



Behavior change in physiotherapy – WHY, WHEN and HOW?

Anne Söderlund, RPT, PhD, Professor, Mälardalen University





This talk is about:

- •The change
- Behavioral medicine and its foundation
- •When do we need to apply behavior change competences in physiotherapy?
- Changing behavior at clinic and in distance management of chronic conditions – what to do?
- •Tools in supporting behavior change = behavior change techniques

Importance of change

- Physical therapists are mostly working for changing something in patients/clients
- •We try, together with our clients to change different conditions for the better or keep the condition as good as possible
- •Change is not easy
- Change does not always occur, or if it does, it may be temporary

Change is important (sometimes meaning that the situation would stay stable and won't get worse)
 but how can we support change?







What is behavioral medicine approach in physiotherapy?

- 1973 first time in a book title: Biofeedback : Behavioral medicine of Lee Birk
- Experts from biomedicine and behavioral fields defined the topic 1977
- Gate control theory basis for the subject
- 2006 Behavioral medicine became as a formal field for systematic reviews done by Cochrane Collaboration

Important for the development was:

- **1**.Application of biofeedback and behavioral therapy for patients with medical problems
- 2.Research in health psychology
- **3**.The important role of behavior in public health research (cardiovascular diseases and cancer).
- **Emerged in the physiotherapy area around year 2000.**



Behavioral medicine in physiotherapy An area that combines in analysis and treatment knowledge from





1. Sociocultural 2. Psychosocial 3. Behavioral 4. Biomedical/ physical areas relevant to health and illness

Söderlund A, Elvén M, Sandborgh M, Fritz J. Implementing a behavioral medicine approach in physiotherapy for patients with musculoskeletal pain: a scoping review. Pain Reports, 2020;5, e844

When do we need to apply behavior change competences in physiotherapy?

• We do know that:

Lifestyle affects your body.



Cognitions and emotions affect your body.

Pathology affects your body.



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From expert to coach: health coaching to support behavior change within physical therapist practice



Zachary D. Rethorn PT, DPT, PhD 1, Janet R. Bezner PT, DPT, PhD, FAPTA^c, and Cherie D. Pettitt EdD^{b,d}

ABSTRACT

Background: Negative health behaviors are a significant risk factor for non-communicable diseases (NCDs) and are responsible for 40–50% of the burden of disease in the US population. Physical therapists (PTs) have the capacity to effect behavior change in their patients to reduce their risk of disease and promote health. Competence in health behavior change is recommended for physical therapists. One way to achieve this competence is by learning and adopting a health coaching approach.

Objectives: To provide a theoretical and practical approach to applying a health coaching approach in physical therapist clinical practice.

Methods: 1) Describe a health coaching approach to facilitating behavior change; 2) present behavior change theories, communication strategies, and models underpinning health coaching; and 3) provide suggestions for ways PTs can integrate health coaching in clinical practice. **Results:** Health coaching is a dynamic and collaborative approach to health behavior change that harnesses the patient's or client's values and strengths to realize their goals for health. **Conclusion:** Adopting a health coaching approach may enhance adherence to physical therapists' recommendations as well as improve health outcomes.

PHYSIOTHERAPY THEORY AND PRACTICE https://doi.org/10.1080/09593985.2021.1987601

Persons with stroke, MS, fibromyalgia, Arthritis, diabetes, post-knee joint replacement, chronic low back pain

- What ever health problems the patient/client seeks for at the PT there is a need for lifestyle behavior coaching too as part of the other important treatments.
- Exercise and physical activity are our most used treatment strategies and an important part of person's lifestyle.

Behaviors of interest in physiotherapy – daily acitivites







Activity and movement related behaviors

- A person with:
- Knee prothesis: stand on the newly operated leg the day after the operation to put on the hospital shirt
- Sprained ankle, is in the emergency room: able to take the steps to the examination room from the waiting room
- Stroke: get up from a chair at home to reach for a plate of bread on the table
- Back pain: move the frying pan from the stove to the sink
- Abdominal surgery, the day after: sit up on the edge of the bed
- Myocardial infarction: walk up the stairs to the second floor of your home to be able to rest in bed
- Sitting in a wheelchair: Drive the wheelchair over the curb to get across the road to the store

Changing behavior at clinic and distance management of chronic conditions? Which tools in supporting behavior changes should we apply?

- targeting e.g.
- Physical activity behavior
- Sedentary behavior
- Self-management behaviors:
- manage symptoms;
- manage treatment;
- manage physical and psychosocial consequences;
- manage lifestyle changes;
- monitor the condition;
- monitor effects of cognitive, behavioural and emotional responses
- Pain management with digital support

Theoretical foundation for behavioral medicine and for useful tools (examples):

- Theories in physiology (e.g. exercise- and pain physiology),
- Theories of motor control (balance)
- Learning theories: Respondent (automatic reactions fear avoidance), Operant (learn to get pain relief when resting/exercising), Social Cognitive theory (individual and contextual factors affects behaviour reciprocaly, self-efficacy)
- Theory of stress and coping (appraisal of stressor, and recourses to handle it)
- Health psychological models (e.g. Health Belief Model (perceived risk and benefit of an old and new behavior), Stages of Change (not ready, getting ready, plan, action, maintenance)
- Organisational change theories (implementing new way for working in an organization)
- Models in communication (Validation (really listen the person's beliefs), Motivational Interviewing (person centred communication)





Self-efficacy

- **Self-efficacy** is an individual's belief in their ability to perform the behavior.
- Own judgment of "how well one can execute an action required to deal with the situations".
- Expectations of self-efficacy determine the sustainability of the effort.
- High self-efficacy will lead to successful outcomes
- Those with low self-efficacy are likely to fail.

Bandura, Albert (1982). Self-efficacy mechanism in human agency. American Psychologist. **37** (2): 122–147





How is your self-efficacy for:

- Exercise in a gym 3 times/week in the mornings?
- Run 2 times/week in the evening between kl.9-10 pm?
- To read a scientific paper that you are not so interested in?
- To climp a rockwall 100 m upp?





Physiotherapy support for self-management of presisting musculoskeletal pain disorders

Diener, I., 2021, 'Physiotherapy support for self-management of persisting musculoskeletal pain disorders', South African Journal of Physiotherapy 77(1), a1564. https://doi. org/10.4102/sajp.v77i1.1564

- Last years' studies have shown positive outcomes, possibly due to implementation of psychosocial skills and pain neuroscience in PT.
- Communication skills training of importance i.e. person-centred approach.

Background: Musculoskeletal pain (MSKP) is an extremely common pain disorder in almost all populations. Self-management (SM) support is a programme to prepare people to selfmanage their health condition effectively, while maintaining quality of life. SM is a costeffective and context-specific strategy to address the global public health burden.

Objectives: Self-management needs a change in behaviour from seeking unnecessary medical care to safely self-managing symptoms. As changing individuals' behaviour is challenging, the objective of my literature review was to identify the characteristics, in both therapist and patient, to successfully engage in SM.

Method: A narrative literature review, that could inform evidence-based support programmes for SM of MSKP.

Results: Studies on successful implementation of SM of MSKP do not report strong outcomes. However, in more recent years a few positive outcomes were reported, possibly as a result of research evidence for the application of psychosocial skills and contemporary pain neuroscience in the management of persistent MSKP.

Conclusion: Psychologically-informed physiotherapy, addressing psychosocial barriers to the maintenance of SM programmes, could facilitate more successful outcomes.

Clinical implications: Before engaging in a SM support programme, obstacles to behaviour change must be identified and addressed in a SM support programme, to facilitate individuals towards taking safe responsibility for their healthcare. Therapists working with patients with persistent MSKP, should upskill themselves to be in line with the latest pain and psychosocial research literature. Moreover, communication skills training seems to be a priority for effective SM support programmes.



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Review article

A review of behaviour change theories and techniques used in group based self-management programmes for chronic low back pain and arthritis

Alison Keogh ^{a, *}, Mark A. Tully ^{c, d}, James Matthews ^{a, b}, Deirdre A. Hurley ^{a, b}

Results: 25 articles of 22 studies met the inclusion criteria, of which only three reported having based their intervention on theory, and all used Social Cognitive Theory. A total of 33 BCTs were coded across all articles with the most commonly identified techniques being 'instruction on how to perform the behaviour', 'demonstration of the behaviour', 'behavioural practice', 'credible source', 'graded tasks' and 'body changes'.

Conclusion: Results demonstrate that theoretically driven research within group based self-management programmes for chronic musculoskeletal pain is lacking, or is poorly reported. Future research that follows recommended guidelines regarding the use of theory in study design and reporting is warranted.



PERSPECTIVES IN REHABILITATION



Interventions to address sedentary behaviour for older adults: a scoping review

Celeste Petrusevski^a, Silvana Choo^a, Michael Wilson^{b,c,d}, Joy MacDermid^a () and Julie Richardson^{a,c}

75% of a day sedentary – risk for chronic conditions, functional limtations, mortality.

- Goal setting decrease sedentary time, increase physical activity
- Information/education
- Self-monitoring

ABSTRACT

Purpose: Sedentary behaviour is associated with increased risk for lower health status and all-cause mortality. Older adults spend up to 75%, on average, of their day sedentary, however little is known about interventions designed to decrease sitting time for this population.

Methods: A scoping review was conducted to broadly determine what is known about sedentary behaviour interventions for older adults. Electronic databases were searched for articles with eligibility criteria including: (1) interventions containing strategies to decrease sedentary behaviour, (2) adults \geq 60 years of age, and (3) reported outcome measures related to sedentary behaviour.

Results: A total of 32 articles met the inclusion criteria. While methodological quality and intervention characteristics varied among the studies, the majority of interventions used a multi-component approach. Interventions involved a variety of behavioural change strategies with goal setting, information and self-monitoring the most frequently used. Of the 20 studies reporting results, 80% (n = 16) found at least one significant change in sedentary behaviour.

Conclusion: Findings from this scoping review suggest that sedentary behaviour can be reduced in community-dwelling older adults through multi-component targeted interventions. Future work is needed to examine sedentary behaviour interventions for adults >75 years and for persons living in long-term care institutions.

► IMPLICATIONS FOR REHABILITATION

- Older adults spend up to 75% of their day sedentary and are at an increased risk for chronic conditions, functional limitations, and mortality.
- Multi-component sedentary behaviour interventions, such as education, physical activity, and activity monitoring should be implemented for older adults.
- When designing interventions, incorporating goal-setting, self-monitoring and other behaviour change strategies can reduce sitting time for older adults.

Which behaviour change techniques are effective to promote physical activity and reduce sedentary behaviour in adults: a factorial randomized trial of an e- and mhealth intervention



International Journal of Behavioral Nutrition and Physical Activity (2020) 17:127

Helene Schroé^{1,2*}, Delfien Van Dyck², Annick De Paepe¹, Louise Poppe³, Wen Wei Loh⁴, Maïté Verloigne Tom Loeys⁴, Ilse De Bourdeaudhuij² and Geert Crombez¹

Action planning	Action planning ^b	Action planning specifies in detail how and under what situational circumstances an intended action is to be implemented. An action plan usually consists of concrete ideas about "when," "where," and "how" to act for the purpose of the goal intention.
Coping planning	Coping planning ^c	Coping planning can help a person to overcome obstacles and to cope with difficulties by anticipating personal risk situations (i.e. situations that endanger the performance of intended behaviour) and planning coping responses in detail.
Self-monitoring	Prompt self-monitoring of behaviour ^a	The person is asked to keep a record of specified behaviour(s) as a method for changing behaviour.

MyPlan 2.0-app: Self-monitoring or Coping planning or Action planning-app or combination of these?

- Self-monitoring increased PA and decreased sedentary behavior, SB
- Coping planning increased PA
- Use of the 3 techniques increased most PA
- Action planning and self-monitoring decreased most SB

Examples of the most frequently used BCTs in coded apps.

BCT	Definitions and examples used in apps	
Behavior-health link	Information about the relationship between the behavior and health is described in the app. 1. The app gives users the following tip: "neck exercises can help you to release tension, tightness, and stiffness. They can reduce pain and increase flexibility. A strong neck can help to prevent neck and cervical spine injuries as well" (Neck & Shoulder Pain Relief Exercises, Stretches). 2. In one of the learning modules, the app informs users, "several factors can contribute to nonspecific back pain, such as lifestyle, stress level, and how much physical activity a person gets" (Back Pain Exercises).	^{Mälardalen} University Gamwell et al: Systematic
Consequences	The app provides information focusing on what will happen if the person performs the target behavior. 1. In reference to the tracking logs within the app, it is stated "records of your pain can help health professionals gain an insight into the pain you are experiencing" (Pain Log—Pain Tracker). 2. The app provides information about the benefits of completing mindfulness exercises (eg, stress reduction, "unwinding" before going to bed; Mindfulness Daily).	evaluation of commercially available pain
Others' approval	Includes information in the app about what other people think about the target person's behavior. 1. The app allows users to share their information on a community page and others can comment and "cheer" them on (Ouchie). 2. The app has an option to share the user's pain report with their doctor through email (PainScale).	management apps
Prompt intention formation	The app encourages the person to set a general goal or make a behavioral resolution. 1. The app prompts users to make a commitment to set general goals related to tracking pain, trying an exercise, and reflecting on results (Pain Care app). 2. The app prompts users to set a general goal of tracking their pain via adding a pain record on the app (Manage My Pain).	examining behavior change
Instruction	The app tells the person how to form a behavior or preparatory behaviors. 1. The app instructs users how to perform breathing exercises when they are experiencing fear of pain, including "inhale deeply but comfortably all the way into the lower part of our lungs" (Pathways Pain Relief). 2. The app provides audio sessions that include verbal instructions about how to complete deep breathing exercises and other relaxation techniques (Pain Care app).	techniques. Pain 162(2021)856
Self-monitoring	The person is asked to keep a record of a specified behavior in the app (eg, a diary). 1. The app allows user to "add pain record" to log their pain for the day, severity, triggers, and how the pain was treated (Manage My Pain). 2. Users can log their pain, triggers, symptoms, and treatments at any given time (Pain Dairy—Pain Management).	-865
Feedback	The person receives data about a recorded behavior through the app. 1. Users are provided with frequency data for workouts, workout time, and exercises completed (Back Pain Exercises). 2. Users can view a report of their logged data including total days with pain, average duration of pain, average days between pain, and average pain score (My Pain Log).	pain spec behavior
Teach use prompt cues	The app teaches the person to identify environmental prompts that can be used to remind them to perform the behavior, including automated scheduled reminders (ie, push notification). 1. The app allows user to set reminders to prompt them to workout (ie, "hey it's time to work out!" Neck & Shoulder Pain Relief Exercises, Stretches). 2. The app sends user reminders to log their pain (ie, "how is your pain? Tap to record it.") (Manage My Pain).	change techn, low quality
Stress management	Included in the app are various specific techniques that seek to reduce anxiety and stress to facilitate the performance of the behavior. 1. The app includes information, through various articles within the app, to relieve stress (eg, deep breathing, progressive relaxation, guided imagery; Fibromyalgia Test and Training). 2. The app offers training in mindfulness and stress management exercises, such as deep breathing (Mindfulness Daily).	except 2

BCT, behavior change technique.

Key Elements of mHealth Interventions to Successfully Increase Physical Activity: Meta-Regression

- 50 RCT-studies with N=5997 participants
- 68% of included studies were published during 2015 and 2016.
- Meta-regressions with the most used behavior change techniques such as behavioral goals, general information, self-monitoring, information on where and when, and instructions on how to
- mHealth interventions to increase physical activity have a small to moderate effect
- Behavioral goals and self-monitoring each led to intervention success.
- It is important that people like and use the intervention.

LV. Eckerstorfer, NK. Tanzer, C. Vogrincic-Haselbacher, G. Kedia, H. Brohmer, I. Dinslaken, K. Corcoran. JMIR Mhealth Uhealth 2018;6(11):e10076. doi:10.2196/10076







Behavior change techniques, BCT, in mobile applications for sedentary behavior

- **50 apps** were studied
- Mean of 2.4 BCTs (range 0-6) per app.
- The most frequent BCTs were "prompts/cues", "information about health consequences", and "self-monitoring of behavior".
- BCTs "graded tasks," "focus on past successes" (increase selfefficacy) and "behavior substitution" also emerged.
- Sedentary behavior apps have less BCTs compared with physical activity apps.

Dunn, E., Gainforth, H., Robertson-Wilson, J. Behavior change techniques in mobile applications for sedentary behavior. Digital Health. 2018. Vol 4: 1–8





The extent to which physiotherapists in primary health care use a behavioural medicine approach in the assessment and treatment of patients with persistent musculoskeletal pain

Fritz, J, Overmeer, T. Mälardalen University, Physiotherapy; non-published results

The observed and self-reported percentage of patient consultations that included different behaviour change techniques in clinical behaviours:

- **Discussing** relapse prevention:
- Self-monitoring of exercise:
- Encouraging and/or follow-up self-monitoring of target behaviour: Observed: 5.8% Self-reported: 9.4%
- **Discussing** SMART goals:

Observed: 2.9% Self-reported: 12.3% Observed: 7.9% Self-reported: 4.3%

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- Evidence for Techniques in supporting the change
- Use systematically:
- Promoting initiation of change (agreement)
 Goal-setting (SMART)



•Self-monitoring (before treatment; monitor behaviour (**do**, **think**, **feel**), during treatment; exercise frequency, cognitions, and emotions in a behaviour in an activity, and after the treatment for maintenance of a behaviour)

Evidence for Techniques in supporting the change



Use systematically:

- Teach to use prompts/cues
- (to identify reminders for performing behavior)
- Prompt barrier identification (identify potential barriers and plan to overcome them)
- •Set graded tasks (starting with easy tasks and progressing to more difficult ones)
- Give feedback/reinforce behaviour and outcome (from physical therapist, patient/client, spouse)



Evidence for techniques in supporting the change

Use systematically:



- •Re-evaluation of goals (learn the person to revise goals)
- Plan for social support (importance of support in change process)
- Prompt focus on past success (think about previous success in performing the behaviour, increases selfefficacy)
- Maintenance; Identify risk situations for relapse and plan to handle relapse (identify situations for returning to risk behaviour and plan how to avoid or manage)



Try one of the behaviour change techniques – 5 min!

• Pair up with the person beside you



- Decide what behavior you would like to change
- Choose and try one of the behaviour change techniques with each other.
- Try one that you have not used very often.
- Reflect together why did you picked a particular behaviour change technique



Choose AMONG the Techniques below for supporting the change

- Promoting initiation of change
- •Goal-setting
- Self-monitoring
- •Teach to use prompts/cues
- Prompt barrier identification
- Set graded tasks



- Give feedback/reinforce behaviour and outcome
- •Re-evaluation of goals
- Plan for social support



- Prompt focus on past success
- Maintenance; Identify risk situations for relapse and plan to handle relapse

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References, dissertations from our research group

- A dissertation (Oct 2012) in which the behavioral medicine treatment model was studied in acute whiplash-related pain. Annika Bring
- A dissertation (May 2014) in which the behavioral medicine treatment model was studied in musculoskeletal pain in children and adolescents. Sara Holm
- A dissertation in which the behavioral medicine treatment model was studied in older women with long-term pain. (March 2015). Sara Cederbom
- A dissertation in which the behavioral medicine approach was studied in people with dementia. (Oct 2015). Charlotta Thunborg
- A dissertation on behavioral medicine-oriented fall prevention measures in the elderly who still live at home. Marina Arkkukangas (June 2017)
- A dissertation on behavioral medicine-oriented stress management on the web. (Oct 2018) Caroline Eklund
- A dissertation on clinical reasoning in physiotherapy with a behavioral medicine focus. (May 2019) Maria Elvén
- A dissertation on the implementation of a behavioral medicine approach in physiotherapy in primary care. (May 2020) Johanna Fritz, PhD

References, ongoing projects



- Preventing sedentary lifestyle in people in transition age from working life to retirement. Lisa Waltersson, PhD-student
- Health promotion by decreasing sedentary lifestyle during neo- or adjuvant cancer treatment in persons with breast, prostate or colorectal cancer- an intervention project. Anna Henriksson, postdoctoral fellow
- Webb platform for prevention of loneliness and social isolation in older people. Petra von Heideken Wågert, Professor
- Stress and coping in newly licensed nurses at emergency wards. Hillewi Carnesten, PhD-student
- Digitalization in health and welfare with a focus on support for behavior change. Caroline Eklund, PhD
- Research on the concept of participation. Development and implementation of client centered interventions. Anna Ullenhag, Associate professor
- Development and evaluation of an Electronic Patient Reported outcome for early identification of health-related problems in young people – a solution for future care? Petra Lostelius, PhD-student





- "Challenges are what make life interesting. Overcoming them is what makes life meaningful."
 - Joshua Marine

You've run 184.55 miles (297 km) in 71 days.

Unlocked Avatars:



