

- P**  **PROTECTION**  
Avoid activities and movements that increase pain during the first few days after injury.
- E**  **ELEVATION**  
Elevate the injured limb higher than the heart as often as possible.
- A**  **AVOID ANTI-INFLAMMATORIES**  
Avoid taking anti-inflammatory medications as they reduce tissue healing. Avoid icing.
- C**  **COMPRESSION**  
Use elastic bandage or taping to reduce swelling.
- E**  **EDUCATION**  
Your body knows best. Avoid unnecessary passive treatments and medical investigations and let nature play its role.
- &**
- L**  **LOAD**  
Let pain guide your gradual return to normal activities. Your body will tell you when it's safe to increase load.
- O**  **OPTIMISM**  
Condition your brain for optimal recovery by being confident and positive.
- V**  **VASCULARISATION**  
Choose pain-free cardiovascular activities to increase blood flow to repairing tissues.
- E**  **EXERCISE**  
Restore mobility, strength and proprioception by adopting an active approach to recovery.

## E-Learning Course 1.10 PEACE & LOVE

### Scientific References



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**[2020-Dubois, B. & J.-F. Esculier. Soft-tissue injuries simply need PEACE and LOVE. \*British Journal of Sports Medicine\* 54 \(2\): 72-73.](#)**

Rehabilitation of soft-tissue injuries can be complex. Over the years, acronyms guiding their management have evolved from ICE to RICE, then on to PRICE and POLICE. Although widely known, these previous acronyms focus on acute management, unfortunately ignoring subacute and chronic stages of tissue healing. Our contemporary acronyms encompass the rehabilitation continuum from immediate care (PEACE) to subsequent management (LOVE). PEACE and LOVE outline the importance of educating patients and addressing psychosocial factors to enhance recovery. While anti-inflammatories show benefits on pain and function, our acronyms flag their potential harmful effects on optimal tissue repair. We suggest that they may not be included in the standard management of soft-tissue injuries.

**[2020-Gennarelli, S. M., S. M. Brown & M. K. Mulcahey. Psychosocial interventions help facilitate recovery following musculoskeletal sports injuries: a systematic review. \*The Physician and Sportsmedicine\*.](#)**

**Context:** Recent research demonstrates a connection between psychological factors and return to play following a musculoskeletal sports injury. Although it has been shown that psychological factors can influence when and if an athlete returns to play, it is unclear if the implementation of psychosocial interventions during the recovery process can address these factors and potentially increase the likelihood of return to play after physical recovery from injury.

**Objective:** To examine the efficacy of interventions designed to address psychosocial factors that influence return to play after sports injuries.

**Methods:** A systematic review was performed in accordance with the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines. Pubmed, Embase, and Google Scholar databases were searched from the earliest entry through May 2018. Search terms included 'psychology,' 'sports injury,' 'anterior cruciate ligament injury,' 'anterior cruciate ligament reconstruction,' 'intervention,' 'return to play,' and 'return to sport.' Studies were included and reviewed if they reported on the efficacy of a psychosocial intervention program in injured athletes.

**Results:** Initial searches of Pubmed, Embase, and Google Scholar databases identified 560 articles, 329 articles, and 34,400 hits, respectively. After inclusion and exclusion criteria were applied, eight articles remained that met inclusion criteria. Interventions of relaxation/guided imagery, positive self-talk, goal setting, counseling, emotional/written disclosure, and modeling videos were found to be effective interventions for promoting recovery after a musculoskeletal sports injury. These interventions facilitated positive mood changes, pain management, exercise compliance, and rehabilitation adherence. No study examined the effect of psychosocial interventions on return to play.

**Conclusion:** This systematic review demonstrates that psychosocial interventions can facilitate post-injury recovery in athletes by promoting a positive emotional state and rehabilitation adherence. Further research is necessary to determine the most effective psychosocial interventions for specific psychological factors, the ideal duration of interventions, the best method of implementation following a sports injury, and the impact of these interventions on return to play.

[2020-Kadur, J., J. Lüdemann & S. Andreas. Effects of the therapist's statements on the patient's outcome and the therapeutic alliance: A systematic review. \*Clinical Psychology & Psychotherapy\* 27 \(2\): 168-178.](#)

This systematic review summarizes articles that examined the effects of the psychotherapist's statements on the outcome of the patient and the therapeutic alliance.

The databases PsychINFO, PSYINDEX, PubMed, and PsychARTICLES were searched, and English peer-reviewed articles were included. Participants should be adult patients with Diagnostic and Statistical Manual of Mental Disorders diagnosis who were receiving evidence-based psychotherapy in an individual setting. Studies with a standardized, observer-based measurement of the therapist's verbal utterances on the basis of verbatim transcripts of therapy sessions were included. Furthermore, there should be a standardized measurement of the symptom outcome or a measurement of the therapeutic alliance. The 10 included articles showed that supportive and exploratory statements and addressing aspects in the therapeutic relationship were perceived as positive regarding symptom outcome. Negative effects were particularly evident with controlling and challenging statements of the therapist. Regarding the therapeutic alliance, both positive and negative as well as nonsignificant results were obtained. The results of this review suggest that the question of which statements by therapists correlate positively or negatively with the outcome of therapy and the therapeutic alliance cannot be answered unequivocally and must be applied to more individual and specific situations.

**Key Practitioner Message:**

- Supportive and exploratory statements of the therapist correlate positively with the patient's symptom outcome
- Negative correlations evident with controlling and challenging statements of the therapist
- No clear results obtained regarding effects of therapist statements on the therapeutic alliance

[2020-Kinney, M., J. Seider, A. Floyd Beaty, K. Coughlin, M. Dyal & D. Clewley. The impact of therapeutic alliance in physical therapy for chronic musculoskeletal pain: A systematic review of the literature. \*Physiotherapy Theory and Practice\* 36 \(8\): 886-898.](#)

**Objective:** To systematically determine the specific impact of therapeutic alliance (TA) on chronic musculoskeletal pain, identify factors influencing TA between physical therapists and patients with chronic musculoskeletal pain, and determine the working definition of TA across studies.

**Data Sources:** Databases, including PubMed, CINAHL, and Embase, were searched from inception to January 2017.

**Study Selection:** The initial search resulted in 451 papers. After screening, seven studies were identified that examined the role of TA on chronic pain (> 12 weeks) management in physical therapy settings.

**Data Extraction:** Authors extracted data into tables. Risk of bias was assessed using Cochrane Collaboration methodology.

**Data Synthesis:** Three studies examined the influence of a strong TA coupled with physical therapy on pain outcomes. Four studies identified factors that positively and negatively influenced TA. The working definition of TA was identified in each study.

**Conclusions:** Emerging evidence suggests that for individuals participating in physical therapy for chronic musculoskeletal pain, a strong TA may improve pain outcomes. In order to facilitate a strong TA, physical therapists must understand factors that positively and negatively influence the relationship. Studies demonstrate that the definition of TA remains consistent as it transitions to the physical therapy setting.



[2020-Lawford, B. J., K. L. Bennell, P. K. Campbell, J. Kasza & R. S. Hinman. Therapeutic Alliance Between Physical Therapists and Patients With Knee Osteoarthritis Consulting Via Telephone: A Longitudinal Study. \*Arthritis Care & Research\* 72 \(5\): 652-660.](#)

**Objective:** To explore therapeutic alliance between physical therapists and patients with knee osteoarthritis during telephone consultations. Specifically, to describe and compare physical therapist and patient ratings, to determine whether alliance changes over time, and to evaluate whether individual characteristics are associated with alliance.

**Methods:** We performed a secondary analysis of 84 patients in the intervention arm of a randomized controlled trial who completed 5–10 consultations with 1 of 8 physical therapists via telephone over 26 weeks, involving education, advice, and prescription of a strengthening and physical activity program. Therapeutic alliance was measured after the second (week 4) and final consultations (week 26), using the Working Alliance Inventory–Short Form.

**Results:** Patient and physical therapist ratings of the alliance were high. At week 4, patients rated the overall alliance, and all 3 subscales, higher than therapists. At 26 weeks, patients rated the Task subscale higher than therapists. Patient ratings for the Goal subscale decreased over time, while physical therapist ratings for total alliance and the Bond subscale increased. For patients, the variables of living with others, consulting with a therapist with no previous experience delivering care remotely, having more telephone consultations, and having a higher self–efficacy were associated with greater alliance ratings. Therapists were more likely to perceive a stronger alliance if they had less clinical experience and when treating patients who were younger and had higher self–efficacy.

**Conclusion:** Physical therapist perceptions of the therapeutic alliance tended to be lower than those of patients early in treatment, but differences were small and of unclear clinical significance. Some subgroups of patients rated the alliance more strongly than others.

[2020-Lin, I., L. Wiles, R. Waller R. Goucke, Y. Nagree, M. Gibberd, L. Straker, C. G. Maher & P. B. O'Sullivan. What does best practice care for musculoskeletal pain look like? Eleven consistent recommendations from high-quality clinical practice guidelines: Systematic review. \*British Journal of Sports Medicine\* 54 \(2\): 79-86.](#)

**Objectives:** To identify common recommendations for high-quality care for the most common musculoskeletal (MSK) pain sites encountered by clinicians in emergency and primary care (spinal (lumbar, thoracic and cervical), hip/knee (including osteoarthritis [OA] and shoulder) from contemporary, high-quality clinical practice guidelines (CPGs).

**Design:** Systematic review, critical appraisal and narrative synthesis of MSK pain CPG recommendations.

**Eligibility criteria:** Included MSK pain CPGs were written in English, rated as high quality, published from 2011, focused on adults and described development processes. Excluded CPGs were for: traumatic MSK pain, single modalities (eg, surgery), traditional healing/medicine, specific disease processes (eg, inflammatory arthropathies) or those that required payment.

**Data sources:** Four scientific databases (MEDLINE, Embase, CINAHL and Physiotherapy Evidence Database) and four guideline repositories.

**Results:** 6232 records were identified, 44 CPGs were appraised and 11 were rated as high quality (low back pain: 4, OA: 4, neck: 2 and shoulder: 1). We identified 11 recommendations for MSK pain care: ensure care is patient centred, screen for red flag conditions, assess psychosocial factors, use imaging selectively, undertake a physical examination, monitor patient progress, provide education/information, address physical activity/exercise, use manual therapy only as an adjunct to other treatments, offer high-quality non-surgical care prior to surgery and try to keep patients at work.

**Conclusion:** These 11 recommendations guide healthcare consumers, clinicians, researchers and policy makers to manage MSK pain. This should improve the quality of care of MSK pain.

[\*\*2020-Vergeld, V. & T. Utesch. Pain-related Self-efficacy Among People With Back Pain. \*The Clinical Journal of Pain\* 36 \(6\): 480-494.\*\*](#)

**Background:** Before an intervention can be implemented to improve pain-related self-efficacy, assessment is required. The aim of the present study was to provide a systematic review on which self-efficacy scales are being used among patients with back pain and to evaluate their psychometric properties.

**Methods:** A systematic search was executed in January 2019 and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses 2009 checklist served as a guide for conducting the study. Electronic databases included Cinahl, Medline, PubMed, PsycINFO, PSYINDEX, and SportDiscus. Publications in English or German language that focused on the adult patient population with back pain and which provided validation or reliability measures on pain-related self-efficacy were included.

**Results:** A total of 3512 records were identified resulting in 671 documents after duplicates were removed. A total of 233 studies were screened full-text, and a total of 47 studies addressing 19 different measures of pain-related self-efficacy were included in the quality analysis. The most commonly used instruments were the Pain Self-Efficacy Questionnaire and the Chronic Pain Self-Efficacy Scale. All studies reported internal consistency, but many studies lacked other aspects of reliability and validity.

**Conclusions:** Further research should focus on assessing validity and interpretability of these questionnaires, especially in pain-related target groups. Researchers should select questionnaires that are most appropriate for their study aims and the back pain population and contribute to further validation of these scales to best predict future behavior and develop intervention programs. This systematic review aids selection of pain-related assessment tools in back pain both in research and practice.

**2019-De Baets, L., T. Matheve, M. Meeus, F. Struyf & A. Timmermans. [The influence of cognitions, emotions and behavioral factors on treatment outcomes in musculoskeletal shoulder pain: a systematic review. \*Clinical Rehabilitation\* 33 \(6\): 980-991.](#)**

**Objective:** To examine the predictive, moderating and mediating role of cognitive, emotional and behavioral factors on pain and disability following shoulder treatment.

**Data sources:** Electronic databases (PubMed, Web of Science, Embase and PsycINFO) were searched until 14 January 2019.

**Study selection:** Studies including persons with musculoskeletal shoulder pain that describe the predictive, moderating or mediating role of baseline cognitive, emotional or behavioral factors on pain or disability following treatment were selected.

**Results:** A total of 23 articles, describing 21 studies and involving 3769 participants, were included. Three studies had a high risk of bias. There was no predictive role of baseline depression, anxiety, coping, somatization or distress on pain or disability across types of shoulder treatment. No predictive role of fear-avoidance beliefs was identified in patients receiving physiotherapy, which contrasted to the results found when surgical treatment was applied. Baseline catastrophizing was also not predictive for pain or disability in patients receiving physiotherapy. After conservative medical treatments, results on the predictive role of catastrophizing were inconclusive. Treatment expectations and baseline self-efficacy predicted pain and disability in patients receiving physiotherapy, which was not the case in patients receiving conservative medical treatment. Finally, there was a moderating role for optimism in the relationship between pain catastrophizing and disability in patients receiving physiotherapy.

**Conclusion:** There is evidence that expectations of recovery and self-efficacy have a predictive role and optimism a moderating role on pain and/or disability following physiotherapy for musculoskeletal shoulder pain. After surgical treatment, fear-avoidance is a predictor of pain and disability.

**[2018-Martinez-Calderon, J., C. Zamora-Campos, S. Navarro-Ledesma & A. Luque-Suarez. The Role of Self-Efficacy on the Prognosis of Chronic Musculoskeletal Pain: A Systematic Review. \*The Journal of Pain\* 19 \(1\): 10-34.](#)**

Evidence suggests that self-efficacy can play an essential role as a protective factor as well as a mediator in the relationship between pain and disability in people suffering from chronic musculoskeletal pain. This study systematically reviewed and critically appraised the role of self-efficacy on the prognosis of chronic musculoskeletal pain. Study selection was on the basis of longitudinal studies testing the prognostic value of self-efficacy in chronic musculoskeletal pain. The Newcastle-Ottawa Scale, the Cochrane Collaboration's tool, and the Methodological Index for Non-Randomized Studies checklist were used to evaluate the risk of bias of included studies. A total of 27 articles met the inclusion criteria. Our results suggest that higher self-efficacy levels are associated with greater physical functioning, physical activity participation, health status, work status, satisfaction with the performance, efficacy beliefs, and lower levels of pain intensity, disability, disease activity, depressive symptoms, presence of tender points, fatigue, and presenteeism. Despite the low quality of evidence of included studies, clinicians should be encouraged identify people with chronic musculoskeletal pain who present low self-efficacy levels before prescribing any therapy. It may help clinicians in their clinical decision-making and timely and specific consultations with –or referral to–other health care providers.

**Perspective:** This article presents promising results about the role of self-efficacy on the prognosis of chronic musculoskeletal pain. However, because of the low quality of evidence of included studies, these findings should be taken with caution, and further research is needed.

[2018-Silva Guerrero, A. V., A. Maujean, L. Campbell & M. Sterling. A Systematic Review and Meta-Analysis of the Effectiveness of Psychological Interventions Delivered by Physiotherapists on Pain, Disability and Psychological Outcomes in Musculoskeletal Pain Conditions. \*The Clinical Journal of Pain\* 34 \(9\): 838-857.](#)

**Objective:** This systematic review and meta-analysis examined the effectiveness of physiotherapist delivered psychological interventions combined with physiotherapy on pain, disability, and psychological outcomes for patients with musculoskeletal pain conditions.

**Methods:** The review was conducted in accordance with the (PRISMA) guidelines. Five databases were systematically searched for randomized controlled trials from inception to May 2016. Studies were required to compare a psychological intervention delivered by physiotherapists combined with physiotherapy to physiotherapy alone or usual care. Physiotherapists delivering the interventions must have undergone training by a psychologist or a health professional trained in the delivery of psychological interventions.

**Results:** A total of 34 articles met the eligibility criteria, of those, 30 were suitable for meta-analysis. There was low to high quality evidence that physiotherapist delivered psychological intervention combined with physiotherapy decreased pain in the short (26 studies, mean difference=-0.37; 95% confidence interval [CI], -0.65 to -0.09) and long term (22 studies, mean difference=-0.38; 95% CI, -0.67 to -0.10) and decreased disability in the short term (29 studies, standardized mean difference =-0.14; 95% CI, -0.26 to -0.01). Effect sizes were small. Low to high quality evidence demonstrated small to medium effects for some psychological outcomes at short-term and long-term follow-ups.

**Discussion:** The results indicate that psychological interventions delivered by physiotherapist show promise to improve health outcomes, particularly psychological outcomes, in musculoskeletal pain conditions.

**2018-Taccolini Manzoni, A. C., N. T. Bastos de Oliveira, C. M. Nunes Cabral & N. Aquaroni Ricci. The role of the therapeutic alliance on pain relief in musculoskeletal rehabilitation: A systematic review. *Physiotherapy Theory and Practice* 34 (12): 901-915.**

The aim of this systematic review was to investigate the role of therapeutic alliance in pain relief in patients with musculoskeletal disorders treated by physiotherapy. Manual and database searches (Medline, Embase, ISI Web of Knowledge, CINAHL, PEDro, Lilacs, Cochrane Library, and PsycINFO) were performed with no restrictions of language and publication date. We included prospective studies with samples of patients undergoing physiotherapy for musculoskeletal conditions, with one measure of therapeutic alliance and the outcome pain. Methodological quality was assessed by the Methodological Index for Nonrandomized Studies and the Cochrane tool for risk of bias. Six articles from four studies were included out of the 936 manuscripts identified. All studies used samples composed of patients with chronic low back pain. Two studies applied therapeutic alliance incentive measures during treatment and reported significant improvement in pain. The remaining studies, without alliance incentives, showed divergence regarding the relationship between the therapeutic alliance and pain. Methodological quality analysis determined low risk of bias of the studies. A lack of studies on the therapeutic alliance regarding musculoskeletal physiotherapy was verified. Existing studies fail to provide evidence of a strong relationship between the therapeutic alliance and pain relief.

**[2017-Babatunde, F., J. MacDermid & N. MacIntyre. Characteristics of therapeutic alliance in musculoskeletal physiotherapy and occupational therapy practice: a scoping review of the literature. BMC Health Services Research 17: 375.](#)**

**Background:** Most conventional treatment for musculoskeletal conditions continue to show moderate effects, prompting calls for ways to increase effectiveness, including drawing from strategies used across other health conditions. Therapeutic alliance refers to the relational processes at play in treatment which can act in combination or independently of specific interventions. Current evidence guiding the use of therapeutic alliance in health care arises largely from psychotherapy and medicine literature. The objective of this review was to map out the available literature on therapeutic alliance conceptual frameworks, themes, measures and determinants in musculoskeletal rehabilitation across physiotherapy and occupational therapy disciplines.

**Methods:** A scoping review of the literature published in English since inception to July 2015 was conducted using Medline, EMBASE, PsychINFO, PEDro, SportDISCUS, AMED, OTSeeker, AMED and the grey literature. A key search term strategy was employed using “physiotherapy”, “occupational therapy”, “therapeutic alliance”, and “musculoskeletal” to identify relevant studies. All searches were performed between December 2014 and July 2015 with an updated search on January 2017. Two investigators screened article title, abstract and full text review for articles meeting the inclusion criteria and extracted therapeutic alliance data and details of each study.

**Results:** One hundred and thirty articles met the inclusion criteria including quantitative (33%), qualitative (39%), mixed methods (7%) and reviews and discussions (23%) and most data came from the USA (23%). Randomized trials and systematic reviews were 4.6 and 2.3% respectively. Low back pain condition (22%) and primary care (30.7%) were the most reported condition and setting respectively. One theory, 9 frameworks, 26 models, 8 themes and 42 subthemes of therapeutic alliance were identified. Twenty-six measures were identified; the Working Alliance Inventory (WAI) was the most utilized measure (13%). Most of the therapeutic alliance themes extracted were from patient perspectives. The relationship between adherence and therapeutic alliance was examined by 26 articles of which 57% showed some correlation between therapeutic alliance and adherence. Age moderated the relationship between therapeutic alliance and adherence with younger individuals and an autonomy support environment reporting improved adherence. Prioritized goals, autonomy support and motivation were facilitators of therapeutic alliance.

**Conclusion:** Therapeutic Alliance has been studied in a limited extent in the rehabilitation literature with conflicting frameworks and findings. Potential benefits described for enhancing



therapeutic alliance might include better exercise adherence. Several knowledge gaps have been identified with a potential for generating future research priorities for therapeutic alliance in musculoskeletal rehabilitation.

**2017-Mallows, A., J. Debenham, T. Walker & C. Littlewood. [Association of psychological variables and outcome in tendinopathy: a systematic review. \*British Journal of Sports Medicine\* 51 \(9\): 743-748.](#)**

**Objective:** Fear, anxiety, depression, distress and catastrophisation are all factors known to affect pain and disability levels. To date, the association of such psychological factors has yet to be established in tendinopathy. Therefore, the purpose of this paper was to determine if psychological variables are associated with tendinopathy and whether any such variables may be associated with pain and disability outcomes in conservative management of tendinopathy.

**Design:** A systematic review was undertaken and included studies were appraised for risk of bias using the Newcastle-Ottawa Scale. Owing to heterogeneity of studies, a qualitative synthesis was undertaken.

**Data sources:** An electronic search of MEDLINE, CiNAHL, SPORTDiscus, PsycINFO, EMBASE and PsycARTICLES was undertaken from their inception to April 2016.

**Eligibility criteria for selecting studies:** Any study design that incorporated psychological measures and clinical outcomes using participants with tendinopathy.

**Results:** Ten articles describing nine studies and 1108 participants were included. Conflicting evidence exists regarding the association of anxiety, depression and lateral epicondylalgia (LE). Strong evidence suggests LE is not associated with kinesiophobia. Moderate evidence links catastrophisation and distress with LE. Moderate evidence suggests distress is not associated with rotator cuff tendinopathy, but kinesiophobia and catastrophisation are. Limited evidence suggests patellar tendinopathy is not associated with anxiety or depression and kinesiophobia may be linked with suboptimal outcomes in Achilles tendinopathy.

**Summary/conclusions:** Tendinopathy requires an individualised approach to management. Clinicians should consider using validated screening tools for the presence of psychological variables as a part of their holistic management.

**2017-Roy, J.-S., L. J. Bouyer, P. Langevin & C. Mercier. [Beyond the joint: The role of central nervous system reorganizations in chronic musculoskeletal disorders. \*Journal of Orthopaedic & Sports Physical Therapy\* 47 \(11\): 817-821.](#)**

To a large extent, management of musculoskeletal disorders has traditionally focused on structural dysfunctions found within the musculoskeletal system, mainly around the affected joint. While a structural-dysfunction approach may be effective for musculoskeletal conditions in some populations, especially in acute presentations, its effectiveness remains limited in patients with recurrent or chronic musculoskeletal pain. Numerous studies have shown that the human central nervous system can undergo plastic reorganizations following musculoskeletal disorders; however, they can be maladaptive and contribute to altered joint control and chronic pain. In this Viewpoint, the authors argue that to improve rehabilitation outcomes in patients with chronic musculoskeletal pain, a global view of the disorder that incorporates both central (neural) and peripheral (joint-level) changes is needed. The authors also discuss the challenge of evaluating and rehabilitating central changes and the need for large, high-level studies to evaluate approaches incorporating central and peripheral changes and emerging therapies.

**2016-Briet, J. P., R. M. Houwert, M. G. J. S. Hageman, F. Hietbrink, D. C. Ring & E. J. J. M. Verleisdonk. Factors associated with pain intensity and physical limitations after lateral ankle sprains. *Injury* 47 (11): P2565-P2569.**

**Background:** Swelling, tenderness, and ecchymosis don't correlate with time to functional recovery in patients with a lateral ankle sprain. It is established that psychosocial factors such as symptoms of depression and low pain self-efficacy correlate with pain intensity and magnitude of limitations in patients with musculoskeletal disorders.

**Objective:** We studied the correlation between pain self-efficacy or symptoms of depression and (1) ankle specific limitations and (2) pain intensity in patients with a lateral ankle sprain. Further we explored the correlation between estimation of sprain severity (grade) and (3) pain intensity or magnitude of ankle specific limitations.

**Design:** Eighty-four patients with a lateral ankle sprain prospectively completed the Pain Self Efficacy Questionnaire, the Olerud Molander Ankle Score, Ordinal scale of Pain and the Patient Health Questionnaire-2 at enrollment and the Olerud Molander Ankle Score and the Ordinal scale of Pain three weeks after the injury. Factors associated with higher ankle specific limitations and symptoms were investigated in bivariable and multivariable analysis.

**Results:** When accounting for confounding factors, greater self-efficacy ( $p = 0.01$ ) and older age ( $p < 0.01$ ) were significantly associated with greater ankle specific symptoms and limitations three weeks after the injury and explained 22% of the variability in ankle specific limitations and symptoms. There was no correlation between the grade of the sprain and pain intensity or ankle specific limitations or symptoms.

**Conclusions:** Psychosocial factors (adaptiveness in response to pain in particular) explain more of the variation in symptoms and limitations after ankle sprain than the degree of pathophysiology. The influence of adaptive illness descriptions and recovery strategies based on methods for improving self-efficacy (i.e. cognitive behavioral therapy) might enhance and speed recovery from ankle injuries and merit additional investigation.

**2016-O’Keeffe, M., P. Cullinane, J. Hurley, I. Leahy, S. Bunzli, P. B. O’Sullivan & K. O’Sullivan. What Influences Patient-Therapist Interactions in Musculoskeletal Physical Therapy? Qualitative Systematic Review and Meta-Synthesis. *Physical Therapy* 96 (5): 609-622.**

**Background:** Musculoskeletal physical therapy involves both specific and nonspecific effects. Nonspecific variables associated with the patient, therapist, and setting may influence clinical outcomes. Recent quantitative research has shown that nonspecific factors, including patient-therapist interactions, can influence treatment outcomes. It remains unclear, however, what factors influence patient-therapist interaction.

**Purpose:** This qualitative systematic review and meta-synthesis investigated patients' and physical therapists' perceptions of factors that influence patient-therapist interactions.

**Data Sources:** Eleven databases were searched independently.

**Study Selection:** Qualitative studies examining physical therapists' and patients' perceptions of factors that influence patient-therapist interactions in musculoskeletal settings were included.

**Data Extraction:** Two reviewers independently selected articles, assessed methodological quality using the Critical Appraisal Skills Programme (CASP), and performed the 3 stages of analysis: extraction of findings, grouping of findings (codes), and abstraction of findings.

**Data Synthesis:** Thirteen studies were included. Four themes were perceived to influence patient-therapist interactions: (1) physical therapist interpersonal and communication skills (ie, presence of skills such as listening, encouragement, confidence, being empathetic and friendly, and nonverbal communication), (2) physical therapist practical skills (ie, physical therapist expertise and level of training, although the ability to provide good education was considered as important only by patients), (3) individualized patient-centered care (ie, individualizing the treatment to the patient and taking patient's opinions into account), and (4) organizational and environmental factors (ie, time and flexibility with care and appointments).

**Limitations:** Only studies published in English were included.

**Conclusions:** A mix of interpersonal, clinical, and organizational factors are perceived to influence patient-therapist interactions, although research is needed to identify which of these factors actually influence patient-therapist interactions. Physical therapists' awareness of these factors could enhance patient interactions and treatment outcomes. Mechanisms to best enhance these factors in clinical practice warrant further study.

[2014-Vranceanu, A.-M., A. Bachoura, A. Weening, M. Vrahas, R. M. Smith & D. Ring. Psychological Factors Predict Disability and Pain Intensity After Skeletal Trauma. \*The Journal of Bone & Joint Surgery\* 96 \(3\): e20.](#)

**Background:** The aims of this study were to (1) estimate the prevalence of clinical depression and posttraumatic stress disorder (PTSD) one to two months (Time 1) and five to eight months (Time 2) after musculoskeletal trauma and (2) determine the cross-sectional and longitudinal relationship of psychological variables (depression, PTSD, catastrophic thinking, and pain anxiety) at Time 1 to musculoskeletal disability and pain intensity at Time 1 and Time 2, after accounting for injury characteristics and demographic variables.

**Methods:** Patients with one or more fractures that had been treated operatively completed measures of depression, PTSD, pain anxiety, catastrophic thinking, musculoskeletal disability (the Short Musculoskeletal Function Assessment [SMFA]), and pain (the Numerical Rating Scale) at rest and during activity at Time 1 (152 patients) and at Time 2 (136 patients). Additional explanatory variables included injury severity, use of opioid pain medication at Time 1, and multiple or single injuries.

**Results:** The screening criteria for an estimated diagnosis of clinical depression were met by thirty-five of the 152 patients at Time 1, and twenty-nine of the 136 patients at Time 2. Screening criteria for an estimated diagnosis of PTSD were met by forty-three of the 152 patients at Time 1 and twenty-five of the 136 patients at Time 2. Cross-sectional hierarchical linear regression models that included multiple injuries, scores of the Abbreviated Injury Scale, and self-reported opioid use explained between 24% and 29% of the variance in pain and disability, respectively, at Time 1. After the addition of psychological variables, the model explained between 49% and 55% of the variance. Catastrophic thinking (as measured with use of the Pain Catastrophizing Scale) at Time 1 was the sole significant predictor of pain at rest, pain during activity, and disability (as measured with use of the SMFA) at Time 2.

**Conclusions:** We found that psychological factors that are responsive to cognitive behavioral therapy—catastrophic thinking, in particular—are strongly associated with pain intensity and disability in patients recovering from musculoskeletal trauma.

[2014-Wertli, M. M., J. Burgstaller, S. Weiser, J. Steurer, R. Kofmehl & U. Held. Influence of Catastrophizing on Treatment Outcome in Patients With Nonspecific Low Back Pain: A Systematic Review. \*Spine\* 39 \(3\): 263-273.](#)

**Study Design:** Systematic review.

**Objective:** The aim of this study was to assess the effect of catastrophizing on treatment efficacy and outcome in patients treated for low back pain.

**Summary of Background Data:** Psychological factors including catastrophizing thoughts are thought to increase the risk for chronic low back pain. The influence of catastrophizing is debated.

**Methods:** In September 2012, the following databases were searched: BIOSIS, CINAHL, Cochrane Library, EMBASE, OTseeker, PeDRO, PsycINFO, MEDLINE, Scopus, and Web of Science. For 50 of 706 references, full text was assessed. Results based on 11 studies were included in this analysis.

**Results:** In the 11 studies, a total of 2269 patients were included. Seven studies were of good and 4 of moderate methodological quality. Heterogeneity in study settings, treatments, outcomes, and patient populations impeded meta-analysis. Catastrophizing at baseline was predictive for disability at follow-up in 4 studies and for pain in 2 studies. Three studies found no predictive effect of catastrophizing. A mediating effect was found in all studies ( $n = 5$ ) assessing the impact of a decrease in catastrophizing during treatment. A greater decrease was associated with better outcome. Most studies that investigated the moderating effects on treatment efficacy found no effect ( $n = 5$ ). However, most studies did not look for a direct interaction between the treatment and catastrophizing thoughts. No study investigated the influence of catastrophizing on work-related outcomes including return to work.

**Conclusion:** Catastrophizing predicted degree of pain and disability and mediated treatment efficacy in most studies. The presence of catastrophizing should be considered in patients with persisting back pain. Limited evidence was found for the moderating effects on treatment efficacy. Future research should aim to clarify the role of catastrophizing as a moderator of outcome and investigate its importance for work-related outcomes.

[2014-Wertli, M. M., R. Eugster, U. Held, J. Steurer, R. Kofmehl & S. Weiser. Catastrophizing—a prognostic factor for outcome in patients with low back pain: a systematic review. \*The Spine Journal\* 14 \(11\): 2639-2657.](#)

**Background context:** Psychological factors including catastrophizing thoughts are believed to influence the development of chronic low back pain (LBP).

**Purpose:** To assess the prognostic importance of catastrophizing as a coping strategy in patients with LBP.

**Study design:** This is a systematic review.

**Patient sample:** This study included patients with LBP.

**Outcome measures:** Work-related outcomes and perceived measures including return to work, pain, and disability.

**Methods:** In September 2012, the following databases were searched: BIOSIS, CINAHL, Cochrane Library, Embase, OTSeeker, PeDRO, PsycInfo, Medline, Scopus, and Web of Science. To ensure completeness of the search, a hand search and a search of bibliographies were conducted and all relevant references included. All observational studies investigating the prognostic value of catastrophizing in patients with LBP were eligible. Included were studies with 100 and more patients and follow-up of at least 3 months. Excluded were studies with poor methodological quality, short follow-up duration, and small sample size.

**Results:** A total of 1,473 references were retrieved, and 706 references remained after the removal of duplicates. For 77 references, the full text was assessed and 19 publications based on 16 studies were included. Of four studies that investigated work-related outcomes, two found catastrophizing to be associated with work status. Most studies that investigated self-reported outcome measures (n=8, 66%) found catastrophizing to be associated with pain and disability at follow-up in acute, subacute, and chronic LBP patients. In most studies that applied cutoff values, patients identified as high catastrophizers experienced a worse outcome compared with low catastrophizers (n=5, 83%).

**Conclusions:** There is some evidence that catastrophizing as a coping strategy might lead to delayed recovery. The influence of catastrophizing in patients with LBP is not fully established and should be further investigated. Of particular importance is the establishment of cutoff levels for identifying patients at risk.



**2014-Wertli, M. M., E. Rasmussen-Barr, U. Held, S. Weiser, L. M. Bachmann & F. Brunner. Fear-avoidance beliefs—a moderator of treatment efficacy in patients with low back pain: a systematic review. *The Spine Journal* 14 (11): 2658-2678.**

**Background context:** Psychological factors are believed to influence the development of chronic low back pain. To date, it is not known how fear-avoidance beliefs (FABs) influence the treatment efficacy in low back pain.

**Purpose:** To summarize the evidence examining the influence of FABs measured with the Fear-Avoidance Belief Questionnaire or the Tampa Scale of Kinesiophobia on treatment outcomes in patients with low back pain.

**Study design/setting:** This is a systematic review.

**Patient sample:** Patients with low back pain.

**Outcome measures:** Work-related outcomes and perceived measures including return to work, pain, and disability.

**Methods:** In January 2013, the following databases were searched: BIOSIS, CINAHL, Cochrane Library, Embase, OTSeeker, PeDRO, PsycInfo, PubMed/Medline, Scopus, and Web of Science. A hand search of the six most often retrieved journals and a bibliography search completed the search. Study eligibility criteria, participants, and interventions: research studies that included patients with low back pain who participated in randomized controlled trials (RCTs) investigating nonoperative treatment efficacy. Out of 646 records, 78 articles were assessed in full text and 17 RCTs were included. Study quality was high in five studies and moderate in 12 studies.

**Results:** In patients with low back pain of up to 6 months duration, high FABs were associated with more pain and/or disability (4 RCTs) and less return to work (3 RCTs) (GRADE high-quality evidence, 831 patients vs. 322 in nonpredictive studies). A decrease in FAB values during treatment was associated with less pain and disability at follow-up (GRADE moderate evidence, 2 RCTs with moderate quality, 242 patients). Interventions that addressed FABs were more effective than control groups based on biomedical concepts (GRADE moderate evidence, 1,051 vs. 227 patients in studies without moderating effects). In chronic patients with LBP, the findings were less consistent. Two studies found baseline FABs to be associated with more pain and disability and less return to work (339 patients), whereas 3 others (832 patients) found none (GRADE low evidence). Heterogeneity of the studies impeded a pooling of the results.

**Conclusions:** Evidence suggests that FABs are associated with poor treatment outcome in patients with LBP of less than 6 months, and thus early treatment, including interventions to reduce FABs, may avoid delayed recovery and chronicity. Patients with high FABs are more likely to improve when FABs are addressed in treatments than when these beliefs are ignored, and treatment strategies should be modified if FABs are present.

[2014-Wertli, M. M., E. Rasmussen-Barr, S. Weiser, L. M. Bachmann & F. Brunner. The role of fear avoidance beliefs as a prognostic factor for outcome in patients with nonspecific low back pain: a systematic review. \*The Spine Journal\* 14 \(5\): 816-836.](#)

**Background context:** Psychological factors including fear avoidance beliefs are believed to influence the development of chronic low back pain (LBP).

**Purpose:** The purpose of this study was to determine the prognostic importance of fear avoidance beliefs as assessed by the Fear Avoidance Beliefs Questionnaire (FABQ) and the Tampa Scale of Kinesiophobia for clinically relevant outcomes in patients with nonspecific LBP.

**Design/setting:** The design of this study was a systematic review.

**Methods:** In October 2011, the following databases were searched: BIOSIS, CINAHL, Cochrane Library, Embase, OTSeeker, PeDRO, PsycInfo, PubMed/Medline, Scopus, and Web of Science. To ensure the completeness of the search, a hand search and a search of bibliographies was conducted and all relevant references included. A total of 2,031 references were retrieved, leaving 566 references after the removal of duplicates. For 53 references, the full-text was assessed and, finally, 21 studies were included in the analysis.

**Results:** The most convincing evidence was found supporting fear avoidance beliefs to be a prognostic factor for work-related outcomes in patients with subacute LBP (ie, 4 weeks-3 months of LBP). Four cohort studies, conducted by disability insurance companies in the United States, Canada, and Belgium, included 258 to 1,068 patients mostly with nonspecific LBP. These researchers found an increased risk for work-related outcomes (not returning to work, sick days) with elevated FABQ scores. The odds ratio (OR) ranged from 1.05 (95% confidence interval [CI] 1.02-1.09) to 4.64 (95% CI, 1.57-13.71). The highest OR was found when applying a high cutoff for FABQ Work subscale scores. This may indicate that the use of cutoff values increases the likelihood of positive findings. This issue requires further study. Fear avoidance beliefs in very acute LBP (<2 weeks) and chronic LBP (>3 months) was mostly not predictive.

**Conclusions:** Evidence suggests that fear avoidance beliefs are prognostic for poor outcome in subacute LBP, and thus early treatment, including interventions to reduce fear avoidance beliefs, may avoid delayed recovery and chronicity.

**[2010-Bialosky, J. E., M. D. Bishop & J. A. Cleland. Individual Expectation: An Overlooked, but Pertinent, Factor in the Treatment of Individuals Experiencing Musculoskeletal Pain. \*Physical Therapy\* 90 \(9\): 1345-1355.](#)**

Physical therapists consider many factors in the treatment of patients with musculoskeletal pain. The current literature suggests expectation is an influential component of clinical outcomes related to musculoskeletal pain for which physical therapists frequently do not account. The purpose of this clinical perspective is to highlight the potential role of expectation in the clinical outcomes associated with the rehabilitation of individuals experiencing musculoskeletal pain. The discussion focuses on the definition and measurement of expectation, the relationship between expectation and outcomes related to musculoskeletal pain conditions, the mechanisms through which expectation may alter musculoskeletal pain conditions, and suggested ways in which clinicians may integrate the current literature regarding expectation into clinical practice.

[2010-Hall, A. M., P. H. Ferreira, C. G. Maher, J. Latimer & M. L. Ferreira. The Influence of the Therapist-Patient Relationship on Treatment Outcome in Physical Rehabilitation: A Systematic Review. \*Physical Therapy\* 90 \(8\): 1099-1110.](#)

**Background:** The working alliance, or collaborative bond, between client and psychotherapist has been found to be related to outcome in psychotherapy.

**Purpose:** The purpose of this study was to investigate whether the working alliance is related to outcome in physical rehabilitation settings.

**Data Sources:** A sensitive search of 6 databases identified a total of 1,600 titles.

**Study Selection:** Prospective studies of patients undergoing physical rehabilitation were selected for this systematic review.

**Data Extraction:** For each included study, descriptive data regarding participants, interventions, and measures of alliance and outcome—as well as correlation data for alliance and outcomes—were extracted.

**Data Synthesis:** Thirteen studies including patients with brain injury, musculoskeletal conditions, cardiac conditions, or multiple pathologies were retrieved. Various outcomes were measured, including pain, disability, quality of life, depression, adherence, and satisfaction with treatment. The alliance was most commonly measured with the Working Alliance Inventory, which was rated by both patient and therapist during the third or fourth treatment session. The results indicate that the alliance is positively associated with: (1) treatment adherence in patients with brain injury and patients with multiple pathologies seeking physical therapy, (2) depressive symptoms in patients with cardiac conditions and those with brain injury, (3) treatment satisfaction in patients with musculoskeletal conditions, and (4) physical function in geriatric patients and those with chronic low back pain.

**Limitations:** Among homogenous studies, there were insufficient reported data to allow pooling of results.

**Conclusions:** From this review, the alliance between therapist and patient appears to have a positive effect on treatment outcome in physical rehabilitation settings; however, more research is needed to determine the strength of this association.

**[2007-Linde, K., C. Witt, A. Streng, W. Weidenhammer, S. Wagenpfeil, B. Brinkhaus, S. Willich & D. Melchart. The impact of patient expectations on outcomes in four randomized controlled trials of acupuncture in patients with chronic pain. \*Pain\* 128 \(3\): 264-271.](#)**

In a pooled analysis of four randomized controlled trials of acupuncture in patients with migraine, tension-type headache, chronic low back pain, and osteoarthritis of the knee we investigated the influence of expectations on clinical outcome. The 864 patients included in the analysis received either 12 sessions of acupuncture or minimal (i.e. sham) acupuncture (superficial needling of non-acupuncture points) over an 8 week period. Patients were asked at baseline whether they considered acupuncture to be an effective therapy in general and what they personally expected from the treatment. After three acupuncture sessions patients were asked how confident they were that they would benefit from the treatment strategy they were receiving. Patients were classified as responders if the respective main outcome measure improved by at least fifty percent. Both univariate and multivariate analyses adjusted for potential confounders (such as condition, intervention group, age, sex, duration of complaints, etc.) consistently showed a significant influence of attitudes and expectations on outcome. After completion of treatment, the odds ratio for response between patients considering acupuncture an effective or highly effective therapy and patients who were more sceptical was 1.67 (95% confidence interval 1.20-2.32). For personal expectations and confidence after the third session, odds ratios were 2.03 (1.26-3.26) and 2.35 (1.68-3.30), respectively. Results from the 6-month follow-up were similar. In conclusion, in our trials a significant association was shown between better improvement and higher outcome expectations.

**[2005-Bausell, R. B., L. Lao, S. Bergman, W.-L. Lee B. M. & Berman. Is Acupuncture Analgesia an Expectancy Effect?: Preliminary Evidence Based on Participants' Perceived Assignments in Two Placebo-Controlled Trials. \*Evaluation & the Health Professions\* 28 \(1\): 9-26.](#)**

This purpose of this article is to contrast the analgesic efficacy of acupuncture following dental surgery with the analgesic effects based on the expectation of benefit in two independently conducted placebo-controlled trials evaluating acupuncture as an adjunctive therapy for dental surgery. Both trials used pain following dental surgery as the outcome variable, and both included a blinding check to ascertain patients' beliefs regarding which treatment they were receiving. Although no statistically significant analgesic effect was observed between the acupuncture and placebo groups, participants in both experiments who believed they received real acupuncture reported significantly less pain than patients who believed that they received a placebo. Patients' beliefs regarding the receipt of acupuncture bore a stronger relationship to pain than any specific action possessed by acupuncture. These results also support the importance of both employing credible controls for the placebo effect in clinical trials and evaluating the credibility of those controls.

[2001-Kalauokalani, D., D. C. Cherkin, K. J. Sherman, T. D. Koepsell & R. A. Deyo. Lessons from a Trial of Acupuncture and Massage for Low Back Pain: Patient Expectations and Treatment Effects. \*Spine\* 26 \(13\): 1418-1424.](#)

**Study Design:** A subanalysis of data derived from a randomized clinical trial was performed.

**Objective:** To evaluate the association of a patient's expectation for benefit from a specific treatment with improved functional outcome.

**Summary of Background Data:** Psychosocial factors, ambiguous diagnoses, and lack of a clearly superior treatment have complicated the management of patients with chronic low back pain. The authors hypothesized that patient expectation for benefit from a specific treatment is associated with improved functional outcomes when that treatment is administered.

**Methods:** In a randomized trial, 135 patients with chronic low back pain who received acupuncture or massage were studied. Before randomization, study participants were asked to describe their expectations regarding the helpfulness of each treatment on a scale of 0 to 10. The primary outcome was level of function at 10 weeks as measured by the modified Roland Disability scale.

**Results:** After adjustment for baseline characteristics, improved function was observed for 86% of the participants with higher expectations for the treatment they received, as compared with 68% of those with lower expectations ( $P = 0.01$ ). Furthermore, patients who expected greater benefit from massage than from acupuncture were more likely to experience better outcomes with massage than with acupuncture, and *vice versa* ( $P = 0.03$ ).

**Conclusions:** The results of this study suggest that patient expectations may influence clinical outcome independently of the treatment itself. In contrast, general optimism about treatment, divorced from a specific treatment, is not strongly associated with outcome. These results may have important implications for clinical trial design and recruitment, and may help to explain the apparent success of some conventional and alternative therapies in trials that do not control for patient expectations. The findings also may be important for therapy choices made in the clinical setting.