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CHAPTER 25

Open Focus Training for Stress, Pain, and Psychosomatic Illness

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The world is vast and wide. Why do you put on your robe at the sound of a bell?

Koan of Zen Master Ummon (Chan Master Yunmen Wenyan), circa A.D. 862-949

Portions of this chapter were condensed and paraphrased from *The Open Focus Brain: Harnessing the Power of Attention to Heal Mind and Body*, copyright 2007 by Les Fehmi, Ph.D., and Jim Robbins, and *Dissecting Pain: Simple Brain-Training Exercises for Overcoming Chronic Pain*, copyright 2010 by Les Fehmi, Ph.D., and Jim Robbins, published by Trumpeter Books, an imprint of Shambhala Publications, Inc. By permission of Shari Bernstein Representation for Artists, Bernstein Representation for Artists, New York, NY and protected by the Copyright Laws of the United States. All rights reserved. The printing, copying, redistribution, or retransmission of this Content without express permission is prohibited. The chapter was written with the lyrical and scholarly help of Jim Robbins; Fatma L. Gerbarg, M.D., contributed to contextualizing this chapter in light of recent research. We wish to thank them both. For Open Focus publications and workshops, see www.openfocus.com.

Open Focus is an attention training practice that enhances a sense of connectedness, which many people associate with spiritual development. However, it is a nonreligious discipline intended for clinical treatment of physical and mental symptoms.

Open Focus Versus Narrow Focus

The term *Open Focus* refers to a mental state of relaxed yet alert attention and to a method of training that fosters this mental state. Open Focus training develops the capacity to enter into awareness of all perceptions experienced simultaneously, including environmental stimuli and sensations of somatic or mental origin. The term *focus* usually means a constricted application of attention to a circumscribed activity, such as solving a math problem, while other perceptions are excluded, often with great effort. This type of attention is called *narrow focus* to distinguish it from the type cultivated in Open Focus. Narrow focus has great benefits, such as facilitating efficient task completion, but prolonged, excessive use can contribute to psychological and physical stress and exacerbate subjective experiences of pain. Different subjective mental states of attention correlate with measurable patterns of brain wave activity on electroencephalography; narrow focus attention tends to correlate with beta waves (13–40 Hz), whereas Open Focus attention correlates with alpha frequencies (8–12 Hz) (Fehmi 2007).

Many persons who seek Open Focus training have psychosomatic illnesses. If they are motivated to practice regularly, they can be trained to alter their global brain wave states by using neurofeedback equipment and guided exercises in specific methods of meditative imagery. The achievement of intentionally altered brain wave states is often associated with symptom relief and an enhanced sense of well-being. These methods are relatively simple, can be mastered by most people, and can be readily introduced in a range of treatment settings, either as the primary treatment modality or as an adjunct to other treatments. In this chapter, we describe the development of the Open Focus method, different attentional states, the use of Open Focus to alleviate pain, and an Open Focus exercise.

The Development of Open Focus and Alpha Synchrony

About 50 years ago, while studying brain wave states and visual perception in macaque monkeys, Fehmi discovered that synchrony—synchronization of the brain's electrical activity in one or more major areas—correlated with measurably improved performance in visual tasks (Fehmi et al. 1969). Early electroencephalogram studies of advanced Buddhist meditators identified a range from low-frequency waves (3–7 Hz) to higher-frequency waves (~40 Hz), with a significant cluster of individuals meditating in the alpha spectrum of 8–12 Hz (Benson et al. 1990; Kasamatsu and Hirai 1966).

Exploring whether induced synchrony in the human brain would result in improved performance in perceptual and processing systems, Fehmi tried to produce al-

pha frequencies voluntarily in all of the standard electrode positions using early neurofeedback equipment. His initial efforts to self-induce *alpha synchrony*, a global brain state requiring simultaneous production of in-phase alpha waves, were unsuccessful. Eventually, Fehmi found that alpha synchrony could be achieved by focusing on the feeling of space, both inside and outside the body. Immediately and afterward, he observed a heightened sense of well-being, vivid attention, reduced arthritic pain, and enhanced cognitive functioning at work. Clinical testing of this method showed that most patients learned it readily. However, not everyone attains a global state of alpha synchrony and its attendant benefits; many people quit prematurely because of frustration or lack of immediate results.

The process of training for alpha synchrony fosters *attentional flexibility*: the ability to consciously transition to different attentional states that are optimal for various activities. With training, the individual becomes less likely to get stuck rigidly in any one attentional state that may be associated with physical and mental stress.

Elaboration of Different Attentional States

Brain wave frequencies are classified from low to high: delta, theta, alpha, beta, and gamma. Modes of attention can be classified as narrow, diffuse, objective, and immersed. These modes correspond to ranges of brain wave frequencies, optimize performance of specific tasks, correlate with states of autonomic nervous system arousal, and play a role in emotion regulation. Attentional modes tend to exist in combinations (Table 25-1). Through training, one can learn to move consciously among these attentional styles.

Narrow attention is concentration on a very limited field of perception; attention may be focused on one portion of the visual field, on an aspect of the entire sensory field (vision, hearing, touch, smell, and taste), or on mental experiences. *Diffuse attention* tends to be panoramic rather than exclusive or single-pointed: "No particular target of attention stands out, and the distinctions between figure and ground are blurred or erased" (Fehmi and Robbins 2007, p. 49). *Oligoactive attention* distances the observer from the object of attention, allowing for evaluation and control. If sustained, it can alienate the observer from experience. *Immersed attention* occurs when one enters into a union with an object of attention or a process requiring deep concentration to the point of complete unselfconsciousness.

Transitioning Among Modes of Attention

Open Focus training fosters transitions among attentional states so that the individual does not stay locked into one state as a pernicious habit (i.e., extreme attentional bias). Open Focus allows conscious control over the merging of attentional styles, such as using narrow focus while also admitting some awareness of space and other sense experiences, thus allowing attention to be more evenly distributed and thereby diffusing stress. The key to transitioning among different modes of attention is conscious attention to space. One can broaden attention to include space and all perceptible objects in it. This can be done with all sensory modalities. One also can exclude

TABLE 25-1. Modes of attention: effects on the central nervous system and electroencephalographic patterns

	Description and examples	Effects on the central nervous system	Electroencephalographic patterns
Diffuse-immersed mode	Panoramic attention distributed equally across figure and ground; unselfconsciousness, with body relaxed; capacity to rapidly regain homeostasis after stress (e.g., meditator in alpha synchrony)	Parasympathetic predominance; right brain predominance; low arousal, at the border of wakefulness and sleep	Low frequencies: delta and theta (<8 Hz); increased whole-brain synchrony
Diffuse-objective mode	Focus on objective sensations with simultaneous diffuse awareness of space (e.g., player of an instrument in a band who is also able to hear and respond to the other instruments)	Relative sympathetic and parasympathetic balance; relative right-left brain balance; moderate arousal; relaxed alertness	Middle frequencies: alpha and low beta (~8-15 Hz); moderate whole-brain synchrony
Narrow-immersed mode	Immersed attention in a limited activity; enjoyment amplified by narrow focus so as to intensify and savor the selected experiences (e.g., professional wine taster or avid television football watcher)	Relative sympathetic and parasympathetic balance; relative right-left brain balance; moderate arousal; relaxed alertness	Middle frequencies: alpha and low beta (~8-15 Hz); moderate whole-brain synchrony
Narrow-objective focus	Focused narrowly on one object to the exclusion of other stimuli in the total perceptual field; high stress state; preoccupied with work-related problem to the exclusion of emotional and physical responses	Sympathetic predominance; left brain predominance; high arousal (fight-flight response)	High frequencies: high beta and gamma (~15-40 Hz); reduced amplitude waves and reduced whole-brain synchrony

Source. Adapted from Table 1 in Fehmi LG, Shor SB: "Open Focus Attention Training." *Psychiatric Clinics of North America* 36(1):153-162, 2013.

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space from awareness, narrowing and objectifying attention to one or a few objects. One can immerse attention into space and objects. Conversely, one can create distance from space and objects. In Open Focus, it is possible to attend to aspects of all these attentional modes simultaneously and equally.

Levels of Arousal

An individual whose arousal is chronically low may feel fatigued, lethargic, and depressed. Conversely, if arousal is chronically elevated, the individual may be hyper-vigilant, stressed, anxious, or angry. Arousal levels in the mid-range, associated with alpha synchrony, are often optimal for a variety of tasks. Conscious control of arousal through manipulation of awareness of space can enable transient shifts to different levels of arousal when necessary. Open Focus inclusion of sensory information in concert with awareness of space promotes awareness of how we are attending and cultivates capacities for decisions regarding the appropriate style to use in a given context.

Pain Theories and the Open Focus Approach

Pain Theories

Rene Descartes (2003) theorized a *jean jartigny* whereby signals generated from the periphery of the body in response to injury travel along nerves to the brain, where they stimulate perceptual responses. This specificity model saw perceived pain as proportional to the tissue damage. In the eighteenth century, Franz Mesmer, using a technique later called hypnosis, claimed that altered mental states could influence perception of pain, regardless of the injury (Crabtree 1993). Hypnosis involves a shift in attention away from feelings of pain and toward other thoughts or images. Recent research confirms that hypnosis can ameliorate the subjective experience of pain (Del Casale et al. 2015). The gate-control theory of pain proposes that pain-conducting neurons open a neurological "gate" for propagation of pain-related impulses, and pain-inhibiting neurons close the gate, reducing pain perception (Melzack and Wall 1965). Emotions profoundly influence the balance of activation between these two pathways. In this departure from specificity theory, the mind can influence the influence of neurons. Similarly, Fredrick Lenz theorized that pain is experienced through the influence of neurotransmitters, "programs" that bind together perceptual montages of moods, sensory data, and memory from separate regions of the brain (Lenz et al. 1995). These networks of neurons are unstable and can be triggered by factors other than pain impulses, such as moods, memories, and psychological distress. In this model, at the root of pain perception is a hypersensitive, unstable brain.

The Open Focus Model of Pain

In the Open Focus model, it is not emotions themselves that cause pain but rather resistance to fully experiencing emotions that destabilizes the mind and brain, causing malfunction of pain regulatory systems. When physical tissue damage is significant or functional dysregulation occurs at specific anatomical sites, pain signals are pro-

duced distally; however, the experience of pain is mediated by the central nervous system. Although any effective treatment targeting pain in the periphery should be administered, intervention at the level of the brain is often necessary. In many cases of chronic pain, the Open Focus model postulates a negative feedback loop involving pain signals generated at a specific somatic site, a maladaptive attentional pattern at the level of the mind-brain, with subsequent negative neural feedback to the bodily sites of injury, resulting in ongoing dysfunction (e.g., signals from the stressed brain may promote muscle tension, constriction of blood flow, or immune dysregulation). The attentional mode that contributes to the propagation of chronic pain is narrow-objective attention, employed so as to focus away from the painful perception. The attempt to keep pain distant from consciousness results in a state of hyperarousal, maintaining neural patterns conducive to chronic pain. A painful perception, feeling, or stimulus can be a seemingly limited physical sensation from residual physical damage, or it can be compounded by emotional overlay. "Physical" pain and "emotional" pain are approached similarly in Open Focus.

Of course, the meaningful contents of emotions are important for the clinician to explore. Psychotherapy can help identify emotional issues, work through them, and reduce distress, but it may not address dimensions of emotional pain experienced somatically. When Open Focus is used to address the bodily manifestations of emotional distress, the emphasis is on the way emotions are attended to. This shifts the way the patient pays attention to the body, to emotions, and to the surrounding world.

Rather than seeking to distract the patient from pain, Open Focus teaches the patient first to localize the pain, immerse attention directly into the pain, and then use diffuse attention to the body and space surrounding the pain. The conscious deployment of attentional modes, using a narrow-immersed focus on the pain that is then transitioned to a more encompassing diffuse-immersed focus, can resolve chronic pain syndromes.

Anecdotally, in our clinical experience, cultivating immersion in the feelings of pain while maintaining diffuse attention to the total perceptual field, including space, results in dissolution of the pain. The proposed Open Focus model partially explains how the subjective experience of pain can be so radically altered: attentional modes directed toward the experiencing of space that surrounds and permeates the "objects" of attention foster the production of synchronous alpha waves. The subjectively experienced separation of subject and object is partly mediated by asynchronous activity among different brain regions. When brain wave activity in the occipital cortex is out of phase with activity in the frontal cortex, this facilitates the perception of an "object" that is different from the "subject." In order to objectively something, the phase relationship between different parts of the brain must be out of sync so that the part mediating perception of the constructed object is in one phase while the constructed subject of experience is in another. During whole-brain phase synchrony, the neural "program" for separating subject and object is altered. By shifting to the diffuse-immersed attentional mode characterized by whole-brain alpha synchrony, the disparate mental worlds of the pain-experiencing subject and the "objective" pain are merged, resulting in dissolution of perceived pain as a separate entity (Fehmi and Shor 2013).

Open Focus Exercise: Experiencing Space While Reading

The following is an abbreviated combination of sequences used in clinical practice (adapted from "Expanding Your Awareness of Visual Space," in Fehmi and Robbins 2007). In shortening it, we risk not immersing the reader sufficiently in the method to allow for a noticeable shift in attentional mode. However, we offer it as a brief exposure to Open Focus training. Ideally, you would make an audio recording of the first part of the exercise, including 15-second breaks between each question, so that you can hear the instructions in your own voice and maintain an inward focus rather than having to read. Alternatively, you can open your eyes when necessary to read the questions, pausing at least 15 seconds between each question to allow time to realize the experience.

Expanding Your Awareness of Visual Space (Adapted)

- Close your eyes for the first portion of this exercise.
- Can you imagine feeling the space between your eyes?
- Can you imagine feeling the space inside your throat as you inhale and exhale naturally?
- Can you imagine feeling the space inside your abdomen as you breathe?
- Can you imagine feeling the volume of your upper legs, lower legs, feet, and toes and the feeling of space between your toes?
- Can you imagine feeling the volume of your thumbs?
- Can you imagine feeling the volume of your forefingers?
- Can you imagine feeling the space between your thumbs and your forefingers?
- Can you imagine feeling your whole hands and all your fingers, as well as the spaces between your fingers?
- Now open your eyes for the remainder of this exercise.
- As you continue to read this page, allow yourself to become aware of the three-dimensional physical space between your eyes and the words printed on the page. Allow this to occur gradually as you continue reading. Once you become aware of this space, pause for a few seconds as you gently maintain this awareness.
- Now, without shifting the direction of your gaze from the page, gradually begin to sense the space to the right and to the left of the page. Let this awareness of your peripheral field of vision widen spontaneously. Once you develop this expanded perceptual field, pause to experience it for a few moments.
- Up until now, these words have been your foreground, and everything visible in the periphery has been the background. Now let that back-

ground become equally as important as the foreground in your awareness. Allow the whole page, the boundaries of the book, and everything in your peripheral vision to have equal attention. As this happens visually, sit for some seconds in the awareness of this new, expanded visual field.

- As you continue reading, also begin to include in your awareness the appearance of space surrounding your entire body. Allow time for this to take place as your awareness opens and broadens.
- Now permit yourself to become aware of the space between the lines of this page, as you continue to read.
- Next, bring your awareness to the spaces between the words, then the spaces between the letters.
- You also may bring to your awareness other sensations of the absence we call space—feeling space, tasting and smelling space, hearing silence, and experiencing the space and silence in your mind from which visual images and internal dialogues emerge.
- As you continue to allow your awareness to expand and become more inclusive, you may notice subtle changes in your reading experience. Perhaps your eyes feel less strained, or perhaps thoughts seemingly unrelated to what you are reading may float through your mind. Many kinds of changes are possible. Perhaps you also may experience the rising up of some unpleasant feelings that have been repressed by a previously sustained state of narrow focus. (These unpleasant feelings can be worked through with other Open Focus exercises not included in this chapter.)

Our goal in this exercise is to cultivate a lightly held narrow-objective attention to reading, amid a diffuse-immersed attention to the background of empty space that can be experienced through many senses. We suggest that you practice the exercise again in the course of reading other chapters in this volume.

Clinical Case: Open Focus for Anxiety, Depression, and Pain Following Trauma

When physical trauma occurs, concomitant emotional trauma develops. The following case illustrates how Open Focus can be used to alleviate physical and emotional pain following a serious trauma.

Jamie was already anxious and depressed when she had an accident: A truck snagged a power line and pulled down a telephone pole, crushing the top of her car. The truck driver fled, leaving her stranded in the car for more than an hour. Despite multiple surgeries, she experienced chronic neck, back, and shoulder pain. Anxiety and depression worsened, and she developed lethargy, insomnia, nightmares, and chronic anger toward the truck driver. Psychotherapy and pharmacological treatment were ineffective, so her psychologist recommended Open Focus training.

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Jamie's anxiety was addressed first because it was exacerbating the depressive symptoms and physical pain. She was directed to feel the space in the room and to maintain attention to this throughout the initial exercises because the feeling of space can foster awareness of repressed emotions. She was then asked to scan her body for the most intense physical sensations of anxiety. By the sixth session, she became able to dissolve anxiety in the office and at home. After 10 sessions, she reported feeling happier and resumed doing chores at home. Although treatment focused mainly on anxiety and depression, much of her physical pain improved. Neurovegetative symptoms also diminished. (Adapted from Fehmi and Robbins 2010, p. 129)

Clinical Guidelines

Open Focus attention training has no strict inclusion or exclusion criteria. Commitment to learning the system, to attending a sufficient number of office sessions, and to practicing consistently at home has led to satisfactory outcomes. Patients with pain unresponsive to standard treatment tend to be highly motivated. Also, patients who wish to avoid prescription analgesics or opioids are good candidates. Military veterans or cancer patients may particularly benefit from the training.

Good clinical judgment should be used. A patient in full-blown mania, suicidal depression, or a psychotic episode should be stabilized psychiatrically before attempting Open Focus. Patients with severe personality disorders should first receive specific psychotherapy for their conditions, because they are unlikely to make good use of training until they attain greater object integration. In our clinical experience, a few patients with stable schizophrenia who pursued Open Focus training had improvements. Dissociation in posttraumatic stress disorder and related problems can be improved with attention training. Those with this type of mental illness may feel overwhelmed at first. The guided exercises can be modified so that these patients begin by working in areas of the body that feel comfortable to them until they feel safe enough to venture further. Open Focus can be a useful tool because it encourages merging with feelings and other sensory experiences. This movement toward union can ameliorate feelings of separation in dissociative disorders.

Open Focus training fosters a type of attention that aids the psychotherapist in becoming aware simultaneously of the patient's conscious and unconscious communications and of the therapist's own responses within the multilayered therapeutic encounter. Open Focus can be integrated into the psychotherapeutic session or administered by an outside trainer who collaborates with the psychotherapist. It also can be integrated with other treatment approaches by clinicians who are trained in the method. Adding the dimensions of working with attention to the body and to space can augment the benefits of psychotherapeutic treatment.

KEY POINTS

- Open Focus attention training is a therapeutic method that addresses pain and stress-related problems.
- Training involves guided imaginal exercises that systematically develop the subjective experience of space, both inside and outside the body.
- Open Focus training is facilitated through neurofeedback equipment; the goal is attainment of objectively measurable whole-brain alpha synchrony.
- The ultimate aim is to develop attentional flexibility: the ability to consciously choose and employ different attentional styles needed for specific tasks.

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SECTION VI

Technologies