Compassion has emerged as a major factor in the therapeutic benefit of mindfulness-based techniques, which have been integrated into mainstream healthcare. Combining compassion practices with biofeedback can maximize the advantageous psychological and physical changes that are seen with both. This article will provide a framework for augmenting biofeedback treatment with compassion-based techniques and discuss treatment considerations.

Although relatively new in western medicine, the notion of compassion as having healing properties has been prominent in eastern medicine for centuries. In recent years, as research into such healing potential proliferates, healthcare practitioners in the west have begun to implement compassion as a clinical tool. Meditation is compassion’s forerunner in the western medical setting. The scientific study of meditation, no longer in its infancy, has revealed a wide variety of health benefits for its practitioners (Carlson, 2012; Davidson et al., 2003; Goyal et al., 2014; Grossman, Niemann, Schmidt, & Walach, 2004; Shapiro & Carlson, 2009). This has spurred the integration of meditation programs into mainstream healthcare and permeated the self-help arena. This trajectory has been dubbed by popular press as the “mindful revolution” (Pickert, 2014).

Two of the most well-known meditation training programs in the field of psychology are Mindfulness-Based Stress Reduction (Kabat-Zinn, 1990) and Mindfulness-Based Cognitive Therapy (Segal, Williams, & Teasdale, 2002). The evolution of these programs has resulted in research examining the vital components of mindfulness-based treatments. Because compassion, including self-compassion, has emerged as a major factor in the therapeutic benefit of mindfulness-based techniques, current research is beginning to highlight compassion toward the self and others. Indeed, the variable of compassion was found to modulate levels of stress reduction for health care professionals taking Mindfulness-Based Stress Reduction (Shapiro et al., 2005). Moreover, a study by Kuyken and colleagues (2010) found that increased self-compassion reduced the correlation between cognitive reactivity and depression within a mindfulness-based cognitive therapy program. In their extensive review of the literature, Neff and Seppala (in press) not only summarized extensive benefits of compassion on personal and interpersonal well-being, but they also predicted a significant impact of compassion training on a community level.

Because biofeedback also benefits health and well-being, this paper will explore the construct of compassion with its various health-related definitions and provide a framework for integrating compassion into biofeedback treatment in the healthcare setting.

**Definition of Compassion**

In exploring the definitions of compassion, we may first trace its etymology to its Latin roots, “to suffer with” (“Compassion,” n.d.-b). Because of our interconnectedness, when another human suffers, we join them when we feel compassion. Merriam-Webster describes it as a “sympathetic consciousness of others’ distress together with a desire to alleviate it” (“Compassion,” n.d.-a). It has been characterized as a deep awareness of the suffering of oneself and other living beings, combined with the desire and effort to alleviate it (Gilbert, 2010). Self-compassion has been described as bearing witness to one’s own pain and responding to imperfection with kindness and understanding (Germer, 2009). The key ingredients comprising compassion include recognizing a common humanity, being kind, and practicing mindfulness (Neff, 2003). Historically, the definition has had strong associations with doing something to help. Additionally, it has components of recognizing our interdependence and the common experiences of “humanness,” such as loss, joy, and other emotions.

**Loving Kindness Meditation**

Loving Kindness Meditation (LKM) is a practice that engages systematic change in one’s attitude toward self...
and others through loving kindness or loving acceptance. This is done through the development of “metta” friendliness, “karuna” compassion, “mudita” appreciative joy, and “upekkha” equanimity (Madden, 2010). Within the meditation, the practice calls for mindful attention, visualization, reflection, and “loving kindness” self-talk.

As in traditional mindfulness practice, LKM begins with generating the skill of attention and awareness, typically through repetitious following of the breath, in order to build focus. The next step involves visualization combined with invocation of positive feelings and a wish for happiness, starting with the self and generalizing to other people in progressively challenging categories over time. More specifically, the process, which takes place over time, can be broken down to three essential steps: (a) Begin with thinking about the self or a loved one and holding a desire for them to be happy and free from suffering, (b) Proceed to visualize the same for a neutral person, for whom the individual holds no strong feelings, either positive or negative. (c) Finally, imagine someone toward whom there may be an aversion or other negative emotions. The idea is to truly delve beyond a purely surface cognitive restructuring of thought into something that becomes embedded into one’s way of being.

As is the goal with meditation as a whole, the idea is to generalize compassion practice into the real world. Thus, within LKM practices in particular, the task is to extend the use of compassionate self-talk or mantras outside of the classroom or therapy office. Sharon Salzberg (personal communication, February 2015), renowned for her dedicated practice and teaching of LKM, highlights the importance of cultivating friendliness, defining loving kindness as “a deep knowing that our lives are all connected.” For the purpose of daily practice, one concrete behavior she suggests is silently repeating simple statements such as “may you be peaceful, free, and happy” toward other people you pass by during normal daily activities (Salzberg, 2004). Studies of clinical interventions using LKM have shown significant reductions in pain and psychological distress compared to a control group receiving standard care (Carson et al., 2005). A review of recent studies supports the benefit of using LKM and compassion meditation in clinical populations (Hofmann, Grossman, & Hinton, 2011).

**Integrating Compassion With Biofeedback**

More research is needed to understand if formal compassion training is appropriate for all populations. Nevertheless, the aforementioned findings are promising. The research continues to support the idea that these practices reduce stress and depression and enhance immune functioning. Recent research has begun studying their potential protective benefits following trauma.

As biofeedback benefits individuals by helping to regulate the nervous system, which has far-reaching positive effects on the brain and body, biofeedback practitioners are in a prime position to bridge the gap between technology and true human connectedness to foster well-being. Combining compassion practices with biofeedback can maximize the advantageous psychological and physical changes that are seen with both. Moreover, doing so can introduce a helpful cognitive component to biofeedback training without requiring cognitive–behavioral therapy (CBT), as CBT may not fit time constraints and the overall purpose of some biofeedback treatments.

**Framework**

In biofeedback treatment, the aim is to entrain successive changes in performance and ability to self-regulate. In mindfulness-based meditation, a main objective is to increase awareness of self in relation to the world. Through merged compassion and mindfulness-based biofeedback (MBB) treatment approaches, a collective goal is to provide individuals with more in-depth and varied training in developing skills such as self-awareness and self-regulation. Consistent with traditional mindfulness-based techniques is the notion of increasing awareness and practicing nonjudgment and acceptance.

The integration of compassion can occur within different aspects of the treatment, including the clinician’s process as well as during the client’s biofeedback training. In the MBB treatment program, the use of compassion as a tool begins with patient preparation for treatment and continues through training and during applied homework (Klich, 2008). In order to truly say that one is practicing this combined compassion-based approach, work in each area must entail corresponding lesson plans with specific goals, as well as the practitioner’s training in compassion- and mindfulness-based approaches. In this way, even the treatment relationship is compassion-informed. The following section will identify specific skills central to the integration of compassion into biofeedback, followed by an example illustrating the integration of this treatment approach in a healthcare setting.

**Essential Compassion Skills**

1. Acceptance of imperfection revealed through biofeedback

When beginning a biofeedback protocol it is important to consider the client’s style of relating to the world. Given that self-criticism and negative, if not outright harsh, self-
Talk is common, it is recommended to engage early integration of compassion-based techniques. Many biofeedback practitioners can attest to what can seem like an impasse when assisting clients to overcome their critical, perfectionistic, or in other ways negative, self-talk. When these issues emerge during treatment, it can be challenging to facilitate the client’s reappraisal of him- or herself in a clinical setting where there is no time within the treatment plan to engage significant focus on psychotherapeutic work in areas such as self-esteem. Compassion-based techniques can be easily applied during the course of biofeedback treatment to clients without necessitating going into deep psychotherapeutic work.

To ensure the client’s greater success in modifying physiological arousal and building a relaxation response skill set, it is recommended to emphasize strengths (Khazan, 2013, 2015). Consistent with this, in order to more readily mobilize a person’s abilities to engage in change that is needed during biofeedback training, it can help to prime them with compassion-based techniques.

Biofeedback clinicians often observe the paradoxical effects of individuals trying too hard to relax or change their physiology. For clients who engage in perpetual self-criticism, biofeedback can quickly become an additional undertaking that the trainee takes too seriously and winds up stressing over. This can cascade into a cycle of trying, failing, and fearing, which increases sympathetic nervous system arousal and leads to more failing. If not addressed, the underlying pattern can complicate the training and is likely to hinder results. In this clinician’s experience, helping people get past their sticking points goes much smoother when they are coached to see their struggle as simply another aspect of their way of being. Guiding clients through the navigation of their successes and challenges, with acceptance of both as different sides of the same coin, reduces resistance. For this purpose, treatment would begin with the mental focus training promoted by mindfulness meditation that would expand conscious awareness of thought processes, emotions, sensations, and other reactions to ourselves and demands from the environment. Bringing the client’s thoughts to the surface, revealing negativity or other biases, provides the rationale, and increases the buy-in, for applying compassion-based techniques as an adjunct to biofeedback treatment.

2. Compassionate self-acceptance rather than positive self-appraisal

Compassion-based work is somewhat different from helping clients build a traditionally “positive” self-appraisal schema; rather it is a system that cultivates acceptance through awareness of our universal “humanness.” Introducing compassion-building skills while patients are confronted with their “flaws” and imperfections during biofeedback can allow them to fully integrate the entirety of their being, both positive and negative traits. Thus, in treatment, clinicians would assist patients to move from excessively detailed somatic observations to more openness toward seeing the totality of themselves and others in the world.

3. Compassion practice

Self-talk. Compassion-based work can help provide the language to make acceptance possible. For this purpose, the use of self-compassion or loving kindness statements throughout treatment and in the home practice phase can lead to more gains. Beginning in the treatment session, work with the client to come up with one to three phrases that might be poignant for him or her. I recommend doing this toward the latter half of the first biofeedback session. This allows time for clinical observation of the client’s approach to training. Suggestions should be tailored to issues that arise for the client after brief discussion of the process. For example, the clinician might offer that it’s common to be tough on ourselves when striving to achieve or do well and suggest changing self-talk through practice. Then during biofeedback training, the client is guided to repeat these statements. For example, during respiration training, the client can be prompted to silently repeat a statement during each exhalation. Below are a few phrases that can be particularly helpful to use in the healthcare setting:

- May I remember my consciousness is much vaster than this body.
- May I accept my pain, without thinking it makes me bad or wrong.
- May I open to the unknown, like a bird flying free.
- May I be peaceful and happy, at ease in body and mind.
- May I accept my anger, fear, and sadness, knowing that my vast heart is not limited by them. (Reprinted with permission, Salzberg, 2008, pp. 72–73).

Within MBB, the incongruent effects of forced efforts are directly discussed with the client through the explanation of how negative self-talk can derail positive changes. It is helpful to provide clients with concrete examples of how their critical or punitive thinking can undermine the positive effect of their attempts at self-regulation during their biofeedback training. Without delving into psycho-
therapy, suggestions can be made for simple alternative statements that can replace those negative thoughts. The client is invited to randomly repeat the statements throughout the day in addition to the outset of MBB practice sessions, both during appointments and within their homework practice. They are advised that it is not important if they do not fully believe the statements and that with repetition it will feel more natural. To supplement practice, clients are provided with audio recordings specifically incorporating key phrases consistent with compassion as well as biofeedback goals of attending to and regulating their physiology (Klich, 2013).

Visualizations. Compassion-informed work in biofeedback can also be carried out during the use of adjunctive techniques such as guided imagery. The visualizations can be tailored to include phrases, such as the ones described in the previous section, conducive to increasing self-compassion. During MBB training, clients would be instructed to call to mind images of others reflecting compassion. Since a positive support system is often not readily accessible to individuals who are in distress, it is important to emphasize that this image could involve any situation, even if brief or fleeting, during which the client experienced compassion. This could include a moment of spirituality or attunement with God or a deity consistent with one’s beliefs. It may even be a pet or other animal, or simply a broader sense of the feeling of compassion when interacting with nature. In this way, when the goal in biofeedback is to help a client to decrease sympathetic nervous system arousal within a certain contextual situation or toward a particular trigger, clinicians can assist clients reconceptualize the difficulty by encouraging them to imagine their selves as receiving kindness and practice generating kindness toward the self.

4. Modeling compassion

Discussion of the treatment approach warrants consideration of the therapeutic relationship and the therapist’s own self-compassion. Compassion within the treatment relationship requires the recognition and awareness of self and others, interconnectivity, and empathy.

In order to truly empathize, clinicians need to have some level of awareness of their own imperfections. In this clinician’s experience, when practitioners exhibit compassion toward themselves or extend it to clients, the clients notice, and often become curious about what they observe. When such an approach is modeled, it is common to find clients commenting, not only on the clinician’s calm demeanor, but also on his or her way of talking about challenges or the process of treatment. When clinicians embrace compassionate discourse they create a safe environment from which clients can also explore the complexities that make up their self-concept.

Compassion helps clients move from a pressured to a more balanced way of viewing themselves, which paves the way for them to be self-encouraging rather than self-defeating. Thus, it is particularly helpful to model, in addition to teach, self-compassion with clients who tend to be self-critical and sensitive to appraisal. Self-judgment can sabotage progress and undermine efforts to learn. The key is to assist the client in transitioning from overly vigilant assessment to engaging in a process of being in a state of open awareness. This taps into the mindfulness-based construct of acceptance of the present moment and is pivotal to the process of moving forward in treatment.

Clinician’s attitude towards self. For the purpose of modeling, judiciously chosen self-disclosure related to self-compassion can be helpful. When purposeful, and carried out at appropriate times, self-disclosure in small doses can strengthen a therapeutic alliance. Toward the goal of illustrating self-compassion, the biofeedback clinician may share something that he or she has struggled with learning. It is helpful to stay with fairly broad themes such as time management, setting priorities around tasks, or boundaries for self-care. It is important that the discussion clearly and briefly illustrates compassionate self-talk and action and ties into what the client is struggling with. That way, the focus can remain on the treatment of the client. For example, the clinician might offer that it’s common to be tough on ourselves when striving to achieve or do well and share a time when he or she experienced this difficulty but paused to restructure self-talk with success.

Clinician’s behavior toward self. It is also important to consider the clinician’s speech and actions during treatment. Biofeedback clinicians should be aware of their body language, facial expressions, and tone, along with the actual words that they speak. This can be useful in instances ranging from those that are minor incidental occurrences to events of seemingly more monumental significance. For example, everyday situations of dropping biofeedback supplies can be an opportunity to choose words that reflect compassionate self-talk. The clinician who practices self-compassion may not only reframe their self-talk, but also share the reframe with the client. So, a thought like “oh shoot, I should have known the batteries were low” can become “ah, I got tripped up by the batteries again. How about you and I both practice breathing while I change them out,” along with a genuine smile. These situations, even if at times seemingly minor, can be utilized as
opportunities to model compassion with greater impact than just speaking about it.

Clinical Example
Consider a client who presented to biofeedback for the treatment of migraine headache. During the initial case conceptualization it became readily apparent that she was ambitious, driven, perfectionistic, and impatient. The good news is that she was also motivated, likely to engage and proceed with treatment, and practice rigorously once she committed to it. The challenge was that she had a strong need to be in control and engaged in perpetual over-evaluation. To avoid her becoming defeated before she could engage the adequate practice necessary for learning and results, we engaged the compassion protocol. She was instructed in diaphragmatic breathing via the respiration modality on biofeedback and proceeded from an animated balloon image to a line graph, at which time her breathing appeared to become more irregular and returned to a thoracic style. When asked to reflect on what she noticed, she stated that she couldn’t seem to get it right. She was informed that it is common to have internal dialog regarding progress and that the dialog itself might get in the way.

Once she had the breathing stable again, she was invited to turn her attention from the screen to closing her eyes and simply monitoring her breath and noticing thoughts but not getting involved in them. Upon inquiry she reported continued thoughts related to monitoring her success in the training and predicting her ability to succeed. She further added that she experienced thoughts like this that appeared to become more irregular and returned to a thoracic style. When asked to reflect on what she noticed, she stated that she couldn’t seem to get it right. She was informed that it is common to have internal dialog regarding progress and that the dialog itself might get in the way.

At the next session, the client reported her experience of going home that night, petting her cat, and listening to it purr. Later, during her thermal biofeedback training, she called up the experience and was able to sense the cat’s unconditional love and used it to further generate self-love. Her ability to frequently return to this compassionate visualization and self-talk made biofeedback training, as well as her days at the office, flow more smoothly.

Treatment Considerations
On a cautionary note, while biofeedback, mindfulness-based meditation, and compassion training share some commonalities and overlap in techniques, it is important to consider unintended consequences of utilizing approaches that have been removed from their original context, or risks inherent in applying techniques with which one is not fully familiar (Edwards, 2011; Kabat-Zinn, 2011). Thus, it is strongly recommended that clinicians considering utilizing these approaches obtain training from reputable sources in areas outside their scope of practice. For the most effective use and merging of therapies, the therapist should be well steeped in self-directed practice in addition to staying up to date with emerging literature.

Conclusion
Through mindfulness, compassion, and biofeedback, we increase self-awareness and simultaneously decrease anxiety. Biofeedback is a powerful tool through which one can utilize psychophysiological training to further develop, promote, and refine the skills necessary for compassion. With practice, skills born of each modality not only become polished over time but also appear to have a reciprocally beneficial and additive effect. If we combine conscious attention and focusing practices from traditional meditation with the precision that biofeedback training affords, then it is possible to change the habitual processes of the brain to function more effectively and perhaps efficiently.

References


Urszula Klich

Correspondence: Urszula Klich, PhD, 16A Lenox Pointe, NE, Atlanta, GA 30324, email: drklich@mymindfulwayoflife.com.
Mindfulness-based stress reduction (MSBR) is a psycho-educational program developed by Kabat-Zinn and colleagues at the University of Massachusetts Medical Center. Spanning 8 weeks, the program consists of weekly 2.5 h-long classes and one “day of silence” in between the 6th and 7th weeks. The subjects in the mindfulness intervention and relaxation groups were equivalent in terms of decreases in distress. However, effect sizes for increases in positive affect were larger for the mindfulness meditation group.

Could the introduction of biofeedback devices to a mindfulness program be another drastic step in the denaturing of the classic roots of mindfulness, a phenomenon that Purser and Loy (2013) famously called McMindfulness? Biofeedback outcomes related to meditation. Mindfulness-Based Biofeedback and Self-Compassion in the Treatment of Veterans and Spouses. developing adaptive coping strategies in conjunction with improved ways of relating to his environment, a compassion-infused mindfulness-based biofeedback approach was utilized. The following biofeedback instruments were used for training purposes: the Nexus 10 with respiration sensor, photoplethysmographic detection sensor, thermal sensor, skin conductance sensor, and Surface Electromyographic (sEMG) sensor. Kabat-Zinn’s Mindfulness Based Stress Reduction Program (MBSR).

Students who contemplated self-compassion significantly raised the energy level in the left frontal lobe (happiness center). Depressed people taught Autogenic Training prevented relapse over the next three years. Biofeedback, becoming aware of physiological functions using instruments that provide information on the activity of these systems (e.g., skin conductance or temperature, heart rate). The purpose is to learn to control them at will and eventually, be able to do it without the equipment. My research question: What is a more effective way to practice mindfulness with biofeedback: individually or in a group setting? 15 minutes of listening to a modified metta meditation. Mindfulness, Acceptance, and Compassion in Biofeedback Practice. General Editor: Donald Moss, PhD, BCB, BCN. Special Issue Editor: Inna Khazan, PhD, BCB. The cover of this issue of Biofeedback shows a photograph, reflecting the mindfulness theme of this special issue. With ever greater frequency in healthcare and behavioral health circles. Originally inspired by Vipassana meditation, in Buddhist traditions, mindfulness encourages the practitioner to cultivate a moment-to-moment awareness of present events, characterized by nonjudging, nonstriving. Results indicated that the integration of biofeedback into each phase of the training increased treatment adherence, and participants intentions to practice the skills outside the.