The Review Of
DIABETIC
STUDIES OPEN ACCESS

An Integrative Narrative Review Of Mindfulness-Based Physiotherapy: Efficacy, Mechanisms, And Clinical Applications For Stress-Related Somatic Symptomatology

Sultan Hasen H Almalawi[1], Essam Abdrabuh Althabeti[2], Ahmed Saeed K Almatrafi[3], Dr.Abdulrahman Taha[4], Abdulaziz Fahad A Alharthi[5], Musallam Salem K Alqurashi[6], Saleh Mohammed S Alghamdi[7], Mohammed Mesfer T Alharthi[8], Saud Alhumaidi M Alotaibi[9], Abdullah Mohammed H Maghfoori[10], Muath Ali Alrefaei[11], Yasir Abdulrahman Altowairqi[12], Mohammed Ahmed Alshanbari[13], Yahya Mohammed Oumarou[14], Abdulaziz Dhaifallah Althomali[15]

[1]Turqua Center
[2]Turqua Center
[3]Bakhsh Hospital
[4]Bakhsh Hospital
[5]Almana General Hospital
[6]Almana General Hospital
[7]Meena Clinics
[8]Children With Disability Association
[9]Dallah Healthcare Company
[10]King Abdullah Hospital- Bisha
[11]King Abdulaziz Specialist Hospital-Taif
[12]King Abdulaziz Specialist Hospital-Taif
[13]King Abdulaziz Specialist Hospital-Taif
[14]King Abdulaziz Specialist Hospital-Taif
[15]King Abdulaziz Specialist Hospital-Taif

Abstract

Background: The conceptualization of stress-related physical symptoms, including chronic musculoskeletal pain, tension-type disorders, and non-specific somatic complaints, necessitates a biopsychosocial approach. Conventional physiotherapy often focuses on biomechanical dysfunction, potentially overlooking the central role of the stress response and maladaptive neurocognitive processes in symptom perpetuation. **Aim:** This narrative review aims to critically synthesize contemporary evidence on the clinical application, proposed neurophysiological mechanisms, and therapeutic outcomes of MBP for the management of stress-related physical symptoms.
Methods: A comprehensive literature search was conducted across PubMed, PsycINFO, CINAHL, and Scopus databases (2010-2024). Keywords included mindfulness, physiotherapy, physical therapy, somatization, psychosomatic, chronic pain, stress, and interoception.
Results: The synthesized evidence indicates that MBP contributes to clinically meaningful reductions in pain intensity, disability, and psychological distress while improving pain acceptance and functional capacity. Key operative mechanisms appear to include the cultivation of interoceptive awareness, disruption of pain catastrophizing cycles, and downregulation of threat-system reactivity. MBP protocols typically integrate formal mindfulness practice with targeted movement education, promoting a decoupling of physical sensation from cognitive-emotional appraisal.
Conclusion: MBP represents a robust, evidence-informed biopsychosocial framework that extends the scope of traditional physiotherapy. By systematically training attentional and regulatory capacities, MBP addresses core cognitive-affective drivers of stress-related symptomatology, offering a potent adjunct for managing complex, mind-body presentations.

Keywords: mindfulness, physiotherapy, somatization, chronic pain, interoception.

Introduction

The clinical presentation of physical symptoms without clear, corresponding structural pathology—often categorized as stress-related, functional, or psychosomatic disorders—poses a significant challenge within healthcare systems. Conditions such as chronic tension-type headache, fibromyalgia, non-specific low back pain, and other central sensitization syndromes are increasingly understood not as purely biomechanical failures but as complex disorders of perception, affect, and neuroimmune regulation (Bishop & George, 2023; Vlaeyen et al., 2012). The prevailing biomedical model, which underpins much of conventional physiotherapy, often proves insufficient for these presentations, leading to patient dissatisfaction, iatrogenic harm from over-investigation, and chronic disability (Darlow et al., 2013). This gap underscores an urgent need for therapeutic frameworks that explicitly address the interaction between cognitive-emotional processes and somatic experience.

Within this context, mindfulness—defined as the awareness that arises from paying attention, on purpose, in the present moment, and non-judgmentally (Kabat-Zinn, 2013)—has emerged as a potent psychological intervention. Meta-analytic evidence robustly supports mindfulness-based interventions (MBIs) for reducing symptoms of anxiety, depression, and psychological distress (Goldberg et al., 2018). Crucially, mindfulness training also demonstrates efficacy for chronic pain management, not primarily through analgesic effects, but by altering the relationship to pain and reducing suffering (Hilton et al., 2017). This positions mindfulness not as an alternative to physiotherapy, but as a deeply synergistic complement. The integrated application, herein termed Mindfulness-Based Physiotherapy (MBP), represents a paradigm shift. It moves beyond simply adding mindfulness as a separate module to fundamentally reconceptualizing the therapeutic encounter, where movement and bodily attention become vehicles for cultivating metacognitive skills and disrupting maladaptive mind-body cycles (Day, 2017).

This narrative review synthesizes the evolving evidence from 2010 to 2024 on the application, mechanistic underpinnings, and clinical outcomes of MBP for stress-related somatic symptoms. It will argue that MBP constitutes a distinct, evidence-based biopsychosocial approach. By integrating the principles of mindfulness with physiotherapeutic expertise in movement and body mechanics, MBP directly targets the hypervigilance, catastrophizing, and fear-avoidant behaviors that perpetuate disability. The review will explore the neurophysiological rationale for this integration, detail core components of MBP protocols, evaluate clinical efficacy data, and discuss implications for future practice and training in physiotherapy.

Study Selection Criteria and Process

Studies included in this review were selected using predefined but intentionally broad criteria consistent with an integrative narrative review approach. Peer-reviewed articles published between 2010 and 2024 were identified through searches of PubMed, PsycINFO, CINAHL, and Scopus using combinations of keywords related to mindfulness, physiotherapy, physical therapy, stress, chronic pain, somatization, psychosomatic symptoms, and interoception. Eligible studies examined mindfulness-based interventions applied within or alongside physiotherapy or movement-based rehabilitation and addressed stress-related physical or somatic symptoms, such as chronic musculoskeletal pain, fibromyalgia, tension-type headache, or nonspecific pain conditions. Quantitative, qualitative, mixed-methods studies, systematic reviews, meta-analyses, and relevant mechanistic or theoretical papers were considered to capture both clinical efficacy and underlying processes. Articles were excluded if they focused solely on pharmacological treatments, purely psychological interventions without a movement or physiotherapy component, or conditions unrelated to stress-associated physical symptomatology. Although a formal risk-of-bias assessment was not conducted, the selection process followed a transparent screening pathway, which can be represented using a PRISMA-style flow diagram to enhance clarity and reproducibility (Figure 1).

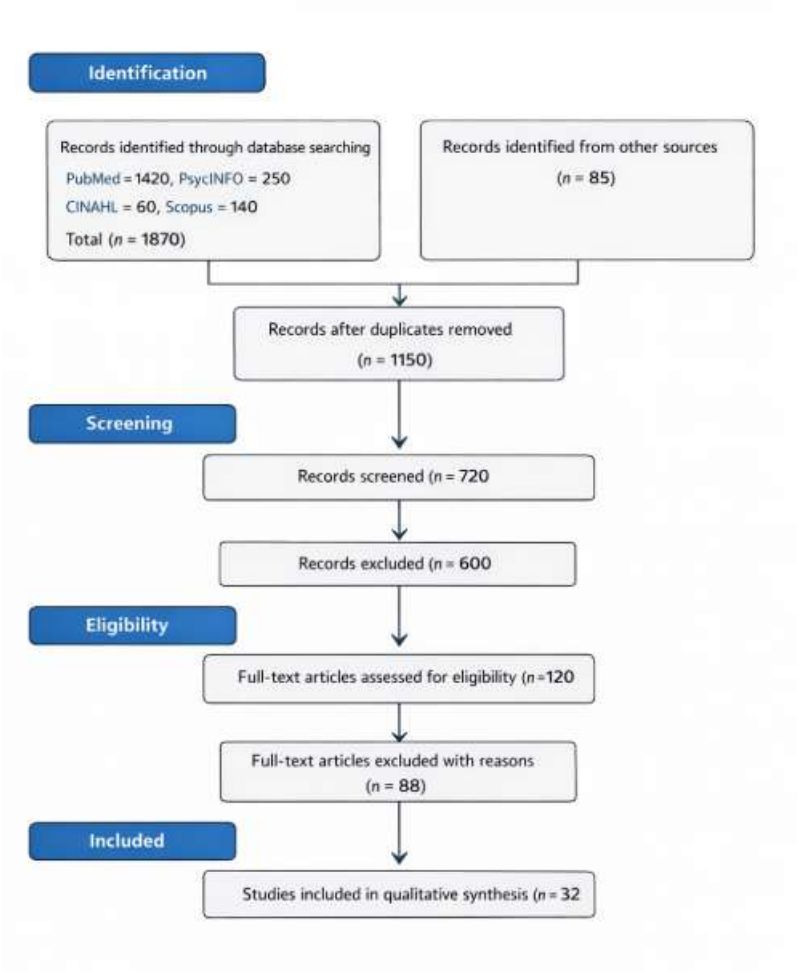

Figure 1: PRISMA flow diagram.

Theoretical and Neurophysiological Rationale

The link between psychological stress and physical symptomatology is mediated by well-characterized physiological pathways, primarily the hypothalamic-pituitary-adrenal (HPA) axis and the sympathetic-adrenal-medullary (SAM) system. Chronic or maladaptive activation of these systems leads to a state of allostatic load, contributing to systemic inflammation, altered pain processing, and muscular hyperactivity (McEwen, 2017). In individuals predisposed to somatization, this physiological state interacts with specific cognitive-affective vulnerabilities. The Cognitive-Affective Model of Somatic Symptom Disorder posits that attention is selectively biased toward bodily sensations, which are then appraised in a catastrophic, threat-based manner (Iob et al., 2020). This appraisal fuels anxiety and fear, further amplifying the stress response and sensation via top-down neuromodulatory pathways from limbic and prefrontal regions to the insula and somatosensory cortices (Wiech, 2016).

A core process in this dysfunctional cycle is deficient interoceptive awareness—the perception and interpretation of internal bodily signals. Paradoxically, while patients may be hyper-aware of symptoms, this awareness is often characterized by misidentification, catastrophizing, and a lack of nuanced discrimination. For instance, normal muscular fatigue may be interpreted as impending damage (Zaman et al., 2015). Furthermore, the Fear-Avoidance Model of chronic pain illustrates how pain-related fear leads to avoidance of movement and activity, resulting in physical deconditioning, disability, and increased depression—a cycle that reinforces the original catastrophic beliefs (Rogers & Farris, 2022).

Mindfulness training directly targets these mechanisms. Neuroimaging studies indicate that mindfulness practice is associated with increased gray matter density and functional connectivity in

brain regions involved in interoception (anterior insula), emotional regulation (prefrontal cortex), and contextual evaluation (posterior cingulate cortex) (Fox et al., 2016; Tang et al., 2015). Functionally, it cultivates a capacity for decentering—the ability to observe thoughts and sensations as transient mental events rather than absolute truths or direct commands. This metacognitive shift reduces experiential avoidance and pain catastrophizing (Gu et al., 2015). By fostering a curious, accepting, and non-reactive stance toward bodily sensations, mindfulness practice can recalibrate the brain's sensory-affective networks, effectively downregulating the threat value assigned to benign or aversive physical signals (Gard et al., 2012).

Core Components and Clinical Delivery of Mindfulness-Based Physiotherapy

Mindfulness-Based Physiotherapy is not a monolithic protocol but a therapeutic approach with shared foundational elements. It integrates formal mindfulness practices with principles of movement science and patient education, delivered by a clinician trained in both domains.

A central component is interoceptive and movement-focused mindfulness practice. This moves beyond generic breath awareness to include systematic "body scans"—a guided practice of moving attention sequentially through the body with an attitude of curiosity—and mindful movement. In MBP, mindful movement is not prescriptive exercise for strengthening; it is an explorative practice, often involving slow, gentle, and non-goal-oriented movements (yoga, Tai Chi adapted for therapeutic purposes, or simple functional movements) (Garmon et al., 2014). The physiotherapist guides the patient to attend to the qualitative aspects of movement: the texture of muscular engagement, the subtle shifts in balance, and the arising and passing of sensations without judgment or the imperative to "fix." This process helps patients differentiate between sensations of stretch, effort, and pain, reducing fear-driven movement avoidance (Sullivan et al., 2023).

Psychoeducation forms a critical pillar, framed within a biopsychosocial explanation of symptoms. Patients are taught the physiology of the stress response, the concept of central sensitization, and the role of attention and appraisal in pain perception (Nijs et al., 2020). This education, delivered with the authority of a physical health professional, can be profoundly validating and destigmatizing, challenging unhelpful biomedical narratives of "broken" structures. It explicitly links the mindfulness practices to the proposed mechanisms of change, enhancing adherence and therapeutic engagement.

The therapeutic relationship in MBP is inherently collaborative and exploratory, diverging from a paternalistic expert-model. The physiotherapist embodies mindful presence, modeling non-judgmental curiosity and acceptance. Sessions involve continuous inquiry, using Socratic questioning to help patients recognize patterns of catastrophic thinking ("What went through your mind when you felt that twinge?") and to explore alternative, more flexible appraisals (Godfrey et al., 2020). This process is supported by informal mindfulness practice integration, where patients are encouraged to bring mindful awareness to daily activities and routine movements, thereby generalizing skills beyond the clinic (Table 1). Figure 2 illustrates the core biopsychosocial mechanisms targeted by Mindfulness-Based Physiotherapy (MBP).

Table 1: Mechanisms of Stress-Related Symptom Perpetuation and Corresponding MBP Therapeutic Targets

Pathophysiological/Cognitive Mechanism	Clinical Manifestation	Targeted MBP Component	Proposed Therapeutic Action
Hypervigilance & Attentional Bias	Scanning for/threat detection of bodily sensations.	Focused Attention Meditation (e.g., on breath, sound).	Trains ability to direct and re-direct attention volitionally, away

			from ruminative focus.
Catastrophizing & Threat Appraisal	"This pain means I am damaged."	Decentering via Body Scan & Psychoeducation.	Cultivates observing stance toward thoughts/sensations as mental events, not facts; provides alternate explanatory model.
Fear-Avoidance Behavior	Kinesiophobia; activity withdrawal.	Mindful Movement & Graded Exposure.	Re-engages movement in a safe, exploratory context to build self-efficacy and disprove catastrophic predictions.
Interoceptive Dysregulation	Poor discrimination of sensation; alarmist interpretation.	Interoceptive Exposure (Body Scan) & Mindful Movement.	Increases granularity and accuracy of sensory awareness, reducing generalized arousal to benign signals.
Emotional Avoidance/Alexithymia	Difficulty identifying/processing emotional states manifesting somatically.	Emotion-Focused Mindfulness (noting affect in body).	Enhances capacity to identify emotional correlates of physical tension, promoting emotional processing.
Autonomic Dysregulation	Sympathetic dominance; poor recovery.	Diaphragmatic Breathing & Relaxation Response.	Activates parasympathetic nervous system, lowers allostatic load.

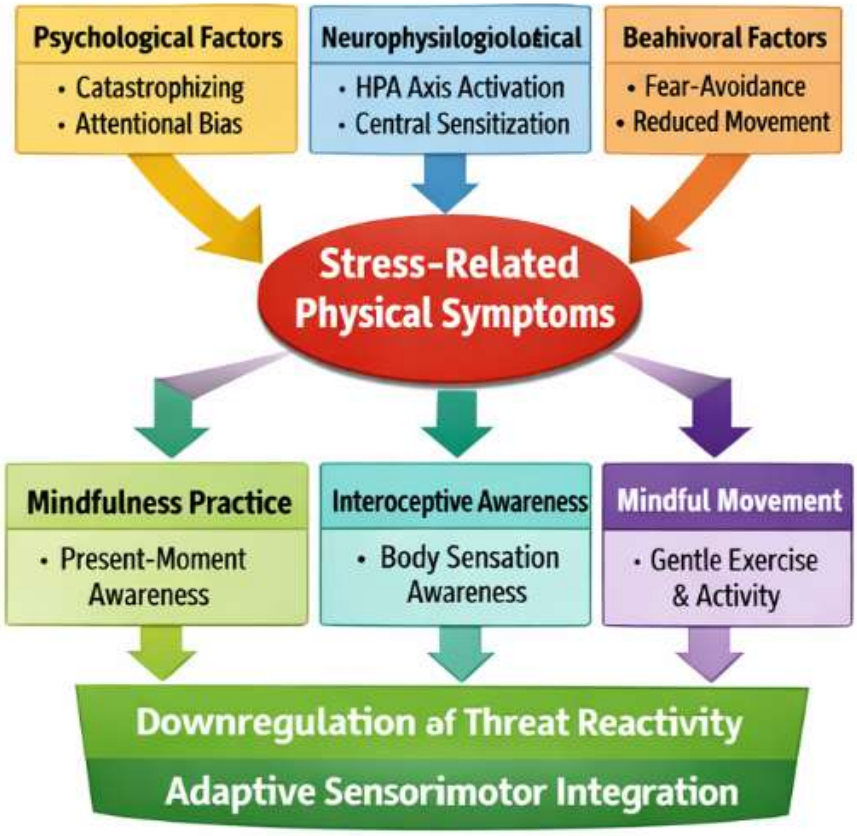

Figure 2: Biopsychosocial Mechanisms Underpinning Mindfulness-Based Physiotherapy

Clinical Efficacy and Outcome Evidence

A growing body of research supports the efficacy of MBP and closely related interventions for stress-related physical conditions. Systematic reviews focusing on mindfulness for chronic pain consistently report small-to-moderate effect sizes for pain reduction and significant improvements in depression, pain-related anxiety, and quality of life (Hilton et al., 2017; Bawa et al., 2015). Importantly, these effects often persist at follow-up, suggesting the acquisition of lasting self-regulatory skills.

For specific conditions, evidence is promising. In chronic low back pain, studies comparing mindfulness-based stress reduction (MBSR) or adapted physiotherapy programs to usual care or exercise alone show superior outcomes in pain disability and psychological distress (Cherkin, 2021; Morone et al., 2016). Research on fibromyalgia demonstrates that mindfulness interventions lead to significant improvements in pain catastrophizing, functional status, and self-reported tenderness (Cash et al., 2015; Pérez-Aranda et al., 2019). In managing tension-type headache, mindfulness training has been shown to reduce headache frequency, duration, and medication intake, with effects comparable to established psychophysiological therapies like cognitive-behavioral therapy (Rehman et al., 2022).

Crucially, outcome studies are increasingly measuring process variables that align with the proposed mechanisms. Research indicates that reductions in pain catastrophizing and fear-avoidance beliefs, alongside increases in pain acceptance and mindfulness skills, consistently mediate treatment outcomes in MBP (Day, 2017; Schütze et al., 2020). Neurophysiological studies provide correlative support, showing that mindfulness practice can normalize aberrant brain activity in pain-processing networks and improve heart rate variability, a marker of autonomic regulation (Zeidan et al., 2019; Wielgus et al., 2020). These findings move beyond subjective reports to validate the biopsychosocial model underpinning MBP.

Implementation Considerations and Future Directions

Despite the evidence, widespread implementation of MBP faces barriers. A primary challenge is clinician competency and training. Effective delivery requires physiotherapists to have both a personal mindfulness practice and formal training in teaching mindfulness, which is not standard in pre-registration curricula (Aymerich et al., 2022). Post-graduate credentialing pathways are needed. Furthermore, the structural constraints of healthcare systems, with short appointment times and productivity pressures, are antithetical to the contemplative, process-oriented nature of MBP. Innovative delivery models, such as group-based programs or blended digital-therapist guided formats, may offer solutions (Bostock et al., 2019).

Patient readiness and preferences also vary. Not all patients with somatic symptoms are open to a mind-body approach; some may perceive it as dismissing their physical reality. Sensitive, non-coercive introduction of the model is essential, often best framed as enhancing self-management and understanding of the "body's alarm system" (Darlow et al., 2013). Future research must refine dosing and protocol personalization. Which patients benefit most from which practices? How can MBP be optimally tailored for conditions like chronic fatigue or irritable bowel syndrome?

Technological integration presents a significant frontier. App-based mindfulness programs and virtual reality (VR) environments for immersive mindful movement are being explored. While they lack the relational component, they may improve accessibility and provide tools for home practice (O'Connor et al., 2022). Finally, more robust effectiveness trials conducted in real-world clinical settings, with longer-term follow-ups and detailed economic analyses, are required to solidify MBP's place in standard care pathways (Table 2). Figure 3 illustrates the structured clinical delivery of Mindfulness-Based Physiotherapy.

Table 2: Proposed Structure for an 8-Week Mindfulness-Based Physiotherapy Group Program

Session Theme	Core Didactic Content	Formal Practice Introduced	Movement Exploration	Home Practice Assignment
1. Awareness & Automatic Pilot	Introduction to stress-pain cycle; role of attention.	Raisin Exercise; Body Scan (Part 1).	Mindful sitting/standing posture.	Daily Body Scan (15 min).
2. Living in our Heads	Link between thoughts, mood, and bodily sensations.	Sitting Meditation: Breath & Body.	Mindful shoulder/neck rolls.	Body Scan + 10-min sitting meditation.
3. Gathering the Scattered Mind	Concept of acceptance vs. resistance.	Sitting Meditation: Sounds & Thoughts.	Seated spinal movements with breath.	Alternate Body Scan & Sitting Meditation.
4. Recognizing Stress Reactivity	Stress physiology; fight-flight-freeze in the body.	Mindful Movement (gentle sequences).	Exploring movement boundaries with curiosity.	3-min "Breathing Space" + Mindful Movement.
5. Allowing & Letting Be	Working with difficulty; cultivating kindness.	Sitting Meditation: Expanding Awareness to	Movement with resistance (e.g., light weights/theraband).	Breathing Space (3x daily) + regular practice.

		Difficult Sensations.		
6. Thoughts are Not Facts	Cognitive defusion; decentering from pain stories.	Choice of Body Scan, Sitting, or Movement.	Mindful walking (indoor/outdoor).	Integrating mindfulness into a daily activity.
7. Self-Care & Action Planning	Mapping valued activities; graded exposure.	Longer period of practice choice.	Planning and practicing a valued, avoided movement.	Develop a personal maintenance plan.
8. Maintaining & Extending	Review of learning; relapse prevention.	Group-guided practice.	Celebration of movement capacity.	Commitment to ongoing practice.

Figure 3: Clinical Pathway and Therapeutic Components of Mindfulness-Based Physiotherapy

Conclusion

The management of stress-related physical symptoms demands a therapeutic approach that transcends the Cartesian dualism of mind and body. Mindfulness-Based Physiotherapy represents a sophisticated and empirically supported evolution of physiotherapy practice, firmly grounded in contemporary neuroscience and psychological science. By systematically training interoceptive awareness, cognitive flexibility, and emotion regulation, MBP addresses the core pathogenic mechanisms that perpetuate somatic distress and disability. The integrated focus on mindful movement is particularly powerful, as it directly targets the fear-avoidance cycle and reprograms maladaptive sensorimotor schemas.

While implementation challenges exist, the evidence for its benefits in reducing suffering, improving function, and empowering patients is compelling. As the healthcare landscape increasingly recognizes the limitations of a purely structural model for persistent pain and functional disorders, MBP stands as a vital, patient-centered, and scientifically rigorous pathway forward. Future efforts must focus on clinician training, health system adaptation, and continued research to optimize and disseminate this transformative biopsychosocial intervention.

References

1. Aymerich, K., Wilczek, A., Ratanachatchuchai, S., Gilpin, H. R., Spahr, N., Jacobs, C., & Scott, W. (2022). “Living more and struggling less”: a qualitative descriptive study of patient experiences of physiotherapy informed by Acceptance and Commitment Therapy within a multidisciplinary pain management programme. Physiotherapy, 116, 33-41. https://doi.org/10.1016/j.physio.2022.01.004
2. Bawa, F. L. M., Mercer, S. W., Atherton, R. J., Clague, F., Keen, A., Scott, N. W., & Bond, C. M. (2015). Does mindfulness improve outcomes in patients with chronic pain? Systematic review and meta-analysis. The British Journal of General Practice, 65(635), e387. https://doi.org/10.3399/bjgp15X685297
3. Bishop, M. D., & George, S. Z. (2023). Pain and disability following exercise-induced injury in prognostic and intervention studies: the why may be more important than the how. The Clinical Journal of Pain, 39(3), 119-126. DOI: 10.1097/AJP.0000000000001097
4. Bostock, S., Crosswell, A. D., Prather, A. A., & Steptoe, A. (2019). Mindfulness on-the-go: Effects of a mindfulness meditation app on work stress and well-being. Journal of occupational health psychology, 24(1), 127. https://psycnet.apa.org/doi/10.1037/ocp0000118
5. Cash, E., Salmon, P., Weissbecker, I., Rebholz, W. N., Bayley-Veloso, R., Zimmaro, L. A., ... & Sephton, S. E. (2015). Mindfulness meditation alleviates fibromyalgia symptoms in women: results of a randomized clinical trial. Annals of Behavioral Medicine, 49(3), 319-330. https://doi.org/10.1007/s12160-014-9665-0
6. Cherkin, D. C. (2021). Are methods for evaluating medications appropriate for evaluating nonpharmacological treatments for pain?—challenges for an emerging field of research. JAMA Internal Medicine, 181(3), 328-329. doi:10.1001/jamainternmed.2020.7081
7. Darlow, B., Dowell, A., Baxter, G. D., Mathieson, F., Perry, M., & Dean, S. (2013). The enduring impact of what clinicians say to people with low back pain. The Annals of Family Medicine, 11(6), 527-534. https://doi.org/10.1370/afm.1518
8. Day, M. A. (2017). Mindfulness-based cognitive therapy for chronic pain: a clinical manual and guide. John Wiley & Sons.
9. Fox, K. C., Kang, Y., Lifshitz, M., & Christoff, K. (2016). Increasing cognitive-emotional flexibility with meditation and hypnosis: The cognitive neuroscience of de-automatization. arXiv preprint arXiv:1605.03553. https://doi.org/10.48550/arXiv.1605.03553
10. Gard, T., Hölzel, B. K., Sack, A. T., Hempel, H., Lazar, S. W., Vaitl, D., & Ott, U. (2012). Pain attenuation through mindfulness is associated with decreased cognitive control and increased sensory processing in the brain. Cerebral cortex, 22(11), 2692-2702. https://doi.org/10.1093/cercor/bhr352
11. Godfrey, H. K., Walsh, A. T., Fischer, R., & Grimshaw, G. M. (2020). The role of attentional control in cognitive deficits associated with chronic pain. Clinical Psychological Science, 8(6), 1046-1053. https://doi.org/10.1177/2167702620925744
12. Garmon, B., Philbrick, J., Daniel Becker, M. D., John Schorling, M. D., Padrick, M., & Goodman, M. (2014). Mindfulness-based stress reduction for chronic pain: A systematic review. Journal of Pain Management, 7(1), 23.
13. Goldberg, S. B., Tucker, R. P., Greene, P. A., Davidson, R. J., Wampold, B. E., Kearney, D. J., & Simpson, T. L. (2018). Mindfulness-based interventions for psychiatric disorders: A systematic review and meta-analysis. Clinical psychology review, 59, 52-60. https://doi.org/10.1016/j.cpr.2017.10.011
14. Gu, J., Strauss, C., Bond, R., & Cavanagh, K. (2015). How do mindfulness-based cognitive therapy and mindfulness-based stress reduction improve mental health and wellbeing? A

systematic review and meta-analysis of mediation studies. Clinical psychology review, 37, 1-12. https://doi.org/10.1016/j.cpr.2015.01.006
15. Hilton, L., Hempel, S., Ewing, B. A., Apaydin, E., Xenakis, L., Newberry, S., ... & Maglione, M. A. (2017). Mindfulness meditation for chronic pain: systematic review and meta-analysis. Annals of behavioral medicine, 51(2), 199-213. https://doi.org/10.1007/s12160-016-9844-2
16. Iob, E., Kirschbaum, C., & Steptoe, A. (2020). Persistent depressive symptoms, HPA-axis hyperactivity, and inflammation: the role of cognitive-affective and somatic symptoms. Molecular psychiatry, 25(5), 1130-1140. https://doi.org/10.1038/s41380-019-0501-6
17. Kabat-Zinn, J. (2013). Full catastrophe living, revised edition: how to cope with stress, pain and illness using mindfulness meditation. Hachette.
18. McEwen, B. S. (2017). Neurobiological and systemic effects of chronic stress. Chronic stress, 1, 2470547017692328. https://doi.org/10.1177/2470547017692328
19. Morone, N. E., Greco, C. M., Moore, C. G., Rollman, B. L., Lane, B., Morrow, L. A., ... & Weiner, D. K. (2016). A mind-body program for older adults with chronic low back pain: a randomized clinical trial. JAMA internal medicine, 176(3), 329-337. doi:10.1001/jamainternmed.2015.8033
20. Nijs, J., Wijma, A. J., Willaert, W., Huysmans, E., Mintken, P., Smeets, R., ... & Donaldson, M. (2020). Integrating motivational interviewing in pain neuroscience education for people with chronic pain: a practical guide for clinicians. Physical therapy, 100(5), 846-859. https://doi.org/10.1093/ptj/pzaa021
21. O'Connor, S., Mayne, A., & Hood, B. (2022). Virtual reality-based mindfulness for chronic pain management: a scoping review. Pain Management Nursing, 23(3), 359-369. https://doi.org/10.1016/j.pmn.2022.03.013
22. Pérez-Aranda, A., Feliu-Soler, A., Montero-Marín, J., García-Campayo, J., Andrés-Rodríguez, L., Borràs, X., ... & Luciano, J. V. (2019). A randomized controlled efficacy trial of mindfulness-based stress reduction compared with an active control group and usual care for fibromyalgia: the EUDAIMON study. Pain, 160(11), 2508-2523. DOI: 10.1097/j.pain.0000000000001655
23. Rehman, M. A. U., Waseem, R., Habiba, U., Wasim, M. F., Rehmani, S. A., Rehmani, M. A., ... & Fatima, K. (2022). Efficacy of mindfulness-based intervention for the treatment of chronic headaches: a systematic review and meta-analysis. Annals of Medicine and Surgery, 78, 103862. https://doi.org/10.1016/j.amsu.2022.103862
24. Rogers, A. H., & Farris, S. G. (2022). A meta-analysis of the associations of elements of the fear-avoidance model of chronic pain with negative affect, depression, anxiety, pain-related disability and pain intensity. European Journal of Pain, 26(8), 1611-1635. https://doi.org/10.1002/ejp.1994
25. Schütze, R., Rees, C., Smith, A., Slater, H., & O'Sullivan, P. (2020). Metacognition, perseverative thinking, and pain catastrophizing: A moderated-mediation analysis. European Journal of Pain, 24(1), 223-233. https://doi.org/10.1002/ejp.1479
26. Sullivan, M. B., Hill, K., Ballengee, L. A., Knoblach, D., Fowler, C., Haun, J., & Saenger, M. (2023). Remotely delivered psychologically informed mindful movement physical therapy for pain care: a framework for operationalization. Global advances in integrative medicine and health, 12, 27536130231209751. https://doi.org/10.1177/27536130231209751
27. Tang, Y. Y., Hölzel, B. K., & Posner, M. I. (2015). The neuroscience of mindfulness meditation. Nature reviews neuroscience, 16(4), 213-225. https://doi.org/10.1038/nrn3916
28. Vlaeyen, J. W., Morley, S., Linton, S. J., Boersma, K., & de Jong, J. (2012). Pain-related fear: Exposure-based treatment of chronic pain. IASP press.
29. Wiech, K. (2016). Deconstructing the sensation of pain: the influence of cognitive processes on pain perception. Science, 354(6312), 584-587. https://doi.org/10.1126/science.aaf8934
30. Wielgus, B., Urban, W., Patriak, A., & Cichocki, Ł. (2020). Examining the associations between psychological flexibility, mindfulness, psychosomatic functioning, and anxiety during the COVID-19 pandemic: A path analysis. International journal of environmental research and public health, 17(23), 8764. https://doi.org/10.3390/ijerph17238764
31. Zaman, J., Vlaeyen, J. W., Van Oudenhove, L., Wiech, K., & Van Diest, I. (2015). Associative fear learning and perceptual discrimination: a perceptual pathway in the development of chronic pain. Neuroscience & Biobehavioral Reviews, 51, 118-125. https://doi.org/10.1016/j.neubiorev.2015.01.009

32. Zeidan, F., Salomons, T., Farris, S. R., Emerson, N. M., Adler-Neal, A., Jung, Y., & Coghill, R. C. (2018). Neural mechanisms supporting the relationship between dispositional mindfulness and pain. Pain, 159(12), 2477-2485. DOI: 10.1097/j.pain.0000000000001344

مراجعة سردية تكاملية للعلاج الطبيعي القائم على اليقظة الذهنية: الفعالية، والآليات، والتطبيقات السريرية للأعراض الجسدية المرتبطة بالتوتر

الملخص

الخلفية: يتطلب تصنيف الأعراض الجسدية المرتبطة بالتوتر، بما في ذلك الألم العضلي الهيكلي المزمن، والاضطرابات التوترية النوعية، والشكاوى الجسدية غير المحددة، نهجاً بيولوجياً-نفسياً-اجتماعياً. غالباً ما يركز العلاج الطبيعي التقليدي على الخلل الميكانيكي الحيوي، مما قد يغفل الدور المركزي لاستجابة التوتر وعمليات الإدراك العصبي غير المتكيفة في استمرار الأعراض.

الهدف: تهدف هذه المراجعة السردية إلى تلخيص نقدي للأدلة المعاصرة حول التطبيق السريري، والآليات العصبية الفسيولوجية المقترحة، والنتائج العلاجية للعلاج الطبيعي القائم على اليقظة الذهنية (MBP) في إدارة الأعراض الجسدية المرتبطة بالتوتر.

الطرق: تم إجراء بحث أدبي شامل عبر قواعد البياناتPubMed ، PsycINFO، CINAHL، و Scopus (2010-2024).شملت الكلمات المفتاحية اليقظة الذهنية، العلاج الطبيعي، العلاج الفيزيائي، التحول الجسدي، السيكوسوماتي، الألم المزمن، التوتر، والإدراك الداخلي.

النتائج: تشير الأدلة المجمعة إلى أن العلاج الطبيعي القائم على اليقظة الذهنية يساهم في تخفيضات ذات معنى سريري في شدة الألم، والإعاقة، والضيق النفسي، مع تحسين قبول الألم والقدرة الوظيفية. تبدو الآليات التشغيلية الرئيسية تشمل تنمية الوعي الإدراكي الداخلي، وتعطيل دورات الكارثة الألمية، وتقليل تنشيط نظام التهديد. عادةً ما تدمج بروتوكولات MBP ممارسة اليقظة الذهنية الرسمية مع تعليم الحركة المستهدف، مما يعزز فصل الإحساس الجسدي عن التقييم المعرفي-العاطفي.

الخاتمة: يمثل العلاج الطبيعي القائم على اليقظة الذهنية إطاراً بيولوجياً-نفسياً-اجتماعياً قوياً مدعوماً بالأدلة، يوسع نطاق العلاج الطبيعي التقليدي. من خلال تدريب القدرات الانتباهية والتنظيمية بشكل منهجي، يعالج MBP المحركات المعرفية-العاطفية الأساسية للأعراض المرتبطة بالتوتر، مما يقدم إضافة قوية لإدارة الحالات المعقدة المتعلقة بالعقل والجسم.

الكلمات المفتاحية: اليقظة الذهنية، العلاج الطبيعي، التحول الجسدي، الألم المزمن، الإدراك الداخلي.