Pain

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Summary

Physical activity is of great significance for the treatment and rehabilitation of patients with long-term pain. There are three distinct effects of physical activity:

1) The “direct” pain-relieving effects of physical activity; 2) other “non-direct” effects on fitness and mood, reduced stress sensitivity and improved sleep, with potentially even greater effects on the pain situation of the patient; and 3) the positive effects of physical activity on lifestyle-related diseases in patients who tend to be inactive.

The physical activity must be regular and consistent to give direct or indirect pain relief. The physical activity should be carried out for at least 10 minutes, preferably for a much longer duration, and be of at least moderate intensity (> 60% of VO2 max). Fitness and endurance training in the form of walking, jogging, cycling and swimming are often suitable activities. However, the type of physical activity the patient benefits from depends on his/her pain status and initial physical fitness. The physical fitness of patients with long-term pain is often very low and, consequently, the intensity of their chosen activity should ideally be gradually increased, starting at a low intensity level.
Introduction

Pain is a significant clinical problem. Studies show that up to 50 per cent of the population in Sweden and England suffer from chronic pain (9, 10). 13 per cent of the individuals questioned reported that their pain had led to reduced functional capacity (11). Only 40 per cent had been given a definite diagnosis (10). The most common clinical pain condition was chronic lumbago, i.e. chronic back pain (9). It has been described in the literature how individuals manage to continue with a particular sport without feeling any pain despite having suffered a stress fracture (1) or an acute heart attack (2). The importance of coping with pain in order to achieve success in endurance sports has also been the focus of much discussion (3). Elite swimmers have been shown to tolerate pain better than people who swim for the sake of exercise (4), and athletes who play contact sports appear to cope even better with pain than non-contact sport athletes (5). It has also been discussed whether sensitivity to pain in itself could be a predisposition for future physical inactivity (6).

The exact association between physical inactivity and long-term pain is still not fully known. Clinically, physical activity is considered to be of a great indirect and clinical importance in various chronic pain conditions. Aside from pain relief, physical activity may also contribute to increased functional capacity (by increasing fitness) in these patients. Expectancies may affect pain (12) as may improvement in the state of mood (13), which further reduces the pain experienced.

Definition

The International Association for the Study of Pain (IASP) defines pain as “an unpleasant experience that we primarily associated with tissue damage or describe in terms of tissue damage or both” (7). Accordingly, pain is a subjective experience that is not always related to the extent or even existence of tissue damage. Pain is a psychological phenomenon that must be described based on the behaviour and experience of the individual. Nonetheless, it is possible to assess pain using several methods.

Pain is either acute or long-term (chronic). Acute pain seldom gives rise to serious therapeutic problems and generally responds well to analgesics or cause-related treatment. Acute musculoskeletal pain usually responds well to analgesics or physiotherapy aimed at restoring function. Traditionally, the person administering the treatment (health professional) is normally active and the patient passive.

Chronic non-malignant pain (defined as pain that persists 3 months or more) is more complex, however, and often very difficult to treat. In such cases, ideally the patient should play a more active role while the person administering the treatment should act as an adviser, including encouraging the patient to be more active.

Pain analysis is used to assess whether the pain is nociceptive, i.e. stems from the skin, muscles or similar; visceral, i.e. stems from the inner organs; or neuropathic, i.e. caused by a nerve damage or dysfunction. Complex regional pain syndrome is often characterised by allodynia, which is painful hypersensitivity to stimuli that should normally not cause pain.
The definition of **pain threshold** is “the least stimulus intensity at which the patient perceives pain” (8). **Pain tolerance** is defined as the greatest level of pain that a patient is prepared to “tolerate”. Two individuals can have the same pain threshold but a different tolerance for the same painful event. These two definitions are critical in the pain analysis and for the treatment required.

**Pain physiology**

Pain, as experienced in the central nervous system (CNS), is the result of a complex processing of pain signals. Pain impulses usually transpire through the activation of peripheral pain receptors (nociceptors, from the Latin *nocere* = to injure). This activates primarily myelinated (A-delta nerve fibres) and thinner unmyelinated (C nerve fibres) neurons. The pain fibres reach the dorsal horn of the spinal cord via several segments. As a result, secondary neurons are activated and the pain signal is transmitted via the spinot-halamic fasciculus up through the nervous system. Via the thalamo-cortical pathway, the signals reach the somatosensory cortex. Following a cortical processing, the activation typically gives rise to a sharp, well-localised feeling of pain (“it hurts”). Other fasciculi reach deeper and more diffuse subcortical areas (e.g. gyrus cinguli, prefrontal areas), also via the thalamus, for emotional processing. This gives rise to the emotional components of pain (“discomfort”), which are very important from a clinical standpoint.

In addition, there are a number of systems that process pain impulses before they give rise to the perception of pain. The spinal cord includes mechanisms that can both enhance and inhibit pain. Constant stimulation of the nociceptors may lead to central sensitisation, i.e. a heightened sensitivity to stimulation, which is of significant importance to long-term pain.

Descending pain-inhibiting systems from the *periaqueductal grey area* (PAG) and *nucleus raphe magnus* affect the sensory afferents of the spinal dorsal horn. Opioids play a dual role in these systems by activating the descending pain-inhibiting systems and inhibiting the ascending pain impulses of the spinal cord. Opioids can also lead to peripheral modulation of pain at the receptor level in connection with inflammation.

Psychological factors such as expectancies and experiences seem to influence the sensitisation of neurons (11) and, as a result, research into the mechanisms that underlie the placebo effect has intensified over the past few years.

The difficulties with experimental studies on physical activity and pain are the various types of pain-inducing stimuli used and the individual differences in pain sensitivity. In addition, there are methodological issues regarding the type of physical activity, duration and intensity. Experimentally induced pain is not comparable to clinical pain. For example, study subjects are usually less apprehensive/anxious since they know that the pain stimulation can be stopped at any time, which is not the case in real life situations.
The effects of physical activity on experiences of pain

Acute effects

Studies have shown that physical activity has a modulating effect on pain, i.e. it affects the way in which we experience induced pain, both during and after exercise. There are many indications that pain relief is an integral part of physical activity. An integration of behavioural and cardiovascular reactions as well as pain inhibition take place via the PAG (14). In addition, the pressure receptors of the cardiovascular system appear to have an effect on the pain system (15).

During exercise. Experimental studies indicate that the pain threshold for different forms of pain stimulation increases during physical activity. For example, this applies to dental pain (16), electrically induced finger pain during a cycle test (17), and pressure-induced pain in the quadriceps muscle during static load (18).

After exercise. Evidence suggests that different forms of physical activity lead to pain relief using a broad range methods of assessment, as well as different pain stimuli (e.g. electrical stimulation, heat, pressure and ischaemia) (6, 19–21). Both experimental and “natural” physical activities have been tried (22). A high-intensity activity seems to increase the pain threshold, which then gradually decreases once the activity is finished (see “Prescription” below). Running, for example, has a pronounced effect on one’s pain threshold. In a trial using thermal provocation, the analgesic effect of 45 minutes of high-intensity running corresponded to approximately 10 mg of intravenous morphine (19).

Paradoxal effects of physical activity on pain threshold. Experimental studies on fibromyalgia have shown physical activity to have the opposite effect. Unlike in healthy individuals (in whom the pain threshold decreases), the sensitivity to pain was found to increase during and after physical activity (23). This may render it more difficult for patients with fibromyalgia to be physically active, as part of their everyday clinical treatment.

Long-term effects

Do physically active persons have a higher pain tolerance than inactive persons? People who are physically active on a regular basis appear to have a higher pain tolerance. However, it does not necessarily mean that they have a higher pain threshold (24). Whether this potential difference in pain tolerance is due to the training itself, or simply individual/genetic, is currently subject to debate. However, the effect of physical activity on pain seems to be similar for both active sportsmen and untrained individuals (16, 20). A possible explanation for why certain runners are able to continue running despite an injury (1) could be that they have a high pain tolerance to begin with, which is then boosted by the extra physical load. Pain inhibition is an integrated part of the active pain control system (14). Also, by focusing on other signals from the body, attention is diverted away from the pain.
It is therefore likely that individuals with a high pain tolerance turn out to be the most successful in many athletic areas, such as endurance sports, where athletes often have to tolerate severe muscle pain (25). The training itself may have a positive effect on their sensitivity to pain (3). For example, it has been noted that the pain sensitivity of competitive swimmers varies depending on the intensity of training during a season (4).

When treating patients with chronic pain, increased physical activity is a key factor for improving the prognosis and alleviating the patient’s suffering. Aerobic fitness and quality of life is gradually reduced in patients with chronic pain, with the risk of social isolation. Activity-induced pain combined with the anxiety and uncertainty that comes with the possibly unknown cause of the pain often leads to a reduced level of activity. Disaster thinking, i.e. expecting that the pain will increase and the prognosis is bad, may worsen the prognosis. Patients with chronic pain are often downhearted and sometimes depressed. This could make the pain situation even worse. In a small number of cases, negative attributes such as pain communication, inadequate and increased pain distribution, as part of the so-called “somatoform pain disorder”, have developed.

Increased physical activity has a significant effect on patients with chronic pain. Not only does it reduce pain, but it also positively influences the patient’s mood (13, 26), alleviates social isolation, and increases functional capacity (27). Physical activity may also lead to an improved perception of body image (28) and the person’s self image of being a healthy individual (29). These effects also increase the possibility of the patient being able to handle and cope with pain. Secondary muscle tension caused by pain can be reduced through physical activity and mobility training.

**Mechanisms**

**Physical activity as pain relief**

**Endogenous opioids**

The most favoured theory behind the effects of physical activity on pain relief is based on endogenous opioids (beta-endorphins; the body’s own opiates). These can act as pain inhibitors at different levels, as described above (24). The concentration of beta-endorphin in the blood increases with physical activity (30), although this is probably only partly responsible for the pain relief. According to a theoretical model, the activation of ergoreceptors in major muscle groups during physical activity can lead to increased central opioid activity through the activation of A-delta fibres (31).

However, it seems that physical activity of a high intensity is needed to release significant amounts of endorphins (corresponding to 75–80% of maximum oxygen uptake capacity; VO₂ max) (32, 33), i.e. an almost anaerobic workload (32). However, for physical activity at lower intensities, such as aerobic endurance training with stable lactate levels, a long duration is required (> 1 hour) in order to obtain an increased release of beta-endorphins (32). Some studies support the endorphin theory by showing that pain relief is reduced when patients are given naloxone (an antagonist to morphine and other opiates.
and opioids that obstruct the analgesic effect of opiates by blocking their receptors) (19, 21), whereas other studies have been unable to confirm these findings (17, 21). This may be explained by an undefined selectivity to naloxone. One study has also been able to show that low-intensity physical activity equivalent to 63 per cent of VO₂ max may indeed increase endorphin levels and tolerance to pain (27). Thus, there seems to be more than one explanation for the secondary effects that physical activity has on pain. According to another study, aerobic activity at 50 per cent of VO₂ max did not give any relief from pressure induced pain (34), which may be an indication that there is a lower limit of intensity to achieve pain-relief.

Other descending pain-inhibiting systems that use different neurotransmitters (e.g. serotonin and noradrenaline) may potentially also be involved in pain relief secondary to physical activity.

**Increased activity in non-pain transmitting sensory fibres**

Activation of large afferents (sensory fibres) could, in theory, lead to reduced pain via the activation of pain-inhibiting interneurons (Gate Control Theory) (35). This effect is not mediated through increased opioid activity, but possibly through the transmitter gamma-aminobutyric acid (GABA).

**Distraction**

A distraction or diversion has been proven to change the experience of pain (36) and can contribute to alleviating pain during and after an activity (37). A sports activity may distract an individual from pain, as also illustrated historically by injured and fleeing soldiers. Consequently, the analgesic effects of physical activity demonstrated in laboratory tests may be underestimated due to insufficient exterior influences (38).

**Expectations**

It can be difficult to differentiate between the effect that the stress experienced before a competition/activity has on pain and the effect the physical activity itself has on the same pain. Expectations prior to a physical activity, in addition to trepidation, could in themselves act as pain inhibitors or enhancers/triggers (39). One study showed that more than 50 per cent of study subjects who were told that they might get a headache from electrical stimulation did in fact get such a headache, despite not being exposed to any such electrical stimulation (expected or nocebo pain) (40).

**Adaptive reactions — stress**

Regulation of pain sensitivity is an integrated part of our adaptive reactions to stress (14). Acute stress is usually associated with pain relief (41, 42), while chronic stress is usually associated with an increased sensitivity to pain (43).

Regular physical activity may reduce sympathetic activity, which in turn can lead to pain relief by way of reduced ischaemia in conditions such as angina pectoris, peripheral vascular disease and dysmenorrhea (see below).
Sensitisation and previous experiences with pain

Persons with previous pain experiences may feel less pain than persons without such experiences (44). However, other studies seem to suggest the opposite, possibly due to various circumstances. Patients with fibromyalgia experience hyperalgesia, i.e. increased pain sensitivity during a similar form of stimulation and activity. This could be explained by sensitisation (23) as part of the development of chronic pain. Direct pain-relieving effects are noted in patients with fibromyalgia who are able to do the same type of moderate to high-intensity exercise as healthy individuals (45), whereas other patients with fibromyalgia doing only lower intensity training see bigger improvements in their general health status and mood state (29, 46).

Indirect effects

Effect on depression and anxiety

According to one study, 8 weeks of physical activity (walking or jogging) led to reduced symptoms of depression and anxiety (13). This has also been shown in other studies (47, 48). Depression may lead to increased pain and a reduced capacity to cope with the pain situation. Consequently, increased physical activity may have a positive effect on the pain situation by boosting the patient’s self-esteem and mood state. This positive effect of physical activity appears to be mediated partly through its effect on the central serotoninergic system (49). Patients with fibromyalgia report being less depressed and anxious following a period of physical activity. These effects may be achieved with both low-intensity and high-intensity exercise (50, 51).

Effect on sleeping

Regular physical activity of a moderate intensity has been shown to improve the quality of sleep (52). This should, in theory, also contribute to a better pain situation, as the patient feels more rested and content.

Prescription

Duration. Available studies suggest that it is possible to achieve pain relief through short sessions of physical activity, though a minimum duration of 10 minutes is needed (34, 38). However, a further increase in the pain threshold can be expected if the physical activity continues for longer than 10 minutes. Thus, 50 minutes of running increases the ischaemic pain threshold more than 15 minutes of running on a treadmill (38). The effect on pressure-induced pain lasts for at least 5 minutes after exercise (18). The pain thresholds revert to normal within approximately one hour after the physical activity has finished (17).

Type of activity. Almost all data on physical activity and pain relates to aerobic fitness training. A small-scale study showed that 45 minutes of strength training at 75 per cent of an individual’s 1RM (1RM = Repetition Maximum, i.e. the maximum amount of weight
one can lift in a single repetition for a given exercise) resulted in a significantly heightened pain thresholds and reduced pain intensity compared with control groups (53). The alleviation of pain lasted for 10 minutes, i.e. a considerably shorter effect than after fitness training (53). However, according to another study, pain tolerance did not increase after 12 weeks of strength training (3). Hence, the effect of strength training on the release of beta-endorphins is still unclear (33). More studies are needed to determine whether strength training does have an alleviating effect on pain.

**Intensity.** High-intensity fitness training, such as cycling at a minimum of 75–80 per cent of VO₂ max (which increases beta-endorphin levels), has shown to alleviate pain (19, 54). However, even low-intensity fitness training (63% of VO₂ max) increases pain tolerance (27). According to a study using pressure induced pain, fitness training at 50 per cent of VO₂ max did not alleviate pain (34), which appears to indicate that there is a low-intensity limit. Yet, the fact that submaximal exertion seems to have an alleviating effect on pain does have important therapeutical implications, as this means that more patients may be able to alleviate their pain through physical activity. Persons with chronic pain often have low functional capacity (55) and, as a result, may find it difficult to engage in relatively high-intensity activities. A simple activity such as walking could therefore be of sufficient relative intensity for an unfit person in this context.

**Continuity.** The prescribed physical activity has to be regular for continuous effect.

**Summary of prescription**

A physical activity must be regular and consistent to give direct or indirect pain relief. The physical activity should be carried out for at least 10 minutes, preferably much longer, and be of at least a moderate level of intensity (> 60% of VO₂ max). Aerobic fitness and endurance training in the form of walking, jogging, cycling and swimming are often suitable, but the type of physical activity the patient benefits from most depends on his/her pain status and initial fitness. The physical capacity of patients with chronic pain is often very low and, consequently, the intensity of their chosen activity should be gradually increased, starting from a relative (individual) low intensity.

**Clinical indications**

**Physical activity as pain relief in patients with various diseases**

**Unspecified Chronic Pain (UCP) and Chronic Pain Syndrome (CPS)**

Whatever the initial cause of the pain, physical activity plays a very important role and is perhaps the most important part of the patient’s treatment programme. The patients regularly show a low functional capacity (reduced fitness) and are often passive. Breaking this vicious circle is vital, as is to gradually and carefully increase the patients’ level of physical
activity. At the same time, the patients are often in a primary or secondary state of dejection or even depression. If this is the case, then physical activity could act as a positive complement to traditional medical treatments (13).

Before choosing a passive treatment method such as weak analgesics for a non-depressed patient, the patient should reach a basic level of physical activity (walking). More specific training programmes are also of significant importance, not least to show the patient that it is possible to remain active, i.e. to eliminate unconstructive thoughts relating to the pain.

**Chronic lumbago**

**Indication and prescription**
Individualised functional training combined with information about the underlying disease, with the aim of increasing the person’s level of physical activity, is considered essential for patients with chronic lumbago. Women with lumbago have a lower aerobic fitness level compared to male subjects of the same age (56).

A training programme may incorporate stability training, graded endurance and strength training, as well as stretching of shortened torso and leg muscles. Studies have shown that strength and an increase in training gives improved back function and reduced pain when comparing a group of training patients to an untreated control group (57, 58). Also fitness training has been shown to have positive effects on pain intensity and pain frequency (59). This patient group may even benefit from everyday physical activities (60). Cycling was shown to have an effect on the quality of life and mental capacity of older patients with lumbago (61). In addition, a Pilates-based approach to training seemed to have a better effect than standard treatments (62).

It is recommended that the training begin under the supervision of a physiotherapist who will adapt the various exercises to the patient’s functional limitations and pain, and gradually increase the physical load. The long-term effects of supervised training surpass the effects attained from self-training at home (58).

In the case of acute back pain without a known pathologic cause, everyday physical activities seems to be most beneficial (63). The risk of prescribing physiotherapy is that it may enhance the patient’s perception of disease rather than improve the situation.

**Fibromyalgia**

**Indication**
Many patients with fibromyalgia are physically inactive due to an overall feeling of tiredness and diffuse pain. Inactivity is considered one of the most important reasons for these patients having reduced functional capacity, as well as reduced muscle strength and aerobic fitness (64). However, the ability of the patients to train their muscles does not appear to be affected (65).
Prescription
Numerous studies have shown that patients with fibromyalgia benefit from physical training in that their physical functioning improves and the severity of their symptoms is reduced, which boosts their frame of mind. The feeling of general well-being is further enhanced if the training takes into account the patient’s current level of functioning and pain tolerance (29). It is worth noting that the intensity of a physical activity is always relative. In other words, it must be prescribed in relation to the individual capacity of the patient.

Low-intensity training
Patients with fibromyalgia whose level of activity have been low for a longer period of time are often despondent or frightened of experiencing increased pain as a result of physical activity. The initial training should therefore be of a low intensity and gradually increase at a rate that the patient feels comfortable with. If the training is beneficial or manageable, the patient is more likely to feel motivated to continue training. For these patients, regularity is more important than the intensity of the training. Studies have shown that walking (46, 66, 67) and low to moderate-intensity training in a heated pool (50, 68–71) improves physical functioning and lessens the severity of symptoms and feelings of despondency. Patients who are unable or do not have time to exercise for an uninterrupted duration of 30 minutes may divide the training into two 15-minute training sessions daily (72).

Body image therapy and self-care training may be vital for those patients who need to improve their knowledge of their bodies and physical limitations (29, 73).

Moderate to high-intensity training
Patients who are able to do fitness training for at least 20 minutes 2–3 times a week, at an intensity of 55–90 per cent of their maximal heart rate have been shown to have improved fitness and pain situation (45). The types of exercise carried out include cycling (74), combined with fitness training, strength training and stretching (75). Because of the problematic pain situation, not all patients manage to achieve a (relatively) moderate to high-intensity level of training (76). However, most untrained patients with a low aerobic fitness level are able to achieve moderate-intensity training by simply walking on flat ground!

Strength training
Patients who begin strength training at 40–60 per cent of their maximum capacity and gradually increase the resistance to 60–80 per cent have been shown to have improved muscle strength.

In short, fitness training, walking, exercising in water and strength training are generally considered to have a positive influence on the physical functions, symptoms and despondency of patients with fibromyalgia. Since pain often leads to muscle tension and possibly shortening of the muscles, stretching after a training session is considered beneficial. Training that is carried out at an adequate level seems to give patients added self-esteem and a more positive view of their bodies. Many patients prefer training in a group as it offers them the social support needed to continue training regularly.
Neck pain/whiplash

For patients with chronic neck pain, a structured training programme that focuses on the neck area may alleviate pain and increase physical functioning and muscle strength (79). A combination of strength training and stretching is recommended (80). Neck training exercises may also lead to reduced muscle fatigue (81).

In a randomised controlled trial on patients with a “whiplash-associated disorder” (WAD), physical activity carried out in addition to standard treatment had the greatest effect on pain and on functionality in patients with the most pronounced symptoms (82). There are considerable geographical differences in the prevalence of WAD, and it is much more common in Scandinavia/Canada than, for example, Lithuania/Greece (83). This indicates that other factors, such as the expectation of chronic pain, are of importance. Physical activity plays an important role in showing the patient that it is possible to be physically active despite the pain.

Urogenital pain

A 3-month fitness training programme reduced symptoms of primary dysmenorrhea (84). Whether this is due to a reduced sympathetic tone or endorphins has been discussed (85).

A double-blind randomised study examined the effects of fitness training in men with refractory chronic prostatitis/chronic pelvic pain compared with placebo/stretching. The results showed that 18 weeks of aerobic fitness training reduced the pain as well as improving depression and anxiety (86).

Rheumatoid arthritis/osteoarthritis

Reduced functional capacity, restricted movements and pain are common problems among patients with rheumatoid arthritis (RA), the characteristics of which are inflammation of the joints, tendon sheaths and bursae, with subsequent destruction of cartilage and bone. The pain experienced in connection with RA is usually nociceptive, due to inflammation or destruction, or neurogenic, due to compression of peripheral nerves or nerve roots. When putting together an exercise programme, the joint and muscle function of the patient must be taken into account, and the exercise programme be individualised accordingly.

Flexibility training for the prevention of restricted flexibility should be carried out daily, especially during periods of aggravated joint inflammation. If the patient experiences localised pain, with restricted flexibility, muscle fatigue and pain, the flexibility may have to be addressed separately before the patient can commence strength and aerobic fitness training. Patients with RA are able to improve their muscle strength (87) and fitness (88) through strength and fitness training. A number of scientific studies have used endurance/strength training at 50–80 per cent of Maximal Voluntary Contraction, and fitness training at 60–85 per cent of Maximal Heart Rate (88).

Some of the studies reported a reduction in pain subsequent to group strength and fitness training (88). No increased inflammation activity or symptoms (87, 88) were reported following an adequately planned training programme.
Ischaemic pain – vascular disease

An association between physical activity and pain has been noted in various forms of ischaemic pain situations, such as angina pectoris and claudication (claudicatio intermittens). In the case of claudication, physical activity has been shown to alleviate pain and lengthen the walking distance (89, 90). The improvement can be attributed to both the improved physical health and increased functional capacity (91).

In the case of a coronary artery disease, the appropriate dose of physical activity has been shown to increase the functional capacity for a given exercise (92). A lower heart rate reduces the oxygen consumption in the heart muscle, which in turn reduces ischaemia (93) and delays the onset of angina pectoris (92). Patients participating in a cardiac rehabilitation programme usually have a low level of fitness at the start of the programme (94), which further reinforces the need for participating in such programmes. These programmes can potentially affect the patients’ physical activity levels and quality of life for a number of years (95).

Interactions

Analgesics or other pain-modulating substances, such as non-steroidal anti-inflammatory drugs (NSAID), are normally used to alleviate pain. Products such as NSAIDs are able to modify the pain experience by influencing both the spinal and peripheral receptors, for example, through reduced sensitisation. NSAIDs should not be prescribed to individuals with risk factors for or established cardiovascular disease. However, low-dose NSAIDs are non-prescription drugs. Analgesics are sometimes indicated for minor traumas that do not affect the general activity level, e.g. a toe fracture in a football player. However, by using analgesics, the protective aspects of the sensation of pain itself are partly eliminated, entailing a risk of making the injury worse.

Contraindications

Pain is not altogether a bad thing. Humans are equipped with a pain system that, among other functions, acts as a defense mechanism against trauma and other damaging impacts on the body. It is important to remember that high-intensity training in connection with fibromyalgia is usually contraindicated at first (see above), while acute pain may be a sign of injury, whereupon physical activity should be avoided.

Always listen to the body. The treatment of acute pain due to distortion of the knee ligaments or a collision-induced fracture rarely poses a problem. However, the gradual onset of pain, often the result of an overuse injury, can be a bigger problem, while long-standing pain remains the greatest treatment challenge.
References


