderma “clinical and genetic differential diagnosis”

Authors: Sakiyama T and Kubo A

Summary: This review article reports on hereditary palmoplantar keratoderma, a heterogeneous group of disorders characterised by hyperkeratosis of the palms of the hands and soles of the feet. Associated features of this condition include involvement of nails, teeth and other organs. A number of causative genes have been identified, which has confirmed and/or rearranged the traditional classifications of this condition. Genetic testing is now an important part of the diagnosis in addition to the traditional morphological classification. This review mainly focuses on palmoplantar keratoderma without associated features.

Comment: This article provides a fantastic overview of the differing presentations of hereditary palmoplantar keratoderma. There is good guidance surrounding the diagnosis, differential diagnoses and characteristics of the four groups of palmoplantar keratoderma (diffuse, focal, striate and punctate). There are some great pictorial examples making this a valuable clinical reference for those who manage these conditions.

Reference: *J Dermatol.* 2016;43(3):264-74
[Abstract](#)

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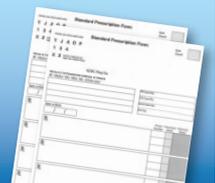
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