

# ‘Collapsed Arches’, ‘Ripped Plantar Fasciae’, and ‘Heel Spurs’: The Painful Language of Plantar Heel Pain

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## ABSTRACT

The words spoken by clinicians can profoundly impact a person’s perception of their body. Words may influence pain, as pain is a measure of perceived threat. Words such as tear, rupture, degeneration, instability, and damage may increase perceived threat. Similarly, pathologising ‘abnormal’ anatomical variation may leave people feeling vulnerable and fragile. This article aimed to explore the potential consequences of particular words and narratives commonly used to describe plantar heel pain and justify interventions used to treat plantar heel pain. Drawing on the existing body of pain-science research, the authors argue that some of the language and narratives used in the literature and practice may potentially be threat invoking/nocebic. In addition, we argue that justifying interventions such as orthoses by stating that they normalise foot function may leave patients feeling broken, deficient, and abnormal. In response, we provide several recommendations for clinicians to help them avoid invoking threat when describing plantar heel pain and justifying interventions for it.

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## INTRODUCTION

Plantar heel pain (PHP) is a common and often non-traumatic musculoskeletal pain condition that affects approximately one in 10 people at some point in their lifetime (Rosenbaum et al., 2014). Despite its prevalence, very few studies that explore the experiences, perspectives, and beliefs of people with PHP have been published (Cotchett et al., 2020; Morrissey et al., 2021), resulting in an evidence base that is pathology-focused rather than person-centred. To date, the existing literature on the assessment and management of PHP consists primarily of studies designed to investigate and compare the efficacy of various biomechanical and biological interventions (Morrissey et al., 2021). Consequently, the clinical practice guidelines and reviews that have been completed on the management of PHP in the past decade focus little on patient education and do not discuss the impact of the words and narratives used by clinicians on their patients’ perceptions of their body and pain (Babatunde et al., 2019; Landorf, 2015; Martin et al., 2014; Morrissey et al., 2021).

The best practice guide by Morrissey et al. (2021) is of particular significance, as it was the first clinical guideline to recommend pain education as part of the management of PHP. As part

of their recommendations, Morrissey et al. stated that it is important to teach people with PHP about the meaning of pain and the relationship between pain and tissue damage. Additionally, Morrissey et al. recommended that clinicians consider how patient education can be used to reduce pain-related fear. The purpose of this paper is to: (1) highlight examples of potentially threat-invoking/nocebic language being used to describe PHP and justify interventions for PHP, and (2) discuss the potential impact of using biological and biomedical narratives. Following this discussion, we provide several examples of how PHP and its management can be explained to patients through a biopsychosocial lens.

## THE MEANING OF PAIN

While local tissue pathology can contribute to a person’s experience of pain via peripheral nociception, according to Caneiro, Bunzli, and O’Sullivan (2021), Holopainen (2021), Moseley and Butler (2017), and Palsson et al. (2019), the pain experience is more accurately viewed as a multidimensional, biopsychosocial experience that is associated with perceived bodily threat. In many situations, pain is beneficial as it alerts the individual that they may need to take action to protect their bodily integrity (Coninx & Stilwell, 2021). However, pain

is not always a reliable measure of tissue damage or pathology (Caneiro, Alaiti, et al., 2021; Moseley & Butler, 2017). For example, pathological radiographic findings in asymptomatic individuals are common at the shoulder (Girish et al., 2011), elbow (Bastian et al., 2019), knee (Horga et al., 2020), spine (Brinjikji et al., 2015), and foot and ankle (Ehrmann et al., 2014; Galli et al., 2014; Gregg et al., 2006; Hall et al., 2015; Owens et al., 2011). Furthermore, people may experience pain in the absence of tissue pathology. An example of this is persistent pain, whereby a person experiences pain beyond normal healing (Treede et al., 2015).

In addition to being an unreliable measure of tissue damage, pain may also lead to a vicious cycle of pain-related distress, pain-related fear, pain catastrophisation, unhelpful health behaviours (i.e., movement avoidance), and disability, which then can perpetuate or heighten a person's pain experience (Caneiro, Smith, et al., 2021; Palssson et al., 2019). Drawing on the common-sense model of illness representation, Caneiro, Smith, et al. (2021) and Palssson et al. (2019) argue that a person's beliefs about their pain can influence their health outcomes. According to the model, a person experiencing pain attempts to make sense of their pain by creating a cognitive representation of it shaped by the person's existing beliefs about the identity, cause, consequences, timeline, and controllability of their pain (Caneiro, Smith, et al., 2021; Palssson et al., 2019). However, a person's cognitive representation of their pain experience is not fixed and can be reinforced or challenged based on new information (Caneiro, Smith, et al., 2021; Palssson et al., 2019).

Several researchers have raised concerns that some of the narratives and language used by clinicians with patients experiencing musculoskeletal pain may be potentially threat-invoking and harmful (Caneiro, Bunzli, & O'Sullivan, 2021; Friedman et al., 2021; Moseley & Butler, 2017; Palssson et al., 2019; Setchell et al., 2017; Stewart & Loftus, 2018). A mixed method study of people's beliefs about the cause of low back pain found that 89% of participants reported having been told by their health professional that their pain was caused by damage or disease (Setchell et al., 2017). Explaining pain in terms of tissue pathology may reinforce patients' belief that their pain is an accurate measure of tissue damage and may drive patients to unhelpful behaviours (i.e., activity avoidance) in an attempt to protect their bodily integrity (Caneiro, Bunzli, & O'Sullivan, 2021). These unhelpful behaviours may then lead to a negative cycle of fear-avoidance, disability, and further pain (Caneiro, Bunzli, & O'Sullivan, 2021).

### WORDS CAN HURT

Friedman et al. (2021) and Stewart and Loftus (2018) argue the use of terms such as degeneration, tear, instability, and damage to describe pathoanatomical findings may potentially be threat invoking and harmful to people experiencing pain. Similarly, Moseley and Butler (2017) argue that metaphorical diagnoses, such as 'heel spurs' to describe "radiological evidence of an adaptive strengthening of the bony insertion of the plantar fascia", and 'collapsed arches' to describe a pes planus foot type may elevate a person's perceived level of threat and magnify their pain experience (p. 161). These words do not hurt

by themselves, but rather, depending on the individual may reinforce or instil beliefs that are unhelpful in their journey from fear to safety (Caneiro, Smith, et al., 2021). Empirical research supports these concerns, with Zadro et al. (2021) and O'Keefe et al. (2022) finding that the use of pathoanatomical labels (i.e., rotator cuff tear or disc bulge) are associated with a poorer prognosis than non-specific labels (i.e., episode of shoulder pain or episode of low back pain).

Educational material developed by the American Academy of Orthopaedic Surgeons (AAOS) (2019) and aimed at people with PHP, could be considered to have used potentially threat-invoking language. The handout described PHP as the result of too much pressure on the plantar fascia, which "damages the tissue", resulting in it becoming "inflamed" (AAOS, 2019, p. 1). The handout also included an image that shows an incomplete tear of the plantar fascia labelled as a strain. These explanations of PHP were reported by Morrissey et al. (2021) and Cotchett et al. (2020) during interviews with people experiencing PHP. Morrissey et al. (2021) reported that one person explained PHP as an "inflamed damaged [plantar fascia] which needs to heal/repair" while another person stated that they think they had "torn a ligament" (p. 1114). In a supplementary document attached to their article, Cotchett et al. (2020) reported descriptors such as 'ripped plantar fascia', 'broken bone', 'bone spur', 'damaged ligament', and 'nerve dysfunction' being used by people with PHP to describe their condition. Cotchett et al. (2020) also reported that a participant stated they believed their "imaging findings [were] linked to [their] symptoms" (suppl. file, p. 6), while another perceived their pain as "a message to [them] from [their] body that something's not right" (suppl. file, p. 7). Focusing mainly on biological and biomechanical factors may reinforce the unhelpful cognitions, such as the belief that pain is an accurate measure of tissue damage (Moseley & Butler, 2017). Furthermore, viewing biological and biomechanical findings as a causal mechanism of PHP is problematic, as many radiographic findings, such as plantar calcaneal spurs, are often found in people without PHP (Ehrmann et al., 2014; Hall et al., 2015). Ehrmann et al. found that 21% of the asymptomatic participants (n = 77) had increased signal intensity changes in the plantar fascia. Ehrmann et al. also reported that 21% had soft-tissue oedema superficial to the plantar fascia. Similarly, Hall et al. (2015) found potentially abnormal sonographic findings in all 39 runners they examined. These 39 runners were asymptomatic and did not have a history of PHP (Hall et al., 2015). While the number of participants in the studies conducted by Ehrmann et al. and Hall et al. was relatively small, the tenuous relationship between radiographic findings and pain is also seen in other studies of the foot and ankle. For example, plantar plate tears, intermetatarsal neuroma, and osteochondral lesions of the talus are relatively common radiographic findings in asymptomatic individuals (Galli et al., 2014; Gregg et al., 2006; Owens et al., 2011). The presence of 'abnormal' findings on diagnostic imaging in asymptomatic individuals supports the theory that pain is an unreliable indicator of tissue pathology.

### ABNORMAL NARRATIVES

In addition to the terms and metaphors used by clinicians, the narratives used to justify interventions may also convey messages of bodily threat, fragility, deficiency, and abnormality.

Clinicians tend to be very interested in defining, understanding, and restoring 'normal' function (Harradine & Bevan, 2009; Murley et al., 2009; Setchell & Abaraogu, 2018). For example, the 1000 Norms Project (McKay et al., 2016) is an initiative intended to define 'normal' human movement and function. Similarly, biomechanical theories of foot function, such as sagittal plane facilitation theory, tissue stress theory, and foot morphology (Root) theory, are based on normalising foot function or reducing abnormal forces on injured structures (Harradine & Bevan, 2009). An example of a potentially threat-invoking narrative for the 'cause' of PHP can be found in an article by Muth (2017), who stated that "plantar fasciitis occurs when the plantar fascia is injured from too much pressure or activity" and that "people who are overweight and people who have ... high-arched feet, or flat feet are at risk of plantar fasciitis" (p. 400). Conceptualising foot function and posture in terms of the dichotomy of normal and abnormal may lead to: (1) patients feeling fragile and vulnerable, and (2) management that is focused on normalising deviances, such as surgery for heel spurs and orthoses for people whose subtalar joint deviates too far from neutral.

An example of a potentially threat-invoking justification of an intervention for PHP can be found in a review by Luffy et al. (2018). Luffy et al. stated that orthoses "are believed to effectively treat the underlying biomechanics of plantar fasciitis, such as foot pronation, flat feet, and high arches" (p. 22). Similarly, two clinicians participating in a qualitative study conducted by Bridgen (2017) spoke about how they correct 'abnormal' foot function to unload damaged tissues in people with foot pain.

I use the **stress free theory** (tissue stress theory) more than anything ... [I take] them out of, the **extreme** range that their foot's in, that's **causing** the problem ... If the foot is **out of posture** then I will **correct** it a little bit and see if that's enough to get it **right** (Clinician interviewed by Bridgen, 2017, p. 194; emphasis added).

I relate to **tissue stress**, it's all about **resting damaged tissues** to ... allow 'em time to **repair**, so **adding support** to the foot **stops the foot from collapsing and oversteering** (Clinician interviewed by Bridgen, 2017, p. 198; emphasis added).

Explaining PHP and justifying interventions using purely biomechanical narratives is inaccurate, with Landorf et al. (2021) having found no difference in foot posture between people with and without PHP after controlling for age, sex, and body mass index. Similarly, Rogers et al. (2021) found that persistent PHP and clinical measures of foot function were not associated. Perhaps, some of the benefits of normalising interventions for non-traumatic musculoskeletal pain may be attributed to other factors that reduce the perception of threat.

While the 1000 Norms Project and the contemporary biomechanical theories of foot function are based on sound scientific research, it is essential to consider how narratives around normality and abnormality may impact patients. Morrissey et al. (2021) identified that some people with PHP believed that their condition was caused by "foot arch height", "limb length asymmetry", "altered gait", and "altered

movement" (p. 10), suggesting that these people may have been attributing their condition to pre-existing biomechanical 'abnormalities'. Explaining PHP by identifying other abnormalities such as overpronation, weak muscles, abnormal foot type, and/or a leg length discrepancy, may further reinforce patient perceptions of being abnormal, broken, or deficient in some way. While these biomechanical beliefs may have been held by the participants in the study by Morrissey et al. (2021) prior to seeing a clinician, it is also possible that these beliefs had been instilled or reinforced by clinicians either implicitly or explicitly. Palsson et al. (2019) expressed similar concerns about the narratives used by clinicians in the management of sacroiliac joint pain. According to Palsson et al., "pathoanatomical explanations and labels suggesting structural weakness, abnormality or instability [as the cause of sacroiliac joint pain] ... could [explicitly] drive perceived threat and distress" (p. 1515), while pathoanatomical treatment rationales may implicitly contribute to perceived threat and distress. Although there is a paucity of research investigating issues of normalcy in pain and musculoskeletal practice, there are concerns in the mental health field that being labelled as abnormal or disordered "[suggests] that something is wrong internally" (Wakefield, 2007, p. 153) and may reinforce feelings of fear, self-blame, deficit, and hopelessness about the likelihood of recovery (Read & Harper, 2020). Perhaps, in people with persistent PHP who do not respond well to normalising interventions, the narratives used to justify the interventions have created health issues where none had previously existed, or at least reinforced incomplete or inaccurate biological and biomechanical explanations for the cause of their pain.

## SUGGESTIONS FOR PRACTICE

### Frame PHP as a multifactorial biopsychosocial phenomenon

In cases where PHP is suspected and no other signs of serious pathology (i.e., malignancy) are present, clinicians may consider using the non-specific regional label of PHP as opposed to tissue-based labels such as plantar fasciitis. Friedman et al. (2021) cautioned the use of specific diagnostic labels as they may imply that the "clinician knows the specific tissue pathology that is causing pain or dysfunction" (p. 3). Friedman et al. suggest that when signs of serious pathology have been excluded and the injury is not acute, clinicians should consider using a non-specific regional label that reflects that musculoskeletal pain is multifactorial. Clinicians may consider explaining to a person with PHP what structures are potentially involved; however, it should also be made clear that pain is multifactorial as there are many factors that may be involved in PHP including waist girth, ankle plantar flexor strength, pain catastrophising, and psychological distress (Cotchett et al., 2017; Cotchett et al., 2016; Cotchett et al., 2015; Rogers et al., 2021). Mentioning these other factors challenges the misconception that pain is an accurate measure of tissue damage and provides the groundwork so that interventions can be justified through a biopsychosocial lens.

When talking to a patient about the potential tissues that may be involved in a patient's experience of PHP, we suggest that clinicians avoid terms, phrases, metaphors, and medical jargon that may increase the level of threat (Moseley & Butler, 2017;

Stewart & Loftus, 2018). For example, telling a patient that their plantar fascia is inflamed or torn may lead to the patient believing that rest is needed for optimal healing. Terms such as 'irritation' and 'sensitisation' are less likely to invoke threat and are more consistent with findings of research in musculoskeletal pain and PHP. However, not all patients will interpret and react to these terms in the same way. For example, Schneider (2004) posits that personality trait of neuroticism "constitutes a psychological readiness to perceive threat" (p. 801). Thus, people high in neuroticism may be more reactive to messages that suggest bodily threat than people low in neuroticism. We argue that, as a general principle, avoiding potentially threat-invoking language is good practice. Therefore, when explaining PHP to a patient, clinicians could consider using a variation of the following:

Based on my assessment, it seems that the structures around your heel are sensitive. PHP is a very common condition that can be quite painful; however, there is a lot we can do to help you manage it. There are other things that may also contribute to pain, which may be relevant to your experience. Do you mind me asking a few more questions?

### Dispel problematic pre-existing narratives

It may be necessary to support patients to reconceptualise their beliefs who have strong, unhelpful biomedical beliefs about their pain that have been picked up from other health professionals, friends, family, or the internet (Louw et al., 2016). In the context of PHP, clinicians may consider asking the patient who attributes their pain to their foot type (i.e., pes planus/flat feet) when their pain first started. Doing so allows the clinician to gently challenge the beliefs about the causative link between foot type and PHP, as the patient likely had the same foot type and no pain for many years prior to this episode of PHP. The approach also allows the clinician to reassure the patient that they can, once again, be pain free even if they have a less common anatomical variant of the foot because research, and their own experience, challenges that theory that there is a causative link between foot type and PHP.

### Consider how interventions for PHP are justified

Erwin et al. (2020) found that patients wanted clinicians to explain and discuss treatment options with them. Therefore, it is important to consider the consequences of how treatments for PHP are explained and justified. Telling a patient that their arch has collapsed or that their foot is unstable may lead to the patient believing that the only solution to their problem would be to fix these biomechanical abnormalities. Furthermore, emphasising only the biomechanical dimension of PHP may implicitly devalue other potential biopsychosocial contributors and management options. If a clinician explains to a patient that orthoses may help their pain by treating the underlying biomechanical issues and the treatment then fails to provide adequate relief, this may leave the patient feeling confused, abnormal, and possibly hopeless about their prognosis. Instead, when justifying the use of orthoses consider using a variation of the following explanation.

I am prescribing orthoses to temporarily change the load on your feet, because even just a little bit of change may help you with your symptoms while your foot is sensitive. My

hope is that by reducing your pain it will help you continue to work, keep active, and return to activities that you enjoy.

## CONCLUSION

Given the historical dominance of research investigating biological and biomechanical factors of pain, it is unsurprising to see patient education material continuing to describe PHP in terms of tissue damage and interventions designed to heal tissues and reduce biomechanical abnormalities. We ask clinicians to consider the limitations and potential impact of threatening tissue-based language and biomedical interventions when managing people with PHP. We ask clinicians to instead emphasise that PHP is a multifactorial biopsychosocial phenomenon. We recommend that clinicians consider using terms such as sensitisation and irritation and consider using non-specific regional labels (such as PHP) to avoid the negative effects of threatening tissue-based diagnoses. We also recommend that clinicians consider the potential impact of the narratives they use to justify biological and biomechanical interventions as these may reinforce unifactorial biomedical explanations of the cause of PHP.

## KEY POINTS

1. Existing clinical guidelines and reviews on the management of plantar heel pain (PHP) have focused predominantly on biological and biomechanical interventions, despite the growing body of literature highlighting that pain is a complex multifactorial experience that is not solely determined by the status of the tissues.
2. Pain and musculoskeletal research suggests that the language and narratives used by clinicians to describe musculoskeletal-related pain and to justify interventions may influence the way people perceive their body and their pain experience.
3. Clinicians should consider the potential impact of the language and narratives that they use with people experiencing PHP, particularly language and narratives that may reinforce the notion that their foot is 'damaged' or 'abnormal'.
4. While this viewpoint draws on the established pain and musculoskeletal research literature, there is a paucity of research on psychological and social dimensions of PHP.

## DISCLOSURES

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## PERMISSIONS

None required.

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