

Foot & Ankle RESEARCH REVIEW™

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Issue 55 – 2023

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Abbreviations used in this issue

BMI = body mass index
QoL = quality of life
RA = rheumatoid arthritis

Welcome to Issue 55 of Foot and Ankle Research Review.

In this issue I highlight some recent publications surrounding total ankle replacement, the role of plantar pressure analysis in footwear adherence, and patient-perceived risk factors for lower extremity amputation. My favourite read for this issue was the study by Roberts et al., who investigated the role of the podiatrist in the identification and prevention of lower limb venous disease. You will be surprised by a few of the findings surrounding the role that podiatrists perceive they have.

I hope you enjoy this issue.

Noho ora mai

Associate Professor Matthew Carroll

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Research Review thanks Foot Science International for their sponsorship of this publication and their support for ongoing education for healthcare professionals.

Foot self-care competence reported by patients with rheumatoid arthritis: A cross-sectional study

Authors: Laitinen A-M et al.

Summary: This Finnish, cross-sectional, survey-based study examined self-reported levels of foot self-care competence among 251 patients with rheumatoid arthritis. Self-reported level of foot self-care competence was moderate (mean 3.50 on 5-point Likert scale). The highest mean score was for attitude towards self-care (3.98), followed by self-care knowledge (3.45) and experience in self-care (3.38). Higher self-reported competence in every variable was associated with self-reported foot self-care knowledge and female sex.

Comment: This study from Finland examined self-reported confidence in foot care among people with rheumatoid arthritis. This is a novel concept as research has examined people's level of knowledge about self-care but not their actual ability to perform foot care. Using a Foot Self-Care Skills Scale, people with rheumatoid arthritis rated their personal knowledge, skills, attitudes, values, and experience related to foot self-care. The overall self-assessed level of competence in foot self-care was moderate. The weakest mean was found for self-care abilities of the feet. The highest mean scores were for importance in identifying foot pain. Receiving adequate self-care training from health professionals was associated with higher levels of competency in terms of knowledge, skills, and experience. The study underscores the importance of specific foot care guidelines for people with rheumatoid arthritis, the need to demonstrate foot care self-practices to patients, and that all patients with rheumatoid arthritis be referred for podiatric evaluation.

Reference: *Foot Ankle Res.* 2022;15(1):93

[Abstract](#)

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Patient-perceived and practitioner-perceived barriers to accessing foot care services for people with diabetes mellitus: A systematic literature review

Authors: McPherson M et al.

Summary: This systematic review followed PRISMA guidelines to identify patient and practitioner-perceived barriers to foot care service access for people with diabetes mellitus based on 20 studies with good overall methodological quality. Thematic analysis identified three themes from the patient perspective: lack of understanding, socioeconomic factors, and lack of service availability. From the practitioner perspective four themes were identified: poor interprofessional communication, lack of resources, lack of practitioner knowledge, and perceived patient factors.

Comment: This New Zealand review highlights the many barriers to access services faced by patients with diabetes. Significantly, the review found that a significant patient-level barrier to accessing foot care services was related to the financial challenges of paying for and traveling to appointments. Patient knowledge of the possibility of developing foot complications and a general lack of knowledge about diabetes-related foot disease were also found to be common barriers to accessing foot care services. Clinicians reported poor interprofessional communication as a significant barrier to access. Without functioning teams, appropriate and timely referrals to podiatry services are lost, leading to poor patient outcomes. The review underscores the need to innovate in how clinicians educate and connect with patients, and that an easy-to-navigate healthcare pathway is critical to breaking down barriers for people with diabetes.

Reference: *J Foot Ankle Res.* 2022;15(1):92

[Abstract](#)

Does in-shoe pressure analysis to assess and modify medical grade footwear improve patient adherence and understanding? A mixed methods study

Authors: McDonogh C et al.

Summary: This study assessed self-reported adherence to medical grade footwear (MGF) usage in 15 patients with previous diabetes-related foot ulceration after in-shoe pressure analysis (IPA) compared to prior adherence. Adherence to MGF usage inside the home $\geq 80\%$ was 13.3% before IPA and 20.0% at 4 weeks after IPA measurement. Outside the home, $\geq 80\%$ adherence was achieved by 53.3% of patients pre-IPA, and 80.0% at 4 weeks after IPA. Changes in understanding of MGF were small; however, all participants indicated that undergoing the intervention was worthwhile and beneficial.

Comment: This study investigated whether changing in-shoe plantar pressure affected adherence to MGF wear. The premise is that if patients were armed with more knowledge about the pressure in their feet and why the reduction of high-pressure areas is needed, adherence to MGF would increase. While adherence to wearing MGF at home increased after a change in in-shoe plantar pressure, few participants wore their MGF more than 80% of the time indoors. The decreasing acceptance of wearing MGF in the home can be attributed to the fact that participants see the home as a safe and familiar place with a low risk of injury, so wearing their MGF indoors was not as important. Based on this finding, the authors recommend providing medical-grade slippers in addition to medical-grade outdoor footwear to increase indoor adherence. However, how successful slippers can be in significantly reducing areas of high pressure remains unknown.

Reference: *J Foot Ankle Res.* 2022;15(1):94

[Abstract](#)

Independent commentary by Associate Professor Matthew Carroll

Matthew is an Associate Professor of Podiatry at Auckland University of Technology. His research focus is on chronic long-term conditions that affect the foot. He is a current Editorial Board member for the Journal of Foot & Ankle Research, Academic Editor for PLOS ONE, and past Associate Editor for BMC Musculoskeletal Disorders.



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“I could have a proper ankle” - a qualitative study of patients’ perceptions of total ankle replacement and ankle fusion surgery

Authors: Anderson AM et al.

Summary: This small qualitative study from northern England examined perceptions of surgery, education, rehabilitation and outcomes among seven patients who had undergone total ankle replacement (TAR) with (n = 3) or without (n = 2) revision or ankle fusion (n = 2). Thematic analysis based on semi-structured interviews identified three common themes each with two subthemes; 1. Decision-making (seeking help; surgical options), 2. Perceptions of support (information/education; clinical support) and 3. Impact on the individual (personal circumstances and beliefs; post-operative outcomes). Pain affecting valued activities was the key to a decision to seek help. The choice between TAR and ankle fusion was influenced by multiple factors including lack of joint flexibility after fusion, with some believing that TAR provided a “proper ankle” that would avoid limping. Most participants felt that the education provided by the care team was inadequate. Decision-making and perceptions of post-operative outcomes were influenced by participants’ individual circumstances and beliefs. While most participants were pleased with the outcomes, some experienced ongoing problems including difficulty walking and chronic pain.

Comment: This qualitative study with UK participants examined the lived experience of those who had undergone TAR or ankle fusion. The study does an excellent job of highlighting the important factors that patients considered when choosing between TAR and ankle fusion. This decision is influenced by the surgeon’s opinion, the degree of expected postoperative pain, postoperative appearance and function, and age. The study reported that pre- and post-surgery education was generally lacking in relation to surgical outcomes, recovery time, and practical post-surgery issues, particularly pain. This study underscores the importance of the education patients receive, which can significantly impact their experience. This is worth reading if you have patients who may need either procedure.

Reference: *J Foot Ankle Res.* 2022;15(1):88

[Abstract](#)



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Australian podiatrists' understanding and current practices of reablement for older people: A qualitative exploratory study

Authors: Mulquiny L & Oakman J et al.

Summary: This qualitative exploratory study examined 14 Australian podiatrists' understanding and current practice for reablement in older clients. Thematic analysis identified 3 themes: 1) thinking and practicing differently; 2) reconciling practice with other pressures; 3) funding effects on podiatry practice and reablement. The analysis identified system level barriers that had a negative influence on podiatrists' ability to implement the reablement model. The podiatrists considered their role in reablement for older people to be limited, while some felt unskilled to implement the reablement model. However, factors such as inadequate funding arrangements and clients' perceptions of podiatrists' roles had a greater impact on current practice and were more intractable.

Comment: Reablement has been defined as a person-centred and holistic approach aimed at increasing or maintaining the client's independence and participation in daily and meaningful activities (at home or in the community) and reducing their need for long-term services and associated costs. In this Australian study, podiatrist perceptions of reablement strategies showed some telling results. Podiatrists indicated that their work with older adults was primarily maintenance-focused, did not follow the reablement approach, and was influenced by funding models. It was recognised that there was a general lack of knowledge and skills to undertake reablement. The authors conclude that systemic and seemingly intractable challenges appear to be affecting acceptance of the reablement model in Australian podiatric practice. There is a sense from the article that the traditional biomedical model of healthcare will be hard to move away from.

Reference: *J Foot Ankle Res.* 2022;15(1):82
[Abstract](#)



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Health-related quality of life and associated factors in people with diabetes at high risk of foot ulceration

Authors: Perrin BM et al.

Summary: The aim of this cross-sectional analysis was to assess health-related quality of life (HRQoL; RAND® 36-Item Short Form Health Survey [SF-36]) and associated factors in 304 people with diabetes (72% male, mean age 64.6 years, type 2 diabetes 77%, mean duration 20 years) at high risk of foot ulceration enrolled in the Diabetic Foot Temperature Trial (DIATEMP). HRQoL was lower than in a general Dutch population and in general diabetes samples, but higher than in those with an ulcer. A walking aid was associated with a lower HRQoL across SF-36 domains, as was non-Caucasian descent in five domains. Lower HRQoL in three domains was associated with not working, a higher BMI and younger age.

Comment: An important study out of Australia that investigated factors associated with poorer HRQoL in people with diabetes. The research highlighting that not working, having a walking aid and a higher BMI were independently associated with lower Physical Function scores. Consequently, strategies should target modifiable factors associated with HRQoL such as interventions to reduce the need for a walking aid, to lower BMI and to improve employment potential. Interestingly the study also adds to the growing evidence indicating that the use of a walking aid is strongly associated with reduced HRQoL, previous research finding the use of a walking aid is a strong predictor of plantar foot ulceration. The authors also advocate for more assessment of physical function and implementation of rehabilitation and training programmes as participation in exercise has been associated with increased health-related quality of life. Importantly the authors also discuss the role of ethnic and racial background with Caucasians scoring higher than non-Caucasians on many of the domains used to measure HRQoL.

Reference: *J Foot Ankle Res.* 2022;15(1):83
[Abstract](#)

The role of podiatry in the early identification and prevention of lower limb venous disease: An ethnographic study

Authors: Roberts PJJ et al.

Summary: This ethnographic study used qualitative analysis, conducted using a framework approach, to analyse observation, semi-structured interviews, and focus group interviews in 26 participants in order to examine the role of podiatry in the early identification and prevention of lower limb venous disease. The study suggests the podiatry profession has an identity crisis with evidence of ritual and routine practices that did not include lower limb venous disease. External practice control limited the professional autonomy of podiatrists in determining their own activities, while limiting factors included inter-professional relationships with nursing, and perceptions of venous disease as a nursing role.

Comment: This UK-based study uncovers some very important concepts facing the podiatry profession. The data indicated the lack of a defined role for the detection and prevention of venous disease. This was reinforced by participants who claimed that podiatry is a profession that focuses on the foot. The authors posited that while there was evidence that podiatrists understand the importance of venous disease, this was not consistent with their main identity and clinical role. The data also indicated that diabetes and peripheral arterial disease appeared to be more important to a podiatrist's role than lower extremity venous disease. The authors call for awareness campaigns, professional development training, and policy changes to shift the focus of podiatry from treating foot pathologies alone to truly embracing lower extremity pathologies.

Reference: *J Foot Ankle Res.* 2022;15(1):84
[Abstract](#)

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Foot and ankle characteristics associated with fear of falling and mobility in community-dwelling older people: A cross-sectional study

Authors: Pol F et al.

Summary: This Iranian study examined associations between foot and ankle characteristics and fear of falling and mobility in 187 community-dwelling older people (106 females; mean age 70.5 years). Linear regression analysis suggested factors associated with increased fear of falling included greater pressure-time integral, foot pain, less ankle plantar flexor muscle strength, and reduced tactile sensitivity of the ankle; total variance explained 59%. Poorer mobility was associated with less ankle plantar flexor muscle strength, greater pressure-time integral, and slower centre of pressure velocity; total variance explained 48%.

Comment: This research from Iran has some important clinical considerations. The data showed decreased plantar flexor muscle strength, increased pressure-time integral, foot pain, and that tactile sensitivity were associated with fear of falling. This underscores the important role that muscle strength plays, particularly reduced strength resulting in perceived loss of balance in everyday life situations can create fear of falling. Importantly, the study also identified the role that decreasing leg muscle strength (ankle plantar flexors) plays in increasing fear of falling. Foot pain was significantly associated with increased fear of falling. This research highlights the importance of increasing leg strength and reducing foot pain in older adults.

Reference: *J Foot Ankle Res.* 2022;15(1):86

[Abstract](#)

“I was trying to look after myself, but I really wasn’t”: Understanding patient’s perspectives on risk factors for lower extremity amputations

Authors: Ben chmo M et al.

Summary: This South Australian, single-centre, qualitative, descriptive study explored 15 patients’ (86% male Caucasian, median age 66.4 years, median duration of diabetes 25.2 years) perspectives of risk factors for lower extremity amputations as a result of type 2 diabetes using semi-structured interviews. Over half of the patients had a previous amputation; 86% were unemployed or retired. Thematic analysis and the constant comparison approach identified two main themes: competing priorities and awareness. Subthemes within competing priorities include finance and family care; subthemes in the context of awareness included lack of awareness of risk, experiences with health care professionals and perspectives on disease severity.

Comment: This study from Australia identifies and reinforces some important considerations in the management of people with a history of lower extremity amputations. Research highlights that patients have a lack of awareness of the surrounding risk factors, despite previous ulcerations. It may be assumed that history increases risk awareness, but this is not the case. The importance of healthcare practitioner education is also reinforced, namely satisfaction with communicating with healthcare providers may be associated with greater adherence to self-management practices. The authors also advocate a holistic treatment approach that considers the patient’s social, physical, and psychological needs in developing optimal treatment strategies. The authors also address an important point regarding patient education. Although guidelines advocate educating people with diabetes, there is minimal assessment of patient awareness and what communication strategy is most appropriate for the individual to enable knowledge adoption.

Reference: *J Foot Ankle Res.* 2022;15(1):89

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Age-related changes in gait domains: Results from the LonGenity study

Authors: Jayakody O et al.

Summary: The longitudinal LonGenity study assessed age-related gait domain changes in 797 healthy participants and participants with cognitive impairment and mobility disability (median age 75.1 years; 58.2% female) followed for up to 12 years (median 3.3 years). Age-related changes in gait domains were not uniform. Pace declined and rhythm worsened (increased) in an accelerating non-linear fashion and participants with cognitive impairment had faster rates of change in pace and rhythm. Participants with mobility disability had faster increases in rhythm.

Comment: The research reveals unique insights into temporal changes in gait domains over the 12-year study period. Pace demonstrated accelerated age-related decline with changes occurring early in the ageing process, this may be explained by pace being controlled by multiple cognitive functions. Change in pace may offer a functional marker that facilitates early identification of at-risk older adults, even prior to the age of 65 years. With reference to gait variability (lack of consistency in steps) the age-related decline was more gradual; however, gait variability has been associated with falls and memory decline. Emphasising the importance of assessing variability in people with a fall history. Data also indicated that in the presence of cognitive impairment, faster rates of gait-related changes to pace occurred.

Reference: *Gait Posture* 2022;100:8-13

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