

REVIEW ARTICLE

## Pain Management and Yoga

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*In this review, subjects investigated include: the importance of pain; relaxation techniques in pain treatment; pain and respiration; the context of pain; depth psychology and pain; depression, helplessness, and control; life style improvements; pain and personal growth; interpersonal aspects of pain; some unexplained issues related to yoga and pain; and systems approach and the use of yoga in pain control.*

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### INTRODUCTION

Pain often has a powerful impact on human feelings and behavior. It may become a potent motivator forcing us to cope with its cause, but it is also a debilitating and immobilizing force. For the sake of this paper "emotional" and "somatic" pain will not be strictly distinguished and separated. It is difficult to discriminate between the somatic and emotional components within the pain experience. Already Marshall<sup>1</sup> in Melzack, proposed that the emotion of fear is the crucial and integral factor within pain perception.

According to Melzack and Wall,<sup>2</sup> pain perception is substantially regulated by the gate controlling mechanism localized in the dorsal root entry zone of the spinal cord. This gate mechanism is influenced by many factors including brain centers. The intensity of pain is modulated even before entering the brain. Other powerful modulating mechanisms operate at the level of brain pain centers. The secretion of endogenous morphine-like substances is probably one of the most important mechanisms. Thus there is a neurophysiological basis for the modulating effect of the central nervous system on the perception of the pain with a clearly identified somatic origin.

Apart from theoretical consideration, there is also empirical and experimental evidence that yoga and psychotherapy are effective in pain management. This paper deals with this aspect of pain treatment.

### THE IMPORTANCE OF PAIN

Pain is an important, even if unpleasant, signal or beacon to avoid an injury. Some people are not capable of perceiving pain. This causes a lack of self-care and self-protection, and

resulting health problems including premature death.

The most logical way of treating pain is to remove, if possible, the danger to the integrity of an organism which is communicated by painful feelings. An obvious example is proper dental treatment in toothache. If the removal of the cause of pain is not possible at the moment, or may not be at all possible, the signal or communicative functions of pain become less important. Nevertheless an ideal treatment of pain should decrease distress, and in the same time it should maintain or even increase self-awareness.

Self-awareness has protective effect, and it increases resistance to diseases by seeking early preventive action (e.g. rest or seeking expert advice). Self-awareness is also one of the basic principles of yoga.<sup>3</sup> It is very interesting, that the meditative techniques based on increased self-awareness were successfully used in the treatment of pain.<sup>4</sup> The pain alleviating mechanism of this meditation technique is not clear. Part of the process is that most meditation techniques include partial relaxation which itself is often pain relieving. During self-awareness increasing meditation techniques a trainee should cultivate the role of an impartial observer and detached witness of all subjective phenomena including pain. In this way the frame of reference in which pain is experienced changes. Using meditation to perceive pain may be also considered as a paradoxical technique decreasing the fear of pain.

Various psychotherapeutic techniques also increase self-awareness. E.g. self-monitoring is often used in pain management. A patient is expected to report in detail when and under which circumstances or during which activities his/her pain appears. Beside possible practical suggestions resulting from self-monitoring data, the technique itself may be pain relieving.

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## RELAXATION TECHNIQUES IN PAIN TREATMENT

Relaxation is considered as the physiological opposite to stress enabling regeneration and recuperation after stress. Complete or differential/partial/relaxation is also considered as the integral component of various yogic practices. The effect of relaxation techniques could be partially explained by the nonspecific decreased activation of the brain due to decreased input of stimuli from the internal as well as the external environment. Decreased anxiety and depression by relaxation techniques influences the emotional component of pain. The capacity of relaxation to decrease depression in pain patients has been described by Peniston.<sup>5</sup>

Relaxation techniques were successfully utilized to treat the pain in various conditions: Surgical distress,<sup>6</sup> tension and migraine headaches,<sup>7-11</sup> dysmenorrhea,<sup>12,13</sup> ulcerative colitis,<sup>14</sup> in oncology,<sup>15,16</sup> in arthritis,<sup>17,18</sup> in vertebragenic problems,<sup>19,23</sup> and in dentistry.<sup>24,25</sup>

Various techniques have been employed in the treatment of pain. Jacobson's progressive relaxation, based on muscle awareness and relaxation, autogenic training, based mostly on passive concentration and autosuggestion, hypnosis-relaxation, and various yogic and meditative techniques can be beneficial. One very promising technique for pain management is called applied relaxation. A patient learns a basic relaxation technique. Afterward he/she learns to induce the relaxation state very quickly, so that it may be applied whenever painful symptoms appear.<sup>26</sup>

Different relaxation inducing techniques have common features like muscle awareness and relaxation, breath awareness, autosuggestions, and suitable imagery.<sup>27</sup> These elements are present also in yogic relaxation techniques like "Shavasana" and "Yoga Nidra."<sup>28</sup> The author of this paper has found "Shavasana" easier to learn for most people than autogenic training.

There are also some limitations to the use of relaxation techniques. Most of them require some systematic training, before they can be effectively used for pain management. Patients' active cooperation is necessary. Patients with hysteric personality features are seldom able to cooperate systematically and independently. It is not easy to practice a relaxation technique when there is acute pain, especially with no previous experience with relaxation techniques. In this regard the therapist leading a patient through a technique may be very useful. Tape recordings are also used.

On the other hand immediate substantial relief after relaxation often motivates a patient to practice regularly.

### PAIN AND RESPIRATION

Pain modifies frequency, depth and patterns of respiration. This may be caused by pain's emotional component as well as by the phylogenetically understandable tendency to

immobilize the affected area to avoid further injury. If the affected area is localized at the trunk, this may mean considerable restriction of respiratory movements of the chest and/or abdomen. Especially in long-term painful disorders, pathological dysfunctional respiratory stereotypes may develop which complicate the original condition.

During the exhalation most skeleton muscles tend to relax, and there is some indirect evidence that also central nervous system becomes less activated. Quick and superficial exhalation and the emphasis on the inspiration phase may only increase painful tension. On the other hand voluntary change of respiratory pattern, like lengthening exhalation and avoiding the breath retention after inhalation, may induce more relaxation and may also decrease pain.

So called "breathing into an affected area" is a term used by yogis. They say that in this way some "energy" is conveyed into the area. Without disputing this notion, it may be explained also as a local relaxation caused by voluntary prolonged exhalation or as the mobilization of previously immobilized area by respiration. Even simple passive observation of breathing ("breath awareness") induces calmer slower respiration. This principle is used in many relaxation techniques.

### THE CONTEXT OF PAIN

Beecher described great endurance to pain in some soldiers after combat injuries. These soldiers expected that they would be transferred from the combat zones as result of their injuries. This context of escaping from a life threatening situation decreased their distress, and therefore their need for analgesic drugs was reduced when compared with the pain from similar injuries during peace time. Surprisingly, resistance against pain has been also mentioned in various martyrs and in the people strongly committed to some idea. Commitment as opposed to alienation was described as one of the health protecting factors in stressful life events.<sup>29</sup> On the other hand even a comparatively unimportant health problems may cause considerable pain and discomfort. The use of pain to escape from psychological and/or interpersonal problems is well known phenomenon. Some psychotherapists consider the change of the context of a patient's experience as a crucial part of therapy. The next sections related to psychotherapy are closely connected with this change of context.

As mentioned earlier, the witness or detached observer attitude cultivated by many yogic techniques may change the context of pain, too. Self-understanding and inner experience may become as or even more important than pleasure and pain. Various related and unrelated philosophical and religious concepts of East and West have been also used to transform the context of pain and to enhance healing. This does not necessarily mean that the change of context is the only mechanism involved in these approaches.

## DEPTH PSYCHOLOGY AND PAIN

Classical psychoanalysis has searched for the source of the patient's problems in the unconsciousness. Various psychoanalytic authors stressed different aspects of unconscious content: repressed sexual impulses, feelings of inferiority, archetypes related to the experience of the human race as a whole, etc. "Primal therapy," even if very unorthodox in its technique, seems to be related to psychoanalysis. Its author, A. Janov, emphasized the importance of repressed and unintegrated pain, especially the pain occurring during the early stages of human development. This repressed and unintegrated pain is considered to be the main cause of various mental and psychosomatic diseases. According to Janov, traumatic painful experiences occurring during intra-uterine development and up to 6 months of age usually manifests on the deeper somatosensory /visceral/ level. On the other hand, traumatic pain occurring between 6 months and 6 years manifests on higher affective level, while unintegrated pain occurring later in life appears to manifest on the superficial cognitive level. It is usually appropriate to start primal therapy on the more superficial level before going deeper. The re-experience and better integration of traumatic pain seem to be the crucial parts of Janov's technique. Janov described positive results of his treatment in many otherwise resistant disorders. Janov and Holden<sup>19</sup> also developed a neurophysiological theory related to this technique.

"Psychogenic pain" and "pain-prone patients" were described by Engel: "Pain-prone patients repeatedly or chronically suffer from one or another painful disability, sometimes with and sometimes without any recognizable peripheral change. In their choice of pain as the symptom, a long-term background of guilt and/or guilt-provoking situations precipitating pain can be expected."<sup>21</sup> Engel's concepts of psychogenic pain were investigated by Adler et al.<sup>22</sup> They found in these patients several significant factors related to patients' past and their childhood experiences in the family of origin.

There is mutual interaction on unconsciousness and consciousness, of the present and the past. Past experiences influence the present perception of pain and present way of coping with painful problems often change the frame of reference of past painful injury. Pain in the present often actualizes long forgotten memories. From this point of view pain is an excellent opportunity for deeper self-understanding. Modern psychoanalysis is often concerned with the part of the personality called ego and related to the individual experience and conceptions of himself. It is difficult to understand how long-term intensive pain may be either ego-debilitating in some people or ego-strengthening in other ones. The earlier mentioned concepts of commitment and meaningfulness are perhaps important here. The better integration of past traumatic experiences and its changed frame of reference may come as a result of therapy but also may

occur spontaneously. An elderly priest who was repeatedly jailed for his incorruptibility related the following dream: He saw his life as two pairs of footprints, one was his and the second was God's. During the most difficult times of his life, there was only one pair of footprints. He asked God why he let him go alone in these most difficult times. God replied: I did not leave you, I was carrying you in my hands."

The freedom from individual and/or collective rigid patterns of pain perception is one of the aims of yoga. Yogis, of course, have used different terminology. The "freedom from the fruits of karma" may be close to the freedom from painful /and also pleasant/ past conditionings.

The effects of many, especially mediative, yogic practices on the unconscious mind are often mentioned. Self-analysis is generally considered by yogis as one of the ways to eradicate strong negative emotions. Of course, there are some steep pathways along which it can be safer to travel with an experienced bona fide guide. Even in the most affluent countries long-term individual psychotherapy is not accessible or acceptable for most people. Some of them find yogic practices as the alternative which meets their needs. The combination of yoga and psychotherapy is possible, and perhaps should be encouraged.

## DEPRESSION, HELPLESSNESS, AND CONTROL

Chronic pain without any apparent reason may be the only overt symptom of depression, and on the contrary long-term painful illness is often the cause of depression. Helplessness<sup>23</sup> and depression seem to be very close. Learned helplessness often appears after chronic exposure to strong traumatic situations without any possibility to control over them. On the other hand the possibility to control pain, even to a certain degree, may considerably increase pain tolerance. Mere understanding the cause, mechanisms, and meaning of pain may improve tolerance, too.

There are many concrete techniques which can be used to cope with various kinds of pain; e.g. slight stimulation of a painful area may activate the strong nerve fibres which are pain suppressing.<sup>24</sup>

Many yogic techniques can be used to improve the control of pain. The importance of relaxation was already mentioned. Local relaxation of a painful area may be induced directly, by the activation of the antagonistic muscle groups or in postizometric way. Gradual and gentle stretching can have similar effects. Strengthening of some weakened muscles and correction of unhealthy postural or kinetic patterns can be also pain relieving. Beside this some, especially breathing and meditative practices, may directly influence the central nervous system and increase tolerance and control.

From the psychotherapeutic point of view it is more valuable if a patient is able to control his/her difficulties himself, e.g. by relaxation or yoga. This is preferable to

outside help coming in an unpredictable manner.

### LIFE STYLE IMPROVEMENTS.

Periods of depression in chronic painful conditions, passive reliance upon outside assistance, and the frustrations of one's attempts to cope with pain have definite impact on life style. One of the usual patterns is passivity alternating with overactivity precipitating further pain difficulties. This creates the vicious circle of deterioration.

One of the aims of treatment and rehabilitation is to enable the patient to use his abilities in a reasonable way without over-straining and also without unnecessary guilt. Suitable use of yoga combines activity with recuperation and rest in an integrated way. Its regular practice makes the life style less chaotic and better organized.

### PAIN AND PERSONAL GROWTH

Psychological problems and difficulties of people suffering from chronic pain were investigated by many authors. But it is also the case that pain can enhance personal growth, self-understanding and sympathy for other people. Levine<sup>35</sup> described cases in which people who were able to use pain in a constructive manner improved their physical condition. Levine underwent harsh personal experiences with a painful disease and treated many pain sufferers. His approach is based mostly on Eastern systems like Zen and Yoga. Beside relaxation and self-awareness on somatic and psychological levels he emphasized also the transpersonal aspects of pain: Brotherhood of those who suffer all over the world, sympathy with all, the ability to forgive, etc. His approach is very different from empty moralizing. It seems to be based on great empathy, acceptance, and unconditionally positive regard on the therapist's side. The aim of a therapist is not to convince a patient intellectually but to help him to discover sympathy and kindness towards himself and others inside. In this way a new personality center is being created which is able to become open even to negative emotions, to repressed traumatic experiences, and to frustrated needs. This awareness of and openness to emotions can be considered the opposite of alexithymia described by Sifneos<sup>36</sup> as the common feature of various psychosomatic illness.

Yogis from times immemorial have considered pain and suffering as potentially useful in the process of acquiring self-knowledge and secret powers. Some of them went so far to induce pain in themselves voluntarily. This would not be considered appropriate in a professional setting by most therapists, even if some experienced psychotherapists may dare to overcome some resistant problems in this way (e.g. Haley<sup>37</sup>).

### INTERPERSONAL ASPECT OF PAIN

The idea of health as the rigid and unchanging state or the mere absence of a disease has become obsolete. It is much

more reasonable to consider health as the adequate interactions of a changing organism in a changing environment. Interpersonal relations are a crucial part of these interactions for all human beings. Interpersonal relations are often influenced by chronic pain. Some people withdraw and become lonely and isolated, others may become hostile, spiteful, and aggressive. People who are close to the ill person may react with hyperprotectivity, avoidance, guilt, resentment. Family therapy in somatic medicine is not common, even though it would be desirable and useful in healing relationships.

Sometimes Yoga is considered individualistic. Just the opposite may be truth. A socially isolated person may find new friends and relationships among fellow trainees in a yoga group. Mutual help from a patient suffering from the same disease has been recognized as worthwhile and valuable because of emotional support, practical mutual assistance and a mutual understanding. Even the individual practices of yoga have definite interpersonal aspects. It is very helpful if people living in the same household as the person practicing yoga are informed, and they understand the meaning of practice. It is still better if the spouse or somebody close to the ill person is also actively involved in yoga and encourages it.

### SOME UNEXPLAINED ISSUES RELATED TO YOGA AND PAIN

The extreme resistance against pain and injury which was demonstrated by some yogis is difficult to explain. People describing such feats often mention a kind of ecstasy or exaltation, e.e. something which could be perhaps called an altered state of consciousness. Whether these states are comparable with hypnotic analgesia is not clear. Many therapists using hypnosis tend to explain hypnotic analgesia by partial dissociation of the various components of the personality. There are many hypnotic techniques used in pain therapy: dissociation, changed interpretation of pain signals /e.g. like warmth or heaviness, amnesia, positive and negative hallucinations, changed time perception, etc.<sup>38</sup> Hypnosis like relaxation, has been successfully used in pain therapy.<sup>39</sup> The results vary according to the hypnoability of a patient. Hypnosis may be demanding on a therapist and his time.

It should be repeated that it is not clear how much the pain resistance of some yogis can be related to hypnotic phenomena. The more systematic and thorough research in this area is desirable.

### SYSTEMS APPROACH AND THE USE OF YOGA IN PAIN CONTROL

The effects of yoga take place on different levels, and various somatic and psychological subsystems may be influenced by its practice. This is also true for social systems, e.g. family relationships. Various systems and subsystems

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mutually interact, and a therapist's intervention should be planned and performed with regard to these interactions. When using yoga in therapy, more subsystems are involved at the same time because of the use of various physical and mental practices, nutrition, etc.<sup>40</sup> From this point of view individual differences and broad context are important. The choice of suitable yoga practices for a particular trainee is dependent on general health, personality, values and motivations, family life, job, time available, living conditions, previous experience, and positive or negative expectations among others. The "prescriptions" of yoga practices for various diseases, even if useful as general information, should be considered with this reservation.

### CONCLUSION

Pain and its control is not only a medical and psychological matter. Pain and the threat of pain have been used and abused for personal and political aims throughout the ages. This is another reason why techniques for self-control, such as yoga, have been and are becoming a powerful means of gaining internal freedom even in the most unfavourable conditions. It may be understandable why some totalitarian rules were suspicious of yogic, mental, and self-control practices. Balson et al<sup>41</sup> investigated the resistance against

coercive persuasion (sometimes called "brainwashing"), and found that successful survivors intuitively used autohypnosis and meditation-like states to counteract extremely hostile circumstances. According to these authors altered states of consciousness increased the tolerance against pain and enhanced regeneration even in harsh conditions.

Of course, the use of yoga and self-control techniques certainly have philosophical and social consequences in less dramatic situations, too. These techniques protect independence, self-confidence, and the human dignity of suffering people. Generally prevailing fear of pain and suffering can be counteracted in this way which may add more freedom and fullness to life.

### SUMMARY

The use of yoga and yoga related techniques in pain management is reviewed and discussed. Self-awareness, relaxation, approaches which use respiration, increased self-understanding and self-acceptance, changed context of pain, increased control, life style improvements, group and social support proved beneficial. The use of yoga in pain management has its transpersonal and philosophical dimensions. Independence and self-confidence of suffering people may be protected in this way.

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#### INDEX TERMS

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