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# Focus on Psychological Factors and Body Awareness in Multimodal Musculoskeletal Pain Rehabilitation

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## 1. Introduction

Musculoskeletal pain disorders are substantial health problems in many countries and consume a large proportion of the health services. These disorders are the main causes of occupational disability and sick leave in Sweden (Bergström et. al., 2007, 2009; Vingård et. al., 2004; Dionne et. al., 2007). A varied sickness panorama can be seen within primary health care in Sweden, with a high prevalence of stress-related pain disorders. These disorders have increased in the Swedish population in recent years and are common causes of sickness absence and disability pensions, with a higher prevalence in women than in men. The sick leave rate and stress-related disorders have increased most among women working within healthcare, teaching, social work, schools, child care and care of the elderly. In addition to sick leave, the level of sickness presence is also high in these sectors (Vingård et. al., 2004). This may be explained by organizational changes and downsizing and/or high physical and psychosocial workload and the problems must be viewed from a systems perspective. The development of stress-related disorders can be described as a process over years with symptoms of fatigue and musculoskeletal tensions and pain that develops into psychosomatic and more severe musculoskeletal pain diagnoses for example persistent pain, chronic fatigue syndrome and emotional exhaustion. The diagnosis chronic fatigue syndrome implies that the aetiology can be long-term stress emanating from working life or life situation (SBU, 2010).

## 2. Multimodal pain rehabilitation according to cognitive behavior therapy principles

Multimodal pain rehabilitation according to cognitive behaviour therapy (CBT)-principles has been shown to reduce pain and stress levels and increase return to work (Van der Klink et al., 2001; Foster et. al., 2009). An analyse of 48 intervention studies showed reduced pain and stress levels by cognitive behaviour interventions, multimodal programs and organisational interventions. The individually tailored interventions were the most effective in reducing pain and stress levels (Van der Klink et al., 2001).

Today psychological factors are important for the understanding and treatment of persistent pain disorders (Linton, 2000; Goossens et. al., 2005; Linton et. al., 2005). Persistent pain is a specific condition and should be treated in that order with respect to previous diagnosis (SBU, 2010). A holistic perspective on the problem is needed for successful return to work, including salutogenic factors, psychological factors, regular physical activity and bodily treatments (SBU 2010; Flensburg-Madsen et. al., 2006). Persistent pain is defined as persistent or recurring pain with an endurance of at least three to six months (SBU, 2010). To live with persistent and long-lasting pain require support and coaching. The role of the multimodal team is to meet, see and guide the client towards increased health and work ability.

Research has shown that the use of CBT- principles in persistent pain rehabilitation can improve social and physical function and reduce pain significantly (SBU rapport 177: 2006). To focus on supporting and coaching clients own healthy coping strategies has been shown to be a significant factor to reduce clients' pain (Foster et. al., 2009; Dionne et. al., 2007). A multimodal pain rehabilitation intervention according to CBT-principles focuses on client participation in the rehabilitation process by clear goal formulations (goals/subgoals) and a stepwise process with tailored progression according to clients abilities. To formulate realistic and concrete subgoals, to use adequate dosage and give regular feedback is important for positive rehabilitation results. To receive positive feedback when goals are reached increases clients' self-efficacy, motivation for change and goal attainment. In multimodal pain rehabilitation the clients' formulate their goals together with their therapist which has been shown to be important for positive rehabilitation results (Foster et. al., 2009; Denison et. al., 2004; Dionne et. al., 2007).

### **3. The importance of psychological factors within multimodal pain rehabilitation**

Within effective multimodal rehabilitation it is important to consider the importance of salutogenic and psychological factors for a successful return to work (Denison et. al., 2004; Gard & Larsson; 2003a, b; Grahn, 1999). Salutogenic factors means factors of importance for experiencing coherence in life. Salutogenic factors have been identified as important resources for health. The salutogenic factors have been defined as the experience of meaningfulness, comprehensiveness and ability to cope with events in life. A high sense of coherence is associated with good health and capacity to withstand mental stress (Flensburg-Madsen et. al., 2006).

To consider psychological factors in rehabilitation means to identify and consider:

1. clients' responsibility, opportunity to influence and participate in rehabilitation,
2. clients' opportunities for pain control,
3. motivational factors, self-efficacy and empowerment factors in the rehabilitation process. (Linton, 2000; Jensen et. al., 2007; Foster et. al., 2009; Gard & Larsson., 2003a, b, Larsson & Gard., 2003; Arnesson & Ekberg, 2005).

High client participation increases clients' control, activity, health and well-being (SBU, 2006, 2010). Clients' pain control can be improved by physical and joyful activities which reduces the experience of pain. Joyful activities can reduce pain by changing the mental

focus towards joyful activities. Multimodal physical training programmes have been shown to teach clients' how to cope with and reduce persistent pain. There is evidence that physical activity can improve muscle strength endurance, coordination, stability and reduce persistent pain (SBU, 2006). By increased control of the situation for the patient, it is possible to participate in the rehabilitation to a higher extent and learn more (Theorell et. al., 2005; Arnesson & Ekberg, 2005; Foster et. al., 2009; Dionne et. al., 2007).

To consider motivational factors in rehabilitation is important for good results (Gard & Larsson 2003a; Grahn, 1999). Motivation can be defined as everything that drives and sustains human behaviour and motivation for change. Motivation is influenced by a combination of personal and social factors, such as having individually formulated goals, expectations for the future and self-efficacy (Gard & Larsson 2003a; Grahn, 1999).

Self-efficacy is also an important psychological factor in rehabilitation. By increasing an individual's self-efficacy, the likelihood of higher motivation for a behavioural change increases. Self-efficacy is related to goal commitment. Several studies have been published on the effectiveness of self-efficacy enhancing interventions (Arnesson & Ekberg, 2005). Self-efficacy and coping with anxiety and fear can be focused in pain rehabilitation by use of CBT-principles with positive results (Foster et. al., 2009)). Perceived self-efficacy to perform physical tasks, meet role expectations, obtain support and maintain job security has been shown to be important for health and workability. The process through which people gain greater control over decisions and actions affecting their health is frequently associated with Bandura's concept of self-efficacy, i.e. one's confidence in performing a particular behaviour and in overcoming barriers to that behaviour (Denison et. al., 2004; Grahn, 1999, Foster et. al., 2009).

A focus on clients' personal resources such as experience of control, self-efficacy, trust and confidence have found to be important for maintaining and improving health and work ability (Denison et. al., 2004; Jensen et. al., 2007; Linton et. al., 2005). What a person wishes, is clearly connected with views on own possibilities and own competence and what one 'can manage'. For successful work rehabilitation, perceived self-efficacy to perform physical tasks, meet role expectations, obtain support and maintain job security has to be focused on (Denison et. al., 2004; Grahn, 1999, Foster et. al., 2009; Lindström & Eriksson, 2005). Thus, personal resources such as one's ability to assess and understand the situation, to find a meaning in moving in a health promoting direction and having the capacity to do so, seem to function as 'brokers' moderating how health is affected by stressful situations (Lindström & Eriksson, 2005). The demand-control-social support model also indicates that these relations are very important for good health. Social support such as emotional support by family and close relatives, social support at work in terms of employers and colleagues are also important for return to work. The most critical predictors of the outcome of rehabilitation have been found to be the individual's own expectations about vocational return, perceived health, and participation in the treatment situation (Dworkin et. al., 2005; Grahn et al. 1999; Theorell et.al., 2005; Leijon et. al., 2006).

#### **4. Information and Communication Technology (ICT) can be a tool to promote health in a multimodal context**

"E-Health can be defined as strategies to improve health and well-being, work ability and quality of life by the use of information and communication technology and different

electronic devices. It is a tool to ensure information, participation, choice and empowerment to people within the area of health and health care "(www.ehtel.org). Research using E-health solutions have shown its` possibilities to improve quality, effectiveness and safety of care as well as to facilitate active client participation in health and disease management (IST.2008), "E-Health can be defined as strategies to improve health and well-being, work ability and quality of life by the use of electronic devices and equipment and information and communication technology. It is a tool to ensure information, participation, choice and empowerment to people within the area of health and health care "(www.ehtel.org). Research using E-health solutions may improve quality, effectiveness and safety of care, facilitate active client participation and open up for new opportunities in health and disease management (IST, 2008).

Researchers have shown that health and well-being can be improved by interventions at the appropriate organisational level with the use of E-health tools (Foster et. al., 2009; Leville et. al., 2009, Lorig et. al., 2001). Practice development can be performed through the use of E-health applications in an on-going practice development process. Important steps in such a practice development process are to establish a network and agree on goals, priorities and strategies (Tolson & Kelly, 2006). Today, we have an on-going project at Luleå University of Technology with the purpose of evaluating a tailored web-based support programme to complement multimodal rehabilitation in primary health care for patients with long-term non-specific neck/shoulder/back pain. The specific objectives are to study the:

1. Effects of the program on self-perceived workability and days of sick-leave among the clients
2. Effects on costs and resource utilization in the primary health care system
3. Effects on pain and function in the musculoskeletal system, self-efficacy and coping with pain, general health and well-being among the clients and
4. Satisfaction and perceived usability, regarding both staff and clients, with the web-based support system.

As clients require increased knowledge and information as well as increased participation in decisions concerning their own rehabilitation, a web-based program may imply a faster and earlier access to professional rehabilitation which will increase the effectiveness of multimodal rehabilitation. It is important to get as early access to primary health care as possible to reduce waiting lists and long term sick leaves and persistent pain conditions.

## **5. The importance of body awareness**

To work with body awareness through body experiences has been shown to be a good way to preserve health and can lead to freedom from muscular stiffness, easier breathing and increased mental awareness (Lundvik-Gyllensten et. al., 2010). Body awareness is focused in different traditions within physiotherapy, for example within psychotherapeutic bodily traditions inspired by Reich (1949) and Lowen (1975) and within body awareness therapies (Mattsson, 1998; Roxendahl, 1985). The aim of body awareness therapies are to integrate the body in the total experience of the self (Mattsson, 1998; Roxendahl, 1985). Within the therapy the body is seen as a functionally integrated entity, where different parts are dependent on one another. Psychosomatic symptoms can be seen as an expression of imbalance in the body. To focus on increasing the balance in the body is important. To find

one's stability in relation to gravity can imply deeper breathing and deeper contact with emotions (Lundvik Gyllensten et. al., 2010; Rosberg, 2000).

Basic Body Awareness Therapy, BBAT, has developed in Scandinavia and aims to restore body awareness and movement coordination, integrating physical, physiological, psychosocio-cultural and existential aspects. The effectiveness of BBAT has been studied in different contexts, individual as well as group contexts. BBAT can reduce pain and increase health-related quality of life. The meaning of body awareness has also been studied from a patient perspective (Lundvik Gyllensten et. al., 2010). The meaning of having body awareness can be expressed as being embodied, to be in contact with and being within one's body, feeling alive. This awareness influenced the relation to others and one's participation in society. The meaning of living in one's body was to become more aware of the body and to experience oneself from the inside as a means to know one's needs. The key was the fact that bodily experiences always are in the present moment. The experience of the body, the balance and stability of the physical self were basic experiences that were connected to the conception of well-being and control. To understand one's emotions and needs through the awareness of the body were seen as the base for self-confidence, trust in oneself and the ability to take care of oneself and one's needs physically and mentally. Living in relation to others was a need, a need which included recognition of the embodied self and bodily contact. Improved body awareness seemed to lead to being more satisfied and at peace with oneself, participating more actively in life. Problems with body awareness seemed to lead to a feeling of not being alive, missing something important in life. Working with the body in physiotherapy practice should include an awareness of that; the awareness of the body is inseparable from one's identity and has a direct connection to the experience, of the embodied identity (Lundvik Gyllensten et. al., 2010).

The meaning of body awareness was constructed by the informants as becoming more in contact with the body in order to strengthen the identity. To experience oneself, through being aware of the body from the inside was a means to be oneself in a deeper way. (Lundvik Gyllensten et. al., 2010).

*"Body awareness to me is not to see myself from the outside, but to be inside of myself. I am the receptor that is catching signals from the inside of me as well as from the outside. Breathing has to do with my vitality and tells me that there is life in me. My breathing is part of what I experience from inside of me. For me body awareness is a centred awareness that includes my body, is in the body..."* (Lundvik Gyllensten et. al., 2010).

## **6. The importance of body trust**

Body trust can be defined as the trust in relation to one's own body, a new concept in physiotherapy (Hedlund & Gard, 2000). Body trust is together with body awareness a resource towards increased health (Mattsson, 1998; Rosberg, 2000). Increased body trust can lead to an increased mastery of the life situation. Trust is generally defined as the state where one individual is emotionally stable to other people's behaviour. Trust takes time to establish, because frequent interactions between trustor and trustee is needed (Blois, 1999). Body trust and body awareness can be seen as two dimensions of the body ego, a body dimension, body awareness and a psychological dimension, body trust, both influencing the level of perceived health (figure 1).

Having body trust has been shown to be related to feelings of joy and security, to be proud of the body and to feelings of stability and strength. Individuals with body trust use the body as a tool to realise their own goals, to satisfy their needs in life and to communicate with others (Hedlund & Gard, 2000). Body trust is also a prerequisite to reduce muscle strain and muscle tension. It is only when you trust your body that you can actually relax and reduce muscle tension.

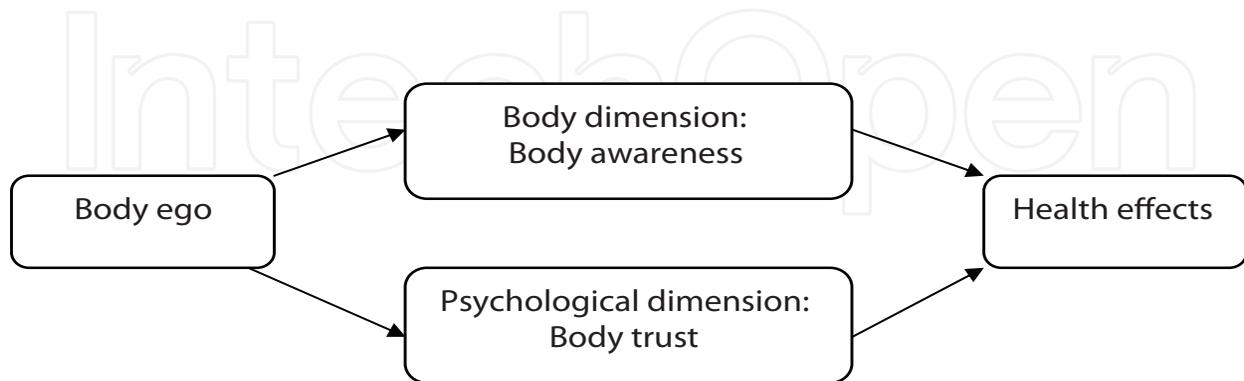


Fig. 1. The body trust health model. The body ego with two dimensions, a body dimension, body awareness and a psychological dimension, body trust, both is influencing the level of perceived health.

The concept of body ego is well-established and defined as a human being's total perception of identity. It can be observed in psychotherapeutic assessment. A strong body ego has been shown to increase reality orientation and adaptation and the understanding of oneself and one's emotions (Roxendahl, 1985). The coordinating function of body ego is mental awareness, which regulates the psychomotor and perceptual aspects of movements. Mental awareness can be trained to increase opportunities of self-experiences in all areas of life (Mattsson, 1998). Roxendahl developed the concept of body ego in relation to physiotherapy. Quality of movement is related to body function and to the experience of the body as a part of the identity. A person with a well-functioning body ego is rooted in reality and can express herself through body movements (Lundvik Gyllensten et.al, 2010). From a biomedical aspect this means to find one's centre in relation to gravity. From a psychological perspective this means emotional security, trust and existential roots in life. Having a strong body ego means an opportunity to have a deeper understanding of oneself, one's emotions, one's reality and existence as a human being.

A questionnaire study was conducted among 68 physiotherapy students at Lund University describing students' perceptions of the concept "Body trust". The results showed that all students perceived that the concept was a valuable concept. It was described as "to be satisfied with and in harmony with one's own body", "trust in how the body functions", "increased body awareness", good self-confidence and to be able to take care of the body (Table 1). In the questionnaire study the question "What are the consequences of increased body trust" was also asked. The consequences of increased body trust were described as increased self-confidence, increased harmony and joy in life, increased security in social situations and increased mastery in life situations. These descriptions of the concept "body trust" support the notion that this concept can be seen as parts of the psychological aspects of the body ego. It was associated with self-confidence, satisfaction with the body, harmony and mastery in life.

Groups of answers	Freq.
To be satisfied with and in harmony with one's own body	27
Trust in how the body functions	21
Increased body awareness	19
Good self confidence	26
To take care of the body	13
To accept the body	12
To listen to the body and to the breathing	10
To relax	9
To use the body as a tool and to use body language	8
Increased mastery in life situations	8

Table 1. The characteristics of the concept "Body trust" (N=68). It was possible to give more than one answer.

The concept of body trust can also be seen as a prerequisite for developing emotional intelligence, the cognitive skills required to effectively monitor emotions. I am of the opinion that a basic level of body trust is necessary for self-awareness, for managing emotions so that they are appropriate, and for motivating oneself in rehabilitation. A basic level of body trust is needed to identify emotions in others and to handle relationships. Self-awareness can be defined as knowing one's internal states, preferences, resources and intuitions. It can be described as

1. emotional self-awareness: recognizing one's emotions and their effects and
2. accurate self-assessment: knowing one's strengths and limits.

In physiotherapy, basic training for increased body trust and self-awareness can to a higher extent be included in body awareness therapies. Trust in your body can also be seen as a prerequisite for trusting other people. Body awareness and Body trust can be increased by focusing on the body in therapy (Gard, 2005). Focusing is a body-centred method that can be used to listen to feelings by becoming aware of body sensations that carry meaning. Trust can be increased through listening to a patient's life story, body language and meta communication.

The concept of body trust can be used to more fully integrate the body in the total experience of the self. Today body awareness therapies include not only body awareness, but also expressions of emotions and personality. The concept of "body trust" can be used to focus these emotional, psychological and social dimensions in body awareness therapy and in movement therapy. Being relaxed or tense is just as much an emotional as a physical condition. Reducing tension is not only mobilising willpower and ability. It is also to recognize suppressed emotions and to be willing to give up control. The psychological understanding of muscular tension is the regulation of emotions. Muscular tension allows emotions to be controlled. Through body experiences patients' can train to give up control, without anxiety or fear. This can be combined with mental and cognitive training with the aim of increasing self-confidence and a more positive attitude towards the own body. Here the concept of body trust can be valuable. As physiotherapists we are role models for patients in that we have a positive and accepting attitude towards our own body. When working with the body ego in treatment, the identity can be strengthened and can be focused on both body experiences and increased body trust and confidence.

## 7. The importance of emotional awareness in multimodal rehabilitation

Today emotional intelligence has become increasingly important to discuss. It can be defined as the cognitive skills required to effectively monitor and self-regulate emotions (Goleman, 1995).

Emotional intelligence contain abilities in five domains:

1. knowing one's emotions, self-awareness – recognizing a feeling as it happens;
2. managing emotions so that they are appropriate, which is an ability that builds on self-awareness;

To fulfil these five criteria and be emotionally intelligent is a prerequisite for being a professional physiotherapist. To have the capacity to help patients in situations of emotional crises require the capacity to deal with emotions in patients in a professional way (Gard & Gyllensten, 2004)

Sweden is today, together with many other countries, a multicultural country. Therefore, there has been a research interest to invent factors of importance for a professional relationship and good interaction between physiotherapists and patients in different health care contexts. Efforts have been made to consider cultural and religious factors in the interaction situation and to accept cultural diversity in patient treatment. The research has shown that it is important to be sensitive to the patients' religious beliefs, norms and values (Gagnon et. al., 2004; Gard, 2003; Norregaard, 2001).

In most countries there exist specific pain clinics where immigrants with traumatic experiences can be treated, for example torture victims. The aim of the physiotherapy treatment for persons who have undergone torture is to relieve or reduce pain, correct musculoskeletal dysfunctions, teach the clients to cope with pain and regain body awareness. A good interaction and communication with each refugee is needed to optimize the treatment. Interview studies of physiotherapists treating torture victims have shown that the following factors are important for a good interaction with torture victims;

1. Characteristics of the physiotherapist such as being open and listening,
2. A capacity to handle negative emotions,
3. Professional and therapeutic support services,
4. Ability to tailor the interaction to meet patients' needs and
5. Ability to shape environment factors.

These factors have to be considered to improve the interaction between PT's and persons who have undergone torture (Gard, 2009). The physiotherapists' opportunity to shape environment factors, structure and time, were particularly important for tortured patients. Frames, structure and enough time to build confidence and trust have to be in focus in their treatment. An increased self-control and coping ability in daily life are needed by many refugees and may improve their mental health (Bates & Rankin-Hill, 1994). Also language factors were important for a good interaction, for example to have a good translator service and to develop a personal relation to the translator. In this context, where all patients speak a foreign language, it is reasonable to believe that getting correct information about the torture history and to develop a tailored treatment for each individual is dependent upon good translation and communication. Other factors, such as the ability to understand symbolic meanings, metaphors and humour and interpret it correct are also important to consider (Bäärnhielm, 2000). To give increased time for

conversations about factors that increase a person’s “sense of coherence”, factors that can increase a person’s feelings of comprehensibility, manageability and meaningfulness in life may also increase a person’s confidence and trust in a rehabilitation situation as they have been shown to be important “generalized resistance resources” preserving good mental health ( Cederblad et. al., 1995).

Factors of importance for good interaction between physiotherapists and patients in a primary health care context have been identified, which is of interest for multimodal rehabilitation. The results showed that 1) prerequisites for good interaction and 2) interaction factors were important for positive treatment results (figure 2). Interaction factors are important for establishing contact, ways of contact, frames and the therapeutic process ( Lundvik Gyllensten et. al., 2000). These factors are all relevant to consider in multimodal rehabilitation. Physiotherapists’ working with patients with a multicultural background need also to consider how they as physiotherapists can communicate with and activate the resources of the patient in the best way”? Expertise in cross-cultural communication is highly needed among physiotherapists working in multimodal rehabilitation.

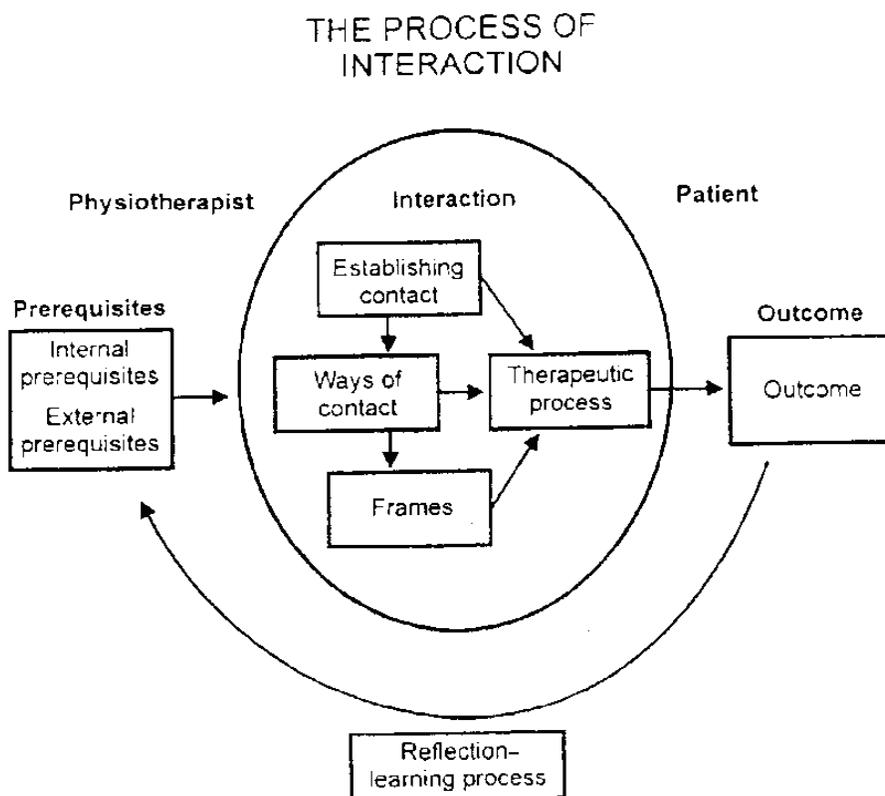


Fig. 2. Factors of importance for good interaction between physiotherapist and patient from physiotherapists’perspective ( Lundvik Gyllensten et. al., 2000).

## 8. Conclusion

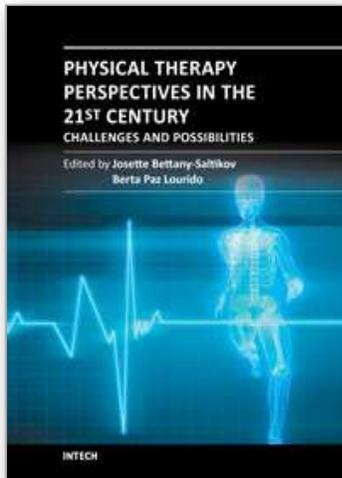
It is important not to forget psychological factors and body awareness in multimodal rehabilitation. A health promotion perspective is useful, focusing psychological health promoting factors in the patients’ life and work situation as well as body awareness promoting factors in the rehabilitation situation.

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## **Physical Therapy Perspectives in the 21st Century - Challenges and Possibilities**

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This book contains new information on physical therapy research and clinical approaches that are being undertaken into numerous medical conditions; biomechanical and musculoskeletal conditions as well as the effects of psychological factors, body awareness and relaxation techniques; specific and specialist exercises for the treatment of scoliosis and spinal deformities in infants and adolescents; new thermal agents are being introduced and different types of physical therapy interventions are being introduced for the elderly both in the home and clinical setting. Additionally research into physical therapy interventions for patients with respiratory, cardiovascular disorders and stroke is being undertaken and new concepts of wheelchair design are being implemented.

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