

## **“Your back is lopsided!” - The effect of verbal instruction and experimental pain on body image**

Our body is an inherent and core part of our life experience. Socio-cultural learning of how the body should look like, and how it should be experienced, is the key to our attitudes and beliefs. A bodily (physical) experience, well-known to everyone is both pleasant and painful – both types of experiences may be influenced by social learning.

It has been demonstrated that patients with chronic pain, e.g. with chronic low back pain perceive their back as bigger, swollen or lopsided despite the fact there is no objective indicator of such a state. It may be assumed that such a perceptual distortion is caused by brain alterations. Interestingly, it remains unknown if body image is changing when in acute pain, which is typically associated with body damage. It can be hypothesized, that experimental pain, as a correlate of tissue damage, will significantly modify body image.

Body image is described as a mental representation of the body in our mind. Contrasting body image and pain, it may be postulated, that body image is a more theoretical/subjective (abstract) construct while pain is more physical/objective. However, the same painful stimuli, applied to different people may be experienced differently. Therefore, neither body image, nor pain is objective body experiences; both of them may affect each other. However, a distorted body image might lead to behaviour change, e.g. avoidance behaviour especially concerning body part of altered perception. On the other hand, pain itself might disrupt the body image due to previous associations between pain and physical change (damaged-induced) body.

Body image is created, through individual experiences, as well as through cultural standards. Via verbal communication, it is evaluated, whether body fits the health and appearance ideals. Therefore, it is assumed, that a suggestion provided by a trust-worthy person may have the power to influence what we think about own body. It is one of the stand questions is to ask, whether verbal suggestion delivered by a health-care provider can significantly change the body image. If verbal suggestion modifies body image, will these changes lead to sensitization of the individual and enhanced sensitivity to pain? Is such an alteration of the body image similar to this induced by the pain itself?

In this project, two experiments are proposed. In each of them, body image and pain sensitivity will be assessed. In the first study, healthy subjects will be exposed to low back pain induced experimentally using capsaicin injection, which causes severe pain lasting up to 20 minutes. The body image and pain sensitivity assessment will be performed before pain induction, during the pain experience, and after the pain has worn off completely. The second experiment will be conducted in line with typical for studies on verbal suggestion methodology. Verbal suggestion (nocebo) will be given to the subjects, informing them that their back is lopsided and can be fragile; this will be enhanced by a visual illustration of a lopsided back. In the placebo group, subjects will be informed, that their back is perfect and ideal, healthy, and strong. Control group will receive information, that their back is typical; no deviation is present. After the study completion, each volunteer will be fully debriefed. Collected data will be analysed between groups in both experiments, as well as between experiments (pain injection/verbal suggestion).

This project will allow systemizing knowledge concerning body image and factors which contributes, to its changes. Little is known on body image in acute pain and the influence of verbal suggestion, that often occur spontaneously in a clinical environment. Therefore, this project will contribute significantly to the psychological aspects of pain and body image. The field of pain science will be developed by knowledge about negative experiences toward the body (acute pain and verbal instruction), and how it reflects body image.