

Brave new world



InTouch


PHYSIO
EST. **FIRST** 1952

PHYSIO FIRST VALUES OF MEMBERSHIP

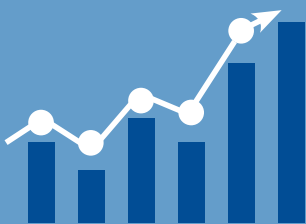


Quality assurance schemes that are robust, trusted, consistent and industry-renowned



Multiple opportunities to link with fellow members, virtually and face to face

Education designed to help Private Physiotherapists thrive



The most important, relevant and concise marketplace news brought directly to you

Trusted partnerships sourced to help



Editorial



Sui generis is Latin for “of its own kind”, something that succinctly describes the period we are currently facing. Physio First is an organisation that represents a whole myriad of physiotherapy businesses, all of which have had their unique selling points and experiences in response to the Covid-19 pandemic.

For those already established in telehealth, it has been business as usual, others have quickly set up this service, while others still have taken time off or temporarily closed their practices, whether by choice or necessity. Some experiences have been positive, others have been negative and there has been almost everything else in between.

One key theme that has stuck throughout this pandemic has been that people value high quality physiotherapy, regardless of how it is delivered.

With this thought in mind, I must express my gratitude to the authors in this edition who, despite the rapidly changing Covid-19 situation, kindly took the time to supply, and agreed that we could publish articles based on the lectures they should have been presenting at our 2020 annual conference, on the prescient subject of a Brave New World.

I hope that delivering their articles, we can offer an element of “normal” to our members who will hopefully, at the time of receiving this copy of *In Touch*, be returning to practice with a renewed vigour for demonstrating how physiotherapists can achieve the best patient outcomes in any circumstance.

In the meantime, I wish you all the very best for the future and look forward to meeting again, through these pages, in the next edition of *In Touch*.

TOBIAS BREMER | MSc MCSP | EDITOR



Contents

- 4**__ Gluteal tendinopathy: the detail underlying a ‘load management and exercise’ approach
Alison Grimaldi
- 10**__ Optimising management for knee osteoarthritis: new opportunities from joint injury to joint replacement
Adam G Culvenor
- 16**__ Making sense of common headache presentations in musculoskeletal physiotherapy: differentiation, assessment and treatment
Neil Langridge
- 24**__ Pain management: conversations and interactions
Clair Jacobs and Leila Heelas
- 30**__ Round-up
- 30**__ Time to demonstrate your quality
- 31**__ Data download for QA scheme delayed to September
- 34**__ Tips from our team
- 34**__ Book reviews
- 35**__ Small ads

Editorial Panel



TOBIAS BREMER EDITOR
editor@physiofirst.org.uk

HELENA BOUGHTON
EDITORIAL ADMINISTRATOR
helena.boughton@physiofirst.org.uk

COVER IMAGE:
© iStock.com/filadendron

Gluteal tendinopathy: the detail underlying a 'load management and exercise' approach

ALISON GRIMALDI PhD BPhyt MPhyt (sports)

Principal Physiotherapist, Physiotec and Adjunct Senior Research Fellow, University of Queensland



Gluteal tendinopathy is a common condition with which patients present to clinical practice, usually reporting substantial impacts on sleep quality, activity levels and quality of life. Recent survey studies, including a UK study, indicate that physiotherapists have received the messages from high-quality research regarding a primary focus on education and exercise in the management of this condition. However, the specifics of what is being provided under that umbrella suggest that there is still more to translate and investigate, to optimise provision of care in the community.

LEARNING OUTCOMES

TO SUPPORT PHYSIO FIRST QAP

This article will encourage clinicians to reflect on:

- 1 the use of terminology and understanding of pathology and pathoaetiology
- 2 the robustness of their differential diagnosis of lateral hip pain (are validated tests being applied?)
- 3 the selection of interventions for gluteal tendinopathy (are they supported by the evidence?).

Introduction

Gluteal tendinopathy is a prevalent lower limb condition, particularly within post-menopausal women (Albers *et al* 2014; Segal *et al* 2007), and has a substantial impact on physical activity and quality of life (Fearon *et al* 2014). There is a growing body of scientific literature and wider information available on gluteal tendinopathy and Greater Trochanteric Pain Syndrome (GTPS). A recent survey of physiotherapists in the United Kingdom reported 97.4% of physiotherapists were somewhat, or very confident in the management of GTPS (Stephens *et al* 2019). Almost all surveyed physiotherapists provide

education on load management (98.7%) and self-management strategies (375/381; 98.4%), as well as a strengthening programme (98.4%). This would seem consistent with the evidence base and contemporary approaches of providing education and exercise for management of gluteal tendinopathy (Mellor *et al* 2018), and tendinopathy in general (Cook & Purdam 2012). On face value, it could be interpreted that physiotherapists are confidently managing this condition in an evidence-based fashion, with knowledge translation complete. Variations in outcomes in the scientific literature and details within survey papers would, however, suggest that there is still much to learn. In this age of social media, general principles are easily translated but a deeper understanding of the condition, proposed aetiological mechanisms, diagnosis and the evidence base for treatment strategies are less readily translated via this medium.

Terminology and pathology

In the survey of UK physiotherapists, just over half (54.7%) considered GTPS to be primarily a condition of the gluteal tendons, with another 3.4% believing it to be solely a condition of the gluteal tendons (Stephens *et al* 2019). However,

more than a third of physiotherapists (36.1%) understood GTPS as an “overarching term used to describe lateral hip pain of unknown origin”. This is where terminology can be problematic. Do these statistics reflect a lack of awareness in this third of the surveyed population, of the local pathologies associated with trochanteric pain, or simply a lack of clarity regarding the definition of GTPS? It is not surprising that there is confusion among clinicians regarding the definition of GTPS, as this diagnostic term is used with wide variation in the literature. Some use this as an “umbrella term”, including not only local sources of nociception but more distant sources of referred pain. In the contemporary literature, GTPS is most commonly used to describe a local soft tissue source of greater trochanteric pain, in which the specific pathology has not been established with imaging. Even without imaging, the population should be adequately described to allow interpretation of data.

Clifford and colleagues (2019), in their recent GTPS study, performed validated physical tests for diagnosis of gluteal tendinopathy and aimed to exclude hip joint conditions with a plain x-ray and absence of pain on hip flexion-adduction-internal rotation (Clifford

"THE PRIMARY LOCAL SOFT TISSUE PATHOLOGY ASSOCIATED WITH GREATER TROCHANTERIC PAIN HAS BEEN SHOWN TO BE TENDINOPATHY OF THE GLUTEUS MEDIUS AND/OR MINIMUS TENDONS. THERE MAY ALSO BE ACCOMPANYING CHANGES IN THE ADJACENT BURSAE AND THE ILIOTIBIAL BAND, ALTHOUGH THESE ARE RARELY PRESENT IN ISOLATION"

et al 2019). Another recent study included GTPS participants based on a patient-reported history of lateral hip symptoms and pain with two or more of the following activities: lying on the ipsilateral side, sitting, moving from sitting to standing, and / or ascending / descending stairs or slopes (Cowan *et al* 2019). Participants who also reported locking or catching in the joint, range of movement restriction or difficulty manipulating shoes and socks, were excluded. No physical tests or imaging were used to further describe the population. There is no evidence at this point on the diagnostic utility of such a battery of questions. In the LEAP randomised clinical trial (RCT) examining outcomes of intervention for those with gluteal tendinopathy (Mellor *et al* 2018), of 412 potential participants identified, via phone screen (patient responses to questioning), 129 were excluded on physical assessment and a further 43 on imaging. More than 40% of the original group identified through patient questioning was ultimately not considered to have a primary diagnosis of gluteal tendinopathy following physical assessment and imaging.

Use of physical assessment is likely to substantially reduce diagnostic error and ensure there is greater clarity around a test population. The further addition of imaging enhances description of the population but is expensive and is not always feasible. When reading the GTPS literature, it is important to read the inclusion and exclusion criteria to be able to adequately interpret the findings and implications for clinical management.

Diagnostic definitions can influence treatment direction. For a patient diagnosed with GTPS defined as "lateral hip pain of unknown origin", how does a physiotherapist develop an adequate management plan within a clinical reasoning model? There is a trend towards non-specific diagnoses, but does this engender the use of non-specific treatment approaches? Are non-specific treatment approaches equally effective? Without a specific diagnosis or awareness of local pathology, perhaps an impairments-based model may be employed with adequate effect – assess for impairments and address those findings. However, the literature on insertional tendinopathy suggests that an understanding of pathoaetiology and specific tendon loading principles may be important in the development of optimally effective interventions (Cook & Purdam 2012; Grimaldi *et al* 2015).

There is a substantial body of literature available that has identified gluteal tendon pathology as the primary condition associated with greater trochanteric pain (Bird *et al* 2001; Kingzett-Taylor *et al* 1999; Kong *et al* 2007; Long *et al* 2013). Thickening of the bursae and iliotibial band (ITB) (Long *et al* 2013) may also be present but diagnoses such as "trochanteric bursitis" have traditionally given rise to passive treatment approaches such as injections, electrotherapy and surgical removal of the trochanteric bursa. Although there may be other associated soft tissue changes, a diagnosis of "gluteal tendinopathy" is more likely to encourage an active intervention and improved long-term outcomes (Mellor *et al* 2018).

Pathoaetiological mechanisms

While mechanisms underlying the development of pain are complex, science has been able to elucidate mechanobiological mechanisms that influence tendon health, and tendon pathology is considered a risk factor for the development of painful tendinopathy (Docking *et al* 2015).

Compression and combinations of high compressive (transverse) and tensile (longitudinal) load are known to adversely affect tendon health or load capacity (Almekinders *et al* 2003; Cook & Purdam 2012; Docking *et al* 2013). Tendons are naturally exposed to higher compressive load as they wrap around a bone, most commonly at their insertion. The gluteus medius and minimus tendons at insertion absorb high compressive and tensile loads at the greater trochanter. This is amplified by the overlying ITB and further influenced by bony morphology, joint position and muscle factors (Grimaldi *et al* 2015).

One of the factors that most potently alters compressive load is frontal plane joint position. In a neutral hip position, the ITB imparts only four Newtons of compressive load across the greater trochanter and the intervening gluteal ➤

"HIP ADDUCTION POTENTLY INCREASES COMPRESSIVE AND TENSILE LOADS ACROSS THE GLUTEUS MEDIUS AND MINIMUS TENDONS AT THE GREATER TROCHANTER, WITH IMPLICATIONS FOR DIAGNOSIS AND MANAGEMENT OF GLUTEAL TENDINOPATHY"

tendons and bursae (Birnbaum *et al* 2004). With only 10 degrees of adduction, this compressive load increases nine-fold to 36 Newtons and by end of hip adduction range (40 degrees), the compressive load has increased by 26.5 times to 106 Newtons. In an adducted hip position, there is also an increase in tensile load due to the natural stretch applied across the musculotendinous complex. Tensile load in these gluteal tendons will be even greater when the muscles are active and tensioning the tendons. Highest loads may then be applied in a position of hip adduction when the gluteal tendons are both compressed and stretched and particularly when the muscles are active. This information may be used then for inducing provocative loads for diagnostic purposes and for reducing provocative loads for management of painful tendinopathy.

Diagnosis

Direct compression (palpation) and combinations of compression and tension appear to be most useful for eliciting familiar pain in those with gluteal tendinopathy (Grimaldi *et al* 2017). With regard to diagnosis of GTPS, 84.8% of surveyed UK physiotherapists palpate the greater trochanter, two-thirds consider pain on single leg stance (65.7%) and just over half (55.8%) perform resisted hip abduction in neutral (Stephens *et al* 2019). However, only around a third of surveyed UK physiotherapists are using specific tests that have been developed to combine compressive and tensile loads on the

“THE EVIDENCE SUGGESTS THAT A DIAGNOSTIC TEST BATTERY FOR GLUTEAL TENDINOPATHY SHOULD INCLUDE PALPATION, MOST USEFUL FOR RULING OUT GLUTEAL TENDINOPATHY WHEN NEGATIVE, AND SPECIFIC TESTS THAT APPLY PROVOCATIVE LOADS ACROSS THE GLUTEAL TENDONS (SINGLE LEG STANCE TEST, FADER/R TEST, THE RESISTED EXTERNAL DE-ROTATION TEST, THE ADD/R TEST)”

gluteal tendons, such as the FADER/R test (Hip flex/Add/Ext Rot ± Isometric internal rotation) (34%), the ADD/R test (Hip adduction in Obers Position; Hip adduction + Isometric abduction) (27.2%; 34%), or the resisted external de-rotation test (34.6%). These tests have all been shown to have good diagnostic utility for predicting the presence of gluteal tendinopathy on imaging (Grimaldi *et al* 2017; Lequesne *et al* 2008). The relatively low percentage of physiotherapists using these specific tests is similar within those surveyed in Australia, New Zealand and Ireland (French *et al* 2019). The FABER test has also been shown to be useful for differentiating GTPS from hip OA (Fearon *et al* 2013), and yet is used by only about one-quarter of physiotherapists surveyed in both these studies (French *et al* 2019; Stephens *et al* 2019).

Management strategies

Although “load management education and exercise” is now the routine evidence-informed approach for management of gluteal tendinopathy by

physiotherapists, the detail regarding what education and exercise is applied may not be consistent with that suggested by the evidence. Load management advice is provided (often or always) by 98.7% of physiotherapists surveyed in the UK and yet only 38.6% (often or always) discuss postural strategies, and 39.9% sometimes, often or always prescribe stretching for the hip abductors (Stephens *et al* 2019). Sustained postures account for a substantial proportion of time exposure to hip adduction in everyday life; sitting with knees crossed, standing in “hip hanging”/adducted postures and side sleeping. Furthermore, stretching for insertional tendinopathies is no longer advised owing to their compressive and, therefore potentially provocative, nature (Cook & Purdam 2012). What exactly, then, is being provided as “load management” advice? Load management does include non-specific advice on reducing activity levels and then gradually reloading as pain allows. Such general advice is important in the overall management of tendinopathy. For those who have developed pain due to a reactive tendon response to a short-term spike in activity, this advice may be sufficient. However, if the situation of tendon overload is underpinned by inherent postural and movement patterns, simply unloading and reloading is unlikely to be an adequate longer-term solution.

Only 51.4% of surveyed UK physiotherapists always or often provide gait training, with 62% providing functional movement training (Stephens *et al* 2019). In contrast, 98.4% always or

“LOAD MANAGEMENT FOR GLUTEAL TENDINOPATHY ENCOMPASSES MORE THAN SIMPLY REDUCING AND THEN GRADUALLY BUILDING ACTIVITY LEVELS. IDENTIFYING AND REDUCING INDIVIDUAL EXPOSURE TO EXCESSIVE, REPETITIVE, LOADED AND SUSTAINED HIP ADDUCTION IN ACTIVITIES OF DAILY LIVING AND SPORT, IS LIKELY TO BE KEY FOR OPTIMAL MANAGEMENT”

often prescribe strengthening exercises. There is certainly evidence for hip abductor muscle strength deficits in those with gluteal tendinopathy (Allison *et al* 2016a; Ganderton *et al* 2017), but there is also evidence for kinetic and kinematic alterations in gait and other single limb loading tasks (Allison *et al* 2016b). An important component of the successful LEAP RCT protocol was to address kinematic patterns that may contribute to provocative gluteal tendon loading (Mellor *et al* 2018). As all UK physiotherapists (99.7%) reported using functional exercises as a common mode of strengthening (Stephens *et al* 2019), strengthening and neuromotor training goals may well be incorporated into that same exercise programme. Squats, sit-stand, single leg stance and step tasks are commonly prescribed functional exercises and may serve to improve musculotendinous load capacity and kinematic control. Receiving physiotherapist feedback while practising everyday functional tasks may also provide benefit via other mechanisms. Participants that received supervised exercise in the LEAP RCT reported significantly higher levels of pain self-efficacy, i.e. confidence to participate despite their pain, than those in the groups that received a corticosteroid injection or basic advice (Mellor *et al* 2018). Reduced fear and increased confidence associated with practising everyday functional tasks with guidance and assurance from a health professional may contribute to improvements in pain and function.

Gait does not fall within the realm of functional strengthening, but the evidence suggests it should be addressed within a management protocol that aims to optimise functional abductor tendon loading. Allison and colleagues (2016b) demonstrated that individuals with gluteal tendinopathy walked in a manner that increased the loads on the hip abductor tendons, as indicated by external hip adduction moments 9%-33% higher through stance than painfree controls. If we consider that our patients may be taking somewhere between 5,000 and 10,000 steps a

day, there is a substantial potential for reducing the daily load imposed on the gluteal tendons through alterations in gait pattern. Why, then, are only 50% of UK physiotherapists addressing gait? Is there a lack of awareness of gait changes in this population or perhaps a lack of confidence in gait analysis and training? Positive changes can be made with visual observation and simple interventions. In gait observation, clinicians can aim to identify overt features such as excessive frontal plane deviations of the pelvis and trunk, excessive stride length, and impact force or inadequate stride width (narrow base of support). In the LEAP RCT (Mellor *et al* 2018), clinicians used simple cues such as “walk a little taller” for those with excessive frontal plane deviations, “walk quietly” for those with excessive stride length and a harsh heel impact, and “walk with your feet slightly wider” for those walking with a midline or cross-midline strike, and therefore excessive hip adduction. Complex cues such as “keep your pelvis level when you walk” or encouraging abnormal muscle holding could serve to worsen altered muscle patterning. Excessive muscle co-contraction has been demonstrated in those with gluteal tendinopathy (Allison *et al* 2018; Ganderton *et al* 2017), therefore it will be important to avoid cues that encourage sustained and inefficient muscle contraction such as “keep your gluteals tight as you walk”.

Apart from functional exercises, which can impart both strength and neuromotor benefits, what other exercises are employed to target the hip abductors? Does it matter what and how abductor strengthening is prescribed; isometric, isotonic, weightbearing, non-weightbearing?

Most physiotherapists in the UK appear to use a variety of exercise modes (Stephens *et al* 2019). There is inadequate evidence at this point to direct specific exercise selection. Clifford and colleagues (2019) published a small pilot trial comparing two simple exercises; hip abduction in side lying and in standing provided to patients with GTPS in either an isometric mode group, or an isotonic group (Clifford *et al* 2019). Both groups were also provided with education. After 12 weeks, there was no between-group difference in pain as measured with a numeric rating scale, or disability measured with the VISA-G patient rated outcome measure. With respect to pain, 55% of the isometric group and 48% of the isotonic group had achieved a pain reduction by the minimal clinically important difference (MCID) of at least two points by 12 weeks. Pain scores were, however, still reasonably high, with only one participant in the isometric group and three in the isotonic group falling beneath a pain level of 2/10. Participants in the education and exercise group of the LEAP RCT had an average pain score of 1.5/10 by week eight (Mellor *et al* 2018).

The exercise protocol of the Clifford *et al* (2019) study was necessarily limited to allow testing of one exercise mode against another. The two RCTs that have recently compared education and exercise interventions for gluteal tendinopathy; the LEAP trial (Mellor *et al* 2018) and the GLoBE trial (Ganderton *et al* 2018), both used a variety of exercises that were progressed over the duration of the intervention (table 1). The GLoBE trial compared a gluteal loading programme with a sham exercise 🕒

“THE VALUE OF GAIT TRAINING IN REDUCING PAIN ASSOCIATED WITH GLUTEAL TENDINOPATHY SHOULD NOT BE UNDERVALUED. SIMPLE ADVICE AND CUEING TO ADDRESS OVERT FEATURES CAN RETURN RAPID AND MEANINGFUL POSITIVE CHANGE”

CONTACT DETAILS

info@dralisongrimaldi.com

programme and found that both groups improved, with no difference in outcomes between the groups in both the short (three months) and long (12 months) term (Ganderton *et al* 2018). The paper's primary conclusion was that "lack of treatment effect was found with the addition of an exercise programme to comprehensive education on GTPS management". This suggests that the education and not the exercise was the active ingredient for change. The effect of education alone is yet to be established, so the relative effect of the education and exercise components is unknown.

It is difficult to compare outcomes across studies when different outcome measures are used, but both the LEAP and GLoBE trials used the VISA-G patient rated outcome scale, which measures pain and disability in those with gluteal tendinopathy and GTPS. The total score is out of 100, with higher scores indicating less pain and better function. At three months, after the active intervention period of both trials, the LEAP education and exercise group had improved on the VISA-G scale by an average of 19.1 points or 31.7% from

// SUCCESSFUL OUTCOMES HAVE BEEN DEMONSTRATED FOR PATIENTS WITH GLUTEAL TENDINOPATHY WITH EDUCATION AND EXERCISE THAT HAS INCLUDED FUNCTIONAL WEIGHTBEARING EXERCISE AS WELL AS HEAVY SLOW RESISTED WEIGHTBEARING ABDUCTION INTO INNER RANGE. HIGH PATIENT COMPLIANCE AND PHYSIOTHERAPIST SUPERVISION MAY ALSO INFLUENCE OUTCOMES //

the baseline score (60.2/100) (Mellor *et al* 2018). The GLoBE education and exercise group had improved by an average 11.5 points or 18.7% from the baseline score (61.6/100) (Ganderton *et al* 2018). If we consider that both groups received comprehensive education, the difference in progress may have been related to the exercise protocols. Both provided weightbearing exercises with no provocative stretching. However, there were a number of differences between the protocols (table 1), any of which may have influenced outcomes. It is important to note that the VISA-G measure cannot capture all aspects of change, and mediators of change are often complex, variable and difficult to clearly elucidate. Further studies using a standardised core outcome set are required.

Conclusion

It is clear from recent surveys of physiotherapists, that the general message regarding use of load management education and strengthening exercise for treatment of gluteal tendinopathy and GTPS has been widely translated. However, the use of specific diagnostic tests, tendon-specific education and gait and movement training appears to be less common. Exercise selection and dose (intensity and frequency) is variable. Further research is required to discern the minimal effective dose. This is expected to vary within subgroups, some patients likely to need education with minimal other intervention and others requiring more intensive, supervised training and/or multidisciplinary care. At this stage, there is high quality evidence that a tailored education and exercise protocol is successful for most people and should be first line management for gluteal tendinopathy. Further knowledge translation of the detail underlying successful programmes is required.

About the author

Alison is an Adjunct Senior Research Fellow at the University of Queensland, an Australian sports physiotherapist and Principal of Physiotech Physiotherapy, with more than 25 years of clinical experience and a special interest in hip and pelvic pathologies. Alison was instrumental in the development of the clinical tests and education and exercise intervention for the LEAP multicentre randomised clinical trials (RCT), comparing treatments for gluteal tendinopathy, the findings of

LEAP TRIAL EDUCATION & EXERCISE PROTOCOL	GLoBE TRIAL EDUCATION & EXERCISE PROTOCOL
Comprehensive education	Comprehensive education
Exercises included: isometric hip abduction supine and standing; squats progressing from double leg to offset to single leg; single leg stance; step ups progressing step height; bridging progressing from double leg to offset to single leg, sidestepping, weightbearing hip abduction against spring and band resistance	Exercises included: hip hitch/hip hitch with toe tap/hip hitch with hip swing; double leg wall squat/single leg wall squat; double leg calf raises/calf raises with toe taps/single leg calf raises; sit to stand/sit to stand with split stance/step up
Focus on closed chain/weightbearing exercise	Focus on closed chain/weightbearing exercise
No stretches	No stretches
<i>3 x week heavy loading with external resistance (2 supervised and 1 at home)</i>	<i>No heavy loading – bodyweight only</i>
<i>Inner range abduction</i>	<i>No inner range abduction</i>
<i>Specific posture, gait & stairclimbing training</i>	<i>No specific movement training</i>
<i>90% compliance with exercise programme</i>	<i>76% compliance with exercise programme</i>
<i>Number of sessions with physiotherapists: 14</i>	<i>Number of sessions with physiotherapists: 4</i>

TABLE 1: Similarities and differences in the LEAP (Mellor *et al* 2018) and GLoBE (Ganderton *et al* 2018) trial protocols. Key differences in protocols indicated by italics

which have recently been published in the *British Medical Journal*. Alison's other publications include 15 peer-reviewed papers on gluteal tendinopathy, 11 on hip-related topics, two editorials and contributions to book chapters in three leading clinical textbooks. Alison has presented widely at national and international physiotherapy and multidisciplinary conferences and has conducted more than 100 clinical workshops across Australia, New Zealand, USA, Canada, the UK, the Republic of Ireland, France, Belgium, Netherlands, Switzerland, Hong Kong, Singapore and Dubai. Visit www.dralisongrimaldi.com for further learning resources.

References

- Albers S, Zwerver J, Van den Akker-Scheek I. Incidence and prevalence of lower extremity tendinopathy in the general population. *British Journal of Sports Medicine* 2014;48(Suppl 2):A5
- Allison K, Salomoni SE, Bennell KL, Wrigley TV, Hug F, Vicenzino B, Grimaldi A, Hodges PW. Hip abductor muscle activity during walking in individuals with gluteal tendinopathy. *Scandinavian Journal of Medicine & Science in Sports* 2018;28(2):686-695
- Allison K, Vicenzino B, Wrigley T, Grimaldi A, Hodges P, Bennell K. Hip abductor muscle weakness in individuals with gluteal tendinopathy. *Medicine and Science in Sports and Exercise* 2016a; 48(3):346-352
- Allison K, Wrigley T, Vicenzino B, Bennell K, Grimaldi A, Hodges P. Kinematics and kinetics during walking in individuals with gluteal tendinopathy. *Clinical Biomechanics* 2016b;32:56-63
- Almekinders LC, Weinhold PS, Maffulli N. Compression etiology in tendinopathy. *Clinics in Sports Medicine* 2003;22:703-710
- Bird P, Oakley S, Shnier R, Kirkham B. Prospective evaluation of magnetic resonance imaging and physical examination findings in patients with greater trochanteric pain syndrome. *Arthritis & Rheumatism* 2001;44(9):2138-2145
- Birnbaum K, Siebert CH, Pandorf T, Schopphoff E, Prescher A, Niethard FU. Anatomical & biomechanical investigations of the iliotibial tract. *Surgical & Radiological Anatomy* 2004;26:433-446
- Clifford C, Paul L, Syme G, Millar N. Isometric versus isotonic exercise for greater trochanteric pain syndrome: a randomised controlled pilot study. *BMJ Open Sport & Exercise Medicine* 2019;5(1): p.e000558
- Cook JL, Purdam C. Is compressive load a factor in the development of tendinopathy? *British Journal of Sports Medicine* 2012;46(3):163-168
- Cowan R, Semciw A, Pizzari T, Cook J, Rixon M, Gupta G, Plass L, Ganderton C. Muscle Size and Quality of the Gluteal Muscles and Tensor Fasciae Latae in Women with Greater Trochanteric Pain Syndrome. *Clinical Anatomy* 2019; doi: 10.1002/ca.23510 Epub ahead of print
- Docking S, Samiric T, Scase E, Purdam C, Cook J. Relationship between compressive loading and ECM changes in tendons. *Muscles, Ligaments & Tendons* 2013;21;3(1):7-11
- Docking S, Ooi C, Connell D. Tendinopathy: Is Imaging Telling Us the Entire Story? *Orthopaedic & Sports Physical Therapy* 2015;45(11):842-852
- Feardon AM, Cook JL, Scarvell JM, et al. Greater trochanteric pain syndrome negatively affects work, physical activity and quality of life: a case control study. *Arthroplasty* 2014;29(2):383-386
- Feardon AM, Scarvell JM, Neeman T, Cook JL, Cormick W, Smith PN. Greater trochanteric pain syndrome: defining the clinical syndrome. *British Journal of Sports Medicine* 2013;47:649-653
- French H, Grimaldi A, Woodley S, O'Connor L, Feardon A. An international survey of current physiotherapy practice in diagnosis and knowledge translation of greater trochanteric pain syndrome (GTPS). *Musculoskeletal Science & Practice* 2019;43:122-126
- Ganderton C, Pizzari T, Harle T, Cook J, Semciw A. A comparison of gluteus medius, gluteus minimus and tensor fascia latae muscle activation during gait in post-menopausal women with and without greater trochanteric pain syndrome. *Electromyography & Kinesiology* 2017;33:39-47
- Ganderton C, Semciw A, Cook J, Moreira E, Pizzari T. Gluteal loading versus sham exercises to improve pain and dysfunction in postmenopausal women with greater trochanteric pain syndrome: a randomized controlled trial. *Women's Health* 2018;27(6):815-829
- Grimaldi A, Mellor R, Hodges P, Bennell K, Wajswelner H, Vicenzino B. Gluteal tendinopathy: a review of mechanisms, assessment and management. *Sports Medicine* 2015;45:1107-1119
- Grimaldi A, Mellor R, Nicolson P, Hodges P, Bennell K, Vicenzino B. Utility of clinical tests to diagnose MRI-
- confirmed gluteal tendinopathy in patients presenting with lateral hip pain. *British Journal of Sports Medicine* 2017;51(6):519-524
- Kingzett-Taylor A, Tirman P, Feller J, McGann W, Prieto V, Wischer T, Cameron J, Cvitanic O, Genant H. Tendinosis and tears of gluteus medius and minimus muscles as a cause of hip pain: MR imaging findings. *American Journal of Roentgenology* 1999;173:1123-1126
- Kong A, van der Vliet A, Zadow S. MRI and US of gluteal tendinopathy in greater trochanteric pain syndrome. *European Radiology* 2007;17:1772-1783
- Lequesne M, Mathieu P, Vuillemin-Bodaghi V, et al. Gluteal tendinopathy in refractory greater trochanteric pain syndrome: diagnostic value of two clinical tests. *Arthritis & Rheumatology* 2008;59:241-246
- Long S, Surrey D, Nazarian L. Sonography of greater trochanteric pain syndrome and the rarity of primary bursitis. *American Journal of Roentgenology* 2013;201(5):1083-1086
- Mellor R, Bennell K, Grimaldi A, Nicolson P, Kasza J, Hodges P, Wajswelner H, Vicenzino B. Education plus exercise versus corticosteroid injection use versus a wait and see approach on global outcome and pain from gluteal tendinopathy: prospective, single blinded, randomised clinical trial. *British Medical Journal* 2018;52(22):1464-1472
- Segal NA, Felson DT, Torner JC, Zhu Y, Curtis JR, Niu J, Nevitt MC. Greater trochanteric pain syndrome: Epidemiology and associated factors. *Archives of Physical Medicine & Rehabilitation* 2007;88:988-992
- Stephens G, O'Neill S, French HP, Feardon A, Grimaldi A, O'Connor L, Woodley S, Littlewood C. A survey of physiotherapy practice (2018) in the United Kingdom for patients with greater trochanteric pain syndrome. *Musculoskeletal Science & Practice* 2019;40:10-20



Dr. Alison Grimaldi

Workshops

Online Courses

eBooks

Enhance your clinical skills and optimise your treatment outcomes

www.dralisongrimaldi.com

Optimising management for knee osteoarthritis: new opportunities from joint injury to joint replacement

ADAM G CULVENOR

NHMRRC Research Fellow, La Trobe Sport and Exercise Medicine Research Centre, La Trobe University, Bundoora, Australia



The burden of osteoarthritis (OA) continues to increase, yet in many cases, healthcare professionals fail to manage OA optimally. This article helps to break down the growing disparity between evidence-based interventions for the management of knee OA and their use in clinical practice. Identifying younger adults who are at high risk of early OA onset and progression provides opportunities for early intervention to slow / prevent OA disease trajectory and reduce the epidemic of young people with old knees.

LEARNING OUTCOMES

TO SUPPORT PHYSIO FIRST QAP

- 1 Implement clinical guidelines for the management of knee OA.
- 2 Understand early OA diagnostic criteria.
- 3 Assess early osteoarthritis risk factors and how to address them
- 4 Know what not to do in the management of OA.
- 5 Appreciate the rapid development of OA following joint injury and ways that this can be prevented / slowed.
- 6 Understand the burden of knee joint injury and OA.

Introduction

Osteoarthritis (OA) is the most prevalent joint disease and a leading cause of chronic pain and disability worldwide. The knee is the most common site for OA affecting approximately one in five adults aged over 45 years (Lawrence *et al* 2008) and accounting for more than 80% of the global OA burden (Vos *et al* 2012). Knee pain and OA across all age groups reduces physical activity and results in poorer health-related quality of life compared to population

norms. Projected trends for knee OA are ominous, with rates likely to increase as we live longer and become more overweight. It is anticipated that, by 2040, approximately 25% of American adults will be diagnosed with OA (Hootman *et al* 2016).

An updated definition of osteoarthritis

Traditionally, knee OA was considered a degenerative disease of joint “wear and tear” diagnosed by x-ray and destined for joint replacement surgery. Today, structural features on imaging, e.g. joint space narrowing, osteophytes, are considered to be just one aspect of OA. The pain, symptoms and functional decline of OA are often discordant with structural signs (Yusuf *et al* 2011), with current conceptual models describing OA as a whole-person disease developing along a continuum from early to late stages.

Clinical criteria exist to diagnose knee OA and their use is recommended by clinical guidelines (NICE 2008). American College of Rheumatology criteria, which include pain, age, stiffness, crepitus, bony tenderness and bony enlargement, enable a clinical OA diagnosis without the need for imaging. Indeed,

international guidelines, particularly in Scandinavia, explicitly state that radiography is not needed for an OA diagnosis (Roos & Arden 2016).

Best practice in osteoarthritis management

Despite its alarming prevalence and attendant disability, therapies that modify the onset or progression of structural damage in knee OA have remained elusive. Reducing pain, improving physical function/activity and optimising quality of life should therefore be the cornerstone management of knee OA. Patient education, exercise-therapy and weight control are recommended internationally as first line treatments (figure 1), even in those with severe OA. Joint replacement is confined to those who fail to respond adequately to a comprehensive education and exercise-therapy programme (Nelson *et al* 2014).

“IT IS ANTICIPATED THAT, BY 2040, APPROXIMATELY 25% OF AMERICAN ADULTS WILL BE DIAGNOSED WITH OA”

“THERE IS COMPELLING EVIDENCE TO SUPPORT THE EFFICACY OF EXERCISE, EDUCATION AND WEIGHT LOSS, BUT UPTAKE IN CLINICAL PRACTICE IS LOW”

EXERCISE AND WEIGHT LOSS

Exercise-therapy, consisting of lower-limb muscle strengthening and neuromuscular control exercises together with aerobic exercise, is supported by more than 50 randomised controlled trials with a large effect size for improvements in pain and disability (Uthman *et al* 2013). Importantly, exercise-therapy is cost-effective from both health systems and societal perspectives (Abbott *et al* 2018). Exercise, together with a structured diet, can assist weight loss. A 10% reduction in body weight results in an impressive 50% reduction in symptoms (Messier *et al* 2018).

EDUCATION

Education regarding OA is considered a standard of care despite a lack of clinical trial data assessing its direct effect. Patient education should be a two-way dialogue allowing the clinician to assess the patient's knowledge and provide an opportunity for questions that they may not have otherwise asked. A critical first element is in ensuring that the patient understands that exercise and meeting physical activity guidelines will not increase the risk of OA (Barbour

et al 2014), and that even higher-impact activities, such as running, do not generally worsen knee OA outcomes (Lo *et al* 2018). Indeed, providing adequate loading to knee cartilage through neuromuscular exercises may actually improve joint structure in those with minimal / mild OA (Roos & Dahlberg 2005). Creating rapport, trust and patient-specific goals will likely aid adherence to exercise interventions. Although exercising in OA increases the risk of non-serious adverse events, i.e. pain flares, it does not increase the risk of serious adverse events, and is therefore considered safe (Niemeijer *et al* 2018).

Limitations of current osteoarthritis care

Despite compelling evidence supporting the efficacy of exercise and international guidelines recommending it, the uptake of exercise, education and weight loss is suboptimal in clinical practice (Basedow & Esterman 2015). Runciman *et al* (2012) reported that 57% of adults with OA do not receive guideline-based care, while Hinman *et al* (2015) showed that more than 50% never try exercise-therapy.

This drives high rates of inappropriate medication such as opioids (Ackerman *et al* 2018) and surgery. For example, arthroscopic surgery for the management of knee OA continues worldwide despite little or no evidence of its efficacy (Thorlund *et al* 2015).

Knee replacement is an effective treatment option in patients with moderate-to-severe OA. However, it is associated with a higher rate of serious adverse events than exercise-therapy alone (Skou *et al* 2015). It is important to note that a quarter of knee replacement surgeries are performed on inappropriate patients (Cobos *et al* 2010), and 20% of knee replacement surgeries have no clinically meaningful improvement (Beswick *et al* 2012; Dowsey *et al* 2015). This equates to around £150 million being spent in annual healthcare costs without any benefit. Ensuring patients have completed a comprehensive exercise-therapy, education and weight loss programme prior to pursuing knee replacement may reduce the number of inappropriate surgical procedures.

Optimising osteoarthritis clinical management

How do we bridge the gap between evidence and clinical practice? While it has proven difficult to garner widespread uptake of OA clinical guidelines, when these are made applicable to real-world situations and readily accessible, they can be implemented. Successful examples exist from which we can learn valuable lessons.

The Danish good living with osteoarthritis or GLA:D (Skou & Roos 2017) is a guideline-based (Nelson *et al* 2014), individualised, eight-week physiotherapist-led group education and exercise-therapy programme designed to facilitate high-quality care for patients with OA. While it originated in Denmark, more than five other countries now participate. The GLA:D programme primarily addresses strength, movement and joint confidence impairments and consists of three mandatory elements:

- a two-day course for physiotherapists
- eight weeks of education and

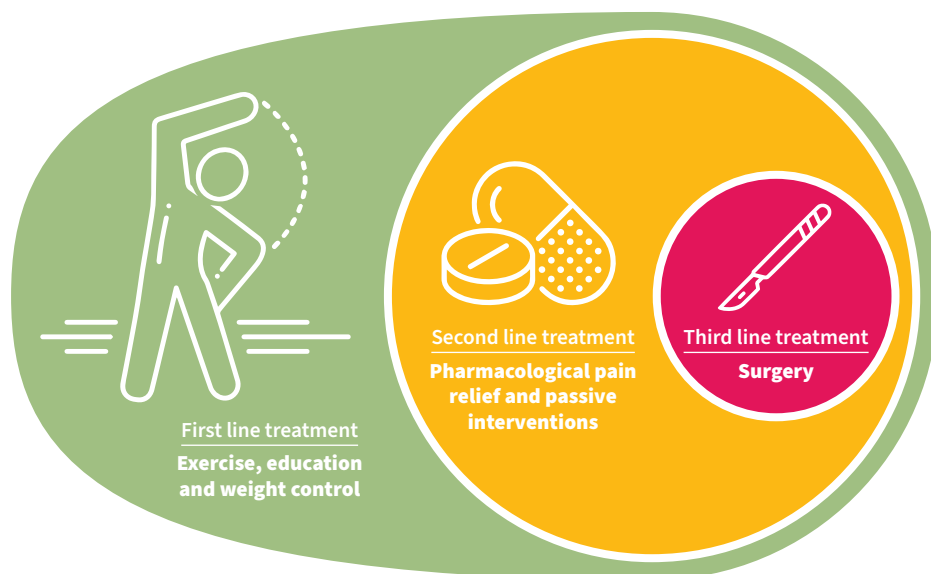


FIGURE 1: Treatment approach to osteoarthritis recommended by international clinical guidelines

supervised neuromuscular exercise for patients delivered by a trained physiotherapist in clinical practice

- entry of outcome data into the GLA:D registry (baseline 3 and 12 months). Outcomes from the almost 10,000 participants thus far include clinically meaningful pain reduction (35%), improved joint-related quality of life (22%), reduced analgesic consumption, and increased physical activity (Skou & Roos 2017).

Enabling Self-management and Coping with Arthritic Knee Pain through Exercise (ESCAPE-Pain) is a similar programme, specific to the UK and delivered by physiotherapists in outpatient and community settings. It consists of education and exercise-therapy components during 12 classes over six weeks and has shown results in the reduction of knee pain and improvements in physical function and quality of life that are significantly greater than usual primary care (Hurley *et al* 2007).

For patients with severe OA, such exercise and education programmes are feasible and safe with progression achieved with few joint-specific adverse events (Hurley *et al* 2007; Ageberg *et al* 2010). Promisingly, 68% of people offered comprehensive non-surgical care, i.e. patient education, weight management support and exercise-therapy, delay surgery by at least two years (Skou *et al* 2018).

"THE PREVALENCE OF OA IN YOUNGER ADULTS IS INCREASING"

Other examples of initiatives to overcome suboptimal clinical translation of evidence in OA include "Choosing Wisely", an American Board of Internal Medicine initiative that aims to facilitate better informed conversations between clinicians and patients regarding which treatment options comprise best practice. This may be a useful resource for community-based clinicians and is freely available online at <http://www.choosingwisely.org/>

Osteoarthritis in young adults

While OA is typically regarded as a disease of the elderly, its prevalence in younger adults is increasing. One of the most important risk factors for the early-onset of knee OA in young adults is history of knee joint injury. Approximately 25% of symptomatic knee OA could be prevented by preventing knee injuries (Felson & Zhang 1998), and it is estimated that post-traumatic OA is responsible for 12% of the overall prevalence of symptomatic OA, at an annual cost of US\$11.8 billion (Brown *et al* 2006) (figure 2). A focus on the primary prevention of knee injury in adolescents and young adults, together with secondary prevention of post-traumatic

OA following injury, has great potential to reduce the burden of knee OA in the general population.

Opportunities for osteoarthritis prevention and early intervention

PRIMARY PREVENTION

Injury prevention programmes, focusing on neuromuscular control, movement retraining and strengthening, e.g. FIFA 11+, Prevent Injury Enhance Performance, can effectively reduce the risk of serious knee injuries, such as an anterior cruciate ligament (ACL) injury, by 50%, yet their implementation is challenging as there is a requirement for the player, coach and parent to buy in to optimal adherence (Webster & Hewett 2018). Despite the best efforts of primary prevention strategies, ACL injuries and subsequent reconstructions in young adults in the UK have increased 12-fold over the past 20 years (Abram *et al* 2019). With approximately 50% of people developing radiographic OA within the first decade after ACL injury, i.e. often in their 30s and 40s, we will soon be faced with an epidemic of young people suffering from old knees and needing joint replacement at an earlier age, unless we can prevent / slow the development of post-traumatic OA (Lohmander *et al* 2007).

SECONDARY PREVENTION

Given the high rates of early-onset OA in young adults following joint trauma, individuals who suffer a knee joint injury, particularly an ACL rupture, represent an easily identifiable group of "at risk" individuals ripe to be targeted with strategies aimed at preventing, i.e. secondary prevention, of OA (figure 3). Promisingly, there is emerging evidence that OA is amenable to prevention and early-stage treatment, yet there is no clear evidence that ACL rehabilitation currently includes approaches to prevent

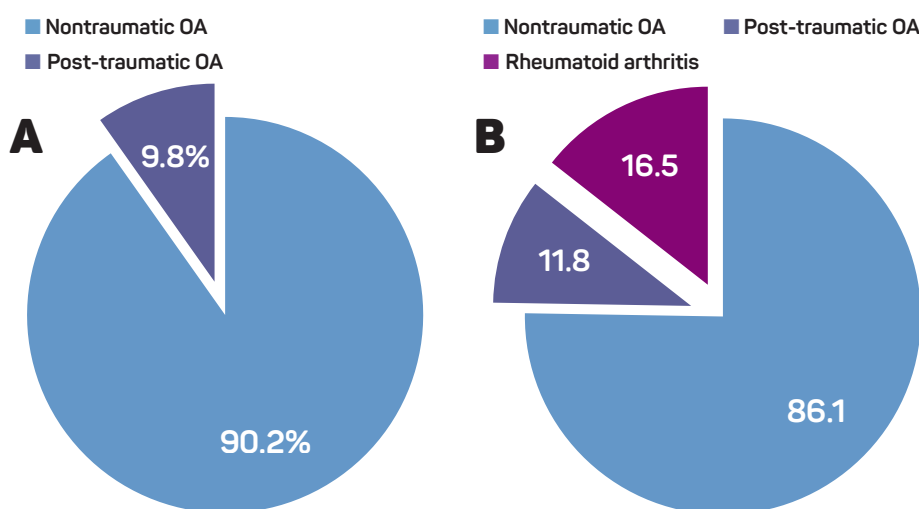


FIGURE 2: A) The prevalence of osteoarthritis, split by nontraumatic and post-traumatic; B) The annual cost of arthritis treatment (\$US billion)

" SPECIFIC EXERCISE-THERAPY SHOULD ADDRESS ENDURANCE, STRENGTH AND / OR POWER TO SUPPORT PATIENT-SPECIFIC NEEDS "

future development of knee OA (Risberg *et al* 2016). To inform the prevention of symptomatic post-traumatic knee OA, awareness of modifiable risk factors known to increase the risk of post-traumatic OA is important as they represent the low-hanging fruit that should be targeted.

Targeting risk factors to prevent post-traumatic OA

Using an ACL injury model of early joint deterioration, we have revealed rapid cartilage loss within the first five years after ACL injury (Patterson *et al* 2018), that is made worse with reconstruction surgery (Culvenor *et al* 2019). While ACL reconstruction surgery may be performed for a variety of reasons, preventing OA should not be one of them.

Modifiable risk factors for this accelerated OA trajectory include being overweight (Patterson *et al* 2018), quadriceps weakness (Oiestad *et al* 2015), and poor function, i.e. hop tests (Pinczewski *et al* 2007), particularly when accompanied by a premature return to sport, i.e. <10 months post-operatively (Culvenor *et al* 2018).

The osteoarthritis prevention programme

In addition to advice on achieving a healthy lifestyle, including maintaining

a healthy body weight and regular physical activity, OA prevention strategies following joint injury should centre around a progressive exercise-therapy programme to restore and optimise muscle function (neuromuscular control and strength), particularly of the quadriceps. Although there is a paucity of high-quality clinical trials to guide the prevention of post-traumatic OA, in a small cohort of 30 middle-aged patients at risk of OA (post-meniscectomy), neuromuscular exercises over a four-month period improved the quality of the cartilage matrix content (Roos & Dahlberg 2005). These promising findings show that exercise can positively affect structure. Specific exercise-therapy should address endurance, strength and / or power to support the patient-specific needs according to the American College of Sports Medicine guidelines (2009).

Neuromuscular exercises

Neuromuscular training is based on biomechanical and neuromuscular principles and aims to optimise sensorimotor control and achieve functional stability (Ageberg *et al* 2010). Neuromuscular control is essentially the ability to produce controlled movement through co-ordinated muscle activity resulting in dynamic stability of the joint. Exercises are primarily performed

in closed kinetic chains to replicate functional movements, together with muscle strengthening exercises in open kinetic chains to improve muscle strength and endurance.

Important elements of education for preventing osteoarthritis

A key component to the success of any exercise-therapy programme is in ensuring adequate adherence. Education around the benefits of exercise, developing personalised programmes, and addressing existing fear of movement or re-injury anxiety is important. Also creating realistic expectations in collaboration with patients is likely to be important given that almost half of ACL-injured individuals do not know what OA is and one-third are unaware of their increased risk for osteoarthritis (Bennell *et al* 2016). Changing the paradigm around cartilage wear and tear, and joint overloading is vital. Emerging evidence suggests that cartilage responds positively to load, whereas underloading, and not stimulating cartilage turnover sufficiently, is linked to the development of OA after ACL injury (Wellsandt *et al* 2016).

Osteoarthritis prevention in post-injury rehab

Current sports injury rehabilitation paradigms worship at the altar of rapid return to sport. Yet the best available evidence tells us that for every month that return to pivoting sport is delayed, up to nine months after ACL reconstruction, the risk of re-injury reduces by 51% (Grindem *et al* 2016). Early signs of OA, such as bone marrow lesions, are also more prevalent in individuals who return to sport early, i.e. <10 months post-ACL reconstruction (Culvenor *et al* 2018). For re-injury and OA prevention, a return to sport should be delayed for at least 9-10 months post-ACL reconstruction.

There is little evidence that current sports-injury rehabilitation programmes include approaches to prevent future development of OA, but this is clearly

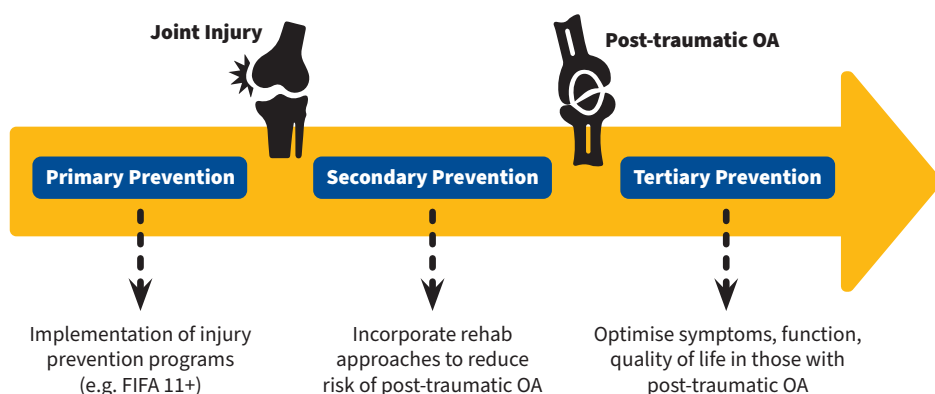


FIGURE 3: Prevention of post-traumatic osteoarthritis (OA) and its associated burden across the continuum from primary injury prevention to optimising outcomes for those with post-traumatic OA

an important area that clinicians need to consider and address. Patient involvement is crucial for clarifying expectations, implementation of prevention programmes, and adherence to recommendations. With the alarming statistic that only 5% of ACL injured individuals receive evidence-based rehabilitation (Ebert *et al* 2018), we can do better by acting to maintain the patient's joint and overall health for the long-term. Implementing approaches to prevent the development of OA as part of a comprehensive management strategy should be a priority.

About the author

Adam is a Physiotherapist and Research Fellow at the La Trobe University Sport and Exercise Medicine Research Centre, Australia. He has combined a clinical career encompassing public and private hospital and sports medicine clinic work, together with a research career investigating prevention, management and long-term outcomes of sports-related injuries, and life-span osteoarthritis. He has a particular interest in anterior cruciate ligament (ACL) injuries; in optimising return to sport, identifying risk factors for poor long-term outcomes, and developing and testing novel osteoarthritis prevention strategies. Adam has written more than 50 publications on the subject of ACL injuries and osteoarthritis, has been invited to speak at numerous international conferences, and is currently leading the first clinical trial in the prevention of osteoarthritis in young adults following ACL injury.

References

Abbott JH, Wilson R, Pinto D, *et al*. Incremental clinical effectiveness and cost effectiveness of providing supervised physiotherapy in addition to usual medical care in patients with osteoarthritis of the hip or knee: 2-year results of the MOA randomised controlled trial. *Osteoarthritis & Cartilage* 2018; doi: 10.1016/j.joca.2018.12.004

Abram SGF, Price AJ, Judge A, *et al*. Anterior cruciate ligament (ACL) reconstruction and meniscal repair rates have both increased in the past 20 years in England: hospital

CONTACT DETAILS

a.culvenor@latrobe.edu.au

statistics from 1997 to 2017. *British Journal of Sports Medicine* 2019; doi: 10.1136/bjsports-2018-100195

Ackerman IN, Zomer E, Gilmartin-Thomas JF, *et al*. Forecasting the future burden of opioids for osteoarthritis. *Osteoarthritis & Cartilage* 2018;26(3):350-355 doi: 10.1016/j.joca.2017.11.001

Ageberg E, Link A, Roos EM. Feasibility of neuromuscular training in patients with severe hip or knee OA: The individualized goal-based NEMEX-TJR training program. *BioMed Central Musculoskeletal Disorders* 2010;11:126

American College of Sports Medicine position stand. Progression models in resistance training for healthy adults. *Medicine and Science in Sports and Exercise* 2009;41:687-708

Barbour KE, Hootman JM, Helmick CG, *et al*. Meeting physical activity guidelines and the risk of incident knee osteoarthritis: a population-based prospective cohort study. *Arthritis Care & Research* 2014;66:139-146

Basedow M, Esterman A. Assessing appropriateness of osteoarthritis care using quality indicators: a systematic review. *Evaluation in Clinical Practice* 2015;21:782-789

Bennell K, Van Ginckel A, Kean CO, *et al*. Patient knowledge and beliefs about knee osteoarthritis after anterior cruciate ligament injury and reconstruction. *Arthritis Care & Research* 2016;68:1180-1185

Beswick AD, Wylde V, Gooberman-Hill R, *et al*. What proportion of patients report long-term pain after total hip or knee replacement for osteoarthritis? A systematic review of prospective studies in unselected patients. *British Medical Journal Open* 2012;2(1):e000435 doi: 10.1136/bmjopen-2011-000435

Brown TD, Johnston RC, Saltzman CL, *et al*. Posttraumatic osteoarthritis: a first estimate of incidence, prevalence, and burden of disease. *Orthopaedic Trauma* 2006;20(10):739-744

Cobos R, Latorre A, Aizpuru F, *et al*. Variability of indication criteria in knee and hip replacement: an observational study. *BioMed Central Musculoskeletal Disorders* 2010;11:249 doi: 10.1186/1471-2474-11-249

Culvenor AG, Eckstein F, Wirth W, *et al*. Loss of patellofemoral cartilage thickness over

five years following ACL injury depends on the initial treatment strategy: results from the KANON trial. *British Journal of Sports Medicine* 2019; doi: 10.1136/bjsports-2018-100167

Culvenor AG, Patterson BE, Guermazi A, *et al*. Accelerated return to sport after anterior cruciate ligament reconstruction and early knee osteoarthritis features at 1 year: An exploratory study. *Injury, Function & Rehabilitation* 2018;10:349-356

Dowsey MM, Smith AJ, Choong PFM. Latent class growth analysis predicts long term pain and function trajectories in total knee arthroplasty: a study of 689 patients. *Osteoarthritis & Cartilage* 2015;23(12):2141-2149 doi: 10.1016/j.joca.2015.07.005

Ebert JR, Edwards P, Yi L, *et al*. Strength and functional asymmetry is associated with post-operative rehabilitation in patients following anterior cruciate ligament reconstruction. *Knee Surgery Sports Traumatology Arthroscopy* 2018;26:2353-2361

Felson DT, Zhang Y. An update on the epidemiology of knee and hip osteoarthritis with a view to prevention. *Arthritis & Rheumatism* 1998;41:1343-1355

Grindem H, Snyder-Mackler L, Moksnes H, *et al*. Simple decision rules can reduce reinjury risk by 84% after ACL reconstruction: the Delaware-Oslo ACL cohort study. *British Journal of Sports Medicine* 2016; doi: 10.1136/bjsports-2016-096031

Hinman RS, Nicolson PJ, Dobson FL, *et al*. Use of nondrug, nonoperative interventions by community-dwelling people with hip and knee osteoarthritis. *Arthritis Care & Research (Hoboken)* 2015;67(2):305-309. doi: 10.1002/acr.22395

Hootman JM, Helmick CG, Barbour KE, *et al*. Updated projected prevalence of self-reported doctor diagnosed arthritis and arthritis-attributable activity limitation among US adults, 2015-2040. *Arthritis & Rheumatology* 2016;68:1582-1587

Hurley MV, Walsh NE, Mitchell HL, *et al*. Clinical effectiveness of a rehabilitation program integrating exercise, self-management, and active coping strategies for chronic knee pain: A cluster randomized trial. *Arthritis Care & Research* 2007;57:1211-1219

Lawrence RC, Felson DT, Helmick CG, *et al*. Estimates of the prevalence of arthritis and other rheumatic conditions in the United States. *Arthritis & Rheumatism* 2008;58(1):26-35

Lo GH, Musa SM, Driban JB, *et al*. Running does not increase symptoms or structural

- progression in people with knee osteoarthritis: data from the osteoarthritis initiative. *Clinical Rheumatology* 2018;37:2497-2504
- Lohmander LS, Englund PM, Dahl LL, *et al.* The long-term consequence of anterior cruciate ligament and meniscus injuries. *American Journal of Sports Medicine* 2007;35(10):1756-1769 doi: 10.1177/0363546507307396
- Messier SP, Resnik AE, Beavers DP, *et al.* Intentional weight loss in overweight and obese patients with knee osteoarthritis: Is more better? *Arthritis Care & Research* 2018;70:1569-1575
- National Institute for Health & Clinical Excellence. NICE clinical guideline [CG59] osteoarthritis: the care and management of osteoarthritis in adults. London: *National Institute for Health & Clinical Excellence*; 2008
- Nelson AE, Allen KD, Golightly YM, *et al.* A systematic review of recommendations and guidelines for the management of osteoarthritis: The chronic osteoarthritis management initiative of the U.S. bone and joint initiative. *Seminars in Arthritis & Rheumatism* 2014;43(6):701-712 doi: 10.1016/j.semarthrit.2013.11.012
- Niemeijer A, Lund H, Stafne SN, *et al.* Adverse events of exercise therapy in randomised controlled trials: a systematic review and meta-analysis. *British Journal of Sports Medicine* 2018; doi:10.1136/bjsports-2018-100461
- Oiestad BE, Juhl CB, Eitzen I, *et al.* Knee extensor muscle weakness is a risk factor for development of knee osteoarthritis. A systematic review and meta-analysis. *Osteoarthritis & Cartilage* 2015;23:171-177
- Patterson BE, Culvenor AG, Barton CJ, *et al.* Worsening knee osteoarthritis features on magnetic resonance imaging 1 to 5 years after anterior cruciate ligament reconstruction. *American Journal of Sports Medicine* 2018;46(12):2873-2883
- Pinczewski L, Lyman J, Salmon L, *et al.* A 10-year comparison of anterior cruciate ligament reconstructions with hamstring tendon and patellar tendon autograft: a controlled, prospective trial. *American Journal of Sports Medicine* 2007;35(4):564-574
- Risberg MA, Grindem H, Oiestad BE. We need to implement current evidence in early rehabilitation programs to improve long-term outcome after anterior cruciate ligament injury. *Orthopaedic & Sports Physical Therapy* 2016;46:710-713
- Roos EM, Arden NK. Strategies for the prevention of knee osteoarthritis. *Nature Reviews Rheumatology* 2016;12:92-101
- Roos EM, Dahlberg LE. Positive effects of moderate exercise on glycosaminoglycan content in knee cartilage: a four-month, randomized, controlled trial in patients at risk of osteoarthritis. *Arthritis & Rheumatism* 2005;52(11):3507-3514
- Runciman WB, Hunt TD, Hannaford NA, *et al.* CareTrack: assessing the appropriateness of health care delivery in Australia. *Medical Journal Australia* 2012;197(2):100-105
- Skou ST, Roos EM. Good Life with osteoarthritis in Denmark (GLA:D™): evidence-based education and supervised neuromuscular exercise delivered by certified physiotherapists nationwide. *BioMed Central Musculoskeletal Disorders* 2017;18(1):72 doi: 10.1186/s12891-017-1439-y
- Skou ST, Roos EM, Laursen MB, *et al.* Total knee replacement and non-surgical treatment of knee osteoarthritis: 2-year outcome from two parallel randomized controlled trials. *Osteoarthritis & Cartilage* 2018; doi: 10.1016/j.joca.2018.04.014
- Skou ST, Roos EM, Laursen MB, *et al.* A randomized, controlled trial of total knee replacement. *New England Journal of Medicine* 2015;373:1597-1606
- Thorlund JB, Juhl CB, Roos EM, *et al.* Arthroscopic surgery for degenerative knee: systematic review and meta-analysis of benefits and harms. *British Medical Journal* 2015;350:h2747
- Uthman OA, van der Windt DA, Jordan JL, *et al.* Exercise for lower limb osteoarthritis: systematic review incorporating trial sequential analysis and network meta-analysis. *British Medical Journal* 2013;347:f5555
- Vos T, Flaxman AD, Naghavi M, *et al.* Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet* 2012;380:2163-2196
- Webster KE, Hewett TE. A meta-analysis of meta-analyses of anterior cruciate ligament injury reduction training programs. *Orthopaedic Research* 2018; doi: 10.1002/jor.24043
- Wellsandt E, Gardiner ES, Manal K, *et al.* Decreased knee joint loading associated with early knee osteoarthritis after anterior cruciate ligament injury. *American Journal of Sports Medicine* 2016; doi: 10.1177/0363546515608475
- Yusuf E, Kortekaas MC, Watt I, *et al.* Do knee abnormalities visualised on MRI explain knee pain in knee osteoarthritis? A systematic review. *Annals of the Rheumatic Diseases* 2011;70:60-67 

Making sense of common headache presentations in musculoskeletal physiotherapy: differentiation, assessment and treatment

NEIL LANGRIDGE DClinP MSc BSc (Hons) FCSP FMACP

Consultant Physiotherapist in Musculoskeletal Practice leading a large group of clinicians and a Senior lecturer in Physiotherapy at the University of Winchester



This article aims to provide the reader with a primary care overview of the most common types of headache seen in clinical practice by musculoskeletal physiotherapists. It will offer some support introducing clinical reasoning in what is a highly complex area of practice. The paper will also look at where physiotherapy can aid in the treatment of the neck related headache, and cast an eye over the evidence underpinning the approaches.

LEARNING OUTCOMES TO SUPPORT PHYSIO FIRST QAP

- 1 Consider common headache presentations that may be seen by a physiotherapist.
- 2 Develop a clinical reasoning approach to assessment of this complex area.
- 3 Apply a rationale linking hands-on and exercise in cervicogenic conditions.

Introduction

The vast majority of individuals will experience headache at least one time in their lives (Göbel *et al* 1994; Rasmussen *et al* 1991). The global prevalence of headache has been reported to be 47% while, among adults, the individual prevalence of migraine is reported to be 10%, tension type headache (TTH) at around 40%, and chronic daily headache at 3% (Stovner *et al* 2007). Although TTH is generally less burdensome than migraine to the individual sufferer, the total societal burden of this headache type seems to be even larger than that of migraine because of its much higher prevalence (Stovner *et al* 2007).

Classification

Headache classification can be accessed through the International Classification of Headache Disorders (International Headache Society 2018) which delivers a deep exploration into the multitude of classifications identified. It outlines sub-groups of headache and highlights that many headache disorders can be co-diagnosed in patients, and so singular headache diagnoses are not compartmentalised in this way. It firstly describes two distinct types of classification:

1. Primary headache – this is the medical disorder. There is no other underlying pathology causing the headache and associated symptoms
2. Secondary headache – where the headache is a symptom arising from an

underlying pathology, i.e. the headache is caused by another medical condition.

Examples of primary headache are migraine, TTH and trigeminal autonomic cephalalgias (International Headache Society 2018). Secondary headache examples may present in patients with intracranial processes that include tumour, haemorrhage, infection or vascular disorders, and disorders such as infection, head injury, and the use / overuse of various drugs.

Secondary headaches are generally associated with other symptoms reflecting the underlying pathology. It is important to recognise that the overall incidence of serious headaches being due to secondary causes is very low, but many are associated with Red Flags

SIGNS AND SYMPTOMS IN HISTORY	POSSIBLE PATHOLOGY TO CONSIDER
Systemic symptoms / signs	Fever, malaise, weight loss
Systemic disease	Malignancy, inflammatory
Neurological presentation	Mass lesion, stroke, encephalitis
Onset (sudden, new)	Subarachnoid haemorrhage
Onset after 40 years of age	Temporal arteritis
Positional and pattern change	Intracranial hypotension, posterior fossa pathology; overuse of medication

TABLE 1: SNOOP mnemonic for Red Flag diagnosis of headache (adapted from Dodick 2003)

"IT IS VITAL FOR THE CLINICIAN TO BE ABLE TO RECOGNISE THE SYMPTOMS OF THE MOST COMMON PRIMARY HEADACHE DISORDERS"

(Bigal & Lipton 2007). A useful mnemonic that can alert the clinician to possible serious pathologies is "SNOOP" (table 1).

The three most common headaches seen in primary care are the primary headache disorders and it is vital, once Red Flags have been excluded, for the clinician to be able to recognise fairly classical signs of symptoms for primary care management.

TENSION TYPE HEADACHE

The most common primary headache is TTH (Robbins & Lipton 2010). People with infrequent episodic TTH are unlikely to seek medical advice and will generally self-manage. As the frequency of TTH increases however, it is common for the severity of the pain to do so as well, and it is more likely that the patient will present for treatment. Younger patients have been reported as more likely to consult a practitioner in these cases, although the reason for this was unknown. However, there are strong correlations with severe TTH and high levels of anxiety and low mood (Holroyd *et al* 2000). Patients usually report a mild to moderate, bilateral sensation of muscle tightness or pressure lasting hours to days, and not associated with constitutional or neurological symptoms. They may describe and indicate the location of the pain as a "band-like feeling" around the head and may present with bilateral tightening of the cervical spinal musculature, and pericranial tenderness which can be felt by the patient and also recognised as part of a physical assessment (Loder & Rizzoli 2008).

MIGRAINE

Migraine is a common disabling primary headache disorder. Many epidemiological studies have documented its high prevalence and

socio-economic and personal impacts. In the Global Burden of Disease Study (Global Burden of Disease 2010), it was ranked as the third most prevalent disorder in the world. Migraine has two major types:

- **Migraine without aura**

A clinical syndrome characterised by headache with specific features and associated symptoms.

- **Migraine with aura**

This is primarily characterised by the transient focal neurological symptoms that usually precede or sometimes accompany the headache (Viana *et al* 2017).

Migraine without aura has characteristics of unilateral presentation, throbbing moderate intensity and worse with physical exertion. Clear differentials from TTH are the associated symptoms of nausea, photophobia / phonophobia and no preceding aura, while migraine with aura that constitutes approximately 15%-30% of all migraines is a headache with a transient associated neurological symptom. This is described as the aura and can be visual, motor or sensory. A visual aura is the most common and may include flashing lights, and / or zig zag lines. The sensory aura can be numbness or paraesthesia while motor symptoms can be as severe as hemiplegia (Martin 2004).

The reason for the symptoms in migraine are not fully explained but proposals have been made after observations of imaging concerning alterations in cerebral blood flow, cortical spreading depression (CSD) and possible neurogenic inflammation leading to the possible sequelae to the symptoms experienced by the individual (De Simone *et al* 2013; Lauritzen 2011).

Cortical spreading depression is a slowly propagated wave of depolarisation followed by suppression of brain activity, and is a remarkably complex event that involves dramatic changes in neural and vascular function (Charles & Baca 2013). Early authors that described this work, such as Leao (Dalkara & Moskowitz 2017), suggested that vascular change is due to vasodilation. However, further work has suggested the vasodilation is then followed by vasoconstriction of the cerebral blood flow (Borgdorff 2018). It is beyond the scope of this article to detail the complexities of the theories underpinning migraine.

CLUSTER HEADACHES

Trigeminal autonomic cephalalgias (TACs) are described as a group of primary headache disorders characterised by unilateral head pain that occurs in association with ipsilateral cranial autonomic features (Goadsby & Edvinsson 2020). The TACs include such presentations as cluster headache (CH), a unilateral headache associated with autonomic features and commonly triggered by alcohol (Cohen 2007), and paroxysmal hemicrania (PH). Cluster headaches are also characterised by attacks that may have three broad forms; single stabs, which are usually short-lived. Groups of stabs, or a longer attack comprised of many stabs between which the pain does not resolve to normal, thus giving a "saw-tooth" phenomenon with attacks lasting many minutes. Similar aura-like features to migraine have been described (Goadsby & Edvinsson 2020). The autonomic features seen in the ipsilateral cranial dysfunction, such as lacrimation (watery eyes), rhinorrhoea (runny nose) and miosis (pupil constriction) are also features to be aware of (Lambru *et al* 2019).

The most common presentation encountered by musculoskeletal (MSK) physiotherapists is usually known as the cervicogenic headache disorder (CGH), defined as a secondary headache disorder arising from nociceptive structures in the cervical spine or occipital region. It arises primarily from MSK dysfunction in the upper three ➤

cervical segments. The pathway by which pain originating in the neck can be referred to the head is proposed to be the trigeminocervical nucleus (TCN), which descends in the spinal cord to the level of C3/4, and is in anatomical and functional continuity with the dorsal grey columns of these spinal segments. The trigeminal nucleus is divided into the main sensory nucleus, and spinal tract nuclei, which are located caudally in the cervical spinal cord. Marked convergence of the primary afferents of the upper 3 level in the cervical spine with the TCN have been established (Choi & Sang 2016). Hence, input via sensory afferents principally from any of the upper three cervical nerve roots may mistakenly be perceived as pain in the head, a concept known as convergence, and this convergence forms the neuro-anatomical basis for the CGH.

Provocation of headache by applying experimental nociceptive stimuli to upper cervical structures has been reported in several studies. In a review of the diagnosis and treatment of cervicogenic headache, several experimental studies on humans reporting referred pain patterns to the head, caused by stimulation of nociceptive afferent input from myofascial structures of the upper cervical spine (figure 1), have been cited (Bogduk & Bartsch 2020). Mechanical nociceptive afferent stimuli elicited by giving a firm pressure to myofascial structures of upper cervical segments (C0-3) also has been shown to provoke the patient's typical headache in patients with CGH, TTH and migraine, leading

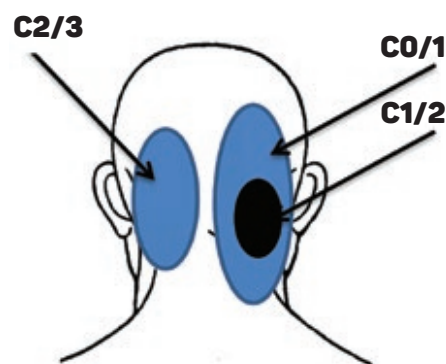


FIGURE 1: Referred pain patterns after noxious stimulation of upper cervical joints and C2/3 disc (adapted from Bogduk & Govind 2009)

“CLUSTER HEADACHES ARE CHARACTERISED BY THREE BROAD FORMS; SINGLE STABS, GROUPS OF STABS OR A LONGER ATTACK OF MANY STABS BETWEEN WHICH THE PAIN DOES NOT RESOLVE TO NORMAL”

to challenges in differentiation (Anarte *et al* 2019; Cescon *et al* 2019; Jull & Hall 2018). A painful soft tissue structure due to convergence may therefore sensitise cells such as “wide-dynamic range” at the dorsal horn, leading to the experience of painful symptoms in the distributions of the TCN. Cervical MSK dysfunctions of joints and muscles have been observed in patients with migraine, TTH and cervicogenic headache. In the context of the neurophysiological interconnection between the dorsal root of C2 (greater occipital nerve) and the TCN, it may not be surprising that in participants with headache, most cervical MSK dysfunctions reported are present in the upper cervical spine (Amiri *et al* 2007; Zito *et al* 2006). Therefore, common practice in manual therapy assessment may include palpation of

the sub-occipital muscles and trapezius, local assessed restricted motion of the cervical segments C0-3 and direct stress on joints in the upper cervical spine (Luedtke *et al* 2016; Luedtke & May 2017).

The TCN distribution is highlighted in figure 2.

The most commonly reported clinical signs and symptoms in CGH are commonly defined after excluding Red Flags and secondary headaches, followed by exclusion of TTH and migraine. The pain normally is felt arising from the neck and is commonly unilateral but can be bilateral. Patients will normally describe neck stiffness with no neurological features. Autonomic features may be apparent due to the relationship with the TCN. The symptoms

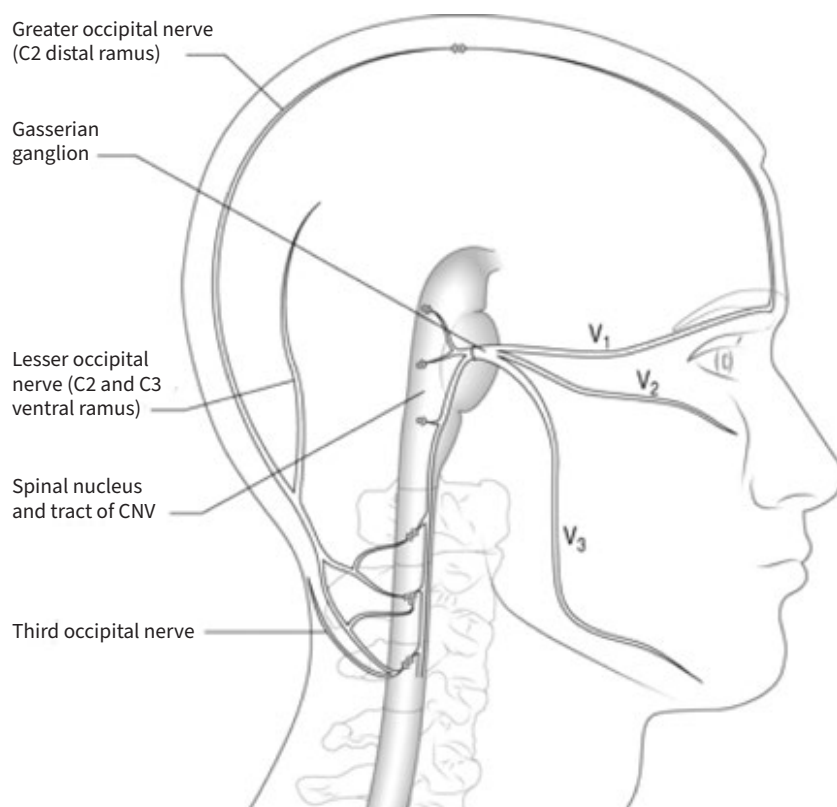


FIGURE 2: The distribution of the TCN via Convergence theory (from Bhagia *et al* 2015)

of the cranial autonomic system will not be associated with the same pain distribution (figure 2) as seen in TAC, such as cluster headaches, and this would also be a clear differential.

Clinical assessment

Manual examination of the cervical spine structures reviewing local tone and pain responses, and seeking to reproduce the features of the headache, are widely advised as part of a multi-modal assessment. Specific tests such as the cervical flexion rotation test (Ogincic *et al* 2007) have been validated as an examination procedure in the presence of CGH. Further features leading to sensitisation of structures and pain experiences are also vitally important to consider as part of a broad assessment. Emotional, psychological features, coupled with general health, wellbeing and sleep would be key elements to consider when generating a management plan (Lewis & O'Sullivan 2018). Considerations of muscular strength, general spinal mobility and sensorimotor capacity would also be advised when delivering a comprehensive MSK assessment.

In the hypothesis of CGH, the clinical examination process is firstly underpinned through exclusion of Red Flags followed by other forms of primary headache. There are no bio-markers or specific anatomical markers currently attributed to CGH. However, exclusion of significant underlying pathology via MRI has been recommended in some cases when Red Flags or signs of neurological dysfunction are present

PROVOCATION OF THE HEADACHE RADIATING FROM THE CERVICAL SPINE

1. Loss of neck movement
2. External pressure on the occipital or higher cervical region on the symptomatic side
3. Ipsilateral; neck, shoulder, arm pain that is non-radicular in origin
4. Positive response to diagnostic blocks in the upper cervical spine

FIGURE 3: Supportive criteria in cervicogenic headache (Adapted from Sjaastad *et al* 1998; International Headache Society 2018)

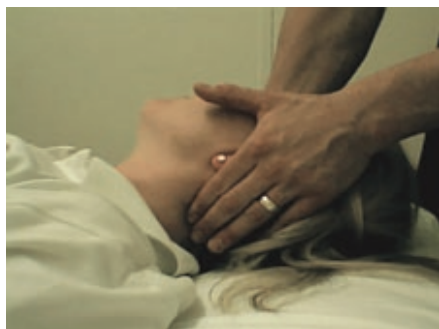


FIGURE 4: Manual examination of the upper cervical spine

(Coskun *et al* 2003). It is then appropriate to consider CGH as an underlying driver of a neck-related headache which can be supported by further interpretations, assessments and examinations as shown in figure 3.

Initial observations of patient posture inclusive of range of motion will then further inform the possible diagnosis. Dumas *et al* (2001) were unable to associate a forward head posture with patients reporting CGH, while Watson & Trott (1993) found a weak correlation with a reduction in neck angle. In a meta-analysis conducted by Gadotti *et al* (2008), they were able to associate a reduction in head range of motion to the CGH group when compared to matched controls. The flexion-rotation test as advocated by Hall *et al* (2010) has reported validity and reliability in the assessment of CGH.

According to the description of Hall & Robinson (2004), the flexion-rotation test is conducted with the cervical spine fully flexed in an attempt to block as much rotational movement as possible above and below C1/2. The head is then rotated to the left and the right (figure 4). If firm resistance is encountered, and range is limited before the expected end range, then this is said to be clinically significant, with a presumptive diagnosis of limited rotation of the atlas on the axis. Manual examination has had high sensitivity and specificity reported to detect the presence or absence of cervical joint dysfunction in neck pain and headache (Jull *et al* 1988; Sandmark & Nisell 1995). Moreover, Zito *et al* (2006) determined that CGH sufferers were

most clearly identified by the presence of upper cervical joint dysfunction measured by manual examination, in comparison to measures of posture, range of motion, cervical kinesthesia and cranio-cervical muscle function. The term manual examination incorporates tests of passive physiological intervertebral motion, as well as passive accessory intervertebral motion, such as postero-anterior pressures. Motion restriction and symptom responses indicate the most painful dysfunctional cervical motion segment (Jull *et al* 1997) although the reliability of these tests has been questioned (Jonsson & Rasmussen-Barr 2018).

In a study that assessed muscular sensitivity in cervicogenic headache vs non CGH, Olivier *et al* (2018) found a strong correlation with pain in the upper trapezius and CGH. Muscular sensitivity is often associated with muscle tightness, i.e. increased muscle tone (Chen *et al* 2016). While investigating upper cervical muscle tightness in 15 CGH patients and 15 asymptomatic controls, Jull *et al* (1999) found that resistance to passive muscle stretch was significantly increased in the upper trapezius muscles in the CGH group, but not in any of the other muscles tested; namely, levator scapulae, scalenes (anterior, middle and posterior divisions), and the short upper cervical extensors. The strength of the deep neck flexors, extensors and proprioception had mixed results in that, although strongly associated in whiplash, proprioceptive loss was not as prevalent in this meta-analysis in CGH, and while impairments in deep flexors and treatment of these impairments have been shown to help with pain and disability in CGH, the results from the meta-analysis did not strongly support these individual findings.

Efficacy of treatment

In their 2009 research, Bogduk & Govind clearly state that “for probable cervicogenic headache, exercises with or without manual therapy seems to be the best option among conservative therapies. All other treatment strategies are entirely speculative”. ➡

Among the different manual therapies proposed for headaches, cervical manipulation or mobilisation are the most commonly used by physical therapists (Grant & Niere 2000; Nillson *et al* 1997). A systematic review found six randomised controlled trials (RCTs) suggesting that spinal manipulation is more effective than gentle massage, drug therapy, or no intervention at all in patients with CGH (Posadzki & Ernst 2011). Subsequently, Racicki *et al* (2013) also concluded that spinal manipulative therapy was effective for reducing the pain in CGH. However, in their systematic review of spinal manual therapy, Garcia *et al* (2016) concluded that it is difficult to draw a firm clinical significance. A more recent review of literature completed by Rani *et al* (2019), based on five moderate quality systematic reviews, concluded that physiotherapy interventions are effective in CGH treatment and noted that manipulation and mobilisation, particularly sustained natural apophyseal glides (SNAGs), were the most effective treatment options among all available physical therapy interventions. Taken independently, the findings of these studies suggest that manual therapy on the cervical spine is more effective than traditional physical therapy interventions such as range of movement and stretching exercises, or sham intervention, in reducing pain intensity and frequency of headaches in this population. There are differing sources of evidence such as Borusiak *et al* (2010) who assessed the efficacy of thrust cervical manipulative therapy (CMT) in children and adolescents of ages 7-15 years with recurring CGH. Outcomes measures utilised were:

- percentage of days with headache
- duration of headache
- percentage of missed school days due

CONTACT DETAILS

neil.langridge@southernhealth.nhs.uk

to headache

- percentage of days where medication was needed
- intensity of headache.

The authors found no statistically significant differences between the CMT group and the sham CMT group. Non-thrust self-management techniques, such as SNAGs, have been shown to significantly reduce the headache intensity and severity in a double blind placebo RCT of 32 subjects (Hall *et al* 2007).

The use of exercise, including aerobic conditioning, in a multi-modal approach is advised and supported in the literature, with the additional application of muscle endurance and strength training exercises that target the deep cervical flexor muscles, that has shown to be more effective than stretching exercises for reducing pain (Ylinen *et al* 2010). A Cochrane Review concluded that there is moderate quality evidence supporting cervico-scapulothoracic strengthening and endurance exercises for improving pain and function in patients with CGH, although it was concluded that further studies were needed (Gross *et al* 2016). In their RCT investigation into the effects of only exercise in the treatment of CGH, Jull *et al* (2002) showed that the exercise-only group displayed statistically significant improvements (P=0.001) in headache frequency, intensity and neck pain, but not in headache duration, at seven weeks when compared to the control group. It is proposed, therefore, that therapeutic exercise programmes consisting of re-education of the deep neck flexors

should be incorporated, with modification of lifestyle factors, as part of general exercise management (Fernandez-de-las-Penas & Cuadrado 2016).

Improving outcomes for CGH requires the appropriate diagnosis in the first instance. Differentiation of common headache disorders is a challenge for physiotherapists and in a study of 384 respondents, 32.3% classified the TTH cases consistent with International Headache Society (IHS) criteria, while CGH and migraine headache cases were classified at 54.8% and 41.7% respectively, which is consistent with IHS categories (Dale *et al* 2020).

Therefore, when postulating the most effective treatment in neck related headache, clinicians should primarily link to the clinical reasoning surrounding differentiation and potential sensitising factors in the patient presentation, so that any treatment guidelines must be linked to a reasoning framework that encapsulates best principles in effective decision-making. Assuming any one tissue based mechanism is the sole driver to benefits and positive outcomes is naïve, and fails to recognise the complexity in pain presentations seen in standard MSK physiotherapy practice. Although there are many proposed mechanisms surrounding how migraine, TTH and CGH may occur independently or in concert and therefore how treatments may help, many treatment studies fail to really consider the multi-dimensional elements that are seen particularly in more persistent symptoms. The research, as in many areas of MSK practice, does not really deliver on the complexity of the person in front of the clinician and the emotional drivers and wider concepts associated with the patient narrative that we see daily in practice. It is therefore suggested that, when considering the assessment of headache that may be amenable to MSK physiotherapy, a multi-dimensional approach inclusive of medical management is built into the management plan. Figure 5 illustrates a simple clinical reasoning model to consider when met with a headache presentation.

“ STUDIES SUGGEST THAT MANUAL THERAPY OF THE CERVICAL SPINE IS EFFECTIVE IN REDUCING PAIN INTENSITY AND FREQUENCY IN PATIENTS WITH CERVICOGENIC HEADACHE DISORDER ”

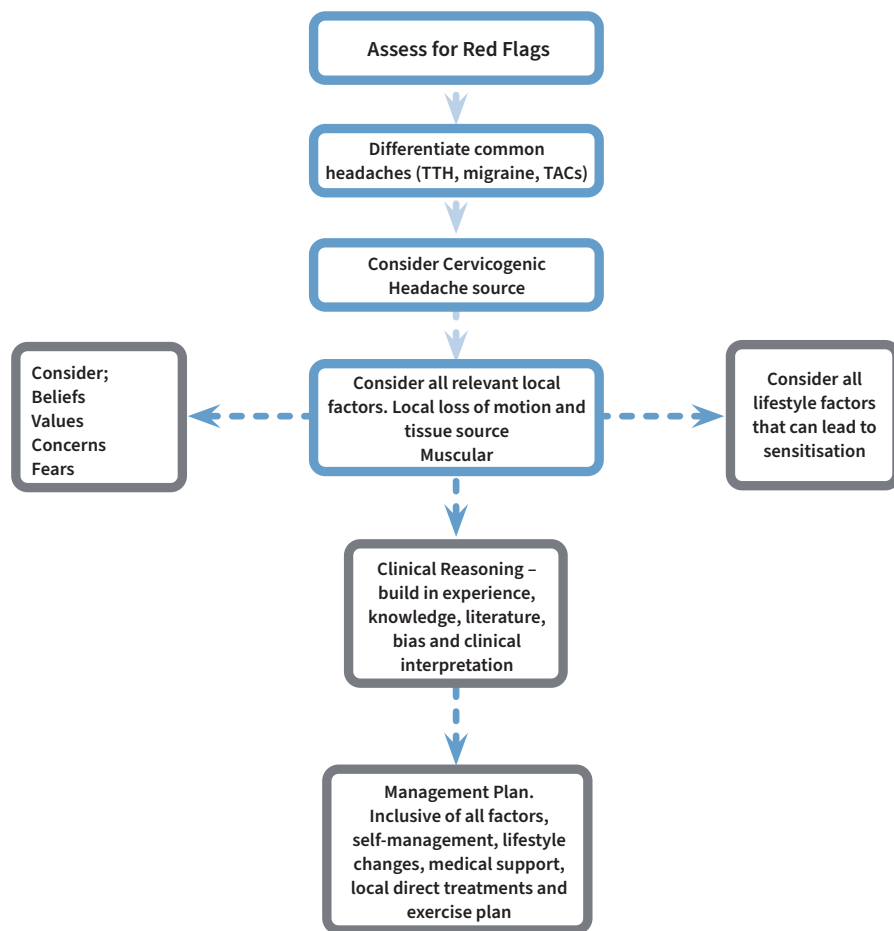


FIGURE 5: Clinical reasoning for the assessment and management of headache presentation

Conclusion

The assessment and clinical reasoning of even the most common headache disorders seen in MSK physiotherapy are considered highly complex. There remains no clear differential standard that makes diagnosis simple, and the clinician is advised to ensure clear exclusion of Red Flags occurrence, with consideration of potential underlying pathology in all cases.

Building some pattern recognition of common signs and symptoms is advised as helpful, and in terms of clinical examination, clear assessment of mechanical and pain provocation tests in the upper cervical spine are needed.

Treatments should be multi-modal, building upon the patient narrative and not limited to mechanical treatments. Exercise coupled with appropriate desensitising, life appropriate measures should be considered throughout.

About the author

Neil is a Consultant Physiotherapist in Musculoskeletal Practice leading a large group of clinicians. He is also a Senior lecturer in Physiotherapy at the University of Winchester. He holds a MSc in musculoskeletal physiotherapy and a doctorate in clinical practice. Neil has led work in clinical practice for Health Education England and has presented across countries overseas on a number of musculoskeletal and clinical reasoning topics.

References

- Amiri M, Jull G, Bullock-Saxton J, Darnell R, Lander C. Cervical musculoskeletal impairment in frequent intermittent headache. Part 2: subjects with concurrent headache types. *Cephalalgia* 2007;27(8): 891-898
- Anarte E, Carvalho GF, Schwarz A, Luedtke K, Falla D. Can physical testing be used to distinguish between migraine and cervicogenic headache sufferers? A protocol for a systematic review. *British Medical*

Journal Open 2019;9(11):e031587 doi: 10.1136/bmjopen-2019-031587

Bhagia SM, Slipman CW, Brigham CD. Cervicogenic Headache in: *Physical Medicine & Rehabilitation*. 2015; <https://musculoskeletalkey.com/cervicogenic-headache/> Chapter 69: accessed 10/1/20

Bigal ME, Lipton RB. The differential diagnosis of chronic daily headaches: an algorithm-based approach. *Headache & Pain* 2007;8(5):263-272

Bogduk N, Govind J. Cervicogenic headache: an assessment of the evidence on clinical diagnosis, invasive tests, and treatment. *Lancet Neurology* 2009;8:959-968

Bogduk N, Bartsch T. Cervicogenic Headache. *Oxford Textbook of Headache Syndromes* 2020;322

Borgdorff P. Arguments against the role of cortical spreading depression in migraine. *Neurological Research* 2018;40(3):173-181

Borusiak P, Biedermann H, Boßerhoff S, Opp J. Lack of efficacy of manual therapy in children and adolescents with suspected cervicogenic headache: result of a prospective, randomized, placebo-controlled and blinded trial. *Headache* 2010;50:224-230.

Cescon C, Barbero M, Zuin P, Falla D, Palacios-Ceña M, Arendt-Nielsen L, Fernández-de-las-Peñas C. Referred pain maps of myofascial trigger points in tension type headache. *WCPT* 2019 <http://repository.supsi.ch/10582/>

Charles AC, Baca SM. Cortical spreading depression and migraine. *Nature Reviews Neurology* 2013;9(11):637

Chen Q, Wang HJ, Gay RE. Quantification of myofascial taut bands. *Archives of Physical Medicine & Rehabilitation* 2016;97(1):67

Choi II, Sang JR. Neuralgias of the head: occipital neuralgia. *Korean Medical Science* 2016;31(4):479-488

Cohen AS. Short-lasting unilateral neuralgiform headache attacks with conjunctival injection and tearing. *Cephalalgia* 2007;27(7):824-832

Coskun O, Ucler S, Karakurum B, Atasoy HT, Yildirim T, Ozkan S, Inan LE. Magnetic resonance imaging of patients with cervicogenic headache. *Cephalalgia* 2003;23:842-845

Dale P, Thomas JC, Hazle C. Physical therapist clinical reasoning and classification inconsistencies in headache disorders: a United States survey. *Manual & Manipulative Therapy* 2020;28(1):28-40

- Dalkara T, Moskowitz MA. From cortical spreading depression to trigeminovascular activation in migraine. *Neurobiological Basis of Migraine* 2017;27(2):s86-s90
- De Simone R, Ranieri A, Montella S, Bonavita V. Cortical spreading depression and central pain networks in trigeminal nuclei modulation: time for an integrated migraine pathogenesis perspective. *Neurological Sciences* 2013;34(1): 51-55
- Dodick DW. Clinical clues and clinical rules: primary vs secondary headache. *Advanced Studies in Medicine* 2003;3(6 C)
- Dumas JP, Arsenault AB, Boudreau G, Magnoux E, Lepage Y, Bellavance A, Loisel P. Physical impairments in cervicogenic headache: traumatic vs. nontraumatic onset. *Cephalalgia* 2001;21(9):884-893
- Fernandez-de-las-Penas C, Cuadrado M. Physical therapy for headaches. *Cephalalgia* 2016;36(12):1134-1142
- Gadotti IC, Olivo SA, Magee D J. Cervical musculoskeletal impairments in cervicogenic headache: a systematic review and a meta-analysis. *Physical Therapy Reviews* 2008;13(3): 149-166
- Garcia JD, Arnold S, Tetley K, Voight K, Frank RA. Mobilization and manipulation of the cervical spine in patients with cervicogenic headache: any scientific evidence? *Frontiers in Neurology* 2016;7:40
- Global Burden of Disease. Global, regional, and national incidence, prevalence, and years lived with disability for 328 diseases and injuries for 195 countries, 1990–2016: a systematic analysis for the Global Burden of Disease Study. *Lancet* 2017;390(10100):1211-1259 doi: 10.1016/S0140-6736(17)32154-2
- Goadsby PJ, Edvinsson L. Future Therapies for Trigeminal Autonomic Cephalalgias: Cluster Headache and Related Conditions. In: *Cluster Headache and other Trigeminal Autonomic Cephalalgias*. Springer, Cambridge 2020;257-264
- Göbel H, Petersen-Braun M, Soyka D. The epidemiology of headache in Germany: a nationwide survey of a representative sample on the basis of the headache classification of the International Headache Society. *Cephalalgia* 1994;14(2):97-106
- Grant T, Niere K. Techniques used by manipulative physiotherapists in the management of headaches. *Australian Journal of Physiotherapy* 2000;46(3):215-224
- Gross AR, Paquin J P, Dupont G, Blanchette S, Lalonde P, Cristie T, Goldsmith CH. Exercises for mechanical neck disorders: A Cochrane review update. *Manual therapy* 2016, 24, 25-45.
- Hall T, Briffa K, Hopper D, Robinson K. The relationship between cervicogenic headache and impairment determined by the flexion-rotation test. *Manipulative & Physiological Therapeutics* 2010;33(9):666-671
- Hall T, Chan HT, Christensen L, Odenthal B, Wells C, Robinson K. Efficacy of a C1-C2 self-sustained natural apophyseal Glide (SNAG) in the management of cervicogenic headache. *Orthopaedic & Sports Physical Therapy* 2007;37(3):100-111
- Hall T, Robinson K. The flexion-rotation test and active cervical mobility – a comparative measurement study in cervicogenic headache. *Manual Therapy* 2004;9(4):197-202
- Holroyd KA., Stensland M, Lipchik GL, Hill KR, O'Donnell FS, Cordingley G. Psychosocial correlates and impact of chronic tension-type headaches. *Headache: Head and Face Pain* 2000;40(1):3-16
- International Headache Society. The International Classification of Headache Disorders (3rd edn). *Cephalalgia* 2018;38(1):1-211
- Jonsson A, Rasmussen-Barr E. Intra- and inter-rater reliability of movement and palpation tests in patients with neck pain: a systematic review. *Physiotherapy Theory & Practice* 2018;34(3):165-180
- Jull G, Bogduk N, Marsland A. The accuracy of manual diagnosis for cervical zygapophyseal joint pain syndromes. *Medical Journal Australia* 1988;148:233–236
- Jull G, Zito G, Trott P, Potter H, Shirley D, Richardson C. Inter-examiner reliability to detect painful upper cervical joint dysfunction. *Australian Journal of Physiotherapy* 1997;43:125-129
- Jull G, Barrett C, Magee R. Further clinical clarification of the muscle dysfunction in cervical headache. *Cephalalgia* 1999;19(3):179-185
- Jull G, Trott P, Potter H. A randomized controlled trial of exercise and manipulative therapy for cervicogenic headache. *Spine* 2002;27:1835-1843
- Jull G, Hall T. Cervical musculoskeletal dysfunction in headache: how should it be defined? *Musculoskeletal Science & Practice* 2018;38:148-150
- Lambru G, Rantell K, Levy A, Matharu MS. A prospective comparative study and analysis of predictors of SUNA and SUNCT. *Neurology* 2019;93(12): e1127-e1137
- Lauritzen M, Dreier JP, Fabricius M, Hartings JA, Graf R, Strong AJ. Clinical relevance of cortical spreading depression in neurological disorders: migraine, malignant stroke, subarachnoid and intracranial hemorrhage, and traumatic brain injury. *Cerebral Blood Flow & Metabolism* 2011;31(1):17-35
- Lewis J, O'Sullivan P. Is it time to reframe how we care for people with non-traumatic musculoskeletal pain? *Sports Medicine Monthly* 2018;1-2
- Loder E, Rizzoli P. Tension-type headache. *British Medical Journal* 2008;336(7635):88-92
- Luedtke K, Boissonnault W, Caspersen N, Castien R, Chaibi A, Falla D, Hurley D. International consensus on the most useful physical examination tests used by physiotherapists for patients with headache: a Delphi study. *Manual therapy* 2016; 23:17-24
- Luedtke K, May A. Stratifying migraine patients based on dynamic pain provocation over the upper cervical spine. *Headache & Pain* 2017;8(1):97
- Martin VT. Menstrual migraine: a review of prophylactic therapies. *Current Pain & Headache Reports* 2004;8(3):229-237
- Nilsson N, Christensen HW, Hartvigsen J. The effect of spinal manipulation in the treatment of cervicogenic headache. *Manipulation & Physiological Therapy* 1997;2:326–330
- Oginc M, Hall T, Robinson K, Blackmore AM. The diagnostic validity of the cervical flexion-rotation test in C1/2-related cervicogenic headache. *Manual Therapy* 2007;12(3):256-262
- Olivier B, Pramod A, Maleka D. Trigger point sensitivity is a differentiating factor between cervicogenic and non-cervicogenic headaches: a cross-sectional, descriptive study. *Physiotherapy Canada* 2018;70(4):323-329
- Posadzki P, Ernst E. Spinal manipulations for cervicogenic headaches: a systematic review of randomized clinical trials. *Headache* 2011;51:1132-1139
- Racicki S, Gerwin S, Diclaudio S, Reinmann S, Donaldson M. Conservative physical therapy management for the treatment of cervicogenic headache: a systematic review. *Manual & Manipulative Therapy* 2013;21(2):113-124
- Rani M, Kulandaivelan S, Bansal A, Pawalia A. Physical therapy intervention for cervicogenic headache: an overview of systematic reviews. *European Journal of Physiotherapy* 2019;21(4):217-223

Rasmussen BK, Jensen R, Schroll M, Olesen J. Epidemiology of headache in a general population – a prevalence study. *Clinical Epidemiology* 1991;44(11):1147-1157

Robbins MS, Lipton RB. The epidemiology of primary headache disorders. In: *Seminars in Neurology*. © Thieme Medical Publishers 2010;30(2):107-119

Sandmark H, Nisell R. Validity of five common manual neck pain provoking tests. *Scandinavian Journal of Rehabilitation in Medicine* 1995;27(3):131-136

Sjaastad O, Fredriksen TA, Pfaffenrath V. Cervicogenic headache: diagnostic criteria. *Headache: Head & Face Pain* 1998;38(6):442-445

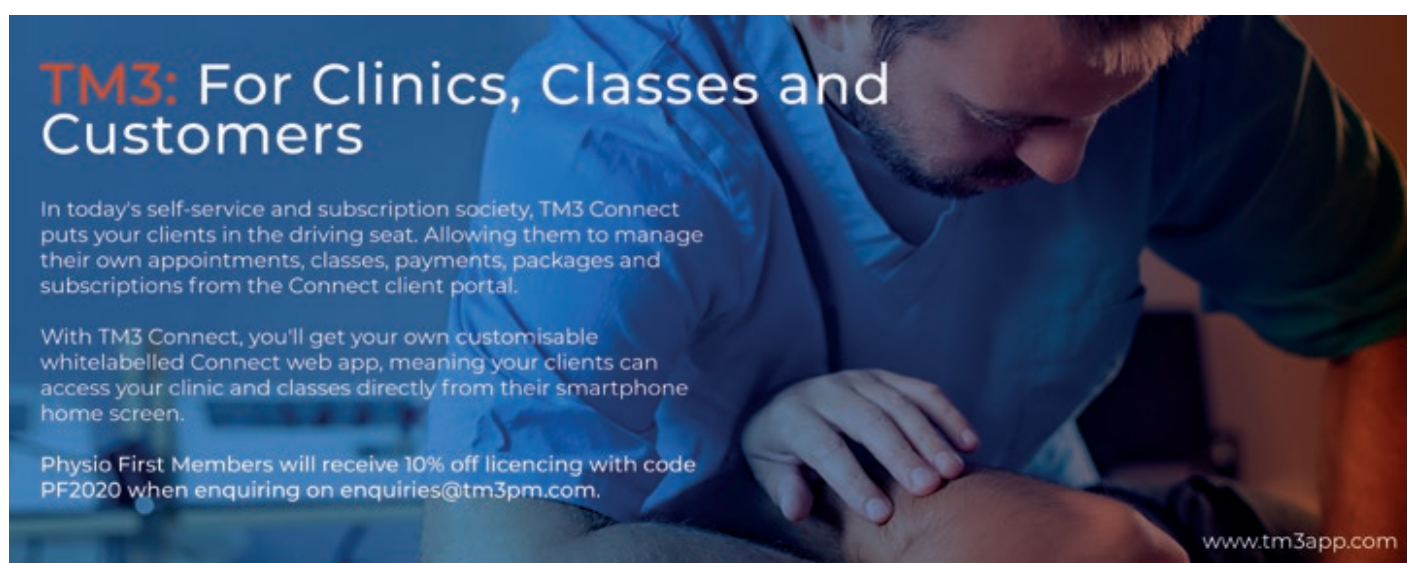
Stovner L, Hagen K, Jensen R. The global burden of headache: A documentation of headache prevalence and disability worldwide. *Cephalalgia* 2007;27:193-210

Viana M, Sances G, Linde M. Clinical features of migraine aura: results from a prospective diary-aided study. *Cephalalgia* 2017;37(10):979-989

Watson DH, Trott P. Cervical headache: an investigation of natural head posture and upper cervical flexor muscle performance. *Cephalalgia* 1993;13(4):272-284

Ylinen J, Nikander R, Nykanen M. Effect of neck exercises on cervicogenic headache: a randomized controlled trial. *Rehabilitation in Medicine* 2010;42:344-349

Zito G, Jull G, Story I. Clinical tests of musculoskeletal dysfunction in the diagnosis of cervicogenic headache. *Manual Therapy* 2006;11:118-129 



TM3: For Clinics, Classes and Customers

In today's self-service and subscription society, TM3 Connect puts your clients in the driving seat. Allowing them to manage their own appointments, classes, payments, packages and subscriptions from the Connect client portal.

With TM3 Connect, you'll get your own customisable whitelabelled Connect web app, meaning your clients can access your clinic and classes directly from their smartphone home screen.

Physio First Members will receive 10% off licencing with code PF2020 when enquiring on enquiries@tm3pm.com.

www.tm3app.com

Integrated Payments Accept card payments from your physiotherapy clients via your website, Connect page or from links in patient communications. Connect allows your patients to save their preferred payment card for swifter transactions.	Digital Forms Streamline your client on-boarding process, have disclaimers signed and gather client feedback with fully customisable forms on TM3. All of which can be sent by email or SMS to your clients for completion.	Pay-per-click Appointments In order to you scale back to full operations in the most cost effective way post COVID-19, you can also take advantage of our pay-per-click appointments which means you will only be paying for booked appointments.	Waiting Lists Avoid losing clients to your competitors. When an appointment or class is full, clients can sign-up for the waiting list in case a cancellation comes through. When this happens, they'll receive a timed SMS invite to accept the waiting list slot.
Clinical Excellence Enhancing the clinical experience for patients and delivering quality treatments shouldn't mean running multiple systems across your clinic. TM3 gives you the tools to achieve excellence at your clinic with ease.	Client Communications Automate client communications, ensure appointments aren't forgotten, improve your marketing efforts and keep your patients engaged from the offset and throughout with TM3.	Clinic Marketing Attracting clients and growing your business in a competitive marketplace is no easy task. With TM3, our marketing tools will give you the tools you need to grow your clinic and classes.	Clinic Management TM3 gives you the tools to book and manage appointments, rooms, classes and physiotherapists. Analyse clinic performance and generate reports without detracting from time spend on treatments.

Pain management: conversations and interactions

CLAIR JACOBS MSc MCSP

Physiotherapy Lead, INPUT Pain Management, Guys' & St Thomas' NHS Trust

LEILA HEELAS MSc MCSP

Clinical Lead, Optimise Pain Rehabilitation Unit, Oxford University Hospitals NHS FT

In association with the Physiotherapy Pain Association

A substantial portion of the physiotherapy caseload presents with pain that is often severe, debilitating, and challenging to manage. A focus of the Physiotherapy Pain Association (PPA) strategy aims to build the clinician's skills in pain management and psychologically informed practice, in order to meet the needs of the patient with persistent pain.



LEARNING OUTCOMES

TO SUPPORT PHYSIO FIRST QAP

- 1 To gain an appreciation of the role of psychological and social factors in chronic pain management.
- 2 Share knowledge about current concepts in pain management and be introduced to the principles of different treatment approaches.
- 3 Consider and reflect on our conversations and interactions.

Introduction

What is the lived experience for a person living every day with persistent pain? Can we truly understand the impact of pain on a person's life, their relationships, family, work, lifestyle and enjoyment? A person with persistent pain may feel that their life has narrowed and that their options feel limited or shrunk. They may report they are no longer able to take part in activities they used to enjoy or value.

A whole range of emotions can emerge, such as fear, anxiety, embarrassment, anger, guilt, shame and loss, and these can affect their self-perception and impact on their behaviour. Pain that persists longer than expected is difficult

to treat. We know that chronic pain conditions are an increasing challenge for society and healthcare (Vos *et al* 2012), with a significant correlation between musculoskeletal (MSK) pain and mental health difficulties (Barnett *et al* 2012; Stubbs *et al* 2016). While challenges can exist in how we respond effectively to a stigmatised and poorly understood condition like chronic pain, broader strategies beyond the clinic, such as public awareness and policy, are equally important in tackling society's views of people in pain and the services available to them.

As healthcare practitioners we are often witness to, or directly involved in, repeated emotional and distressing situations as we converse with our patients, and draw out their individual emotional responses, behaviours, beliefs and understandings that make up their experience of pain. Such conversations may be demanding and stressful, with workers at risk of emotional exhaustion and burnout (McCracken & Yang 2008).

Psychologically informed approaches to persistent pain

Pain is an emotional and subjective experience. It has been proposed that the definition of pain ideally recognises not only sensory, cognitive and

emotional dimensions but also social dimensions (Karos *et al* 2018). The authors suggest that an evolutionary, social and health psychology perspective of pain can be viewed as threatening our human experience (Karos *et al* 2018), challenging basic needs of autonomy, belonging and fairness. People living with unpredictable pain can shift control to others and experience a sense of exclusion and injustice. The role of social processes in the pain experience suggests that a supportive social environment may foster wellbeing in the person with persistent pain. By contrast, stigmatising responses may exacerbate pain-related disability (Scott *et al* 2019).

An aim of pain management physiotherapy practice is to promote sustainable behaviour change (Physiotherapy Pain Association 2014), by encouraging individuals to explore ways to do more of what matters to them rather than to concentrate on controlling or reducing their pain.

A psychologically informed approach is widely recommended for managing chronic pain, given that both psychological and social factors influence recovery and act as prognostic indicators (Foster & Delitto 2011). Approaching movement with a

"PAIN MANAGEMENT PHYSIOTHERAPY AIMS TO PROMOTE SUSTAINABLE BEHAVIOUR CHANGE"

patient using psychologically informed physiotherapy, i.e. awareness skills, does not take longer than a routine exercise programme. Equally, focusing on values can easily be incorporated into a physiotherapist's existing skill set and complement the goal-setting work we already do (Jacobs *et al* 2016).

Psychologically informed skills include knowledge and experience of cognitive behavioural approaches such as acceptance and commitment therapy (ACT), cognitive behavioural therapy (CBT), motivational interviewing, coaching, solution-focused, compassion-focused therapy (CFT) as well as skilful conversation and communication (table 1). What is our response if, five minutes from the end of a session, the patient presents with a distressing situation? Do we automatically think "this is out of my

scope of practice", or "what if I explore this and open a can of worms?"

As practitioners, we are adept at interviewing and assessing patients on a daily basis, and through the process collect a mix of normative, i.e. screening questions, objective examination etc., and narrative information in order to build a picture of their individual stories. We can all benefit from telling stories about our experiences and being skilfully questioned about them (Launer 2018). In the clinical setting, we play an important part in allowing our patients' stories to unfold. However, during this interaction, we need to be mindful whether we are allowing our own narrative or hypotheses to determine the direction the patient takes in their story-telling. Allowing them to reflect, step back and reframe their story may invite choice for the patient to behave in a different way.

THERAPEUTIC APPROACH	DEFINITION
Acceptance and commitment therapy (ACT)	Aims to improve function and promote behaviour change in the direction of valued activities using six core processes; - Acceptance - Committed action - Contact with the present moment - Developing the observer self (Hughes <i>et al</i> 2017)
Cognitive behavioural therapy (CBT)	Focuses on helping patients to alter pain-relevant thoughts, emotions and behaviours by training patients in a variety of skills including relaxation, distraction, activity pacing, cognitive restructuring and problem-solving (Keefe 2013)
Motivational interviewing	Techniques to allow individuals to overcome ambivalence that may prevent change. An environment of supportive, collaborative interpersonal dialogue to invite change and encourage autonomy. Principles include clarification of values and ambivalence, reflective responses and promoting confident talk and a change plan (Miller & Rollnick 2012)
Coaching	Based on person-centred, social cognitive theory which suggests that increased self-efficacy will result in behaviour change (Leveille <i>et al</i> 2009). Coaching has been variously described and uses motivational interviewing, education, and advocacy. Directed management approaches may be adopted (Lawson <i>et al</i> 2013)
Solution focused (brief) therapy	Based on the principles that individuals have inherent competence where personal resources can be drawn on to move towards goal-directed actions (Dargan <i>et al</i> 2014)
Compassion focused therapy	Self-compassion approaches advocate a non-judgemental soothing and self-kindness approach to managing distress, hardship or inadequacy (Neff 2007). Adaptive self-compassion is associated with lower disability and increased values-based action (Edwards <i>et al</i> 2019)

TABLE 1: Therapeutic approaches and their definitions

Avoidance

Pain-related fear and avoidance behaviour is a normal response to threatening information (Vlaeyen 2017) and evidence states that pain-related fear can easily generalise to novel stimuli that are perceptually or conceptually equivalent, e.g. being unable to lift a box equates to being unable to lift a baby. Avoidance behaviour can also apply to uncomfortable emotional responses to pain, such as anxiety about going out for a drink in case there is nowhere to sit. This can result in the reduction of the individual's social opportunities.

Avoidance in itself is not always an unhelpful behaviour. Behaviours can be subtle, for example, keeping one's back straight, not bending over, avoidance techniques that can take us out of difficult situations and might work in the short term. Wellbeing is attributed to the performance of safety-seeking behaviour, for example limping, scanning internal sensations, always carrying medication, pre-planning to know the location of every bench / toilet on route, etc.

Exposure, defined by Moscovitch *et al* (2009) as deliberate and repeated contact with cues that evoke a fear response while simultaneously engaging in behaviour that is incongruent with escape or avoidance, is a powerful technique aimed at promoting exploration, the restoration of accurate expectancies, and increasing daily function (Craske *et al* 2014).

Evidence suggests that sustainable behaviour change can be enhanced by using exposure techniques (Schemer *et al* 2018; Volders *et al* 2012; Craske *et al* 2014). If behaviours aren't addressed there is a likelihood that the anxiety, fear and / or embarrassment will last and have an impact on maintaining the individual's avoidance techniques, i.e. not going out in crowds for fear of being bumped into.

The therapist's own beliefs can also play a part in their patient's behaviour. These, for instance, could be a fear of harming your client, ethical ➤

considerations, concerns regarding your scope of practice, or doubts about your effectiveness and the patient's ambivalence (Meyer *et al* 2013; Synnott *et al* 2015). If used, exposure therapy is often utilised cautiously by both physiotherapists and psychologists, with attempts to minimise emotional responses and reduce perceived threat for the client. The therapist may choose low-anxiety tasks or "easier" exercises that are less likely to evoke an emotional response in both the client and the therapist.

Our primary aim is not to reduce distress, fear or embarrassment, but to enable behaviour change (Vlaeyen *et al* 2016). Importantly, the context modulates pain-related avoidance behaviour and behavioural decision-making. If there is a focus on values, patients can be more willing to tolerate exposure practice. We, too, can utilise the values we wish to embody as therapists as motivation to expand our practice into realms that we might find uncomfortable.

In our conversations and interactions, we build therapeutic alliance by listening without trying to fix, maintaining a neutral stance, understanding context and noticing our responses and commitment in that moment. Drawbacks to this alliance can include lack of exploration of background information and context, ignoring cues, not tracking language, and dwelling on the negative (Launer 2018). How do we as therapists respond to patient's behaviours we face in the clinic? What directions can we feel ourselves pulled into?

Both patients and clinicians can get caught in behaviour patterns. Experiences can feed into behaviours and we learn ways to respond, something that can then often be repeated in different contexts. For example, a behaviour that plays out in the treatment room is very likely to be occurring in other areas of the patient's life. Behaviour may serve a deliberate function, i.e. for the patient, the use of a stick to warn others of a disability, or in a clinician's habitual response of avoidance of distress or

"THE THERAPIST'S OWN BELIEFS CAN ALSO PLAY A PART IN THEIR PATIENT'S BEHAVIOUR"

conflict. Such behaviours may be a learned practice that we are unaware of, and unable or unwilling to change.

Patient behaviour patterns

There are recognisable common behaviour patterns with individuals living with persistent pain conditions. These can include avoidance of unwanted internal experiences such as unpleasant sensations or emotions, e.g. embarrassment and fear or thoughts and memories. These in the longer term may be harmful, costly and inefficient and can lead to further emotional distress, physical deconditioning, fatigue, and / or pain related disability. Getting caught up in unhelpful thoughts or beliefs, i.e. "If I do this, I'm going to make it worse and cause damage", "I've been told not to twist", "I have weak discs", can narrow the patient's behavioural repertoire and prevent them from doing what they perceive as less-valued activities. Practitioners will often hear statements such as "I can manage to work, but I am unable to do much else".

Practitioner behaviour patterns

Some common avoidance or retreat responses from the practitioner can include:

- "It will take too long"
- "They won't understand"
- "The person I'm referring on to can do it"
- "It's not indicated"
- "It's too complicated".

We may persuade ourselves that it is important for the patient to understand pain. We can explain better than the last person they saw. Over-explaining or colluding with the patient (maybe due to the practitioner's fear of disrupting patient-therapist relationship). Other responses include sticking to rigid rules, referring-on or over-analysing.

When faced with a highly distressing situation or conversation, it can be helpful to notice how we are responding. Consider the following example: a patient with a painful leg gets very upset practising climbing stairs. The therapist agrees to leave it to another day, perhaps cautious to proceed and choosing to avoid the conversation in that moment. Is this therapist feeding into the maintenance of avoidance behaviours? Another option may be to explore the layers of the patient's experience which ultimately brings greater reward for both parties.

Key skills for working with avoidance

Developing the psychological processes of openness, awareness and engagement are integral to our practice and key components of ACT. We aim to help our patients to explore and develop these psychological processes and translate them into their lives in different contexts (figure 1). So how can we also practise them ourselves in our daily interactions with patients?

Openness – pain, by its very nature is unpredictable, uncertain and attention grabbing. Patients are often waiting for and predicting the onset of the painful sensation and internal experiences. Although it can be frightening, counterintuitive and challenging, we can learn to lean into these experiences and difficult emotions.

Awareness – as humans, we can embody emotions and thoughts (Clark 2013), and adverse events or trauma may also show up in the way we move and hold ourselves, behave or choose to avoid certain situations (Van der Kolk 2015). A growing body of evidence supports the role of the body, and the interpersonal processes in influencing cognitions and perception (Clark 2013).



FIGURE 1: Pyramid of psychological flexibility

Understanding how therapies such as physiotherapy play a part in facilitating behaviour change is increasingly being explored. We can help our patients to notice their habits, thoughts, sensations and responses. How are you sitting at this moment? How do you get out of a chair? What habits do you have? Noticing and understanding these things in ourselves can be useful in how we choose our behavioural responses (Strosahl *et al* 2015). Mindfulness, present moment practices and movement with awareness can all help to build these skills.

Engagement – when something is important to us, it often comes with barriers; pain, fear, embarrassment, shame, fatigue. Self-criticism is strongly linked to shame and a sense of being flawed (Gilbert & Irons 2005). This lack of inner warmth makes it more difficult to challenge critical thoughts, develop acceptance of the self and tolerate distress (Lee 2005). Taking action in the presence of pain or unwanted internal experiences such as anxiety is therefore more challenging. Shame results in a reduced capacity to nurture the self (Lee 2005) meaning actions in the service of self-care (such as exercise) are less likely to occur. For the patient with persistent pain, life may have shrunk because of it, so facing the awareness that their pain is impacting on the things that matter, such as family life, their relationships, their independence, and sport or work can be difficult. Consequently, connecting with this reality can be

upsetting and distressing. Values are areas of our lives, paths we follow, ways we want to be. Goals are the steps we take, and actions or events we can achieve. Goals that are unrelated or out of touch with our values are more likely to take us away from what is important. For example, a patient who is doing exercises to please others will be less engaged than if they are personally invested in the activity. As therapists we may encourage exercises but we should also explore what they might gain from doing the exercises, and how this might be important to them in order to keep them moving towards their goal.

It is important to consider how we look after our own wellbeing. Choosing and practising psychologically informed pain management skills in our practices, such as reflecting on our conversations, evaluating our self-support, committing to a nurturing rather than draining environment, learning to lean into our own difficult thoughts and emotions, and how to identify when we are moving away from our own values, can be challenging, but rewarding and worth exploring.

Case study – Emma’s story

Emma (not her real name) was referred for pain management following repeated accident and emergency department (A&E) attendances. In 2014 she had fallen downstairs, sustaining an unstable wedge fracture and undergone an instrumented fusion of

T10-12. While working in a warehouse in 2015, she jolted her back when a cage that she was pushing hit an object and attended A&E where she was prescribed Gabapentin, Tramadol and Venlafaxine at the time. In 2017, Emma felt her back “pop” and attended A&E again. Investigation indicated a stable fixation and the doctor suggested that scarring and spinal deformity were the cause of pain. In 2018, she attended A&E with chest pain, but investigations failed to demonstrate any cardiac event and the cause was diagnosed as musculoskeletal. Emma subsequently developed pain in her lumbar spine and right leg and, with no surgical target or pain interventions appropriate, she was referred for assessment for a pain management programme. On paper, this appeared relatively straightforward. However, features in her history such as A&E visits when flares in her symptoms had occurred, and the fact that she had received prescriptions for Venlafaxine, which is a medication often prescribed for depression, required further exploration.

During the assessment, Emma initially joked and asked questions. She spoke rapidly and although cheerful, she appeared nervous. She used colourful metaphors to describe her symptoms; the thoracic pain was like a vice deep inside her body, tightening around her spine. She would wring her hands in demonstration of this description and she described spasms that would cause her to freeze in one posture, or fall down. On being asked how she felt when this happened, Emma reported that it left her feeling embarrassed and ridiculous. Initially, she had managed these episodes, but they had increased to such a frequency and intensity that she would not leave the house alone and was considering a mobility scooter. She described that, when out walking, she would constantly scan the environment for hazards as she was afraid of falling. Despite this, Emma was determined to remain active, at times pushing herself in the gym or with housework until she was in tears, following which she would often spend days in bed. ➡

Emma was asked whether she felt the pain had impacted on her mood and she described how she was frequently overwhelmed by it. She experienced suicidal thoughts but would not act on them as she wouldn't want to hurt her family. She was married and her family visited regularly.

On observation of movement, Emma would clench her jaw and tense her shoulders, insisting she could manage. She stated that she must keep active to work and to avoid a wheelchair. Her goals were to walk to the shops independently and to decrease the number of painful spasms.

At the first appointment, Emma was invited to engage in movement with awareness. She was tasked to perform stretches and pay attention to what was happening in her body. When she noticed muscular tension or a rise in her heart or respiratory rate, she was encouraged to take a breath and anchor herself by perhaps taking notice of her feet on the floor and being aware of her environment. She was surprised by how gentle the exercise was and agreed to try it at home.

At the next session, she gave permission to undergo a coaching style exploration of her problem with leaving the house alone. What were the "hooks" or thoughts that acted as barriers, and what were the helpers, i.e. the thoughts and feelings that were in line with her values? The act of writing them down and categorising them can assist with identifying the opportunities for change, and can be undertaken without causing distress. This relies on the responses being freely chosen and not heavily directed by the therapist. For Emma, this exercise revealed an increased physiological arousal at the thought of going out, the sense of feeling overwhelmed was reduced with the help of breathing and present moment awareness. The next task was for Emma to pay attention to episodes of physiological arousal and to use the breathing exercises to alleviate any tension she noticed while exercising or

CONTACT DETAILS

Twitter:
@clairjacobs15
@heelas_leila

cleaning; by pausing for a moment she could observe her responses and then choose whether to rest or continue. She was reassured that while her reactions were entirely understandable, they may not be assisting her in living by her values.

After a few more sessions Emma reported that she was choosing to undertake more activities for her wellbeing, such as playing with her granddaughter, and she was less punishing in the manner in which she approached exercise. She had walked into town and caught the bus home. The opportunity to open up about her feelings had been helpful and she realised that her efforts to suppress her emotions had only served to inflame them.

About the authors

Clair is the Lead Physiotherapist at INPUT Pain Management Centre, Guys' and St Thomas' NHS Trust. She specialises in the delivery, teaching and management of complex chronic pain conditions; helping patients increase function and manage the impact of the pain using Acceptance and Commitment Therapy (ACT/CBT) approach. Clair has worked in pain management for more than 20 years and has run workshops focusing on psychologically informed practice. She has also delivered pain seminars including to both the British and Hong Kong Pain Societies.

Leila is the Clinical Lead Physiotherapist in the multidisciplinary Optimise Pain Rehabilitation Unit at Oxford University Hospitals. She has a personal interest in working with complex regional pain syndrome, hypermobility and offering treatment to people who may have psychological barriers to group work. Leila has written publications on "Introducing Acceptance

and Commitment Therapy into a Physiotherapy-led Pain Rehabilitation Programmes" and "The Role of Combined Physical and Psychological Rehabilitation in Reducing Disability in Chronic Low Back Pain", and has presented and submitted posters to conferences.

References

- Barnett K, Mercer SW, Norbury M, Watt G, Wyke S, Guthrie B. Epidemiology of multimorbidity and implications for health care, research, and medical education: a cross-sectional study. *The Lancet* 2012;380(9836):37-43
- Clark A. Whatever next? Predictive brains, situated agents, and the future of cognitive science. *Behaviour & Brain Science* 2013;4(1):73
- Craske MG, Treanor M, Conway C, Zbozinek T, Vervliet B. Maximising exposure therapy: an inhibitory learning approach: *Behaviour Research & Therapy* 2014;58:10-23
- Dargan PJ, Simm R, Murray C. New approaches towards chronic pain: patient experiences of a solution-focused pain management programme. *British Journal of Pain* 2014;8(1):34-42
- Edwards KA, Pielech M, Hickman J, Ashworth J, Sowden G, Vowles KE. The relation of self-compassion to functioning among adults with chronic pain. *European Journal of Pain* 2019;23(8):1538-1547
- Foster NE, Delitto A. Embedding psychosocial perspectives within clinical management of low back pain: integration of psychosocially informed management principles into physical therapist practice – challenges and opportunities. *Physical Therapy* 2011;91(5):790-803
- Gilbert P. and Irons C. Focused therapies and compassionate mind training for shame and self-attacking. *Compassion: Conceptualisations, research and use in psychotherapy* 2005, 263-325
- Hughes LS, Clark J, Colclough JA, Dale E, McMillan D. Acceptance and commitment therapy (ACT) for chronic pain. *Clinical Journal of Pain* 2017;33(6):552-568
- Jacobs CM, Guildford BJ, Travers W, Davies M, McCracken LM. Brief psychologically informed physiotherapy training is associated with changes in physiotherapists' attitudes and beliefs towards working with people with chronic pain. *British Journal of Pain* 2016;10(1):38-45

- Karos K, Williams ACDC, Meulders A, Vlaeyen JW. Pain as a threat to the social self: a motivational account. *Pain*, 2018;159(9):1690-1695
- Keefe FJ, Porter L, Somers T, Shelby R, Wren AV. Psychosocial interventions for managing pain in older adults: outcomes and clinical implications *British Journal of Anaesthesia* 2013;111(1):89-94
- Launer J. *Narrative-based practice in health and social care: conversations inviting change*. Routledge 2018
- Lawson KL, Jonk Y, O'Connor H, Riise KS, Eisenberg DM, Kreitzer MJ. The impact of telephonic health coaching on health outcomes in a high-risk population. *Global Advances in Health and Medicine* 2013;2(3):40-46
- Lee DA. The perfect nurturer: A model to develop a compassionate mind within the context of cognitive therapy. In *Compassion* 2005;338-363, Routledge
- Leveille SG, Huang A, Tsai SB, Allen M, Weingart SN, Iezzoni LI. Health coaching via an internet portal for primary care patients with chronic conditions: a randomized controlled trial. *Medical Care* 2009;47(1):41-47
- McCracken LM, Yang S-Y. A contextual cognitive behavioural analysis of rehabilitation workers' health and well-being: Influences of acceptance, mindfulness, and values-based action. *Rehabilitation Psychology* 2008;53(4):479-485
- Meyer JM, Farrell NR, Kemp JJ, Blakey SM, Deacon BJ. Why do clinicians exclude anxious clients from exposure therapy? *Behaviour Research & Therapy* 2013;54:49-53
- Miller WR, Rollnick S. *Motivational Interviewing: helping people change*. Guilford Press 2012
- Moscovitch DA, Antony MM, Swinson RP. *Exposure-based treatment for anxiety disorders: theory and process*. Oxford Handbook of Anxiety and Related Disorders 2009;461-475
- Neff KD, Kirkpatrick KL, Rude SS. Self-compassion and adaptive psychological functioning. *Research in Personality* 2007;41(1):139-154
- Physiotherapy Pain Association. *Describing the values, behaviours, knowledge & skills of physiotherapists working with people in pain*. 2014 https://ppa.csp.org.uk/system/files/framework_final2014.pdf
- Schemer L, Vlaeyen JWS, Doerr JM, Skoluda N, Nater UM, Rief W, Glombiewski JA. Treatment processes during exposure and cognitive behavioural therapy for chronic back pain: a single-case experimental design with multiple baselines. *Behaviour Research & Therapy* 2018;108:58-67
- Scott W, Yu L, Patel S, McCracken LM. Measuring stigma in chronic pain: preliminary instrument psychometrics, correlates and magnitude of change in a prospective cohort attending interdisciplinary treatment. *Pain* 2019;20(10):1164-1175
- Strosahl K, Robinson PJ, Gustavsson A. *Inside this Moment: A Clinician's Guide to Promoting Radical Change Using Acceptance and Commitment Therapy*. Context Press 2015
- Stubbs B, Koyanagi A, Thompson T, Veronese N, Carvalho AF, Solomi M, Mugisha J, Schofield P, Cosco T, Wilson N, Vancampfort D. The epidemiology of back pain and its relationship with depression, psychosis, anxiety, sleep disturbances, and stress sensitivity: data from 43 low-and middle-income countries. *General Hospital Psychiatry* 2016;43:63-70
- Synnott A, O'Keeffe M, Bunzli S, Dankaerts W, O'Sullivan P, O'Sullivan K. Physiotherapists may stigmatise or feel unprepared to treat people with low back pain and psychosocial factors that influence recovery: a systematic review. *Physiotherapy* 2015;61(2):68-76
- Van der Kolk B. *The Body Keeps the Score: Mind, Brain and Body in the Transformation of Trauma*. Penguin 2015
- Vlaeyen JWS, Crombez G, Linton S. The fear-avoidance model of pain. *Pain* 2016;157:1588-1589
- Vlaeyen JWS. Pain Management Programme Special Interest Group. British Pain Society Presentation Glasgow 2017
- Volders S, Meulders A, de Peuter S, Vervliet B, Vlaeyen JWS. Safety behaviour can hamper the extinction of fear of movement-related pain: an experimental investigation in healthy participants. *Behaviour Research & Therapy* 2012;50;735-746
- Vos T, Flaxman A, Naghavi M, et al. Years lived with disability in 1160 sequelae of 289 diseased and injuries 1990-2010: a systematic analysis for the global burden of disease study. *The Lancet* 2012;380:2163-2196

Further resources

IASP Pain definition – <https://www.iasp-pain.org/PublicationsNews/NewsDetail.aspx?ItemNumber=9218>

Morris E. So long to SUDs – exposure is not about fear reduction, it's all about learning and flexibility. 2017 <http://drericmorris.com/2017/01/13/nosuds> 



For private physiotherapists: How could becoming a Quality Assured Practitioner or Quality Assured Clinic help you?

This is an important time to demonstrate your quality

PAM SIMPSON

Honorary Communications Officer

All Physio First members have the exclusive opportunity to be part of our unique Data for Impact programme and work towards becoming a Quality Assured Practitioner (QAP) or a Quality Assured Clinic (QAC).

Many of our members are already participating, and for those who aren't, this really is an important time for you to start getting involved. Collecting data on your outcomes will help you to promote your practice during this time of rebuilding and re-evaluation.

By collecting data through our standardised data collection tool, your patient outcomes can be monitored and independently validated, resulting in you receiving individual reports that benchmark your clinic and, ultimately, giving you the opportunity to become a QAP and QAC; a tangible sign that you have evidenced your effectiveness as a private practitioner that will help you to stand out in a crowded marketplace, where the ability to demonstrate quality is becoming hugely important.

The Covid-19 pandemic has changed our world and for many of us our businesses will have changed with it. More than ever, we now need to find ways to attract patients back to our clinics with confidence in the quality and cost-effectiveness of our treatments, irrespective of whether we are giving face-to-face or remote consultations.

Our innovative data collection tool, developed by Physio First in collaboration with the University of Brighton (UoB) and funded by the Private Physiotherapy Educational Foundation (PPEF), enables you to record and upload anonymised patient treatment and outcomes data from which the UoB will produce regular reports specific to you and your clinic. Once you have submitted sufficient data, and that has been independently measured and validated, participants who have met the baseline criteria created by the whole data will be awarded our QAP or QAC kite-marks that indicate proven quality assured status. This measure and validation process usually happens three

times a year in a data download wave in January, May and September.

Whatever the size or shape of your MSK practice, Data for Impact is a business and clinical benchmarking tool that is too valuable to miss out on.

So, if you're not already collecting data, sign up today by going to the benefits tab at www.physiofirst.org.uk, or access our e-booklet *Quality in private physiotherapy: what is the evidence?* that can be found here under www.physiofirst.org.uk/resources/quality-evidence.

For those of our members who are collecting data and awaiting the May 2020 download, the following article explains the delay and how the University of Brighton team are modifying the data collection tool to reflect the Covid-19 situation.



Data download for Quality Assured Scheme delayed to September

KAREN LAY

Chairman, Physio First

SANDY LEWIS

Research & Development, Physio First

With input from **Liz Bryant**, University of Brighton and **Liz Palmer**, Physio First

Those members who are participating in our Data for Impact (Dfi) project and working towards our Quality Assured Practitioner (QAP) and Quality Assured Clinic (QAC) kite-marks will have had an email informing them that our Physio First executive, in collaboration with our University of Brighton (UoB) colleagues, made the decision to delay the scheduled May 2020 download of data until September 2020. This means that those members currently with QAP or QAC awards that were due to expire in May 2020 will retain their QAP or QAC award until September 2020. When the next download happens it will assess all data from May 2019 to September 2020, which should make up for these lost months due to Covid-19.

WHY WE DELAYED THE MAY 2020 DOWNLOAD

The UoB team has continuously monitored the numbers of data sets being input on the system since the government's announcement of the coronavirus lockdown on 23 March 2020, and the subsequent advice from the CSP and NHS England that all physiotherapy practices, with a few clearly defined exceptions, should close to face-to-face appointments. While some members have been conducting virtual telehealth appointments with patients, data input has slowed significantly as fewer patients are being seen during lockdown.

Additionally, we recognise that coronavirus restrictions on our

members' practices meant that inputters have lost three to four months of normal patient appointments, and that the return of patient confidence in attending clinics is likely to be gradual.

In discussions with our team, it was acknowledged that there may have been members working very hard to achieve the minimum number of data sets for 01 May 2020 in order to be assessed for potential QAP/QAC awards. Unfortunately, however, it was not possible to know the exact number of data sets to see how many would be eligible for testing until after the download and subsequent data processing, yet the time taken by our UoB team to download the May data would be the same, so we needed to determine what would be a better use of their time during lockdown.

We decided, therefore, that the fairest way to deal with this unprecedented situation is to give all our inputters a four-month extension to the data collection period, resulting in a 16-month data entry period instead of the usual 12 months. This means that no one is missing out on the opportunity to

achieve their awards as they will have extra time to achieve sufficient data sets, and those members who have already achieved QAP/QAC status will keep their award until the next download when they would be due for testing.

BENEFITS OF THE DELAY

As our UoB colleagues were not engaged in the May download, we agreed with them a priority list of work targeted at how the data we have can demonstrate the commercial value of our Physio First QAP/QAC schemes in our marketplace, i.e. the reason why a physiotherapy purchaser would choose a Quality Assured Practitioner or Clinic.

This has involved modifying the tool slightly so we can gather information on, for example, return to work, or on how earlier treatment might result in fewer days lost by the employee and, therefore, reduce the cost to the employer. Focusing on how a patient or employer might see a return on investment in choosing a Physio First QAP/QAC includes looking at ways in which we can demonstrate the cost of care in an episode of treatment, something that is a valuable metric for 

"THE FAIREST WAY TO DEAL WITH THIS UNPRECEDENTED SITUATION IS TO GIVE ALL INPUTTERS A FOUR-MONTH EXTENSION TO THE DATA COLLECTION PERIOD"



purchasers. For the self-funding public, which we know from our Physio First positioning surveys is the largest proportion of our members' patients, the aim is to give them a powerful reason to choose a Physio First QAP/QAC, by demonstrating through our scheme the evidence of effectiveness from pre- and post-treatment change scores.

We are also continuing our discussions with practice management software companies about embedding our Dfl tool into their product in order to remove the double handling issues that can be a barrier for some of our members when considering being part of our Dfl programme.

Our UoB colleagues are also working on academic publications that will promote our Quality schemes to a wider audience, and produce the evidence unstacked from data collected by our members, of our effectiveness in treating our patients.

WE NEED YOUR HELP TO SUPPORT YOU

Firstly, we urge those of our members who are collecting and submitting data to keep doing so. The data collection tool has the ability to record whether the appointment was virtual rather than face to face, and this will give us a vital picture of private physiotherapy activity when we come to measure the outcomes in this period.

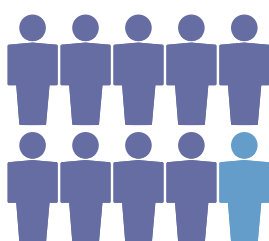
For those of our members who haven't yet accessed the opportunity to be part of data collection, your participation is invaluable not only to us, but more importantly to your practice.

As we return to face-to-face practice after this period of lockdown, being able to demonstrate the quality of your outcomes of physiotherapy treatment may become the difference between surviving and thriving as a practice or not. By demonstrating validated quality outcomes, and gaining QAP/QAC, you will give confidence, in you and your practice, to all physiotherapy purchasers requiring assurance of cost-effective, evidence-based, quality treatment. ❌

"BY DEMONSTRATING VALIDATED QUALITY OUTCOMES, YOU WILL GIVE CONFIDENCE TO ALL PURCHASERS OF PHYSIOTHERAPY TREATMENT IN THE QUALITY OF YOUR PRACTICE"



Contact our University of Brighton team today for details physiosurvey@brighton.ac.uk



"9 OUT OF 10 PATIENTS WHO SEE A PRIVATE PRACTITIONER ARE SEEN WITHIN ONE WEEK."

In association with



University of Brighton



**QUALITY
ASSURED**
PRACTITIONER



**QUALITY
ASSURED**
CLINIC



**PHYSIO FIRST'S
QUALITY ASSURED PRACTITIONER
AND QUALITY ASSURED CLINIC**
– Find out how they will help you

Go to physiofirst.org.uk/qap

 linkedin.com/company/physio-first/

 facebook.com/physiofirstuk/

 twitter.com/PhysioFirstC



CHAMPIONING PRIVATE PHYSIOTHERAPY



Tips from our team COVID-19 AND STAYING IN TOUCH



Thank you for renewing your membership

As the date for our annual membership renewals fell in the midst of the Covid-19 situation, the fact that so many of our members made the decision to continue to be part of Physio First has been inspiring to our whole employed and volunteer team who have aimed, throughout the past months, to keep members as up to date and informed on the situation as possible.

As things start returning to normal, our Physio First team will continue to advise, support, and where appropriate, advocate on your behalf. So, thank you for your continued support of Physio First through your membership.

Make your membership easy

For those of our members who have joined us on **PAYG**, completing a Direct Debit form and submitting it to our team can save the hassle of trying to remember to pay each month. You can download the form from our website www.physiofirst.org.uk or call our membership team on **01604 684960**.

Are you getting the message?

Over the past few months, we have been sending regular email bulletins with information and guidance on the Covid-19 situation to all of our members. Although this has been an unusual volume, we hope that the regular communication has served to keep you informed of the rapidly changing situation and all that our Physio First executive team have been doing to support and advocate for our members during this period.

If you have not been receiving this information there may be a number of reasons for this:

- You have opted out of receiving communications from us in line with the GDPR right to do so. If you made that decision and wish to change it, please let us know.
- You are with a provider that blocks or rejects email content and frequency that it considers to be spam. This is particularly the case with Hotmail and AOL accounts. If you have one of these but are happy to let us have an alternative account, then please contact us.
- We have no email address, or the incorrect email address, for you. If you recently set up an email address, or changed the one you originally let us have, but not let us know, then you will not be receiving our communications. If you are unsure, then please contact our team to check.

We want to make sure that you are getting all the information and updates that are part of the benefit of being a Physio First member, so please do let our team know of any changes in your email and address details at minerva@physiofirst.org.uk

Book reviews

If you have recently read a physiotherapy-themed book that you think would benefit fellow members, and that you would like to share, or if you would like to join our *In Touch* review team, please contact our **Book Editor** **SUSANNAH SOLT** susannah@activenowphysio.com



Transform Your Health Business Paul Baker

Publisher: Rethink Press | **ISBN:** 9781781333853 | **Price:** £12.99 paperback

REVIEWING YOUR BUSINESS – CAN YOU WORK SMARTER?

In business, as with clinical reasoning, you should never be too sure that you have all the answers; you should always be ready to challenge yourself and willing to change and grow. Reading this book has certainly helped me to do that.

Did I learn something from this book? Yes.

The content is well laid out and in-depth enough to enable full understanding of all topics without over complicating them. The reader is led through a process of how to assess their business, looking at how their business works, but also how the clinician works within that business.

At the end of each chapter there are tangible take-away points and suggestions. The areas that included number of treatments and “member services” didn’t, I feel, suit my own clinic but the information still helped me to analyse how my

team and I work and how we could work smarter.

Having read some books on business which have struggled to hold my attention, it was great to have one that takes into account the caring aspect of what we do. Paul talks about aligning the three stakeholders: the health business, the therapists and the patient which, of course, is what we are all striving to do. It is very useful to have this recognised in a business context.

Did I agree with all of the content? No, but I think for every physiotherapist working in private practice it will make you reflect and identify some of both your strengths and your weaknesses.

Would I recommend it to a friend? Yes, I would recommend it to both business owners and clinicians who work in a physiotherapy business.

Lucinda Brock, Physio First QAC



Small ads

SERVICE & REPAIR: MATHUR ELECTRO-MEDICAL LTD

Sales and servicing of all physiotherapy equipment.
New and second hand guaranteed available.
For prompt, reliable service:

telephone: 01273 842425

mobile: 07850 858584

email: mathurelectromedical@hotmail.com

RWR SERVICES

Service and repairs of all Physiotherapy
Electrotherapy and Rehabilitation Equipment

- Sales of new and refurbished equipment
- Second hand equipment bought and sold
- Full support of the **SHREWSBURY** product range

For further details visit: www.rwrservices.co.uk

Tel: 0345 257 8925 / 01743 860432

Email: richard@rwrservices.co.uk



Established over 30 years

Qualified, Factory Trained,
Experienced Service Engineers

Service, calibration and repair to all types and makes
of physiotherapy equipment and treatment couches



Suppliers of high quality
clinical consumables,
exercise equipment,
treatment couches and
electrotherapy devices



office@emeservices.com

0161 748 5660

PhysiotherapyEquipment.co.uk

COPY DATE FOR *IN TOUCH* 172 AUTUMN EDITION 2020 – 24 JULY

Published by Physio First.

Physio First, Minerva House, Tithe Barn Way, Swan Valley, Northampton NN4 9BA.

Tel 01604 684960 Fax 01604 58923

email minerva@physiofirst.org.uk

www.physiofirst.org.uk

All enquiries for *In Touch* to:

Tobias Bremer, Editor.

email: editor@physiofirst.org.uk

or post to: Physio First, Minerva House, Tithe Barn Way, Northampton NN4 9BA.

The editorial board reserves the right to edit all material submitted.

The views expressed in this journal are not necessarily those of the organisation, the editor or the editorial committee. The inclusion of editorial material in this journal does not imply any form of endorsement by this organisation. No article, drawing or photograph may be reproduced without prior permission of the editor. *In Touch* is a quarterly publication and is published in March, June, September and December each year.

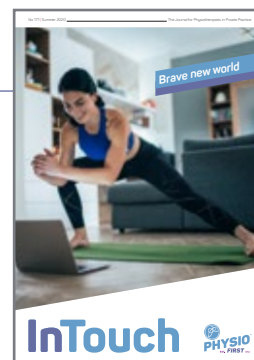
Design and production by Pages Creative (Cheltenham) Ltd.

www.pagescreative.co.uk

Printed by Severn, Gloucester on FSC® Essential Silk to ISO9001 quality and ISO14001 environmental standards.

Using 100% renewable energy from Ecotricity.

www.severnprint.co.uk



INTRODUCING HALO

The Halo Face Shield offers superior comfort, style, and durability to protect both practitioner and patient during treatment. Halo can be worn for long durations in absolute comfort and confidence. The headband is designed to be easily cleaned and the screens replaceable.

NEW



Comfortable and easy to wear

- A hygienic and easy clean design with minimal dirt ingress areas.
- Multi adjustable for the perfect fit, from 51cm-64cm.
- Breathable design to aid cooling and prevent perspiration.
- Rotational anti fog screen.

Tried and tested design

- Tested under extreme conditions.
- FDA approved TPV Santoprene rubber.
- Adjustment retainer peg made from aircraft grade 6061 alloy. Designed for minimal waste and environmental impact.
- Designed in the U.K and CE marked.
- SATRA tested.



Available in a choice of 3 colours

HALOFPB	Prussian Blue (1)	£24.99
HALOFCH	Charcoal (1)	£24.99
HALOFCR	Crayon (1)	£24.99
HALOSCN	Replacement Visor (2 Pack)	£8.99