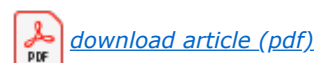


THERAPEUTIC BOXING + ACUPUNCTURE IN THE TREATMENT OF COMPLEX POSTTRAUMATIC STRESS DISORDER (CPTSD) - AN INTRODUCTION TO AN INNOVATIVE COMBINATION OF TREATMENT METHODS INCLUDING A CASE REPORT

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ABSTRACT

Background: Complex posttraumatic stress disorder (CPTSD) results from particularly severe, often long-lasting and/or repetitive trauma. In addition to the familiar symptoms of Posttraumatic Stress Disorder (PTSD) (symptom triad of recollection, avoidance, hyperarousal), CPTSD is characterised by a complex structure of cognitive, affective and social interaction aspects. As a result, all areas of the affected person's life may be impaired. Those affected by CPTSD often experience lower self-esteem and reduced self-efficacy compared to those who are not affected (cf. Simmen-Janevska et al., 2012).

Therapeutic boxing (TB) uses movements, techniques and exercises derived from boxing to enable practitioners and students to experience and relearn body awareness and needs. This can open up previously unknown or long-lost experiences of self-efficacy for the participant.

As with other psychovegetative indications, acupuncture is used in the treatment of PTSD and CPTSD. The combination of acupuncture and conventional guideline-based trauma therapy has already proven to be more successful for PTSD than conventional trauma therapy alone (Engel et al., 2014). Acupuncture impacts systems involved in emotional sensation, such as the serotonergic system (Yoshimoto et al. 2006) at the transmitter level, or the limbic system and the prefrontal cortex at a functional level (Wahbeh et al., 2015), and appears to be suitable for alleviating PTSD-associated symptoms (Ding et al. 2020). Based on the observed, assumed, and proven mechanisms of action of both therapeutic methods presented here, a combined application of the two appears to be useful in the treatment of Complex Posttraumatic Stress Disorder.

Goals: This article examines the combination of therapeutic boxing and acupuncture with regard to CPTSD on the basis of a case report. A hypothesis regarding the possible effectiveness of therapeutic boxing is introduced. In addition, the state of research regarding therapeutic boxing in general, and the use of acupuncture for PTSD/CPTSD in particular is explored.

Case description: The TB student, who is diagnosed with CPTSD and severely impaired in various areas of her life, had far-reaching experiences of increased self-efficacy attending therapeutic boxing which had a positive effect on her everyday life outside of therapeutic boxing. Acupuncture helped her to cope better with CPTSD-related physical symptoms and intense feelings that were perceived as uncomfortable.

Conclusion: Based on the observations and statements described in the case report, it can be hypothesised that practicing therapeutic boxing may lead to experiences of increased self-efficacy.

(Re-)Learning to act out suppressed feelings of anger and being able to appropriately manage one's own strength might be identifiable mechanisms behind the observed experiences of increased self-efficacy of

those affected by CPTSD. Therapeutic boxing and acupuncture - either on their own or in combination - appear to contribute to the alleviation of even severe complex post-traumatic stress disorders. Considering the potential scientific and social relevance, there appears to be a well-founded and urgent need for further research.

INTRODUCTION

Both post-traumatic stress disorder (PTSD) and complex post-traumatic stress disorder (CPTSD) represent an all-encompassing burden for those affected and often pose great challenges for the practitioners working with them in therapeutic contexts.

Even though research in these areas has proliferated in the last decade, more studies into suitable therapeutic interventions, particularly for the treatment of CPTSD are still needed (Coventry et al., 2020).

This article explores the combination of therapeutic boxing and acupuncture with regard to complex post-traumatic stress disorder based on a case report and the current state of research regarding the use of both methods in the treatment of CPTSD. Therapeutic boxing utilises movements, techniques and exercises derived from boxing in order to enable (or, if necessary, relearn and train) body awareness and emotional sensations. In addition, a starting point for hypothesising a possible mechanism of action of therapeutic boxing is discussed: Observations made during the boxing therapy intervention described in this case report as well as previous studies and case reports indicate that therapeutic boxing may lead to previously unknown or repressed experiences of increased self-efficacy (defined as the varying degrees of confidence in a person's own ability and competence to cope effectively with task demands; Bandura, 1986) in participants with CPTSD. The controlled expression of anger or aggression experienced in therapeutic boxing appears to play a central role here.

As with other psychovegetative indications, acupuncture is sometimes used for PTSD- and CPTSD-associated complaints. The combination of acupuncture and conventional guideline-based trauma therapy has already been shown to be more successful than conventional trauma therapy alone (Engel et al., 2014). However, the evidence regarding its effectiveness is not yet sufficient enough to speak out concrete recommendations regarding its regular use (Grant et al., 2018).

PTSD/CPTSD

In contrast to posttraumatic stress disorder (PTSD), complex posttraumatic stress disorder (CPTSD) is not caused by a single experience but by particularly severe, long-lasting and repetitive traumatic experiences (so-called type II traumas). Examples include sexualised violence or physical abuse in childhood (Maercker et al., 2013). Being affected by human trafficking or sexual exploitation, armed conflicts, torture or other forms of severe political or organised violence can also lead to complex posttraumatic stress disorder (Herman, 1992). In addition to the familiar symptoms of PTSD (symptom triad of recollection, avoidance, hyperarousal), CPTSD displays a complex structure of cognitive, affective and social interaction aspects and can therefore affect all areas of the affected person's life. Central aspects are an impaired affect regulation and impulse control, a persistent dysphoric-depressive mood, feelings of hopelessness and deep despair, which is sometimes accompanied by chronic latent suicidal tendencies. Potentially severe self-harm can also occur (Maercker et al., 2013). Disorders of psychological and physical self-perception can result in particular from early and/or long-term experiences of abuse. Feelings of helplessness, a lack of drive, feelings of guilt and shame, self-blame and self-hatred, as well as disgust with one's own body scheme are also common signs of CPTSD (Maercker et al., 2013; Herman, 1992; van der Kolk et al., 2005). There may be an intense desire for revenge towards the perpetrator(s), but also a retrograde idealisation or paradoxical feelings of gratitude (see Schäfer et al., 2019).

The self-care of those affected is often neglected, as their own needs are either not recognised, or not taken into account. The maintaining of relationships is often severely impaired: relationships can be broken off, and social withdrawal or even isolation can occur. Characteristic perceptual or consciousness disorders include dissociative states or dissociative episodes, amnesia or depersonalisation.

Reduced levels of perceived self-efficacy are associated with a higher risk of developing more severe symptoms after traumatic experiences (Simmen-Janevska, 2012). A more pronounced sense of self-efficacy, on the other hand, is associated with better prospects of being able to overcome the burden of traumatic experiences (Brown et al., 2016; Simmen-Janevska, 2012).

In the ICD-11, introduced in 2022, CPTSD is listed as an independent diagnosis for the first time with the number 6B41. Within the ICD-10, complex post-traumatic stress disorder is categorised as F62.0 'Persistent personality change following extreme stress'. The lifetime probability of developing conventional PTSD is given as 1.5-2.3% for Germany (Schäfer et al., 2019 in: S3 Guideline Posttraumatic Stress Disorder) and is even estimated at 10-12% for women, and 5-6% for men (Knaevelsrud, 2013). A representative German study estimates the one-month prevalence of CPTSD at 0.5% (Maercker et al., 2018). Girls and women are affected about twice as often as boys and men (Gutgesell, 2011), which is linked to the high incidence of

sexualised violence against women (Huber, 2007). Around two thirds of (C)PTSD sufferers do experience chronification (Kessler et al., 2017).

For those affected, CPTSD results in a considerable amount of suffering. Despite this, the provision of specific trauma therapy services in Germany is currently described by those affected, therapists and researchers as still inadequate: A scientific evaluation undertaken last year (Schwartzkopf et al., 2023), concluded that the average waiting time for a specific trauma-related therapy spot is currently 13.47 months. By comparison, the average waiting time for conventional psychotherapy is six months (Schwartzkopf et al., 2023); according to the German Federal Chamber of Psychotherapists (BPtK), a waiting time of up to a maximum of three months is considered acceptable.

With regard to the specific therapy of (C)PTSD-associated symptoms, *Eye Movement Sensitisation and Reprocessing* (EMDR) has been established as a scientifically proven/evidence-based method (e.g. Hase et al., 2013). Dialectical behavioural therapy (DBT) has also been shown to be effective for PTSD (Bohus et al., 2013). However, there is still a need for the development of further proven therapy methods and strategies, as well as research into their effectiveness.

THERAPEUTIC BOXING

In therapeutic boxing (TB), participants experience psychological and physical self-empowerment and strengthening with the help of movements, techniques and other boxing content.

Unlike conventional boxing, there is no direct physical contact between the practitioners in therapeutic boxing. While the goals in conventional boxing are primarily athletic, therapeutic boxing primarily pursues therapeutic goals with all the exercises and materials used. The setting is fundamentally therapeutic. Ideally, experiences that are considered positive in therapeutic boxing are transferred to the participants' life experience outside of training. In therapeutic boxing, every exercise is a co-operation and there is no competitive component to trainings. Accordingly, there is no sparring. Psychological and physical aspects of the patients participating in therapeutic boxing and their respective diagnosed complaints and disorders are taken into account in the planning and execution of the training. No previous knowledge of boxing or martial arts is required. Therapeutic boxing as a sports and exercise therapy intervention is suitable for almost all age groups. The aim of therapeutic boxing is to transfer and integrate the experiences gained by the boxing students during training (including increased self-efficacy) into their daily lives outside of training (see Klug, Flentje and Flentje, 2024).

People with a wide range of psychological and psychosomatic symptoms can benefit from therapeutic boxing: Depressive disorders, all subtypes of attention deficit hyperactivity disorder (ADHD), complex and conventional post-traumatic stress disorder (CPTSD/PTSD) and trauma-related disorders, emotion regulation and personality disorders such as emotionally unstable personality disorder (borderline personality disorder), burnout syndrome and some anxiety and panic disorders are among the indications for which therapeutic boxing is used (see Klug, 2022).

The primary psychological objectives of therapeutic boxing, which has been part of sports therapies for about 15 years, include improved access to one's own emotions, the processing and reduction of fears and insecurities, as well as a reduction of the level of perceived stress and inner tension. A temporary interruption of distressing mind loops, the recognition and respect of personal boundaries and the strengthening of social relationships are also among the objectives. Female victims of early and prolonged experiences of violence in particular are often unable to express anger outwardly (Solomon and Heide, 1999) In addition, prolonged experiences of violence can result in learned helplessness (Foa et al., 1989). Consequently, facilitating an accepting and appreciative sensation and expression of anger and aggression in a safe therapeutic context is an important objective, which will be discussed in more detail below.

Primary somatic objectives of therapeutic boxing include building or improving strength and endurance, improving posture and body awareness, improving physical coordination, balance, stability and gait, as well as improving the ability to react and concentrate (cf. Klug, 2022).

Table 1. Aims of therapeutic boxing according to Klug, P., Flentje, J. and Flentje, L. Material: Further training at the Sports Therapy Academy, Hannover Medical School, Germany (2024)

Aims of therapeutic boxing	
Primarily psychological goals	Primarily somatic goals
<ul style="list-style-type: none"> • Sensing personal emotions (enabling or improving) • Emotional regulation 	<ul style="list-style-type: none"> • Improve physical posture • Improve physical strength & endurance

<ul style="list-style-type: none"> • Strengthening of social relationships • Reduction and processing of fears & insecurities • Reduction of inner stress and tension • Breaking through negative mind loops • Sensing and accepting anger and aggression within a safe space • Perception of being noticed and becoming visible • Increased resilience • Recognising and respecting personal limits • Improved everyday coping capacities 	<ul style="list-style-type: none"> • Improve balance & coordination • Improved stability and gait safety • Improved ability to react and focus
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THERAPEUTIC BOXING TRAINING PROGRAMME

The boxing students gradually learn basic steps, punches, evasive skills and cover techniques of boxing. Depending on the existing symptoms, they are introduced to punching techniques on hand punch pads, possibly wall punch pads or double end bag, as well as exercises for maintaining, increasing, recovering, and overcoming distance. Trainings can be held as individual or group training, depending on the needs of the participants. Within groups, individual and partner exercises can be mixed, initially only individual exercises may be carried out. The first training session for each participant is preceded by a detailed preliminary discussion in which the participant's individual goals, individual needs, potential triggers and personal boundaries are discussed and documented. Each therapeutic training session is preceded by a conversation in which potential daily modifications regarding the above-mentioned parameters are evaluated. During each session it is emphasised that communicating personal needs and limits is explicitly encouraged. The therapeutic boxing lesson is preceded by both a general and boxing-specific warm-up. With regard to the individual lesson, the boxing content should not be too complicated or advanced, and the boxing therapist should be able to spontaneously adapt the content of the training session to the current needs of the participants. At the end of each therapeutic boxing session, a cool-down takes place in which both the intensity of the boxing student's physical (muscular and cardiovascular) activity and the boxing mindset that was activated during session are slowly adapted for the post-training state. This is followed by a debrief and closing.

THERAPEUTIC BOXING FOR CPTSD

In the case of complex posttraumatic stress disorder, it is extremely important to clarify the particular type of trauma with the individual participant *before* the first training session. At the same time, it is essential to avoid describing their traumatic experiences in too much detail, in order to avoid the risk of re-traumatisation. It is important to evaluate whether there are any traumas associated with physical violence. If this is the case, an even more cautious/delicate handling of the impact pads, demonstration of techniques, etc. is necessary. Possibly still active mechanisms of the offender-victim dynamic (Sheik and McNamara, 2024; Cantor and Price, 2007, Dutton and Painter, 1993) must be considered. For example, it must be clarified how close or how quickly one may approach the respective boxing student during lessons. It must be determined whether the person in question a) knows their own boundaries and b) how clearly they are able to communicate them *during* a particular experience. It is equally important to evaluate how far the participant has already progressed in their trauma-therapeutic process, for example with regard to the question to what extent the student has already developed skills to deal with trigger situations or trauma-associated flashbacks (i.e. intrusive, sudden, intense perception or experience of feelings associated with past experiences. These are often experienced as very intense and may be experienced as a reliving of emotions related to previous trauma. Triggers may include gestures, voices, movements, smells, calendar dates or various visual or auditory sensory impressions). Individual boundaries and any risk factors with regard to potential trigger situations, as well as the foundation of future communication between the participant and the boxing therapist need to be discussed prior to the therapeutic training sessions.

CURRENT STATE OF RESEARCH ON THERAPEUTIC BOXING

A PubMed literature search using the terms (Therapeutic Boxing); (Boxing) AND (PTSD); (Boxing) AND (CPTSD); (Boxing) AND (Depressive Disorder); (Boxing) AND (Mental Health); (Therapeutic Boxing) (in German); (Non-contact Boxing) AND ((Mental Health) yielded only few results. Lyon et al. (2020) were able to show a statistically and clinically significant reduction in specific PTSD-associated complaints as part of their mixed methods study ('Left Write Hook'). In the area of professional martial artists, martial artists and

contact athletes, it was shown that healthy behaviours and a higher perceived quality of life correlate with their sporting activities in the athletes studied (Kortaska et al., 2019).

In a 2022 scoping review, Bozdarov et al. concluded that therapeutic (non-contact) boxing "appears to provide a cathartic release of anger, aggression, stress, and a discharge of tension" after a more extensive literature review that also included MEDLINE; PsychINFO, and Google Scholar. The majority of the studies reviewed by the authors concluded that boxing reduced stress and was able to improve mood, self-esteem and perceived quality of life. Furthermore, a reduction in the amount of substances consumed (in the study: alcohol, methadone, cannabis, codeine, benzodiazepine) (Morton et al., 2019) was observed. Perceived physical skills improved (Gammage et al., 2021). Furthermore, improved school behaviour in students (Shultz et al., 2014; Woodhead et al., 2019) and improved mental health (e.g. Lyon et al., 2020; Shultz, et al., 2014) were observed. Three studies (van Ingen, 2011; Lyon et al., 2020; Gammage et al., 2021) focused on trauma-sensitive non-contact boxing for women with traumatic or violent experiences: participants felt encouraged to "let out their pent-up energy or anger" in a traditionally "more masculinely-associated sport", "in a safe and healthy way" (van Ingen, 2011). Participants learned that anger is an appropriate response to trauma. Benefits of a movement-based (therapeutic) programme were emphasised, which, compared to conventional talk therapy, focuses on using "the body as a source of power and strength" (van Ingen, 2011). In an interview, one participant in the therapeutic boxing programme stated: "At the end of the boxing training session, I am completely exhausted, but the sadness, the trauma, feels so much further away than it did at the beginning" (cf. van Ingen, 2011). The following case report explicitly addresses the aspect of re-integrating (legitimate, justified) anger and aggression, as well as 'new' experiences of self-efficacy and an increased sense of the victim's sovereignty (see below).

Although the authors of the scoping review emphasise the limitations of their work (including the lack of peer reviewing in a number of the papers they analysed), they conclude that preliminary evidence shows that non-contact boxing (author's note: the term "therapeutic boxing", which recently became established in Germany is not yet commonly used in English language literature) appears to be beneficial for mental health regarding depression, anxiety (disorders), PTSD, and negative symptoms of schizophrenia (Bozdarov et al., 2022). Evidence also appears to exist regarding the benefits of integrating mindfulness aspects into therapeutic boxing (Bozdarov et al., 2022). Further evidence can be found in relation to the improvement of parameters associated with somatic diseases such as diabetes mellitus (Zheng et al., 2015), cardiovascular diseases (Yli-Piipari et al., 2018; Sánchez-Lastra et al. 2020) and obesity (Cheema et al., 2015). Beneficial effects of "adapted boxing" on various health complaints were also demonstrated in one systematic review (Sánchez-Lastra et al., 2020).

ACUPUNCTURE IN THE TREATMENT OF PTSD- AND CPTSD-ASSOCIATED COMPLAINTS

As with numerous primarily psychological and psychovegetative indications, acupuncture is also applied in the treatment of PTSD and CPTSD although it is still relatively underrepresented in German-speaking countries. Its use specifically for the treatment of PTSD/CPTSD is not yet fully evidence-based. However, in a recent comprehensive review, Tang, Lin and Fang were able to show that acupuncture has greater effects in improving symptoms measurable with the tools CAPS (The Clinician-Administered PTSD Scale score), PCL-C (PTSD Checklist-Civilian version score), and HAMD (Hamilton Anxiety Rating scale), compared to psychotherapeutic intervention (Tang, Lin and Fang, 2023). However, it should be noted that the psychotherapies used in the reviewed studies were not explicitly trauma therapies. Acupuncture also proved to be superior to psychopharmacological therapies when measured using the CAPS, PCL-C and HAMD tools (Tang, Lin and Fang, 2023). The presumed mechanisms of action of acupuncture in the treatment of symptoms associated with PTSD/CPTSD appear to be manifold according to the currently still limited state of research, corresponding to the neurobiopathophysiological changes known or assumed to date. These include the influence of pathophysiological changes in the hippocampus and amygdala, the prefrontal cortex (PFC), the anterio-cingulate cortex (ACC), and the hypothalamus (Tang, Ling and Fang, 2023). The regulation of neuro-endocrinological structures and processes such as the hypothalamic-pituitary-adrenal axis (HPA axis), neural nitrogen synthase (nNOS), the endocannabinoid system, the BDNF-TRKB signalling pathway (BDNF = brain-derived neurotrophic growth factor; TRKB = tyrosine kinase factor 2), the interaction of the enzymes monoamine oxidase A (MAO-A) and deacetylase sirtuin 1 in the regulation of cerebral serotonin levels, as well as the Keap1-Nrf-2 and mTOR signalling pathways (Tang, Ling and Fang, 2023). For a more in-depth look, please refer to the current review by Tang, Ling and Fang (2023) and the studies discussed therein.

It should be mentioned at this point that all of the findings mentioned in the above-noted paper are based on animal models and associated experimental research on non-human species (mostly mice, rats and primates) (Tang, Lin and Fang, 2023). Additional to the ethical questionability of that methodology (Kiani et al., 2022), there is also controversy as to whether, when and to what extent findings generated from animal models can be transferred onto humans (Krebs and Herrmann, 2024; Schlüter, 2019).

However, there is evidence regarding the use of acupuncture for depressive disorders (Tan, Duan and Wen,

2024), anxiety disorders (McDonald and Janz, 2017) and some forms of sleep disorders (Cao et al., 2009). Since these disorders are often prominently represented in the overall picture of PTSD and CPTSD, it seems legitimate to advocate for the integration of acupuncture into multimodal therapeutic concepts for the treatment of PTSD and CPTSD yet at the present time.

In addition to acupuncture according to Traditional Chinese Medicine (TCM), methods that combine elements of various Chinese or Japanese acupuncture systems with psychotherapeutic approaches are also used for PTSD and CPTSD.

One approach worth mentioning might be that of J. Schottdorf who developed a method in cooperation with trauma therapists in which the mildest possible expression of inner trauma-related images of the affected person or an event preceding the traumatising situation is developed by the patient, and a multi-step acupuncture treatment (see Schottdorf, 2018). Schottdorf postulates that the method of treatment he coined would have a less purely symptomatic effect, compared to conventional acupuncture. A confirmation of positive research results from a series of documented PTSD case reports published by Schottdorf, 2018 in robust, larger studies or publications in this regard is currently still pending (a book publication is currently in preparation, 2024). The extent to which the approach described above can be transferred from conventional PTSD to CPTSD also still needs to be clarified. However, this approach already appears to be a legitimate cause for hope.

CHINESE MEDICINE'S PERSPECTIVE ON TRAUMA AND TRAUMA-RELATED DISORDERS

Chinese medicine does not make a dichotomous distinction between the body and the mind. In the context of patterns that can be described in terms of differential diagnosis, primary physical complaints are often accompanied by mental, psychological and psychovegetative symptoms, and *vice versa*. One of the early standard textbooks *Huang Di Nei Jing Su Wen* states: "The *qi* (roughly 'vital energy') follows the *shen* (which includes Western ideas of 'mind', or parts of (the) 'psyche'))" (compare for Unschuld, 2011), as well as "All diseases are rooted in the spirit" (chapter 8 of the *Ling Shu*, compare for Unschuld, 2016), describing the indivisible interrelatedness of somatic and mental variables in the aetiology of a wide range of disorders and diseases, similarly to more recent findings of psychotraumatology (cf. Levine, 2015, among others) regarding the reciprocal interaction of psychological and somatic complaints as they have always been recognised and taught in Chinese medicine. For example, traumatic or shock-like experiences can have a disrupting and long-lasting effect on the kidney-adrenal-bladder organ system, to which the brain is also assigned. This can cause a loss or persistent deficiency of the psychological, vegetative and physical capacities available to the organism (*jing* - roughly 'original energy', or 'essence'; describes the 'constitutional resources' of a person) and manifest itself, for example, in fright and fearfulness, anxiety and panic attacks, musculoskeletal complaints (especially in the lower back), enuresis, a loss of libido, a lack of drive and depressive complaints, sensations of coldness, dizziness, ringing in the ears and fatigue. According to Chinese medicine, the heart is also involved in shock-like traumatic events, which can have both organic and vegetative implications in a biomedical sense, such as tachycardia, sweating and pronounced irritability. The Chinese medical pathophysiology of trauma-related disorders also attributes a major significance to the liver organ system, which, in addition to its organic biomedical or metabolic tasks, also has the duty to ensure the free flow of *qi*, blood (*xue*) and emotions (see Maciocia, 1997). Not only may disorders in the liver organ system manifest themselves as neurovascular diseases, but they can also appear as psychovegetative or psychological/psychiatric symptoms. Besides possible (e.g. bipolar) depressive disorders, they may particularly include symptoms associated with anger, whether suppressed, pent-up, or impulsive. Somatically, disorders in the liver organ system can manifest themselves, for example, through hypochondriacal pain or, in women, gynaecological pain. Tension-type or migraine-associated headaches are also typical liver pathologies, as may be cerebral circulatory disorders in more advanced stages. In addition to gastrointestinal and metabolic disorders, the spleen/pancreas organ system is associated with issues relating to the ability to concentrate and focus, recurring compulsive thoughts and mental exhaustion and a lack of motivation. In addition to respiratory complaints, the lung organ system is also associated with grief, sadness, and deep melancholy. Which organ systems are affected by which type of traumatic event and to what extent depends not at least on the individual constitutional predispositions of the person affected. The treatment methods of acupuncture and Chinese phytotherapy and, if necessary, qigong are used in an attempt to positively influence the respective symptoms by means of a personalised therapeutic approach. A further description of the acupuncture points or medicinal drugs used in the context of trauma-related disorders would go beyond the scope of this article. Reference is therefore made here to the relevant literature (e.g. Yuen, 2005; Maciocia, 1997; Hammer, 1990).

A CASE REPORT

PATIENT & HISTORY

The patient was 36 years old at the beginning of the therapeutic boxing training sessions. At the beginning

of the combined treatment methods addressed in this article, she had already received Chinese medical treatment for allergic rhinitis in the clinic where the author of this article is a practitioner, as well as for anxiety and panic attacks that appeared in the context of flashbacks and blackouts. Consequently, a complete medical history according to Chinese medicine/Traditional Chinese Medicine (TCM) had already been taken before the patient started with the boxing therapy. ECG and laboratory tests were unremarkable. No regular medications were being taken at the start of the combination treatment. Quetiapine 25 mg had been prescribed by a psychiatrist, but was rarely taken.

At the beginning of the combined treatment, the patient had been diagnosed with complex posttraumatic stress disorder (CPTSD) for a year and a half. The patient had already experienced anxiety and panic attacks, as well as a suicidal phase and was unable to work. Before the diagnosis had been established, she had suffered a psychovegetative breakdown after which she spent several weeks in the crisis intervention centre of a hospital. The breakdown was preceded by re-traumatising experiences of intra-familial violence triggered by renewed contact with her family of origin. Around the same time, the patient had just left a cult-like quasi-religious community of which she had been a part for several years and through which she had experienced manipulation. In addition, she was overwhelmed by the workload at her workplace, which may have contributed to the occurrence of the first flashbacks and blackouts mentioned above.

SYMPTOMATOLOGY

- existential fears, including a fear of dying
- Intense perceptions of threat
- Feelings of permanent overwhelm
- Low frustration tolerance
- Exaggerated high-performance aspirations
- Lack of self-esteem and pronounced self-hatred
- Strong suppression of feelings and own needs
- Fear of and shame regarding her own emotions
- difficulties in setting boundaries
- a strong desire for social recognition
- Shame, guilt and fear of failure
- Fear of punishment, revenge and retribution
- Dissociation in the form of flashbacks and blackouts
- Strong mistrust of interpersonal relationships
- Uncomfortable thoracic sensations and pain
- partly pronounced dizziness
- Partial premenstrual dysphoric disorder (PMDD)

EXTERNALLY UTILISED TRAUMA AND PSYCHOTHERAPEUTIC INTERVENTIONS

At the start of the combined therapy consisting of therapeutic boxing and acupuncture, the patient had already worked intensively and with a high level of self-commitment on her complaints. Firstly, even prior to the CPTSD diagnosis was she engaged in one year of EMDR therapy. Then, partly parallel to the EMDR treatments, through sessions with a registered psychological psychotherapist who primarily works in a cognitive-behavioural way but is also qualified in trauma therapy and EMDR and who diagnosed CPTSD. This was followed by a two-block trauma therapy intervention lasting several months in a day clinic (with a focus on relationships). In the course of the combined intervention of therapeutic boxing and acupuncture discussed in this case report, the trauma therapy day clinic was followed by a one-year medical rehabilitation programme with a focus on work-related themes, which was still ongoing at the time this article was completed. The therapeutic focus there is on the methods of social skills training (SST) and dialectical behavioural therapy (DBT).

TCM DIAGNOSES

According to TCM, the patient showed signs of liver-blood deficiency, spleen-qi and heart-blood deficiency, zhong qi weakness and some harm to her jing.

PREVIOUSLY PRESCRIBED CHINESE PHYTOTHERAPEUTICS (CHINESE HERBAL MEDICINE)

The Chinese herbal medicinal/ phytotherapeutic treatment took place in the period from May 2022 to May

2023 using individually modified *Xiāo Yáo San*, modified *Guī Pí Tāng* combined with *Gān Mài Dà Zao Tāng*, and *Wen Dan Tāng* (all in granular form), as well as a modification of the formula *Chái Hú Shū Gān Tāng* (tableted). She had also been prescribed preparations from the manufacturer *Women's Treasure™* based on *Gu Ben Zhi Ben Tang* and *Yi Qi Gu Chon Tang* ('*Restrain the Flow*') and *Zuo Gui Wan*, *Er Zhi Wan* and *Liang Di Tang* ('*Nourish Yin and Restrain the Flow*') in phases due to her pre-menstrual dysphoric disorder (PMDD).

DIAGNOSES ACCORDING TO ICD10 AND ICD11

PTSD (F43.1) or KPTBS (6B40 according to ICD-11), dissociative disorders (mixed; F44.7), a moderate depressive episode (F32.1) and an associated extensive vegetative and psychosomatic symptom structure.

EXPERIENCES ON THE IMPACT PADS PRIOR TO THERAPEUTIC BOXING

About a year and a half before the beginning of the therapeutic boxing training, an attempt to channel her emotions into punches on the impact pads in a non-therapeutic gym setting had led to unpleasant feelings of fear and tense insecurity in the patient.

THERAPEUTIC BOXING

Firstly, a preliminary discussion took place in which the objectives were formulated.

This included,

- The regaining of self-efficacy, e.g. through
 - an improved ability to express emotions in a way that is perceived as appropriate (emotion regulation)
 - an increase in frustration tolerance
- deeper familiarity with and sensation of personal feelings, needs and boundaries and also being able to communicate them.
- allowing the sensation and appreciation of anger and aggression in a safe environment.
- the practice of expressing anger and aggression to the outside world and acting it out in a safe environment
- becoming more capable of navigating social situations that may harbour potential for conflict.
- feeling and acting more confidently in everyday situations and conflicts

The basics of communication for the time immediately before, during and after the training sessions were defined. The setting was defined as individual training. The duration of the entire session (including pre- and post-training talks, breaks, and in some cases the subsequent acupuncture treatments) varied between 45 minutes and two hours.

At the time of the first boxing therapy training session, the patient, who was referred to mainly as *boxing student* from then on, was already well advanced in her intensive trauma therapy process. She was able to demonstrate that she could communicate her needs, concerns and boundaries concerning the training clearly.

The following skills that the trainee had already internalised by the time she took up training in therapeutic boxing, were useful:

- The ability to recognise early warning signs of impending flashbacks and dissociations and being able to independently regulate states of high tension. (Acquired with the help of DBT)
- The ability to distinguish between emotions from the present reality and flashbacks from past experiences. (Also acquired through DBT)
- Re-localisation skills to counteract dissociative states, in order to stay or get back into the present moment (developed in trauma therapy)

Training took place initially once a week. Each training session was preceded by a brief reflection about feelings that arose after the previous training session, whether she had any questions or comments, what her self-assessment was with regard to her current athletic capacity (including menstrual cycle-related), etc. This was followed by a warm-up, which included conventional cross-sport warm-up exercises such as various forms of 'jumping jacks', squats, press-ups, duck walk etc., as well as boxing-specific warm-up exercises such as fast, high-frequency punches while running on the spot, sometimes with raised knees. Counting down from ten to one, the exercises were then performed at an even faster speed. Here, it was necessary to strike a balance between providing a motivational and athletic challenge of the student's limits

on the one hand, and the risk to provoke them into an ambivalent position where they felt pressure to perform people pleasing strategies in the training context. In addition to the athletic components, the aim of the therapy was therefore to train the patient to reconnect with her feelings and needs and to communicate them to the outside world.

Within each training session, the boxing therapist and author of this case report endeavoured to encourage the patient to express her feelings and needs and, if necessary, to discuss and negotiate them with him, and to "not abandon [her] point of view prematurely" (quote from the trainee).

Sometimes the student had to cope with a challenging dizziness that occurred before or even during the training sessions. The dizziness had been diagnostically examined by a specialist but remained without a specific diagnosis. This had to be taken into account with regard to the intensity of the training. If necessary, breaks of several minutes were taken. Furthermore, during the warm-up, the student often experienced different somatic phenomena, such as a sensation of retro-laryngeal pressure, or pain in certain joints and muscles. The latter two aspects were originally decisive for the combination of therapeutic boxing with acupuncture treatment, which took place after the training sessions.

During the first few weeks of non-contact boxing training, the main focus was on teaching and training the appropriate posture, holding the guard, footwork, and the most important punches. Furthermore, understanding the chain-like interlocking of the muscle groups involved, from the forefoot to the knee, hip and shoulder (rotation) was taught. To do so, lines and marking crosses were taped to the floor using coloured adhesive tape. The punches were initially practised almost exclusively through jabs (lead hand punch (1)) and crosses (punching hand punch (2)) in various, rather short combinations. As the programme progressed, double-sided hooks ((3), (3a), (4) and (4a)) and uppercuts ((5; 5b) and (6; 6b)) were added. In the lessons, the focus of the taught repertoire was mostly placed on short, easy to remember and well understandable jab (1) - cross (2) combinations, which were then gradually supplemented by one further punch at a time, for example the lead hand hook or a longer uppercut (6), struck with the main hand.

The following is an extract from the combination-based shadow boxing and punching pad curriculum created with the support of boxing, kickboxing, Muay Thai, personal and rehabilitation trainer *YourBoxingCoach* (www.yourboxingcoach.com), which was applied in the case report described here:

Table 2. Excerpt of the therapeutic boxing exercise curriculum from *YourBoxingCoach* (www.yourboxingcoach.com, 2023)

Numbering and nomenclature of hits
1. jab 2. right cross 3. left hook 4. right hook or overhand right 5. left uppercut 6. right uppercut b. body shot (aim at the body)
1. jab-based (start with a jab)
* 1-1 * 1-2 * 1-1-2 * 1-2-1-2 * 1-2-1-2-3 * 1-2-3 * 1-2-3-2 * 1-2-3b-2
2. power starter (start with a punch)
* 2-3-2 * 2-5-2 * 3-2-1-2 * 3-6-3-2
3. speed and endurance (as fast as possible)
* 1-2-1-2-1-2 * 6b-5b-6b-5b-6b-5-2

Only a few of the various defence techniques used in boxing were gradually integrated into the training plan at a slower pace, due to the trainees' repeated and prolonged experience of violent trauma.

A major focus was placed on experiencing and practising how to maintain and re-establish an appropriate distance towards the opponent. This was done partly by using counter-jabs, but above all on the premise of repeatedly returning to her own basic position while maintaining or reassuming her guard (partly double guard, partly classic). During these exercises the student evaluated if she felt safe and, above all, able and confident to act.

A further important role was taken on by the perception and modulation of her own physical strength. For this purpose, a two- or three-minute cycle of the 'percent exercises' was performed regularly: the trainee practised jab-cross/1-2 combinations on the punching pads, initially at 40% intensity, followed by an intensity of only 20%, and then only 10%. This was increased to 60% intensity, then on to 80%, followed by 100%. The 80 and 100% sections were handled differently: partly *with emotional* involvement, partly

without. In the sections *including emotional involvement*, the trainee had the opportunity to give free rein to any emotions that arose and let them flow into the strokes, including their anger. Sometimes intense anger was perceived and expressed with the help of the padwork, occasionally accompanied by screaming. In the sections *without* emotional involvement, the student experienced being able to perceive, measure and express her own power and strength, as well as the basic aggressivity required for boxing and padwork training, while also *not* being overwhelmed by her emotions - but rather to remain *firmly focused on herself*. Thereby, the student was enabled to experience intense self-efficacy which was reflected on in conversations after the training. After a while, the trainee was able to decide on which days emotional involvement in the 80 - 100% segment seemed appropriate, and on which days it appeared emotionally overwhelming and therefore did not seem appropriate. This particular exercise served, among other things, the emotional regulation defined in the therapy planning (see above).

The underlying psychodynamics will be explained in more detail below: The student perceived expressions of anger and aggression in her childhood as being followed by immediate punishment, and accompanied by even more violent experiences. She thus learnt that expressing even justified anger resulted in punishment. This had led to unlearning these feelings and the associated expressions. The original external aggressor was internalised, and her anger and aggression were henceforth directed at herself. This behaviour corresponds with findings from trauma research, according to which people immediately react to traumatic experiences with a fight, flight or freeze response. Fight or flight usually occur when one of the two actions promises success, freezing occurs when fight and flight are not (or no longer) possible (cf. Roelofs, 2017; van der Kolk, 2014). With regard to the perpetrator-victim dynamic, the perpetrator assigns blame and imposes oaths of silence. A traitor mentality is implemented in the victim in event that they communicate the abuse to outsiders. This can reinforce a reversal of guilt experienced by the victim, which in turn can lead to self-rejection and self-hatred and thus further increase the extent of the burden. Guilt and shame are often accepted by the victim as secondary feelings in order to avoid falling into the primary feeling of powerlessness and remaining in a state of numbness (Juli et al., 2023; Kerner et al., 1999). This is a typical survival strategy for long-lasting traumatic experiences (Sheik and McNamara, 2014). In order to avoid absolute numbness, a submissive response can also develop at the expense of the victim's self-assertion. This results in the victim splitting off their inner experience and focusing strongly on the outside world. This reaction, known in victimology as *appeasement* or *fawn response*, is also frequently seen in CPTSD patients (Schlote, 2023; Cantor and Price, 2007). The student stated she had established with the help of her psychotherapist that both the described guilt reversal and the inner submissiveness response had come into play in her case.

At the beginning of the therapeutic boxing therapy, a well-founded fear was present that cultivating the *external* expression of anger and aggression would lead to repeated punishment, an expectation which corresponded with past experiences. This also explains why the above-mentioned attempt to 'let off steam' on the boxing pads prior to the start of the therapeutic boxing therapy resulted in adverse effects. At this point the psychoeducation that preceded the physical, athletic part of the programme came into play. The dynamics described were discussed so that they could be better understood by the student. The initial ambivalence between a strong motivation to change on the one hand, and fear of punishment on the other underwent a powerful transformation during the course of the training: as soon as anger and aggression arose and were expressed, the trainee reported a liberating, sometimes cathartic effect. The decisive factor for the successful therapy can be undoubtedly attributed to the fact that no situations that could have been interpreted as punishment for acting out her aggression arose either during the training sessions or in the time between sessions. Over the weeks and months, a relearning process took place - the aggressor who had been introjected for many years, could finally be addressed externally.

In her post-training reflections, the student stated that she had experienced a lasting increase in her self-efficacy through therapeutic boxing. She felt that two points were central to this: Firstly, the experience gained through the 'percent exercise' (see above) of being able to express indignation, resentment, or anger both physically (during training) and verbally (transferred to social situations outside the training context), as well as to "adapt and modulate" them according to the respective requirements of a particular situation. On the other hand, she stated that she had learnt to perceive her boundaries during the warm-up training and how to communicate them. In particular, she had learned that her boundaries were respected. Resulting from this, her frustration tolerance had increased as well.

Sometimes, especially in the first six months of therapeutic boxing, spontaneous dissociative states that felt threatening to the student occurred during impact pad training. If this happened, the exercises were interrupted immediately. As part of her trauma therapy, the student had developed a number of techniques that were helpful in such situations and proved to be immediately effective. One of the techniques included directing her attention at all objects in the room of a certain colour and gradually focusing on these objects one moment at a time. In most cases, this enabled her to return to the present moment and her current location. In such moments, the therapist/instructor asked whether there was anything he could do to assist her in this situation, and held back as far as possible. Once the student had returned to the present moment, she was offered a glass of warm water and as soon as she felt ready again, the training was continued.

Towards the end of each training session, there was a boxing-specific cool-down (see above), followed by loosening exercises for the shoulder/neck area and stretching exercises for the autochthonous muscles. Occasionally, a mobilisation exercise was performed for the sacroiliac joints. This was followed by a brief review of what had been learnt during the session. This was followed by a shared reflection where the student could ask questions as well as give feedback including suggestions for improvement.

The student communicated whether specific feelings were present after training, and if so, which ones.

Occasionally, feelings of exhaustion were expressed here, sometimes also a rather quickly returning fear, often a deep sadness, sometimes also a persistent anger, as well as the combination of fear and sadness, sadness and anger, or anger and fear. The student attributed these feeling combinations to her inner struggle, and the considerable effort against the conditioning associated with the perpetrator-victim dynamic described above that was still at work in her.

These emotional sensations were then addressed through acupuncture point combinations specifically selected for the respective predominant feelings and any unpleasant somatic sensations or pain that may still have been present after the training session.

Points used therefore included:

Table 3. Acupuncture points used (selection). Combinations were common.

Predominant feeling(s) and Somatic sensations/pain	Selection of applied acupuncture points
Fear, tension (anxiety)	Yin Tang; He 5 Tong Li (luo point); He 6 Yin Xi (Xi cleft point); He 7 Shen Men; Ki 25 Shen Cang (kidney shu point of the heart) (+); Pe 6 Nei Guan; Pe 7 Da Ling; Pe 8 Lao Gong (-)
Brooding, mind loops, exhaustion	Du 20 Bai Hui (-); Ren 6 Qi Hai (+); St 36 Zusanli (+) optionally + M; Sp 6 San Yin Jiao (+) optionally + M; Sp 3 Tai Bai (+); optionally Ki 1 Yong Quan (acupressure a/o M)
Grief, deep sadness	Ki 26 Yu Zhong (kidney shu point of the lung) (+); Lu 9 Tai Yuan (+); Bl 42 Po Hu (in combination with Bl 23 Shen Shu (+))
Fear, feeling of emptiness	Ki 3 Tai Xi (+); Ki 7 Fu Liu (+); Bl 23 Shen Shu (+); Bl 52 Zhi Zhi (+); Ren 4 Guan Yuan (+)
Anger, rage	Lv 3 Tai Chong (-); Lv 2 Xing Jian (-); Pe 6 Nei Guan
Somatic sensations/pain	LI 4 He Gu; SJ 5 Wai Guan; Ren 12 Zhong Wan; Lv 5 Li Gou; Lv 13 Zhang Men; Sp 3 Tai Bai; Lv 3 Tai Chong

(+) = *Tonifying needle technique*; (-) = *dispersing needle technique*; M = *Moxibustion*

Needles were left in situ for about 30 minutes. In most cases, the emotional states described above were either significantly alleviated or remitted. After the needles were removed, the patient was given a glass of warm/hot water and asked how they were feeling.

From time to time, the student was given self-responsible home training tasks - such as watching YouTube videos on the mechanics of the hook including the associated lines and angles, or positioning herself in front of a mirror in the basic boxing position a few times a day and evaluate whether the feeling of increased confidence associated with that particular position that regularly occurred during the training sessions were also reproduceable outside the therapeutic boxing setting. She reported that she had supplemented this on her own initiative with positive self-verbalisation such as: "I am strong, I am allowed to defend myself. My anger is justified. I am allowed to express my anger and my boundaries. I have my emotions under control." According to the student, these affirmations often evoked the desired feelings.

The experience described below demonstrates the desired transfer of the experiences of increased sovereignty gained in the therapeutic boxing setting to everyday life outside the practice:

The student, who after a lengthy bicycling training process was able to cycle safely again in the big city

traffic (road traffic participation skills can be impaired in the context of PTSD/CPTD (e.g. Bernstein et al. 2022)), was involved in a traffic accident as a cyclist. A car driver, who had noticed the cyclist at a junction too late, had to brake abruptly, thereby causing a vehicle following close behind to rear-end him. Neither the student nor her bicycle were directly damaged. While waiting for the police to arrive, the male driver responsible for the rear-end collision began to tell her in a patronising tone of voice that she was confused and that it was her who was responsible for the accident.

The student, who was usually very quick to blame herself and assume responsibility as well as quickly intimidated by older-looking men in particular, reported that she told the presumptuously behaving driver in a relatively calm tone of voice that "he was talking rubbish," and not to bother her anymore until the police arrived. She herself attributed this new-found confidence to a large extent to therapeutic boxing and the experiences of self-efficacy she had gained there.

DISCUSSION; OUTLOOK

In this case report, therapeutic boxing appears to have made a significant contribution to the perceived and outwardly experienced improvement of severe trauma-related symptoms of the student. Feelings of re-discovered personal power and strength experienced in the training, a sense of increased personal sovereignty in challenging social situations, as well as the re-learned acceptance of perceived anger through channelling it outwards through physical exercises indicated experiences of increased self-efficacy of the student which she described as sustainably helpful and valuable.

The acupuncture helped the trainee to alleviate, resolve and integrate somatic sensations or pain that were perceived as unpleasant, as well as feelings that arose after the training, some of which were intense, and to emerge from the combined training and treatment unit feeling balanced and strengthened.

As is usual for case reports, the observations shared here are primarily descriptive in nature and characterised by clear limitations: In contrast to a case study, no data was collected within the case using a validated instrument - neither baseline, nor ongoing, nor follow-up. The case report is therefore limited solely to the information provided by the participants and the author's observation and interpretation of the combined intervention. In the case described here, therapeutic boxing plus acupuncture was carried out parallel to other ongoing therapeutic interventions (initially as part of a trauma therapeutic day clinic, later as part of a year-long medical rehabilitation programme). Thus, the improvements observed cannot be causally attributed to the applied therapeutic methods specifically.

The strength of the case report lies in its low-threshold setting. The documentation of observations and direct feedback in everyday clinical practice provided useful starting points for a subsequent in-depth evaluation of the topic under discussion.

Based on the observations and statements described in this case report, it can be hypothesised that practising therapeutic boxing may lead to experiences of increased self-efficacy.

Learning or relearning to act out suppressed or pent-up anger and to appropriately modulate one's own strength could be identifiable mechanisms behind the observed experiences of increased self-efficacy of CPTSD sufferers participating in therapeutic boxing.

As both individual perceptions and objectifiable endpoints would need to be evaluated here, related research questions could be investigated using mixed methods research (MMR), i.e. the combination of quantitative and qualitative data collection. Therefore, a case study design with the application of semi-structured interviews using self-developed as well as established questionnaires would be a suitable approach.

Although case study designs are often criticised for their largely qualitative nature and are considered less objective, quantifiable and robust compared to experiments or representative surveys, they offer the advantage of a comprehensive strategy that draws on different techniques and methods to answer a specific research question (Yin, 2003). According to Holtmann (2008), they thus approach the research validity of experiments or surveys as a method.

In a descriptive context, they can lead to a better understanding of complex conditions as they attempt to systematise observations. Applied in more explanatory contexts, case studies allow for a deeper insight into an observed phenomenon as well as a more comprehensive interpretation (Yin, 2003).

CONCLUSION

Both therapeutic boxing and acupuncture - either on their own or in combination - appear to have some potential to alleviate complex posttraumatic stress disorders.

Further research into this appears well-founded and urgently needed, both scientifically and societally.

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