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Proprioception in somatoform disorders

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Abstract

20 patients with somatoform disorders as defined by DSM-IV and 20 healthy controls were examined for their proprioception. Several psychophysiological theories of somatoform disorders suggest biased proprioceptive abilities. The primary question is, whether we may find an inaccurate myogen perception in somatization as suggested by the approach of Bischoff [Wahrnehmung der Muskelspannung (Perception of muscle tension) Gottingen: Hogrefe (1989)] or a more precise proprioception as may be derived from concepts of a higher awareness of body reactions [e.g. Barksy, A. J. (1992) Amplification, somatization, and the somatoform disorders. *Psychosomatics*, 39, 28–34; Salkovskis, P. M., & Clark, D. M. (1993) Panic disorder and hypochondriasis. *Adv. Res. Ther.* 15, 23–48]. Furthermore it is expected, that somatoform patients perceive their muscle tension more intensely than do healthy subjects. Proprioceptive abilities were tested using a visual EMG biofeedback task. Resulting objective data and subjective ratings were analyzed within a psychophysiological regression approach which allows one to estimate the reliability, precision and intensity of proprioception. Results revealed that somatoform subjects demonstrated a more precise but not a more intense perception of muscle tension than did healthy controls. © 2001 Elsevier Science Ltd. All rights reserved.

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Somatoform disorders are psychopathological disturbances, which cause great expense to the health services. Nevertheless this kind of illness is often neglected in diagnosis despite its inclusion in psychiatric classification systems since DSM-III-R (APA, 1980) and ICD-10 (WHO, 1991). There is little experimental evidence for the existence of this nosological category. It is important therefore to find psychological and physiological conditions for its etiology and maintenance.

The interoceptive modes of cardioception and viscerception have been examined in patients

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with somatoform disorders for several times (e.g. Barsky, Brener, Coeytaux, & Cleary, 1995; Ehlers, 1993; Tyrer, Lee, & Alexander, 1980). Proprioceptive abilities however have rarely been investigated in such patients (e.g. Sarnoch, 1995; Sarnoch, Adler, & Scholz, 1997). This is surprising and noteworthy, because persons with somatoform disorders often report disturbances in movement and missensations within the muscular–skeleton system, without any organic results (Jensen, 1994).

In agreement with the conception of Bischoff (1989) it is suggested that patients with somatoform disorder may show inaccurate proprioception, i.e. these persons do not become aware of bodily changes like muscle tension. These mechanisms therefore lose their behaviour-prompting function, so that no coping behaviour can be initiated. This phenomenon is often discussed in connection with tension headache patients (Bischoff & Wilker, 1979; Fowler & Kraft, 1974). The lack of coping causes the maladaptive somatic states to become chronic and also leads to a weakening of the body. This again results in somatization symptoms like pain.

In contrast to this conceptualisation some authors propose an increased awareness and a more precise perception of bodily stimuli. Along with this proprioceptual peculiarity goes a special kind of information processing (see Scholz, Ott, & Müller-Sinik, 1997, for memory bias in somatoform disorders). Body-related perceptual styles are conceptualized as crucial for the development of somatoform disorder. Barsky and colleagues (Barsky, 1992; Barsky & Klerman, 1983; Barsky & Wyshak, 1990) described a special perception style in somatization, the so called “somatic amplification”. This perception style is supposed to be grounded on selective attention to bodily information and leads to misinterpretation of somatic stimuli as harmful and intense. This interpretation pattern is seen as one cause of typical illness behaviours in somatization like doctoral hopping or checking behaviour. Salkovskis and Clark (1993) described a vicious circle of bodily missensations and interpretation of this perception as dangerous and Hitchcock and Mathews (1992) observed such an interpretative bias in persons with a tendency towards hypochondriasis. From this concepts it could be concluded, that patients with somatoform disorder should show a more precise proprioception, because they have a higher awareness of body related processes.

Although many theoretical concepts highlighten the association between interoception and cognitive peculiarities, just a few experimental studies provide data about a possible interoceptive bias in somatization. So Barsky et al. (1995) could not show a biased heartbeat perception in hypochondriac patients compared with non-hypochondriacal persons, whereas Tyrer et al. (1980) reported hypochondriac patients to be more accurate in their perception of their heartbeat than are phobics. Similar results for somatoform patients are reported by Dahme, Dedic, and Ungruth (1997). Within a signal–detection–paradigm, they found that persons with somatoform disorders show a more precise cardioception than do healthy subjects.

Much of the research on perception of bodily sensations has been concerned with cardiac activity, but — as already stated — cardioception is just one aspect of interoception (Vaitl, 1996) and could be more relevant to anxiety or panic than to somatization. Proprioception as another aspect of interoception seems to be more relevant for patients classified as somatoform (Bischoff, 1989; Sarnoch, 1995). Thus Sarnoch et al. (1997) could show a less precise but more intense myogen perception within a somatoform analogue sample. This effect has been demonstrated in ROC-curves and their post hoc analyses.

The first aim of this study is to specify the proprioceptive style of somatoform patients. Focussing on myogenic proprioception, it should be investigated whether this bias goes along

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