



## “No pain ....no gain”

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Welcome to another *Diabetes Digest* commentary, and may I wish you all a very happy new year, wherever you are.

This commentary is on a paper by Anna Trocha et al in Germany. It examined an overlooked and non-investigated important screening tool — pain/sharp sensation.

Considering that pain is our defensive alert mechanism for preventing tissue damage, this is an important piece of work for determining ulcer risk stratification and prevention interventions.

The study was a single-centre prospective study between 2017 and 2018 that recruited 130 subjects. The aim of the study was to determine both the risk of first-ever ulcer (FEU) and its time to onset in a population who had loss of protective sensation (LOPS) in the foot, either with or without loss of protective pain (LOPP). Subjects were included if they had no history of a diabetes-related foot ulcer. They were recruited in a diabetes specialist practice either as first attenders or as part of routine follow-up.

All had a LOPS determined by a 128 Hz tuning fork. LOPP was diagnosed at baseline by a handheld pinprick-pain simulator device, the Optimist Stimulator (Firma MRC-Systems, Heidelberg, Germany). This is an optical glass fibre exerting a force of 512 mN to the plantar proximal interphalangeal joint of the second toe three times, each lasting for 1 second. This device causes a sharp sting-like discomfort or pain. Pain sensation was

deemed present if felt at least once, if unfelt LOPP was present.

Subjects were followed by routine annual foot checks, phone interview or by letter and follow-up was maintained until the occurrence of a first ulcer, death or the end of the observation period. The median follow-up period was 43.2 months (range 2.4–62.8 months). During the study period, 15 subjects died, but without developing an ulcer.

Stratified Kaplan–Meier curves, Cox proportional hazards regression and accelerated failure time regression were used to determine LOPP risk for FEU.

Overall, a FEU occurred in 24 subjects while 106 remained ulcer-free during the study period. LOPP was present in 55.4% of subjects. Significantly 25% ( $n=18$ ) with LOPP compared to 10.3% ( $n=6$ ) with LOPS only developed a FEU ( $P=0.02$ ). The Age–sex-adjusted hazard ratio for FEU was 3.0 ( $P=0.02$ ) for LOPP subjects versus LOPS. Age–sex-adjusted time to FEU for people with LOPP was approximately half ( $P=0.03$ ) compared with LOPS only.

This study suggests that those with LOPP and LOPS are at significantly higher risk of FEU than those with LOPS alone. This data set is small and the follow-up could be longer, but these findings should not be left without a larger and longer-term study to determine risk stratification with LOPP. ■

Trocha A, Gontscharuk V, Icks A, Jeffcoate W (2023) The value of loss of protective pain sensation in predicting a first ulceration of the foot in people with diabetes. *Diabet Med* [Online ahead of print]

## Int Wound J

### Adherence to limiting weight-bearing activity in patients with diabetic foot ulcers

Readability ✓✓✓

Applicability to practice ✓✓✓

WOW! Factor ✓✓

1 Patients with diabetic foot ulcers are advised to limit weight-bearing activity (WBA) in order for their ulcers to heal, but they often ignore this. This study explored patients’ experiences of receiving advice and factors influencing adherence.

2 The authors conducted semi-structured interviews with 14 patients with diabetic foot ulcers, followed by a thematic analysis of the responses.

3 Patients described the advice they were given as directive, nagging and generic; there was also conflict between clinicians, where the foot team advises a limit on WBA, but another team suggesting they exercise more. Patients were more receptive to advice when it was given with rapport, empathy and an explanation for the need to avoid WBA.

4 The patients had a range of barriers to limiting WBA, including enjoyment of exercise, demands of daily living, sickness or disability, depression, neuropathy/pain. Facilitators included health benefits, fear of negative consequences, positive feedback, practical support and cold weather.

5 The authors propose a more person-centred approach in which advice is tailored to individuals’ specific needs and includes discussion around patient priorities and constraints.

Hancox JE, Hilton C, Gray K et al (2023) Adherence to limiting weight-bearing activity in patients with diabetic foot ulcers: a qualitative study. *Int Wound J* 20(10): 3945–54.

## Diabetes Res Clin Pract

The effectiveness of motivational interviewing on adherence to wearing orthopedic shoes in people with diabetes at low-to-high risk of foot ulcerations

**Readability** ✓✓✓✓  
**Applicability to practice** ✓✓  
**WOW! Factor** ✓✓✓✓

- 1 This study aimed to evaluate if motivational interviewing (MI) by MI-trained podiatrists improved adherence to wearing orthopaedic shoes in comparison to usual care.
- 2 People with diabetes with loss of protective sensation and/or peripheral artery disease, and an orthopaedic shoes prescription, were allocated to receive one MI-consultation by a podiatrist (n=53) or usual care only (n=68). Adherence was measured as the % of steps taken while wearing orthopaedic shoes, determined using an insole temperature microsensor and wrist-worn activity tracker for 1 week at 3 and 6 months.
- 3 At 3 months, the proportion of participants ≥80% adherent to wearing their orthopedic shoes was higher in the control group than in the MI-intervention group; at 6 months, there was no significant difference. Average adherence was higher in the control group than the intervention group at both 3 months and 6 months.
- 4 The authors concluded that a podiatrist-led MI-consultation did not result in higher adherence to wearing orthopedic shoes.

Jongebloed-Westra M, Exterkate SH, van Netten JJ et al (2023) The effectiveness of motivational interviewing on adherence to wearing orthopedic shoes in people with diabetes at low-to-high risk of foot ulceration: a multicenter cluster-randomized controlled trial. *Diabetes Res Clin Pract* 204:110903

## BMJ Open Diab Res Care

Evaluating the prognostic performance of bedside tests used for peripheral arterial disease diagnosis in the prediction of diabetic foot ulcer healing

**Readability** ✓✓✓  
**Applicability to practice** ✓✓✓  
**WOW! Factor** ✓✓✓

- 1 The authors evaluated the prognostic performance of bedside tests used for diagnosing peripheral arterial disease to examine if these could also predict diabetic foot ulcer (DFU) healing.
- 2 The primary outcome was sensitivity for predicting ulcer healing. Secondary endpoints were specificity, predictive values and likelihood ratios for ulcer healing.
- 3 At 12 months, 52.8% of ulcers healed. The best negative diagnostic likelihood ratio was observed for the podiatry ankle duplex scan (PAD-scan) monophasic or biphasic with adverse features. The highest positive likelihood ratios were observed for toe BPI ≤0.2 and transcutaneous O2 pressure ≤20mm Hg. Cox proportional hazards modeling demonstrated significantly greater probabilities of healing with triphasic waveforms and biphasic waveforms with non-adverse features on PAD-scan.
- 4 The authors concluded that no single test performed well enough to be used in isolation as a prognostic marker for predicting DFU healing.

Elghazaly H, Howard T, Sanjay S et al (2023) Evaluating the prognostic performance of bedside tests used for peripheral arterial disease diagnosis in the prediction of diabetic foot ulcer healing. *BMJ Open Diab Res Care* 11: e003110

## J Wound Care

Efficacy and safety of autologous platelet-rich plasma for diabetic foot ulcer healing

**Readability** ✓✓✓  
**Applicability to practice** ✓✓✓✓  
**WOW! Factor** ✓✓✓

- 1 Autologous platelet-rich plasma (Au-PRP), a substance abundant in various growth factors and cytokines, is increasingly being recognised as a promising method for promoting ulcer healing due to its similarities to the physiological wound healing process
- 2 The authors performed a systematic review and meta-analysis of randomised controlled trials, searching Medline, EMBASE, PubMed and the Cochrane Library. Results were scrutinised, data were extracted and research quality was investigated by two independent authors. Primary outcome was the proportion of complete ulcer healing. Secondary outcomes included both the mean time to complete healing and the incidence of adverse events.
- 3 The results of the meta-analysis indicated that au-PRP has a significant positive effect on healing rate, reduces the healing time, accelerates the reduction of ulcer area, decreases the rate of amputation, and does not increase the incidence of adverse events when compared to conventional therapy
- 4 Au-PRP therapy has been shown to facilitate the process of wound healing and represents a viable and secure therapeutic alternative for individuals with DFU.

Su YN, Li J, Feng DH et al (2023) Efficacy and safety of autologous platelet-rich plasma for diabetic foot ulcers: a systematic review and meta-analysis. *J Wound Care* 32(12): 773–86

“ It’s time to put more energy and resources into aiding guideline implementation and not further refining existing guidelines ”