

Table. Treatment effect of CBT and BT in Williams (2012)

	pain			disability			mood			catastrophizing		
	SMD	95% CI	I <sup>2</sup>	SMD	95% CI	I <sup>2</sup>	SMD	95% CI	I <sup>2</sup>	SMD	95% CI	I <sup>2</sup>
<b>CBT</b>												
Active Control												
post-treatment	-			-.19	-.33 to -.05	25%	-			-.18	-.36 to .00	31%
follow-up	-			-.15	-.28 to -.02	23%	-			-		
Treatment as usual												
post-treatment	-.21	-.37 to -.05	45%	-.26	-.47 to -.04	67%	-.38	-.57 to -.18	49%	-.53	-.76 to -.31	0%
follow-up	-			-			-.26	-.51 to .00	58%	-		
<b>BT</b>												
Active Control												
post-treatment	-			-			-.47	-.94 to .00	-	-		
follow-up	-			-			-			-		
Treatment as usual												
post-treatment	-			-			-			-.72	-1.43 to -.01	84%
follow-up	-			-			-			-		

注: 5%水準で有意だったもののみ効果量を記述した。

return

return

Exposure to previously avoided situations and private experiences. Emphasizing acceptance as an alternative to avoidance in coping with negative reactions. Values orientation. Behavioral activation involving exposure to possible pain-eliciting situations

#### 2.5.1. Exposure and acceptance (ACT)

The intervention was conducted individually and the protocol consisted of 10 weekly sessions (60 min) with the participant and 1–2 sessions with the parents (90 min). Participants in the ACT group received an average of 10.3 (sd 3.6) sessions and the parents were seen 1.7 times (sd 0.6) from pre- to post-treatment assessment, during a period of 4.0 months (sd 1.4). In total, i.e. including parental and follow-up sessions, the ACT group received between 7 and 20 sessions (mean 13, sd 3.5). The two psychologists involved in the intervention were trained in CBT, and both the psychologists and the physician had experience as well as formal training in ACT. To maintain treatment fidelity, treatment content and progress were discussed continuously within the clinical research group (e.g. in supervision). The protocol for the exposure and acceptance intervention resembled in all important aspects the treatment content described in detail in previous papers [65–67]. In short, the treatment protocol was as follows. Exposure to previously avoided situations and private experiences was considered the core intervention, emphasizing acceptance as an alternative to avoidance in coping with negative reactions (such as pain and distress) that cannot be directly changed. Initially, the dysfunctional character of longstanding pain syndromes was discussed with the participant, clarifying that pain was not caused by a potentially harmful disease or injury. Although not an ACT intervention per se, the information was aimed at altering the context in which pain was experienced, and served to facilitate a shift in perspective from symptom reduction to valued living. It is neither particularly meaningful nor necessary to accept, or defuse from, wrong information or misunderstandings. In other words, helping the patient to understand the nature of pain syndrome sets the stage for the exposure and acceptance strategies. A thorough assessment of individual values in important life domains was performed, initiating a shift in perspective from symptom alleviation to valued living in the presence of pain and distress. This was followed by an exercise in which the workability of previous strategies to reduce pain and improve functioning was thoroughly evaluated. Since previous strategies (avoidance) had generally not reduced pain over time and still brought the patient farther from important activities, most patients experienced this exercise as emotionally challenging. However, this collaborative evaluation of previous strategies also revealed the possibility of increasing functionality and vital activities by instead accepting a certain amount of pain and distress. Based on identified values, behavioral goals were defined, followed by a discussion of gradual increase in previously avoided activities. Throughout the treatment, the participant was encouraged to notice and accept unpleasant private experiences, thus facilitating a de-fusion process (being aware of a thought without acting on its content). Discussing values, i.e. making up plans for the future, and negative thoughts about pain commonly resulted in discomfort and efforts to avoid the topic, which was addressed in therapy using exposure and acceptance strategies. Behavioral activation involving exposure to possible pain-eliciting situations other than emotional reactions was not performed in session but by the patients between sessions. Working with the parents, the shift in perspective from symptom alleviation to valued life was emphasized, as well as the principles of exposure and operant mechanisms. The parents' difficulties were addressed using the same techniques as described above (i.e. exposure, values orientation, acceptance, and de-fusion). Illustrations and metaphors were sometimes used with both patients and their parents to clarify concepts such as acceptance and defusion.

#### 2.5.2. Multidisciplinary treatment and amitriptyline (MDT)

The MDT was performed by a psychiatrist, a child psychologist, a physiotherapist and by a pain physician, all experienced in working with longstanding pediatric pain. The clinical model followed the routines developed during 15 years of clinical work with this population, thus representing the usual treatment in this tertiary care setting. Within this approach, participants were seen by the different health care providers based on individual needs. A biobehavioral model of longstanding pain provided a general theoretical framework for this clinical approach, emphasizing perceived stress in everyday life as an important factor predicting the severity of longstanding pain and disability. This approach is supported in several articles and summarized in the biobehavioral model of pediatric pain [56,62]. Patients and parents were seen both individually and together by the psychiatrist and the psychologist, emphasizing the family context in discussing pain and disability. The length of sessions was 60 min. The secondary effects of pain were frequently discussed, including the relationships between longstanding pain, a lack of a medical explanation, fear of pain, muscle tension, physical and social inactivity, and school absence. Commonly, the school was contacted as part of treatment when, for example, learning difficulties were suspected. Interventions also included discussions of physical activation, relaxation, and imagery techniques. The physiotherapist sessions ranged between 40 and 60 min, and were mainly oriented towards increases in physical activities. Goal setting, graded training and pacing were frequently discussed. Physical exercises were performed at the hospital, and training programs were used as homework assignments. In some cases, TENS and warm water pool training were included. Parents were normally present during sessions, observing the training and participating in discussions regarding how to continue physical training between sessions. Patients and parents were seen by the pain physician during the 45- to 60-min sessions, which included monitoring the effects of amitriptyline (see below). Also, information about the dysfunctional character of longstanding pain was provided, clarifying that it is not caused by any harmful disease or injury, and that an increase in physical activities is an essential part of treatment. Amitriptyline doses were increased by 10 mg every week up to 50 mg, and then by 25 mg up to a maximum of 100 mg, with median max doses = 50 mg (mean 64.3, sd 27.5). The increase in doses was stopped when severe side effects appeared (e.g. sedation, dry mouth). Amitriptyline was administered during a period of 1.2 months to 19.6 months (mean 10.3, sd 5.9). Average time between pre and post assessments was 5.5 months (sd 1.9). During this period the participants in the MDT were seen for an average of 10.6 sessions (sd 4.7), equally divided between the physician, physiotherapist and the psychiatrist/psychologist. Importantly, following post assessments, participants received a substantial number of sessions (mean 11.7, sd 11.9). In addition, given that participants received amitriptyline for approximately 10 months, the pharmacological treatment also continued well beyond post assessments. At follow-up 2, the MDT group had received between 7 and 59 sessions (mean 22.8, sd 15.4) divided between the physician (mean 11.1, sd 9.1), physiotherapist (mean 3.6, sd 4.0), psychologist/psychiatrist (mean 6.7, sd 6.7), and others (mean 1.4, sd 2.1).

return

The eight child modules were: 1) education about chronic pain, 2) recognizing stress and negative emotions, 3) deep breathing and relaxation, 4) distraction, 5) cognitive skills, 6) sleep hygiene and lifestyle, 7) staying active, and 8) relapse prevention. The eight parent modules included: 1) education about chronic pain, 2) recognizing stress and negative emotions, 3) operant strategies I, 4) operant strategies II, 5) modeling, 6) sleep hygiene and lifestyle, 7) communication, and 8) relapse prevention.

The child modules included instruction in identifying stress, applying deep breathing and progressive muscle relaxation, and modifying cognitions about pain and functional ability. In addition, one lesson in the child program focused on enhancing children's sleep habits (instruction in adequate sleep duration and sleep habits) and increasing their physical activity participation through goal setting and activity pacing.

[return](#)

**Table 1** The eight-week motivational interviewing and physical exercise programme: the content for each session

Week	Physical exercise training (45 minutes/session, 1 session/week)		Motivational interviewing (30 minutes/session, 1 session/week)	
	Topic	Content	Topic	Content
1	Introduction of exercises for pain management	Introduce the effects of exercises on pain and functional ability	-	-
2	Stretching and muscle strengthening exercises of trunk, neck, shoulders, elbows, wrists, hips, knees and ankle joints	Teach and practise deep breathing, correct posture and relaxation skills	-	-
3		Teach and practise stretching exercises for trunk and upper and lower extremities	Eliciting self-motivational statements on pain conditions	Elicit subjects to present pain, concerns, intention to change and the pain relief methods they have used Listen with empathy Provide feedback and affirm subjects Summarise the subjects' pain and concerns
4		Teach and practise strengthening exercises for neck and shoulders, upper extremities, back, hips, knees, lower extremities, etc. Instruments used include elastic bands, bottles of water, sandbags, dumbbells, etc.	Discussion of oral analgesics for pain control	Ask open-ended questions about the positive and negative aspects of oral analgesics, non-oral drug methods and exercise for pain control
5	Balancing and aerobic exercises	Practise balance and aerobic exercises according to their physical capacity	Discussion of non-oral drug methods for pain control	Present professional feedback on the methods and their effects on pain relief Discuss discrepancies between beliefs and behaviours
6		Explain the exercise booklet, which shows the learnt exercises/techniques for that session, in the last 10 minutes of each session	Discussion of exercises for pain control	Provide free choice regarding what behaviour would cause related results
7	Revision of exercises	Revise all the learnt exercises	Development of a learning contract for pain management	Practise the methods, such as hot pads, cold pads, massage, deep breathing, music, visual stimulation, exercise, etc.
8	Revision and summarisation of exercises, reflection		Summary and reflection	Fill in the exercise booklet on how many exercises they perform in a week Summarise and ask for a decision Fill in a learning contract for the pain management plan, including Their problem and reason for joining the study; what they want to change; how to make change and the steps; who will help and support them; what are the obstacles to making change Summarise and sign the contract to enhance self-efficacy and commitment to pain control Recapitulate drug and on-drug methods for pain control Affirm their pain management plan Ask for commitment

return

Progressive muscle relaxation—The 10-session progressive muscle relaxation (PMR) intervention was based on the work of Bernstein and Borkovec (1973) and Jacobson (1976) and involved a progressive tightening and relaxing of different muscle groups throughout the body, with ongoing suggestions that this would be associated with an increased sense of perceived relaxation and comfort. Four different scripts were used for the PMR condition. The first script, used in the first two sessions, focused on 16 major muscle groups: right and left hands, right and left arms, forehead, face, jaw, neck, chest/shoulders/ upper back, abdomen, right and left thigh, right and left calf (plantar flexion), right and left shin (dorsi flexion). The second script, used for Sessions 3 through 5, combined some of the muscle groups together, so that seven general muscle group areas were the focus of relaxation. The third script combined muscle groups further into four overall, and the fourth and final script focused only on general body scanning and relaxation. Sessions 3 and 4 were recorded, and audiotapes or CDs of these were provided to participants with the same instructions as those given to participants in the HYP condition (i.e., to listen to the recordings at least once a day but more often if they found the recordings helpful). Participants in the PMR condition were also encouraged to practice on their own without the recordings at least once per day.

[return](#)

**Table 2**  
Overview of the treatment program.

	Assignments	Information	Audio files MP3-files
Pre-treatment assessment	Self-report measures	Information about the treatment and randomization.	
Treatment phase			
Section 1	Practice and register mindfulness. Participants were asked to write down everything they have done to reduce/manage their pain and register for a week their behaviours and sensations during increased pain situations (functional analysis). Treatment credibility form.	Information about the program and about pain and its consequences in life. Introduction to mindfulness.	Mindfulness 1 – Awareness of breathing metaphor (creative hopelessness): "The man in the hole"
Section2	To practice and register mindfulness. To register primary and secondary pain (to distinguish physiological and psychological consequences of pain). To continue to register their behaviours and sensations associated with pain. A willingness record was introduced.	Information about control and willingness. Introduction to primary and secondary suffer, short- and long term consequences. The term acceptance is introduced.	Mindfulness 2 – Body scan metaphors (control and willingness): "The shark trap" and "The radio"
Section3	To practice and register mindfulness. Different defusion exercises. To formulate goals.	Information about thoughts and emotions and goal setting.	Mindfulness 3 – Sitting meditation metaphor (defusion): "The bus"
Section 4	To practice and register mindfulness. Values assessment.	Information about self as context. To live a good life despite pain.	Mindfulness 4 – Sitting meditation-observing thoughts metaphor (distinction between self and psychological content): "The chess board" exercise "self as context".
Section5	To practice and register mindfulness. Values compass.	Information values and committed action.	Mindfulness 5 – Sitting meditation-observing feelings metaphors (values): "The skier" and "The farewell party"
Section 6	To practice and register mindfulness. Different willingness exercises.	More about willingness, committed action and living according to ones values.	Mindfulness 6 – mindfulness in daily life. metaphor (committed action): "My party"
Section 7	Maintenance plan. Evaluation of goals.	Summary of the program and information about maintenance.	Mindfulness 7 – mindfulness in daily life
Post-treatment assessment	Self-report measures		

return

Table 3. Schematic overview of ACT intervention protocol

Module	Therapeutic processes(es)	Mindfulness exercise
'Pain and pain treatment'	Psycho-education	Body scan
'Avoiding the pain'	Experiential avoidance of pain	Paying attention to breath
'Happy despite pain?'	Values	Body scan/paying attention to breath
'Blossoming of the rose'	Values & committed action	Breathing towards the pain
'To give up the fight'	Pain acceptance	Create space & allow what is present
'Yes....but I have pain'	Cognitive (de)fusion	Observe your thinking
'I am.....who am I actually?'	Self-as-context	Three minutes breathing space
'You don't suffer alone'	Pain, social context & communication	--
'Living with pain, a new story'	Committed action	Combination of above: 'All in one'

return

The MBFT group intervention was developed specifically for this study, as outlined in the Mindfulness-Based Functional Therapy Facilitator Manual (unpublished document available on request). The intervention was comprised of an integrated weekly 2-h group session run over eight consecutive weeks and involved: group discussion; homework review; psycho-education; and mindfulness meditation aligned with cognitive behavioral physiotherapy re-education of normal relaxed movement and postures. All MBFT sessions were co-facilitated by the same clinical psychology and physiotherapy team (RS and HS). For pragmatic reasons, there were two intervention groups, with 10 participants in the first group and 6 in the second. While taking part in the intervention, participants were instructed to continue their usual activities and their usual medical care, including medications. The mindfulness component of MBFT was adapted from the well-known Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1990) and Mindfulness-Based Cognitive Therapy for Depression (MBCT; Segal et al., 2002) protocols. This involved in-session meditation exercises (for example, body scan meditation; awareness of breathing meditation; walking meditation; awareness of thoughts meditation), reflection and discussion on the meditation experience, psycho-education about the mindfulness meditation exercises, and daily home mindfulness practice using audio recordings of the guided meditations used in MBSR. The in-session mindfulness exercises were adapted specifically for a persistent LBP population, with tailored instructions on working with pain and the associated cognitions and affects. The physiotherapy component targeted basic functional movements that are commonly compromised in patients with persistent LBP, and which can contribute to the maintenance of pain (O' Sullivan, 2005; Dankaerts et al., 2006, 2009). The aim was to train participants to practice mindfulness in functional daily movements and postures, and using a graded approach, to progressively moderate persistent maladaptive protective or avoidant movement behaviors (O' Sullivan, 2005; Dankaerts et al., 2006, 2009). These functional postures and exercises included: body awareness of breathing; movement control involving progressing from nonweight bearing to weight bearing (e.g., rolling, sitting, bending, lifting, standing, and walking); transitioning between postures (e.g., sitting to standing); and targeting specific individual pain provocative tasks identified by the participant. An emphasis was placed on relaxed breathing and gentle, appropriately graduated movements avoiding excessive abdominal bracing, breathholding, or inappropriate strategies such as hand support to get from sitting to standing. Graduated mindful virtual and real rehearsal of previously avoided, or pain provocative movements and postures, was encouraged. The aim of practicing these functional movements as virtual movements was to further reinforce non-provocative sensorimotor integration (Flor and Diers, 2009). A graduated cardiovascular program which emphasized timecontingent (McCracken and Samuel, 2007) rather than paincontingent (Abbott et al., 2010) pacing was also implemented. Movement re-training exercises were blended into each session to complement the mindfulness exercises (e.g., targeting walking in the session where walking meditation was introduced). The intention of this approach was thereby to integrate the psychology and physiotherapy components of this intervention, rather than present each as separate components, by separate disciplines as appears common in many multidisciplinary pain rehabilitation programs (Eccleston et al., 2009). The educational component of MBFT used didactic and interactive delivery of current evidence-based information about pain management, covering: pain neurophysiology, central nervous system sensitization, the biopsychosocial model of pain; treatments for spinal pain; effective use of medications; importance of return to normal movement/exercise in modulating pain; the fear-avoidance model of chronic pain; and the role of stress and negative affect in maintaining pain.



return

### Mindfulness-Based Stress Reduction

The MBSR intervention comprised an 8-week group program with groups of 10–15 participants. Participants took part in a 2.5-hour session each week, and there was an additional all-day session on a weekend day after the 5th week. Each session covered specific exercises and topics within the context of mindfulness practice and training. These included different types of formal mindfulness practice, mindful awareness during yoga postures, and mindfulness during stressful situations and social interactions. The all-day retreat was composed of varied mindfulness exercises during a 7-hour period. Because development of mindfulness is predicated upon regular and repeated practice, participants committed themselves upon enrollment to carry out daily 45-min homework assignments, primarily mindfulness exercises sitting and lying, mindful yoga and mindfulness applications in everyday life. The MBSR instructor was female, trained and previously employed at the UMass Medical Center for Mindfulness, Worcester Mass., USA, and with 5 years of previous experience teaching MBSR at the start of the study.

return

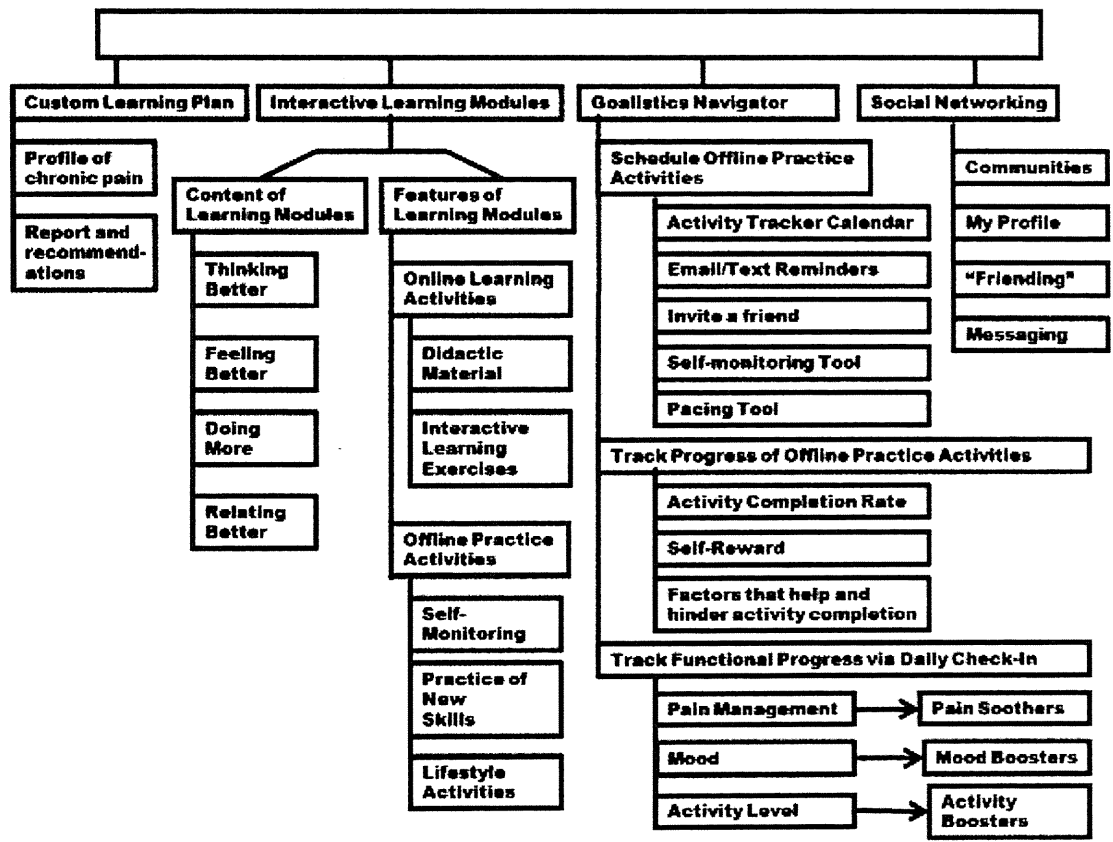


Fig. 2. Structure of the Chronic Pain Management Program.

**Table 1**  
Examples of Acceptance and Commitment Therapy (ACT) elements in diaries and feedback.

ACT element	Aim of diaries	Examples of diary questions	Aim of feedback	Examples of feedback
Cognitive defusion/ mindfulness	Awareness supported by making diary entries on thoughts, feelings and behavior three times a day	(1) Right now, my breathing is deep and relaxed. (2) Right now, I believe it is harmful for me to use my body. (3) Right now, I am coping well with the pain.	Reflection on effects of thoughts and feelings on behavior	I see that you register that your breathing is not relaxed. Can you give yourself a minute or two to just notice your breathing? Maybe you can find a quiet spot and close your eyes. You could try breathing deeply and slowly a couple of times. Try focusing only on your breath. If you want, you can listen to the instructions to a short mindfulness breathing exercise on the smartphone/website. All the best, Ann.
Values and values-based action	Awareness, planning and evaluation supported by keeping a diary	Today, I plan to [multiple choices possible]: take a walk/work/rest lying down/do household chores/do relaxation exercises/take care of children or others/eat regularly/exercise at a moderate tempo/do my stretching exercises/spend time with family/rest sitting down/spend time with friends/do some shopping/do aerobic exercises/do	Reflection on values and values-based behavior based on reports in diaries	I see you have done your stretching exercises today despite reporting a pain level of 6 (scale from 0 to 10; 0=no pain, 10=worst imaginable pain). Can you give yourself a moment to reflect on why this is something you value and choose to do? I would like to ask you to reflect again on your values, if you are willing to, over the next few days. Values are qualities we ourselves think are important and can give us a sense of direction in life. We can ask ourselves questions like: What kind of a person would I like to be in my relations with my family? What can I do today that would get me a bit closer to this ideal? Is this something I am willing to do?
Acceptance vs avoidance	Awareness of a spectrum of pain-related thoughts, feelings, and behavior supported by keeping a diary	(1) Right now, I am afraid to be active because of my pain.” (2) Right now, I feel my life is good despite my pain. (3) Right now, I am doing what I want to even if it means increased pain.	Supporting willingness to act in accordance with values despite pain or discouraging	(1) I see that today you are not too pleased with your life. Can you give yourself a moment and reflect on what you would want to do today if you were pain free? Is it possible for you to take a small step toward what you want even with your pain? Could you, instead of saying, “I want this, BUT I have pain and therefore can’t” say “I experience pain AND I am taking baby steps toward something valuable to me.” Are you willing to take small steps? (2) Last night you reported a pain level of 8 and that you felt relaxed, grateful, and pleased with the day’s activity level. Can you take a moment to reflect on what kind of self-management strategies

厚生労働科学研究委託費（慢性の痛み解明研究事業）  
委託業務成果報告（業務項目）

慢性痛に対する CBT リハビリ入院プログラムの作成及び実施に関する研究

担当責任者 高橋 紀代 篤友会リハビリテーションクリニック副院長

研究要旨 就業に支障をきたしている慢性痛患者を対象とした CBT 入院 3 週間集中プログラムを作成し、篤友会千里山病院で実施する体制を整えた。プログラムを実施し、その効果を検証する。

A. 研究目的

我が国において慢性の痛みを有する人口は約 2000 万人達するとされ、痛みの検査・治療・管理にかかる費用や患者の失業・休職などによる社会的損失は膨大な額に上ると試算されている。実際、産業界慢性痛実態調査（柴田ら）によると生産性の低下や欠勤・早退など、痛みにより仕事に何らかの支障があったと回答した人が 12.9%にも上った。そこで、本研究では就業に支障をきたしている慢性痛患者を対象とし CBT 入院 3 週間プログラムを作成、実施しその効果を検証する。

B. 研究方法

就業に支障をきたしている慢性痛患者を対象とした CBT 入院 3 週間集中プログラムを作成した。作成にあたっては、Rehabilitation Institute of Washington の「労務災害に伴う慢性痛患者の職場復帰を目指すプログラム」（ワシントン州における慢性疼痛

治療の実際 Locomotive Pain

Frontier Vol. 2 No. 2, 26-30, 2013  
渡邊和之 矢吹省司)などを参考にした。

プログラムは認知行動療法理論に基づくリハビリテーションを日に 2 時間、週に 5 日施行する内容となっており、具体的には基礎体力測定や職場の実際の動作分析などの評価や筋力強化やストレッチ、有酸素運動などの運動療法、職場の実際の動作に準じた動きの指導からなる。加えて、医師や、理学療法士、臨床心理士などによる講義が週に合計 4 時間施行されるプログラムとなっている。

評価は 3 分間歩行テスト（全身持久力）、上体起こしテスト（腹筋持久力）、長座位体前屈テスト（柔軟性）、閉眼片脚立位（平衡性）、イス立ち座りテスト（脚筋力）、握力、筋力（GMT）5m 歩行テスト（歩行能力）開眼片脚立位（下肢持久力）、アクチグラム GT3（米国アクチグラフ社製）を用いて 3 次元加

速度計測、傾きセンサデータ測定を行った。

今回、本プログラムを施行した、篤友会千里山病院は地域の内科、リハビリ科の病院であり通常の診療ではCBTを施行していない。そのため、導入前に大阪大学医学部附属病院疼痛医療センターの医師、理学療法士、臨床心理士によるCBTの講義を約2時間施行された。また平成27年2月に施行した第一例については、入院当日、退院翌週に打ち合わせと報告会をそれぞれ約1時間半行いプログラム施行にあたっての注意事項や患者特有の問題点などについて情報共有を図った。

#### (倫理面への配慮)

研究対象者に対する人権擁護上の配慮  
研究成果は研究対象者を特定できないようにした上で、学会や学術雑誌等で公表する。

研究方法による研究対象者に対する不利益、危険性の排除

基本的に、本研究で実施する個々の医療内容は、従来からある方法と変わりはなく、本研究に特異的な安全に関する問題点はない。万が一、有害事象を認めるときは、直ちに適切な処置、治療を行うとともに、カルテに記録し、症例報告書により報告を行う。

説明と同意（インフォームド・コンセント）に関わる状況

外来診察時に研究対象者本人から、文書によるインフォームドコンセントを得て入院（当リハビリ入院プログラム）手続きを開始する。

当該研究を行った際に実施した倫理面への配慮の内容及び方法について

プログラム開始前にインフォームドコンセントを行った。研究成果発表時には研究対象者を特定できないようにして報告した。

#### C. 研究結果

3分間歩行テスト（全身持久力）、上体起こしテスト（腹筋持久力）、長座位体前屈テスト（柔軟性）、閉眼片脚立位（平衡性）、イス立ち座りテスト（脚筋力）、握力、筋力（GMT）5m歩行テスト（歩行能力）開眼片脚立位（下肢持久力）活動量、全ての項目において入院時に比べ退院時で改善を認めた。3次元加速度計測データを用いた、活動強度は入院時に比べ、退院時には、軽度の活動が減少し、中強度の活動が増加していた。また、傾きセンサデータから検出された姿勢時間は、入院当初より、退院前で座位時間が減り、立位時間が増えていた。

第一症例の痛みのため休職していた40代男性は、3週間のプログラムを終えて現在、4月からの再就職に向け準備中である。

#### D. 考察

3週間という短期間であるが、体力、活動量の増加傾向があった。さらにCBT介入の効果検証の方法など検討が必要である。今後本症例の外来フォローにより、就業状況の確認する予定である。更に同様の就業に支障をきたしている慢性痛患者の症例を増やしその効果の検証が必要である。

## E. 結論

就業に支障をきたしている慢性痛患者を対象とした CBT 入院 3 週間集中プログラムを作成した。

一般病院での入院プログラム施行にあたり、大阪大学医学部附属病院疼痛医療センターの医師、理学療法士、臨床心理士による CBT の講義が施行された。

2 月に第一症例の入院プログラムを施行した。入院時、退院前の評価で、体力、活動量の向上を認めた。

## G. 研究発表

### 1. 論文発表

無し

### 2. 学会発表

高橋紀代, 西上智彦, 柴田政彦, 坂本知三郎：慢性疼痛患者に対する集学的診療における運動療法の効果とリハビリテーション科医師の役割：Jpn J Rehabil Med：2014：(51)：264-264

## H. 知的財産権の出願・登録状況

(予定を含む。)

### 1. 特許取得

無し

### 2. 実用新案登録

無し

### 3. その他

無し

# 大阪大学医学部附属病院疼痛医療センター入院プログラム

## 目的

認知行動療法理論に基づくリハビリテーションによって、痛みのコントロールと運動の習慣を身につけ、働きやすくなることを目的としています。

## 対象

慢性の痛みのため、働くこと、通学することが困難になっている方

## 内容

週5日 合計15日間の集中プログラム

- ・基礎体力測定、職場の実際の動作分析などの評価
- ・1日2時間の療法士による個別訓練（筋力強化やストレッチ、有酸素運動などの運動療法、職場の実際の動作に準じた動きの指導など）
- ・医師、療法士、臨床心理士による講義（慢性疼痛への対応、心理的因子と痛みとの関連、運動療法の効果など）
- ・その他、個人に合わせたトレーニングメニューを自分で取り組む時間が毎日スケジュールされています。

## ◎ 1週間のスケジュール例

	月曜日	火曜日	水曜日	木曜日	金曜日	土曜日	日曜日
8:00-9:00	散歩	散歩	散歩	散歩	散歩	外泊	
9:00-10:00	自主トレ	自主トレ	自主トレ	自主トレ	自主トレ		
10:00-11:00	講義	講義	臨床心理士				
11:00-12:00	評価		臨床心理士				
昼食							
13:00-14:00	理学療法	理学療法	理学療法	理学療法	理学療法		
14:00-15:00	作業療法	作業療法	作業療法	作業療法	作業療法		
15:00-16:00							
16:00-17:00	自主トレ	自主トレ	自主トレ	自主トレ	自主トレ		
17:00-18:00							

## 期間

3週間

## 費用

標準報酬月額 53 万円以上の方 約 17 万円

一般の方 約 10 万円

## 期待できる効果

- ・痛みのコントロール
- ・運動の習慣を身につける
- ・活動の質と量の向上
- ・生活リズムが整う
- ・働きやすくなる

## 入院先

医療法人篤友会 千里山病院

大阪府豊中市東寺内町 5-25

TEL 06-6385-2395

## お問い合わせ先

大阪大学大学院医学系研究科疼痛医学寄附講座

TEL 06-6879-3745

## 症例紹介

年齢:40歳 性別:男性 体重:1●●.5kg

ニーズ:復職したい、和式便器で排便したい

特記事項:既往に左膝靭帯損傷あり

職業:観光バス会社の内勤  
 (主にバスの車内清掃:床掃除、窓拭き、座席清掃  
 \*今年4月からの立ち上げ、オープニングスタッフ)

## 症例報告

平成27年3月16日  
 千里山病院  
 理学療法士 丸山 伸廣  
 作業療法士 元野 耕平

## 当院でのスケジュール

	月	火	水	木	金	土	日
午前	自主トレ	自主トレ	自主トレ	自主トレ	自主トレ	休日	休日
	高橋Dr. 講義	西上PT 講義		安達CP 講義			
午後	PT1時間	PT1時間	PT1時間	PT1時間	PT1時間		
	OT1時間	OT1時間	OT1時間	OT1時間	OT1時間		
	自主トレ	自主トレ	自主トレ	自主トレ	自主トレ		

## 理学療法プログラム

- ①セルフストレッチ・呼吸法の伝達
- ②歩行練習(片道15→20分を1往復)  
\*本人が思う快適速度で実施
- ③歩容の改善(踵接地からのIC誘導)



## 作業療法プログラム

- ①姿勢など運動に対するアドバイス
- ②仕事内容に関する動作指導  
(床の掃除機かけ、ホウキかけ、壁拭き、椅子・車椅子の清掃、車椅子畳みなど)
- ③自主トレーニング指導

## 作業療法の具体的内容①



## 作業療法の具体的内容②

- 腰を屈めて掃除をするのがしんどい
- 半クラッチをする時に足がすりそうになる時がある
- 重い荷物を持つときに腰が痛くなる
- 車椅子の扱い方を教えてほしい



- 片膝について作業をする
- 大腿の下にクッションを敷き、足を乗せる
- 腰を屈めず膝も使って持ち上げる
- 実際に伝達

## 評価結果

	初期(2/2)		最終(2/26)	測定条件
3分間歩行テスト(全身持久力)	162m	⇒	205m	
上体起しテスト(腹筋持久力)	10.41秒	⇒	19.49秒	肩甲骨離床
長座位体前屈テスト(柔軟性)	-28.0cm	⇒	-13.0cm	手指～足趾間
閉眼片脚立位(平衡性)	右:1.67秒 左:1.43秒	⇒	右:3.59秒 左:3.12秒	
イス立ち座りテスト(脚筋力)	11回/分	⇒	15回/分	座高45cmより
体重	140.4kg	⇒	135.5kg	
握力(右/左)	13kg/37.5kg	⇒	55.5kg/47.5kg	
GMF(右/左)	上肢	⇒	5/5	
	下肢	⇒	5/5	
体幹	4	⇒	5	
5m歩行テスト(歩行能力)	3.70秒(8歩)	⇒	3.06秒(8歩)	
開眼片脚立位(平衡性)	右:11.35秒 左:2.74秒	⇒	右:19.77秒 左:5.78秒	

## 心理面の変化

開始時	1週間目	2週間目	3週間目
<ul style="list-style-type: none"> <li>・動くとき右肘や左膝が痛い</li> <li>・運動するのが怖い</li> </ul>	<ul style="list-style-type: none"> <li>・力を抜くように意識している</li> <li>・リハビリが終わるとすぐ寝てしまう</li> </ul>	<ul style="list-style-type: none"> <li>・自分でも痛みなく動けるのが不思議</li> <li>・(45分の清掃作業にて)これならバス1台分くらい掃除できそう</li> </ul>	<ul style="list-style-type: none"> <li>・(踵痛については)整形外科を受診して、それから考えます</li> <li>・今はありのままの自分を見てもらおうと思っています</li> </ul>
運動への恐怖 痛みへの固執	運動への慣れ?	痛みの無意識化 自信	自己受容?

## 反省点・今後の課題

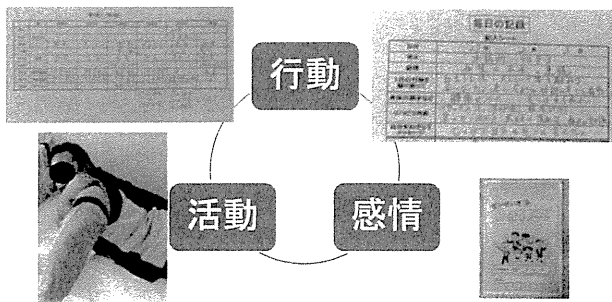
### 反省点

- ・心理的な変化を主観でしか捉えられなかった
- ・実践に近い形での作業が提供できたか疑問
- ・情報共有の手段が確立されておらず、漏れがあった可能性もある

### 今後の課題

- ・心理的な変化を客観的な指標を使って評価する
- ・作業活動のバリエーションを増やし、より実践に近い形で練習する
- ・週1回程度ミーティングをするなど、チーム内(阪大も含む)での情報共有を密にする

## 3つの記録



活動量計(アクチグラフGT3X-BTモニター;ActiGraph社製)

## Dr担当講義(月曜日10時 約50分)

### 講義

- ・「痛みの定義、意義」
- ・「痛みの疫学、社会経済的問題」
- ・「メタボリックシンドロームと運動療法」
- ・「変形性膝関節症予防の日常生活指導」

### 1週間の振り返り

- ・行動、感情記録を閲覧しながらフリートーク

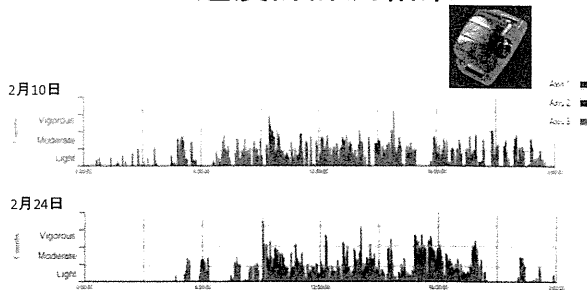
### 問題解決療法(Problem-SolvingTherapy,PST)

- ・問題解決のプロセスを学ぶ過程をワークを通じて体験

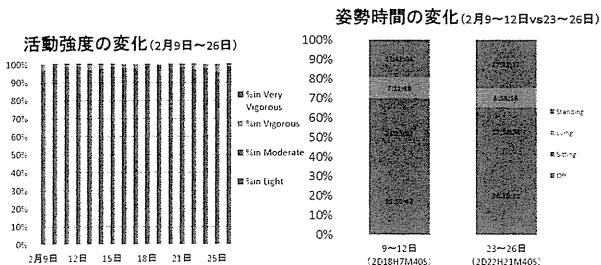
## 結果

- 入院期間(2月2日～18日外泊1泊、20日～28日外泊1日)
- 運動療法(PT)17時間
- 作業シミュレーション(OT)16時間
- 講義(Dr)3時間+オリエンテーション
- 講義(PT)3時間
- 講義(CP)6時間
- 栄養指導 本人のみ30分、本人+母 30分

## 加速度計計測結果



## 活動強度と姿勢



## 「毎日の記録」の変化



	第1週	第2週	第3週	第4週
疲れ	.500	ウォーキング .286	順調 .500	帰宅 .400
痛み	.333	考える .286	使う .286	後足 .333
ストレッチ	.333	腰部 .286	体力 .286	安心 .333
早い	.333	夜 .286	復讐 .286	数多い .333
良い	.333	次 .286	大切 .250	久々 .333
呼吸	.286	外出 .286	実施 .250	ホメ .333
頑張る	.286	出る .250	気持ち .222	感じる .333
不安	.286	リハビリ .250	足 .200	日中 .333
出来る	.286	残る .250	少し .200	ダメ .333
痛感	.286	朝 .250	体 .200	成果 .333

「毎日の記録」のリハビリ内容以外の文章をKHCoder(計量テキスト分析)を用いて解析  
週ごとの特徴語を上位10語づつリストアップ。  
数値はどの程度「特徴的か」を示す。

## 今後の予定

- 4月から復職予定(5時間/日、非正規雇用)
- 阪大病院 3ヶ月に1回、千里山病院3ヶ月に2回再診
- 記録の継続(本人の希望)
  - 活動量計
  - 毎日の記録(感情、自分へのねぎらいメッセージなど)

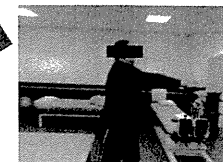
## ●■▲様 自主トレーニングメニュー

医療法人 篤友会  
千里山病院  
主治医 松川 律  
リハ医 高橋 紀代  
理学療法士 丸山 伸廣  
作成日 平成27年2月27日

## 最初に

- 無理のない範囲で調整してください。
- 痛みが出る時は、すぐに中止してください。
- 動作は全てゆっくり行って下さい。
- 呼吸は口をすぼめて吐き出し、鼻から大きく吸い込んで下さい。息を止めない。

## 棒体操①



目的:おなかのストレッチ  
方法:両手で棒を持ち、肘を伸ばし腰から回して10秒キープ