

Chapter 3

Mindfulness and Well-Being

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Abstract We begin this chapter by defining mindfulness and giving a brief historical overview for contextual purposes. In defining mindfulness, we focus on three core elements – intention, attention, and attitude. In the next section of the chapter, we review the empirical literature – which highlights the link between mindfulness as a state, trait, and practice – to physical and psychological well-being in both clinical and non-clinical samples. Throughout the chapter, we invite potential opportunities for new research directions. Finally, we detail formal and informal practices for cultivating mindfulness in an effort to enhance one’s own well-being.

While the term mindfulness is often associated with the tradition of Buddhism, it is currently being applied in a manner that transcends its religious and cultural roots. With this re-contextualization of mindfulness comes different aims – among them, the contemporarily relevant aim of improving health and well-being. In Western science, mindfulness as a practice has been utilized to help alleviate existing ailments in an effort to decrease pathology (e.g., Carlson, Speca, Patel, & Goodey, 2004; Hofmann, Sawyer, Witt, & Oh, 2010; Kabat-Zinn, 1990). More recently, mindfulness as a practice has been explored as a method to promote general health and well-being – i.e., as a preventative technique (e.g., Baer, Lykins, & Peters, 2012; Brown & Ryan, 2003; Jazaieri & Shapiro, 2010; Lykins & Baer, 2009; Orzech, Shapiro, Brown, & McKay, 2009; Shapiro & Jazaieri, 2015).

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Defining Mindfulness

The word mindfulness is a translation of traditional Eastern words including *smṛti* (Sanskrit), *sati* (Pali), and *dranpa* (Tibetan). In contemporary Western psychology, mindfulness is considered to be the awareness one achieves through intentionally attending in an accepting and discerning way to one's current moment-to-moment experience (Kabat-Zinn, 2003; Shapiro & Carlson, 2009). Mindfulness is more than paying attention as it also involves an intimate knowing of what is arising as it is arising, without trying to change or control it. Thus, the process of mindfulness involves changing one's relationship to experience as opposed to changing experience itself – a way of training the mind, heart, and body to be fully present with life – relating to all experience whether positive, negative, or neutral with kindness and openness.

Mindfulness is often referred to as a consciousness practice – a training and cultivation of awareness and presence. Although associated with meditation, mindfulness is more than a meditation technique or practice. Mindfulness can be a state, or an immediate experience of being present (sometimes referred to as mindful awareness). State mindfulness, in turn, can translate into more of a trait or disposition over time, in essence a fundamental way of being. Recent empirical work supports this idea that increasing state mindfulness over repeated meditation sessions may ultimately contribute to one having a more mindful disposition or trait (Kiken, Garland, Bluth, & Gaylord, 2015).

Mindfulness is often thought of in terms of *paying attention*. Yet equally important is *why* one is paying attention (intention) and *how* (attitude). Shapiro and colleagues (2009, 2006) offer a model that integrates the why and how of attention, proposing three core elements of mindfulness: Intention, Attention, and Attitude (IAA). Below, we present the IAA model of mindfulness as a framework and consider its applications to well-being.

Three Core Elements of Mindfulness

According to the IAA model, mindfulness is comprised of three core elements (Shapiro & Carlson, 2009; Shapiro et al., 2006). *Intention* creates the context and motivation that fuels the mindfulness practice. Intention connects us to what is of greatest value – the ultimate aim, vision, and aspiration. *Attention* involves bringing awareness into focus and observing moment-to-moment internal and external experiences. *Attitude* describes the quality of our attention – kind, open, curious, and accepting. According to the IAA model, mindfulness is the ongoing cyclical interplay of these core elements as they unfold in the present moment.

Intention Intention reminds us *why* we are paying attention. Discerning our intentions involves inquiring into our hopes, desires, and aspirations. For example, explicitly reflecting on our intention helps us understand what it is that we really

want for ourselves. Intention helps bring our values into present moment awareness, allowing us to consciously decide whether these values are something to pursue. Intention is not about becoming goal oriented or attached to a specific outcome. At the deepest level, intention is simply a reflection upon why we are practicing, what we value, and what is ultimately most important to us. Intention involves setting the compass of the heart in the direction we want to head.

Attention Paying attention involves seeing clearly what is in the here and now, in this moment. Within the context of mindfulness, we learn to attend not only to the world around us, but also to the contents of our own consciousness. Mindfulness helps us cultivate attention that is sustained and concentrated, despite our mind's natural inclination to wander (e.g., Jazaieri et al., 2016; Killingsworth & Gilbert, 2010). Therefore, attention is the component of mindfulness that facilitates greater focus, discernment, and the capacity to note what arises in our field of experience without engaging in reflexive reactivity. We systematically practice bringing our mind back to the present moment when it wanders to the past or future. We cultivate attention by returning again and again to the here and now. This requires discipline. However, the attention does not need to be strained and contracted. We can choose to relate to our attention in a different way, for example with a “relaxed alertness” that involves clarity and precision rather than stress or vigilance (Wallace, 2006). This relaxed alertness is vital to cultivating the type of sustained and relaxed attention necessary for mindfulness.

Attitude How we pay attention – our attitude – is essential to mindfulness. Attention can be controlling and critical, or attention can be curious and kind. Mindfulness involves attending with the attitudinal qualities of curiosity, openness, acceptance, and love (COAL; Siegel, 2007). Our attitude influences the very core of our mindful attention because what we practice becomes stronger. When we practice a judgmental and critical attention, we strengthen that way of being and responding (to ourselves and others). When we practice compassion and acceptance, we strengthen these qualities. It is helpful to think of our attention like a warm tea enveloping our present moment experience. We can infuse it with attitudes just like we infuse warm water with mint, chamomile, or lavender. We infuse awareness with kindness, openness, and curiosity. These attitudinal qualities allow us to be present to all of our experience, even the parts that perhaps would be too shameful or frightening to see without this attitudinal context of compassion. We return to this topic of attitude later in the chapter when we present practical suggestions for cultivating mindfulness for well-being.

Self-Report Measures of Mindfulness

Mindfulness is most commonly assessed through self-report measures and inventories (for a review see Sauer et al., 2013). While many exist, some of the most common include: the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006;

Baer et al., 2008; Van Dam, Earleywine, & Danoff-Burg, 2009), the Mindful Attention and Awareness Scale (MAAS; Brown & Ryan, 2003; MacKillop & Anderson, 2007; Van Dam, Earleywine, & Borders, 2010), and the Toronto Mindfulness Scale (TMS; Lau et al., 2006; Davis, Lau, & Cairns, 2009). The FFMQ is a 39-item measure that examines five specific components that the authors posit are related to mindfulness: observing, describing, acting with awareness, nonjudging of inner experience, and nonreactivity to inner experience. The MAAS is a 15-item measure with a single factor measuring attention and awareness across several domains of experience in daily life (e.g., cognitive, emotional, & physical). Finally, the TMS is a 13-item measure that examines two factors: curiosity, or the attitude of wanting to learn more about one's experiences, and decentering, or the shift from identifying personally with one's thoughts and feelings to relating to one's experience with a broader field of awareness. The TMS is unique in that it is intended to be used immediately following a meditation experience (state-oriented).

Mindfulness and Physical Well-Being

Scientists have theoretically and empirically linked mindfulness to improved physiological well-being in a variety of domains (e.g., Siegel, 2007). Recent research has demonstrated that meditation practices such as mindfulness can influence the structure and function of the brain (e.g., Hölzel et al., 2011). Empirical findings suggest that the adult brain is plastic and experience-dependent changes can occur at the structural, functional, and neurochemical level even in short periods of time, as brief as a few weeks (e.g., Treadway & Lazar, 2010). Mindfulness intervention results have suggested that mindfulness practice has the potential to alter neural function and that these positive effects can begin to accrue in a relatively short period of time (e.g., Goldin et al., 2012, 2013). Preliminary evidence has also demonstrated changes in cortical structure in those who practiced mindfulness meditation. For example, when examining the brains of 20 long-term mindfulness meditation practitioners with 15 matched control participants, Lazar et al. (2005) found increased cortical thickness in the anterior insula and sensory cortex in the mindfulness meditators, regions associated with observing internal and external physical sensations. Furthermore, mindfulness meditators had larger regions of the prefrontal cortex, an area implicated in decision-making and cognitive processing.

Research has demonstrated similar benefits among people who are not long-term meditators. For example, participants in an 8-week Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1990; for detailed program information, see Table 3.1) program demonstrated increases in left anterior activation, an indicator of positive affect, when compared to a control group (Davidson et al., 2003). These findings are encouraging because participants demonstrated effects on brain function without prior meditation practice, suggesting that a short-term program such as MBSR can change the brain in positive ways.

Table 3.1 Structure, methods, and key program characteristics of Mindfulness Based Stress Reduction (MBSR) from Santorelli, 2014

Structure and Methods:
Eight-weekly classes, 2.5–3.5 h in duration
All day silent retreat during the sixth week (7.5 hours)
Formal mindfulness meditation practices (e.g., body scan, hatha yoga, sitting meditation, walking meditation)
Informal mindfulness meditation practices
Daily homework assignments including a minimum of 45 minutes per day of formal mindfulness practice and 5–15 min of informal practice, 6 days per week for the duration of the course
In class individual and group dialogue and inquiry oriented around weekly homework practice including an exploration of hindrances to mindfulness and development and integration of mindfulness-based self-regulatory skills and capacities
Assessment, self-evaluation, and closure during the last class (week 8)
Key Characteristics:
Intensive training in mindfulness meditation
Educational orientation
Group format – 15–40 participants per class
Individually tailored instruction
Experiential, highly participatory format
Highly challenging and strongly supportive
Collaborative relationship between participant and MBSR instructor
Array of mindfulness methods to meet individual participant needs and learning styles
Interactive and patient-initiated dialogue and inquiry intended to explore perceptions, mental and behavioral habits and patterns that may inhibit learning, growth, and healing
Short-term intervention: MBSR is relatively brief in duration (8 weeks). The structure is intended to foster participant self-regulation and self-reliance
Life-long learning: MBSR is both an immediate and deliberate shift in health orientation and a method for enhancing health and well being across the life span

Further, these results have been replicated and extended by other researchers. In an MRI study by Hölzel et al. (2010), 26 healthy individuals participated in an 8-week MBSR course. Following the intervention, participants reported reduced stress, which was positively correlated with right basolateral amygdala gray matter density. In other words, “the more participants’ stress levels decreased, the greater the decrease of gray matter density in the right amygdala” (p. 13). These structural changes may serve to mitigate automatic forms of emotional reactivity. Hölzel et al. (2011) went on to extend this research by employing a waitlist control condition (n=17) in their study design. Sixteen healthy, meditation-naïve participants took part in the 8-week MBSR program. When compared to the waitlist group, the MBSR group displayed increases in brain gray matter density. As hypothesized, the researchers found increased gray matter concentration in the left hippocampus. Exploratory analyses also identified significant increases in gray matter concentration in regions of the posterior cingulate cortex, temporo-parietal junction, and cerebellum, regions involved in learning and memory processes, emotion regulation, self-referential processing, and perspective taking (Hölzel et al., 2011).

In terms of mechanism, mindfulness meditation has the potential to alter key emotion regulation networks in the brain. Along these lines, Creswell et al. (2007) examined the relationship between self-reported trait mindfulness and the ability to identify emotions in facial stimuli. Trait mindfulness was associated with increases in neural activity in the medial prefrontal cortex (which exerts top-down control of the amygdala) and decreases in amygdala activity during an affect labeling task. The authors suggest that mindfulness may be associated with improved prefrontal regulation of limbic responses. When examining mindfulness practice, emotion regulation has been proposed to be a potential mechanism of change in mindfulness-based treatments (Gratz & Tull, 2010), and we view this as an important area for continued investigation.

Mindfulness also appears to benefit immune function. For example, in novice mediators who took part in standard MBSR, Davidson et al. (2003) found an increase in antibody titers to influenza vaccine compared to a waitlist control group. Similarly, in cancer patients, MBSR has demonstrated a number of effects on immune parameters that are consistent with a shift toward a more normal profile (Carlson, Speca, Patel, & Goodey, 2003; Carlson et al., 2004). Recent research investigating the effects of mindfulness practice on telomerase activity further enhances our understanding of the relationship between mindfulness and immune function (Schutte & Malouff, 2014). Telomere length, effected by the enzyme telomerase, is associated with cell-regeneration and improved longevity. According to a recent meta-analysis by Schutte and Malouff (2014), four randomized control trials (RCTs) with a total of 190 participants examined the effect of mindfulness meditation on telomerase. A medium effect size ($d = .46$) indicated that mindfulness meditation led to an increase in telomerase activity. Although preliminary, these results suggest a likely pathway through which mindfulness can benefit health.

Another major area of investigation amongst mindfulness researchers has been the effect of MBSR on salivary cortisol (for a review see Matousek, Dobkin, & Pruessner, 2010). Cortisol, a hormone secreted in response to stress, is accepted as an objective biological marker of stress. While there is accumulating evidence indicating that cortisol levels decrease following participation in MBSR, cortisol does not function in isolation and is one of several interconnected hormonal mediators of the stress response. Thus, as expected, not all researchers have reported beneficial effects of MBSR on salivary cortisol. Future research should consider multiple biomarkers in addition to cortisol (e.g., salivary amylase, cytokines) in developing more nuanced perspectives of the mindfulness/stress response interface.

Mindfulness and Psychological Well-Being

Since its inception in Western psychological research, the mindfulness literature has been drawing links between mindfulness practice and improved psychological well-being in a variety of domains, including attention, positive and negative affect, life satisfaction, and so forth, for both clinical and non-clinical samples (e.g., Baer,

2003; Chiesa & Serretti, 2009; Grossman, Niemann, Schmidt, & Walach, 2004; Hofmann et al., 2010; Keng, Smoski, & Robins, 2011). These studies have taken a variety of approaches, including cross-sectional and correlational, in design. Researchers have examined associations between mindfulness and various indicators of well-being in laboratory-based, experimental research examining the effects of brief mindfulness inductions (state mindfulness). In addition, other research has focused on mindfulness-based interventions and their effects on well-being.

Regardless of the approach (e.g., cross-sectional, experimental, intervention), the results have been encouraging. For example, when looking at a review of mindfulness studies, data from correlational research suggests that trait mindfulness is positively associated with a variety of indicators of well-being, including greater self-reported positive affect, life satisfaction, vitality, and adaptive emotion regulation, as well as lower levels of negative affect and psychopathological symptoms (see Keng et al., 2011). When looking at a meta-analysis of RCTs of mindfulness, the collective data from intervention research suggests that MBSR, the most commonly researched mindfulness intervention, has a medium sized effect ($d = 0.54$) on psychological well-being (when considered as a composite) (Grossman et al., 2004). MBSR has also been shown to reduce overall psychological symptomatology, increase perceptions of control, and enhance empathy in nonclinical samples (e.g., Astin, 1997; Shapiro, Schwartz, & Bonner, 1998).

More generally, optimism and well-being are linked (e.g., Carver, Scheier, & Segerstrom, 2010; Segerstrom, Carver & Scheier, Chap. 11, this volume) and mindfulness appears to promote optimism. For example, brief mindfulness inductions in the laboratory have been shown to increase optimism and positive judgments (Kiken & Shook, 2011). In addition, another study found that meditation experience (measured both by hours spent meditating as well as by state mindfulness) was associated with greater optimism in participants (as well as greater positive affect, social connectedness, and less negative affect) (Gootjets & Rassin, 2014).

Shorter mindfulness-based interventions have also reported favorable results. For example, Orzech, Shapiro, Brown, and McKay (2009) examined a one-month intensive (10–12 h of formal mindfulness practice) mindfulness intervention in a community sample of adults. In addition to increases in mindfulness, the intensive mindfulness-training program was related to reductions in anxiety as well as improvements in subjective well-being and self-compassion. Changes in trait mindfulness and acceptance were also related to improvements in psychological symptoms, well-being, and resilience. There have also been beneficial effects of mindfulness (at the trait level and also through a brief 10-minute mindfulness induction) on insight, problem solving, and creativity (Ostafin & Kassman, 2012).

Indeed, mindfulness seems to have cognitive benefits. For example, various forms of mindfulness training have been shown to buffer against the deterioration of working memory during periods of high stress (Jha, Stanley, Kiyonaga, Wong, & Gelfand, 2010), increase backward digit memory span (Chambers, Lo, & Allen, 2008), and improve viso-spaital processing, working memory, and executive functioning (Zeidan, Johnson, Diamond, David, & Goolkasian, 2010). Research has also shown that mindfulness meditation can enhance control over how attention is

distributed. For example, if too much attention is focused on one stimulus, another stimulus might be missed. Mindfulness training can help one allocate attention more efficiently, leading to more effective information processing (see Brefczynski-Lewis, Lutz, Schaefer, Levinson, & Davidson, 2007; Slagter et al., 2007).

Relatedly, mindfulness training helps individuals reduce the tendency to ruminate (Jha, Krompinger, & Baime, 2007). Mindfulness training has also been shown to reduce mind wandering (e.g., Jazaieri et al., 2016; Mrazek, Smallwood, & Schooler, 2012). For instance, a recent RCT examined the effects of a brief, 2-week mindfulness-training program on mind wandering and cognitive performance. When compared to the active control condition, mindfulness training improved reading-comprehension scores and working memory capacity while also reducing the occurrence of distracting thoughts during a standardized exam (Mrazek, Franklin, Phillips, Baird, & Schooler, 2013).

Research also suggests that meditators have a number of positive characteristics compared to non-meditators. One study by Lykins and Baer (2009) found that meditators scored significantly lower on “maladaptive characteristics” (e.g., rumination, thought suppression, difficulties regulating emotions) and higher on “adaptive characteristics” (e.g., reflection, self-compassion, psychological well-being) when compared to demographically matched non-meditators. In other studies comparing meditators and non-meditators on a variety of performance-based measures, data suggests that regular meditation practice, such as mindfulness practice, is associated with enhanced cognitive flexibility and attentional functioning (e.g., Hodgins & Adair, 2010; Moore & Malinowski, 2009), outcomes that have been linked with positive well-being.

Additionally, a number of studies have examined the impact of mindfulness training on mental health and well-being in both physicians and medical students, as well as mental health professionals and trainees. An early RCT examined the effects of MBSR on premedical and medical students’ subjective experiences compared to waitlist controls (Shapiro et al., 1998). Results indicated increases in empathy and spirituality, and reductions in state and trait anxiety, depressive symptoms, and overall psychological distress following MBSR. These results were replicated in the waitlist control group who took part in the intervention – lending further support to the role of MBSR in enhancing well-being in medical trainees.

Another RCT tested the efficacy of MBSR among a variety of health care professionals, including physicians, nurses, social workers, physical therapists, and psychologists (Shapiro, Astin, Bishop, & Cordova, 2005). Compared to the waitlist control participants, the MBSR group reported increases in self-compassion, a stress resilience trait, and reductions in perceived stress. Because this study involved an array of helping professionals, it suggests that the benefits of MBSR for stress outcomes may perhaps generalize across helping professions. However, because cohort differences were not tested, it is possible that only certain professional groups showed significant improvements. This is an interesting area for future research.

There is initial evidence that mindfulness training benefits not only medical personnel, but also psychotherapists in training. A cohort-controlled study with counseling psychology graduate students (Shapiro, Brown, & Biegel, 2007) showed that following

a standard MBSR, students demonstrated significant increases in mindfulness, positive affect, and self-compassion, as well as reductions in stress, negative affect, rumination, and both state and trait anxiety, relative to those in an active control condition. Similar results were found in a recent study, which also demonstrated improvements in moral reasoning (Shapiro, Jazaieri, & Goldin, 2012). Taken together, there is mounting evidence to suggest that mindfulness (in a variety of forms – state, trait, brief, & longer-term training) has a favorable impact on psychological health and well-being in clinical and non-clinical samples.

Cultivating Mindfulness for Well-Being

As with any new skill, developing mindfulness requires practice. The good news is that in any moment, we can choose to practice mindfulness. In this section, we will present several practices for cultivating the skill of mindfulness. These practices will include both formal and informal mindfulness exercises. *Formal* practice refers to the time we allocate to structured (guided or unguided) practices such as sitting meditation, body scan meditation, or other types of systematic training. *Informal* practice refers to efforts made to transfer the skills acquired through formal practice to the moments and events of our daily lives. For example, we can apply the mindfulness skills of intention, attention, and attitude to washing the dishes, reading a book, or having a conversation with a friend. Often, people ask whether it is “more important” to practice formal versus informal practice. While the empirical evidence has been supportive of formal and structured mindfulness practices, and little research has examined informal mindfulness practices, in our experience, formal and informal practices have a synergistic effect, each informing, augmenting, and transforming the other.

Formal Practice

Often, when people think of the term “mindfulness”, what comes to mind are the formal sitting practices. Empirically, formal mindfulness practice has been associated with a variety of positive outcomes including improved psychological functioning and lower stress (e.g., Carmody & Baer, 2008) as well as a number of intrapersonal and interpersonal outcomes (e.g., Carson, Carson, Gil, & Baucom, 2004). Below, we present the most commonly studied formal practices of awareness of breathing, body scan, and Hatha Yoga (Kabat-Zinn, 1990; Stahl & Goldstein, 2010). We will be adopting a direct way of speaking, akin to instructions given in mindfulness types of interventions (Kabat-Zinn, 1990; Stahl & Goldstein, 2010), so that direct instructions may be given to the practitioner.

Awareness of Breathing Awareness of one’s breathing is one of the most elemental mindfulness meditation practices (Kabat-Zinn, 1990). The breath is considered to be the foundation to a mindfulness practice. Awareness of breathing simply involves paying attention to each inhalation and exhalation of air without changing anything about the process. You can begin the practice by sitting in a comfortable, upright position with your hands rested in your lap. You may choose to close your eyes or perhaps you prefer to keep your eyes open, picking a spot in front of you and keeping a soft, downward gaze. Then, simply attend to the experience of breathing – making no effort to control or change your breath, just focusing kind, open attention on the breath. Feel the rhythm, the length of each in-breath and out-breath, notice how the temperature of your breath changes and transforms itself, notice how your body moves as you breathe – the nostrils, shoulders, chest, rib cage, belly. Continue to observe all of the qualities of the breath, without elaborating on its implications or creating any need for action. You may choose to practice for 2–3 min to begin with and then try extending this time subsequently. Some find it helpful to set an intention before beginning this sitting exercise by silently speaking something that resonates for them in the moment (see examples of intentions in Table 3.2).

During the awareness of breath practice, it is natural for our attention to wander off to thoughts, memories, fantasies, and feelings. When this occurs, simply notice and gently re-direct your attention back to the breath, over and over again. Notice any judgmental thoughts that arise throughout this process (e.g., “I’m not very good at this”, “There are so many important things that I could be doing with my time instead”). Steadily repeat the process of redirecting your attention back to your breath each time you notice your mind is wandering – this may happen dozens of times in the span of minutes. Continue to use your breath as an anchor, a guide back to the present moment.

Table 3.2 Mindfulness attitudes and examples of intentions

Attitude	Intention
Non-judging	“May I be nonjudgmental”
Patience	“May I be gentle with myself”
Beginner’s mind	“May I be present with this new experience”
Trust	“May I trust myself”
Non-striving	“May I be relaxed in this moment”
Acceptance	“May I be accepting of this moment”
Letting-go	“May I let go”
Nonattachment	“May I allow this moment to unfold”
Curiosity	“May I be open”
Gentleness	“May I be gentle with myself”
Nonreactivity	“May I respond from a place of clarity”
Loving-kindness	“May I be at ease”

Body Scan Another form of formal sitting practice is the body scan, where you progressively move your attention throughout your body, feeling each region (Kabat-Zinn, 1990). You can begin the practice by first comfortably lying down on your back with your legs extended, your arms by your sides with your palms facing up, and gently closing your eyes. You can also practice the body scan sitting upright in a chair with your hands rested in your lap. Again, if you choose, you may begin by setting an intention for this practice, speaking, silently, something that resonates for you in the moment. Begin by focusing your attention on the breath and observe nonjudgmentally as it moves in and out of your body. Do this for a few minutes.

Once you are in touch with your breath, begin by bringing your attention to your left foot, bringing your attention to toes of the left foot, then slowly moving up your left foot and your left leg. Notice any sensation or lack of sensation. Upon reaching the pelvis, do the same with the toes of your right foot, gradually moving up your right foot and your right leg, and then making your way up the body to the torso, lower back, abdomen, upper back, chest, and shoulders. Once you reach your shoulders, slowly and systematically bring your attention to the fingers of your left hand, moving up the left arm and returning back to your shoulders. Then, repeat by noticing the fingers of your right hand and up to your right arm. Upon reaching your shoulders again, move to the clavicle, the neck, throat, and continue to the face, bringing your attention to the lips, nose, eyes, and ears. Notice any tension that may exist. Conclude the body scan by moving your attention to the back of the head and to the top of the head. Attempt to keep focus on each part of your body for at least 1 minute and pay close attention to the sensations in that particular area. After moving through the regions of your body, return to the breath and focus your attention to whatever arises. Each time your attention wanders during this practice, just notice where it has gone and bring your attention back to the specific region of your body. If any judgment arises, notice it and re-direct your attention back to the exercise.

Hatha Yoga There are many ways of practicing being in your physical body, including Hatha yoga, a method whereby participants incorporate gentle yoga stretches and postures that are designed to enhance mindful awareness of bodily sensations while balancing and strengthening the musculoskeletal system (Hanh, 2008). Each pose and exercise is done deliberately with the intention of paying attention to the moment-to-moment sensations that arise while keeping awareness fixated on the breath. Hatha yoga is practiced in the same spirit and attitude applied to the other mindfulness practices, including non-judging, gentleness, curiosity, beginner's mind, patience, and acceptance. While a byproduct is that you may become stronger, more flexible, and improve balance, hatha yoga also helps with relaxation and stress reduction.

For your yoga practice, you may choose to use a mat or a pad and place it on the floor. Initially, it may be useful to watch a video to help guide you through the various poses. You may also choose to use a yoga pose chart to guide you through a sequence. While practicing, it is essential to bring your attention to subtle thoughts or commentary running through your mind, as these unconscious notions influence our state of being and may cause distress. This awareness and ability to continually redirect attention back to your body and practice will increase your sense of self and encourage your mindful yoga exercise.

Informal Practices

The formal practices listed above strengthen and support the informal practice of cultivating mindfulness in daily life. Informal practice involves bringing our kind, open attention to our moment-to-moment experience of any activity. For example, one can engage in mindful eating, mindful listening, or mindful driving. The informal practice does not require additional time, it simply invites the resonance of mindfulness to accompany whatever experience we are engaged in. Just as a pianist practices his or her piano, we too must fine-tune this new skill of mindfulness so that with time, this practice of paying attention to the present moment becomes natural and effortless.

As previously mentioned, any activity can be an opportunity to practice mindfulness. We can be mindful during routine activities such as making a cup of tea, writing an email, sorting laundry, or driving to work. Essentially, we can choose to intentionally bring each moment of our experience into mindful awareness. These individual moments are what eventually comprise the days, weeks, months, and years our lives, and far too often, we are not fully awake for them. For example, you may notice the moment the hot water in your cup begins to change colors when the tea makes contact. You may become aware of thoughts, feelings, or physical sensations as you type an email to someone. You may acknowledge the complex history of an article of clothing as you place it in the laundry machine (e.g., from the person who planted the cotton seeds to the truck that delivered it to the store where you made your purchase). You may choose to examine how your hands feel as they grip the steering wheel of your car during your daily commute.

Informal practice involves intentionally choosing to live your life more fully and vividly, instead of on automatic pilot. Below, we will discuss two examples of informal practice: mindful walking (Hanh, 2008) and mindful eating (Hanh & Cheung, 2010).

Mindful Walking Most of us spend at least some of our day walking, whether from the house to the car, from the desk to the bathroom, or even from the couch to the refrigerator. Typically when we are walking, we are just trying to get from one point to the next, seldom paying much attention to how we are getting from one point to the next. Walking is an everyday activity where you can practice bringing the formal practice of mindfulness into this informal realm. However, walking can only become meditative when we are *intentionally* bringing awareness to each step that we take. The essence of mindful walking is that when you are walking, just walk. Walk purely for the sake of walking instead of combining it with typical habits of planning, thinking, talking, and worrying.

To begin this practice, select a place where you can practice walking back and forth at a leisurely rate and be fairly undistracted. First become aware of yourself and your surroundings. Then, begin to walk. In this practice, it is helpful to keep a downward gaze rather than looking around at your surroundings. Make an effort to be fully and completely aware of each foot as it makes contact with the earth, notice things such as the part of your foot that comes down to the floor first. Notice how your weight shifts in your body as you lift up your foot and set it down. Notice the length of each stride. You could even mentally note to yourself each movement, for

example “lifting,” “stepping,” or “placing down”. When you reach the end of your path, briefly pause and turn around. Do this at whatever speed feels right for you and keeps your attention focused. Thoughts or judgments may arise; acknowledge their presence and gently redirect your attention back to the next step in front of you. Initially, you could try this mindful walking practice for 10 or 15 minutes.

While likely at a different pace, you could try to bring this same spirit of awareness to other walking contexts in your life. For example, when you are walking from your parked car to run errands, or when you are walking from one building to another at work. Rather than looking down at your smartphone or planning for the next thing, you could choose to bring awareness to just walking. Through practicing walking mindfully, you are teaching yourself to walk through life more wakefully.

Mindful Eating One method of practicing mindfulness in an informal fashion is through eating mindfully (Hanh & Cheung, 2010). Eating is an activity that plays a central role in our lives – physically, emotionally, and socially. Eating provides us with the nourishment and sustenance to live, and yet we still do not pay close attention to the activity of eating, how we decide what we are going to eat, and how much we want to eat. First, without changing anything, simply observe how you eat. Do you eat alone or with someone? Do you eat standing up or sitting down? Do you eat while doing something else (e.g., surfing the internet, watching TV, etc.)? Where do you eat (e.g., on a couch, in bed, at a table, in front of the computer)? How much do you eat? How long does it take you to eat? How do you feel right before, during, and right after you eat? How do you determine what to eat? What thoughts do you have while you are eating? Really try and observe your process of eating, non-judgmentally.

Mindful eating involves setting an intention before you eat, becoming aware of the process of choosing what to eat, listening to your body to determine what it needs, and then eating slowly, consciously, with your full attention on the moment-to-moment experience of eating. As a mindful eating exercise, try sitting down for a meal and before you begin to eat, pause and set an intention for the meal. For example, “May this food nourish me” “May I be present for this meal” “May I appreciate all that was involved in providing this meal”. Then, utilizing all of your senses, take note of all of the food on your plate – notice the color, size, shape, texture, and aroma. Note any sensations in your body or any anticipation of eating – perhaps you feel a bit of saliva building up in your mouth. Then, slowly take a small bite but do not begin chewing yet – continue to pay attention to anything that comes to your mind about the taste, temperature, texture, and any thoughts or sensations you experience. Then, begin to slowly chew. Notice what it feels like to chew, the movement of your jaw, any changes in the texture, or flavor of the food. When your mind inevitably wanders, continue to redirect your attention back to your food. Notice the feeling of the subtle transition from chewing to swallowing. Then take another bite and repeat the exercise. Maybe this meal brings up memories for you, for example, memories of a person, a fond vacation, or the last time you had this meal. Simply note where your attention has wandered off to and gently bring it back to your intention and the food in front of you. If impatience arises, simply notice it nonjudgmentally, and continue to chew and swallow slowly and mindfully.

After you finish your meal, observe how you feel immediately afterwards, and an hour or two later. Notice your energy level, your mood, how your belly feels. We are not suggesting that all of your meals are consumed in this meticulous of a manner; however, we are presenting another way of practicing mindfulness in your everyday life and a way of changing your relationship to food. As an alternative to practicing mindful eating with an entire meal, you may choose to practice with a raisin or strawberry, or even the first bite of a meal – something small where you are able to set an intention and direct your attention to the practice of eating mindfully, even if just for a few minutes.

Cultivation of Attitudes During Mindfulness Practice

In Kabat-Zinn’s book *Full Catastrophe Living* (1990), he describes seven attitudinal foundations of mindfulness (1) *Non-judging*, or intentionally suspending judgment and evaluation and just simply being aware of whatever arises. (2) *Patience*, whereby we allow things to unfold in their own time, not rushing one moment to get to the next. (3) *Beginner’s mind*, or a willingness to see everything in life as if it were being experienced for the first time. (4) *Trust*, acknowledging that there is innate wisdom in all of us; therefore, looking within ourselves for guidance rather than outside for clues on how to be in the world. (5) *Non-striving*, unattaching oneself from any particular outcome, letting go of how things “should” be. (6) *Acceptance*, coming to terms with reality by being receptive and open to whatever is actually here in the present moment, regardless of whether we agree with it, want or like it, or approve of it. (7) *Letting go*, letting things be and accepting them for what they are, holding onto nothing. All seven of these attitudes are interconnected, as practicing one almost always leads to practicing another.

In addition to these seven attitudes (non-judging, patience, beginner’s mind, trust, non-striving, acceptance, and letting-go), Shapiro and Carlson (2009) have included five additional attitudes: (1) *Nonattachment*, letting go of grasping or clinging to a particular outcome and allowing things to unfold. (2) *Curiosity*, a genuine interest in one’s experience, being willing to explore and investigate whatever arises. (3) *Gentleness*, a tender quality which is soft rather than rigid (though not to be confused with undisciplined or passive). (4) *Playfulness*, open, curious, joyful, exploratory. (5) *Loving-kindness*, demonstrating love, benevolence, and friendliness. All of these attitudes can be thought of as the manner in which we go about our mindfulness practice and can be a guide for how we set our intentions (Table 3.2).

Concluding Comment

The intention of this chapter is to offer an overview of the potential of mindfulness to enhance health and well-being. During the past four decades, mindfulness research has demonstrated significant psychological, neurological, and neurophysiological benefits.

We suggest mindfulness training helps cultivate essential human capacities involving the regulation of emotion, intention, attention, and healthy attitudes, which creates a synergistic way of being that leads to greater health and well-being. Research into the applications of mindfulness training to enhance well-being is no longer young, and the field is growing and evolving exponentially. The invitation to the field is to bring sensitivity, creativity, and the use of a range of methodological tools to help illuminate the richness, complexity, and potential of mindfulness to enhance health and well-being in a variety of populations.

There are many exciting avenues for the empirical study of the effects of mindfulness on health and well-being. For example, while many theories exist, empirical research could tackle the important question of mechanisms – what are the exact mechanisms through which mindfulness brings about adaptive health and well-being? Given that mindfulness practice has been associated with numerous beneficial outcomes, what is the most effective way to teach mindfulness to children and young adults in educational settings so that these positive effects may potentially be experienced earlier in life? Finally, the field must continue to study mindfulness under rigorous conditions, including utilizing an active comparison group, placebo group, assessing for demand characteristics, examining the longitudinal effects of the benefits gained through mindfulness, and so forth. It has been exciting to see the tremendous growth of mindfulness research and its application and we look forward to seeing how research and practice in this area continue to grow and evolve.

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