Attitudes and Opinions of Female High School Athletes About Sports-Focused Mindfulness Training and Practices

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Female high school athletes playing volleyball and soccer (N = 32) responded to a social validity questionnaire that inquired about their experiences with a sport-focused mindfulness training program. On average, the student-athletes rated most highly the effects of mindfulness training on emotional awareness and attention focusing, the contribution of mindfulness toward team play, the benefit of having coaches learn mindfulness skills, and the application of mindfulness to other sports. There were dissimilar ratings between the volleyball and soccer student-athletes concerning use of mindfulness when preparing for and during games. Most of the formal mindfulness practices taught during the training program were rated as being helpful to very helpful. We discuss factors influencing these findings and implications for mindfulness–sport performance research.

Keywords: athletic performance, high school students, mindfulness, mindfulness-based practices, sport psychology

Mindfulness has been defined as “paying attention in a particular way, on purpose, in the present moment, and non-judgmentally” (Kabat-Zinn, 1994). Notably, proponents of mindfulness and mindfulness-based practices such as meditation have made important contributions to sport psychology (Moore, 2009; Pineau, Glass, & Kaufman, 2014; Sappington & Longshore, 2015). For example, the Mindfulness-Acceptance-Commitment (MAC) approach trains athletes to accept their thoughts and emotions before and during competition while simultaneously resisting the urge to change and avoid unpleasant sensations (Gardner & Moore, 2004, 2007). Another approach, Mindful Sport Performance Enhancement (MSPE), cultivates

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mindfulness in sports and daily living through awareness training, several forms of meditation, and mindful yoga (Kaufman, Glass, & Arnkoff, 2009; Kaufman, Glass, & Pineau, 2012). In addition, Mindfulness Meditation Training for Sport (MMTS) emphasizes acceptance and nonjudgment of thoughts, feelings, and emotions by training athletes in open awareness, thoughtful caring of self and teammates, and deliberate concentration (Baltzell & Akhtar, 2014).

Various outcome measures have been used in mindfulness–sport performance research. MAC has been shown to improve performance, reduce worry, and lead to more enjoyment by athletes competing in swimming, powerlifting, and springboard diving (Gardner & Moore, 2004). Studies of MSPE with archers, runners, and golfers documented increased state and trait mindfulness, decreased sport-related anxiety, and heightened state flow (DePetrillo, Kaufman, Glass, & Arnkoff, 2009; Kaufman et al., 2009). In a study with Division I female collegiate athletes (soccer and rowing), MMTS increased mindfulness skills and was associated with less negative affect compared with a control (non-MMTS) group (Baltzell & Akhtar, 2014). Other athletic research has supported the salutary effects of mindfulness and mindfulness-based practices in reducing emotional distress and increasing psychological well-being (Aherne, Moran, & Lonsdale, 2011; Chambers, Yee Lo, & Allen, 2008; Frewen, Evans, Maraj, Dozois, & Partridge, 2008).

Concerning the status of mindfulness research in sports, Baltzell, Caraballo, Chipman, and Hayden (2014) concluded that “there has been little consideration to date of the personal experiences of athletes who are first exposed to mindfulness practices, in terms of their receptiveness to the training and their perception of the impact of mindfulness practices on their psycho-emotional sport-related experience” (p. 222). Sampling the opinions and attitudes of individuals receiving psychological and other support services represents social validity assessment of intervention satisfaction and acceptability (Foster & Mash, 1999; Kazdin, 1977; Wolf, 1978). Such assessment is intended to identify procedures that appeal to service recipients as well as procedures that are perceived less favorably. High social validity predicts positive intervention integrity (Sanetti & Kratochwill, 2015). Conversely, when social validity is poor, practitioners must consider procedural and program modifications that will translate into more effective, acceptable, and positively regarded intervention.

As an example of social validity assessment of mindfulness training in sports, Baltzell et al. (2014) evaluated the experiences of seven collegiate soccer players who had participated in a 12-session MMTS program. The basis for this study was “to understand MMTS factors that would both contribute to and impede athletes from learning and practicing the core mindfulness meditation practices and related skills” (p. 225). The study used a thematic analysis methodology (Patton, 2002) wherein the athletes were questioned about their experience with MMTS, producing open coding transcripts (Strauss & Corbin, 1998) that yielded seven dimensions representing program benefits, challenges, and recommendations. In summary, the athletes reported initial difficulty in understanding MMTS but after training had achieved enhanced mindfulness, awareness, and acceptance of emotional experiences both on and off the field. Recommendations to improve MMTS included preparing athletes with respect to the process of meditation before training, allowing “buy in” to the program, connecting meditation explicitly with athletic performance, and supporting future mindfulness practices.
In keeping with the ongoing development of mindfulness–sports performance research (Pineau et al., 2014) and as Baltzell et al. (2014) suggested, “We need to continue to better understand both the benefits and how to best hone the offering of mindfulness mediation practices to athletes” (p. 241). To that end, the current study assessed opinions and attitudes about a sports-focused mindfulness training program among female high school athletes playing on soccer and volleyball teams. We constructed a standardized questionnaire that had them rate components of the program, the sports-specific outcomes from mindfulness training, and other perceived benefits of their training experiences. The students also rated helpfulness of the distinct mindfulness practices taught to them. The study illustrates one of the few social validity assessment projects in the area of mindfulness and sports performance (Baltzell et al., 2014) and, to our knowledge, is the first empirical evaluation with high school athletes.

Method

Participants and Setting

The participants were 32 students (Grades 9–12) attending a private high school in Massachusetts (total school population = 385 students). They comprised all players on the female varsity volleyball (n = 13) and soccer (n = 19) teams. These two teams were selected by the respective head coaches based on their interest in sports-focused mindfulness training at the school. Thus, the participants comprised a convenience sample and were not purposefully recruited for the study. We also did not attempt to recruit other athletic teams.

For the participants playing volleyball their average age was 17.9 years, they had played volleyball an average of 3.8 years, and they had been playing volleyball at the school an average of 2.3 years. Among the volleyball participants, 7.6% were in Grade 9, 38.4% were in Grade 10, 30.7% were in Grade 11, and 23% were in Grade 12.

For the participants playing soccer, their average age was 16.8 years, they had played soccer an average of 10 years, and they had been playing soccer at the school an average of 2.3 years. Among the soccer participants, 15.7% were in Grade 9, 21% were in Grade 10, 47.3% were in Grade 11, and 15.7% were in Grade 12.

The private school that the participants attended had developed a program of mindfulness studies under the direction of the first author. Entering 9-grade students took a mandatory 10-week introduction to mindfulness course, and there was additional mindfulness training available beyond this initial offering. In one section of the questionnaire designed for the current study (described below), participants recorded their prior experience with mindfulness as (a) none, (b) practiced mindfulness a few times, (c) had introductory mindfulness course at school, (d) had introductory mindfulness course at school and practice occasionally, or (e) had introductory mindfulness course at school and practice daily. Table 1 shows the percentage of volleyball and soccer participants within these categories. Note that the mindfulness training program evaluated in the current study was not the introductory mindfulness course previously referenced. In this regard, the participants recording their prior experience with mindfulness as “none” or “practiced mindfulness a few times” were newly admitted 10th- and 11th-grade students who
had not been exposed to the introductory 9th-grade mindfulness course. All of the other participants would have completed the introductory mindfulness course when they entered the school as 9-grade students.

**Description of Mindfulness Training With Volleyball and Soccer Teams**

Throughout the study, the first author instructed all of the mindfulness training sessions with the volleyball and soccer participants. He had been practicing mindfulness for more than 15 years, which included a combined 10 months of intensive residential retreat practice, attending several mindfulness teacher training programs, and conducting mindfulness education classes at the current school since 2010.

**Schedule.** One, 30-min mindfulness training session was scheduled each week with the volleyball and soccer participants. This format was planned to accommodate their academic class schedule. The sessions occurred over a 9-week period that comprised the athletic season for both teams.

**General procedures.** Most of the mindfulness training sessions with the volleyball and soccer participants included similar procedures. However, given the smaller number of volleyball team players, we decided to include two practices (described below) that were not introduced to the larger number of soccer team players. In addition, the volleyball team coaches chose not to attend mindfulness training sessions whereas the soccer coaches were present with their team. We made voluntary participation available to the coaches based on their interest in attending sessions. The soccer coaches wanted to practice with the team because they viewed mindfulness to be potentially helpful in coaching and wanted to know what skills the players were learning. The volleyball coaches decided not to attend sessions with the intention of giving players a private place to practice mindfulness skills and share their experience in case some of them were not comfortable doing so with a coach present.

Following the first session with the volleyball and soccer teams, the standard session format started with a brief (5 min) review of what was covered in the preceding week’s session. Most of the time per session (10–15 min) was devoted to a specific mindfulness practice, which the instructor explained, demonstrated, and

<table>
<thead>
<tr>
<th>Experience</th>
<th>Soccer</th>
<th>Volleyball</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>21%</td>
<td>23%</td>
</tr>
<tr>
<td>Practiced a few times</td>
<td>15.7%</td>
<td>15.3%</td>
</tr>
<tr>
<td>Had introductory mindfulness course at school</td>
<td>47.3%</td>
<td>30.7%</td>
</tr>
<tr>
<td>Had introductory mindfulness course at school—practice occasionally</td>
<td>15.7%</td>
<td>30.7%</td>
</tr>
<tr>
<td>Had introductory mindfulness course at school—practice daily</td>
<td>0%</td>
<td>7.6%</td>
</tr>
</tbody>
</table>
guided. The final segment of each session (5 min) dealt with “wrap up” discussion and preparatory information about the next week’s session. Within all sessions, the instructor invited but did not compel the volleyball and soccer participants to cultivate mindfulness in both their sports pursuits and daily life. That is, he supported voluntary practice both within and outside of sessions.

**Content.** The instructor of the mindfulness training program selected practices according to his previous experiences working with high school students and student-athletes, as well as practices commonly adopted by mindfulness practitioners (cf. Williams & Penman, 2011). The selected practices were also the basis of other sports-focused mindfulness training programs such as acceptance of thoughts and emotions (MAC: Gardner & Moore, 2004, 2007), concentration and mindfulness meditations (MMTS: Baltzell & Akhtar, 2014), and mindfulness in athletic movements (MSPE: Kaufman et al., 2012). Council practice, also known as Council Circle, is used by some leadership programs (see Stevenson Core Leadership High School Curriculum at www.stevensonschool.org/summer/leadership/classroom) but is not currently a publicly documented sports intervention. In summary, our objective in designing the sports-focused mindfulness training program was to include practices and procedures that were drawn from MAC, MMTS, and MSPE protocols to form a relatively “low-dose” intervention that could be implemented efficiently, geared toward young high school students, and adapted to the activity demands of an academic setting. Accordingly, the program represented a hybrid model that was not intended to replicate more formalized, conceptually integrated, and research validated applications (Pineau et al., 2014).

**Session Descriptions: Volleyball Team**

As indicated previously, one mindfulness training session per week was scheduled with the volleyball team for nine consecutive weeks. The sessions occurred after practice either on the school’s volleyball court or a nearby room with chairs and couches.

**Session 1: Introduction (30 min).** This session was intended to identify what the volleyball participants valued about playing sports (MAC: Gardner & Moore, 2004, 2007) and to develop general interest and excitement about mindfulness-based practices. The instructor introduced himself and briefly explained the general format of the sports-focused mindfulness training program. He asked the questions, “Why do you play, and what do you find challenging about sports?” In discussing “Why do you play sports?” the common dialogue centered on getting exercise, being outside, playing on a team with friends, competing. Their responses to “What do you find challenging about sports?” included engaging in conditioning, experiencing game-day nerves and focusing, losing, dealing with my parents’ expectations, practicing when tired, and letting down teammates. The instructor explained how mindfulness-based practices may be able to support volleyball participants with some of their challenges. Borrowing from MAC and MMTS approaches, the session also prepared the participants for mindfulness practices devoted to awareness and acceptance of emotions and the internal experience of mind–emotion relationships.

**Session 2: Attention and concentration (30 min).** Much of the content of this session was informed by mindfulness-based stress reduction (Kabat-Zinn, 2005)
Session 3: Concentration and body awareness (30 min). The instructor directed the volleyball participants in a 5-min sitting concentration practice using internal and external objects as points of reference (Kaufman & Glass, 2006). He introduced the topic of body awareness and why being able to feel sensations in the body is important in sports and life, especially to regulate emotions and stress. The volleyball participants were queried “Where can you feel your body?” and had responses such as “Just my feet” to “Everywhere except my stomach and upper arms.” The instructor explained that one of the benefits of the body-scan practice is developing more body awareness, regardless of the degree to which you can currently feel your body. He discussed in more detail that “being with and allowing body sensations and emotions to pass through” is preferable to the tension and contraction that are often created when a person resists and ignores these sensations and emotions. For the remainder of the session, the volleyball participants engaged in a 10-min sitting body-scan practice and discussed their reactions (e.g., experiencing increased sensations in parts of the body they scanned, having more awareness of wandering attention, and noticing worry-induced distress). These responses allowed the instructor to emphasize how attention can impact tension in the body and how excess tension can interfere with athletic performance.

Session 4: Relating to thoughts (30 min). The content of this session was derived principally from MBCT (Segal et al., 2002), as well as common practices within MMTS (Baltzell & Akhtar, 2014). Upon introducing the volleyball participants to the topic of thoughts, the instructor invited them to engage in a thought awareness practice and to practice a similar “mindful” relationship to thoughts as they do emotions, relating to thoughts with acceptance and interest and allowing thoughts to pass without resisting. They subsequently engaged in 10-min sitting thought awareness practice. Next, the instructor asked the volleyball participants what they noticed about thoughts and what types of thoughts they had. Given the degree of worry among some of the volleyball participants and student-athletes in general, the instructor discussed the “negativity bias” of the mind and then expressed how to relate to these thoughts in a mindful way. This discourse supported the volleyball participants in understanding the degree of control they had over thoughts and adopting a nonjudgmental attitude with thoughts that “come to mind” unintentionally.

Session 5: Integrating into movement (30 min). The instructor described how to integrate the practices in previous sessions with volleyball movements, followed by movement practice similar to sport-specific meditation within MSPE (Kaufman & Glass, 2006). For example, the volleyball participants spent 5 min hitting a ball back and forth with a partner while directing attention back to the ball when attention wandered. They were also guided in noticing if they could rest attention
Session 6: Council, body scan, and befriending (30 min). The basic structure of council practice was having the volleyball participants sit in a circle with one person speaking at a time about a group agreed-upon topic. In this session, the topic was “sharing anything you have enjoyed about the season or anything you have found frustrating or challenging.” The instructor emphasized that the volleyball participants should respond with the common council intentions: being “spontaneous, lean of speech,” and “speaking and listening from the heart.” Council practice allowed the volleyball participants to voice what they were thinking and feeling about their season and to build connection among teammates. The instructor also integrated mindfulness practices by having the volleyball participants use the person speaking as the object of attention, bring attention back if it wandered, and accept and be interested in whatever thoughts or emotions were apparent. After the council practice, the instructor guided the participants in a 10-min lying (supine) body scan (Kabat-Zinn, 2005; Williams & Penman, 2011).

For the remainder of this session, the instructor introduced befriending practice, a meditation that develops ease, compassion, and well-wishing toward ourselves and others by intentionally repeating befriending phrases. The instructor mentioned several common befriending phrases the participants could use but encouraged them to choose their own words, if desired. The volleyball participants finished with a 5-min befriending practice, also labeled “loving kindness,” in which they practiced wishing well for themselves and others (Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008; Salzberg, 2011).

Session 7: Sensing and serving (15 min). In this session the instructor emphasized mindfulness movement practices while the volleyball participants served a ball. Similar to Session 5, the basis of this movement practice was being aware of attention and body sensations while executing specific volleyball actions. The shortened duration of the session was dictated by the schedule in effect for the week and the desire of coaches to concentrate on serving.

Session 8: Council, body scan, and befriending (30 min). The volleyball participants performed another council practice with the consensus topic of “How are you feeling about the team and season right now?” When council practice concluded, the instructor led a 10-min lying body scan followed by a 5-min befriending practice.

Session 9: Conclusion (10 min). This concluding session was purposefully brief because the volleyball regular season had concluded and the schedule only allowed for this shortened time. The volleyball participants performed a short concentration practice, discussed their experience with mindfulness during and outside of sessions, and completed the study questionnaire.

Session Descriptions: Soccer Team

Similar to the volleyball participants, one mindfulness training session per week was scheduled with the soccer team for 9 consecutive weeks. The first two sessions

in their bodily sensations while hitting the ball back and forth. Again, when their attention wandered, they were invited to bring the attention back to sensations in the body. The key objective of these practices was learning how to relate to distraction without creating unneeded stress and tension.
occurred after practice on the school’s soccer field; thereafter, sessions occurred in a room with chairs and couches located in the school’s athletic center. The soccer participants requested the location shift because the temperature outside was getting cooler and they also found it difficult to listen attentively on the outdoor field.

**Sessions 1–4.** Sessions 1–4 were structured identically to the sessions conducted with the volleyball team participants.

**Sessions 5–6: Body scan (30 min).** These sessions focused on body-scan practices, with the soccer participants selecting either a lying or sitting posture while the instructor guided practices accordingly (see Session 3 of volleyball session description). In keeping with conventional body-scan meditation (Kabat-Zinn, 2005), these practices concentrated on having the soccer participants distinguish between the “thinking and sensing mind” by directing their attention toward physical sensations associated with parts of the body and the body as whole. When attention wandered from body sensations, the soccer participants were instructed to direct their attention back to the sensations with a patient, accepting, and nonjudgmental attitude. The session concluded with the soccer participants discussing what they noticed during the practices.

**Sessions 7–8: Body scan and befriending (30 min).** The soccer participants performed lying or sitting body scan and then the befriending practices cited earlier (Fredrickson et al., 2008; Salzberg, 2011). Befriending encompassed cultivating loving kindness toward oneself, teammates, teachers, and families in the context of sports and daily living. The instructor further led discussion about the sensory and thinking reactions the soccer participants experienced during practice.

**Session 9: Conclusion (30 min).** This concluding session had the soccer participants engage in lying body-scan practice. They discussed their experience with mindfulness during and outside of sessions and within the context of playing soccer and daily life. They finished the session by completing the study questionnaire.

**Questionnaire Construction and Measures**

We designed the study questionnaire by first reviewing the literature concerning social validity assessment (Foster & Mash, 1999; Kazdin, 1977; Wolf, 1978) and research that applied to mindfulness–sports performance specifically (Baltzell et al., 2014). The focus of the questionnaire was to assess how the participants judged the effects of mindfulness training in general and in relation to their sports, specific mindfulness practices, and influences on them individually and in the context of team play. Following several drafts and revisions, we arrived at a final version of the questionnaire that featured 22 statements applicable to both volleyball and soccer participants. The one exception was inclusion of three additional statements in the volleyball questionnaire that targeted the council practice component of mindfulness training that was described earlier but was not included during sessions with the soccer participants. According to a Likert-type scale, the participants responded to each questionnaire statement by checking one of five ratings: (1) strongly disagree, (2) disagree, (3) neither disagree or agree, (4) agree, and (5) strongly agree.

The questionnaire also included a section for rating the formal mindfulness practices experienced during training. These practices were concentration.
meditation—external object, concentration meditation—internal object, sitting body scan, lying down body scan, and befriending—loving kindness. The mindful movement practice component of training, used exclusively with the volleyball participants, was added to the volleyball questionnaire. Participants responded to each formal mindfulness practice by indicating whether it was (a) not helpful, (b) helpful, or (c) very helpful.

Questionnaire Distribution

As described previously, the participants received the questionnaire at the conclusion of their final mindfulness training session. They were informed that the purpose of the questionnaire was to obtain their opinions and attitudes about the mindfulness training they had experienced. Further instructions explained that they should complete the questionnaire honestly, anonymously, and voluntarily (none of the participants declined). They were also encouraged to add any remarks or feedback in the comments section of the questionnaire. There was no time constraint imposed, and participants typically completed the questionnaire in less than 10 min. All of the completed questionnaires were collected during the final team sessions, yielding a 100% return rate.

Data Analysis

We summarized the questionnaire data for volleyball and soccer participants separately by computing the average numerical rating (1–5) for each questionnaire statement. The computation totaled the numerical ratings per statement divided by number of participants. For the rating of formal mindfulness practices, the data were computed as a percentage measure by adding the ratings for each practice (not helpful, helpful, very helpful) and dividing each rating by the number of participants.

Results

Table 2 shows the average numerical rating per questionnaire statement for the volleyball and soccer participants. Volleyball participants had the highest average ratings (“4” or greater) for council practice ($M = 4.07–4.30$), applying mindfulness to other sports ($M = 4.30$), and the effects of mindfulness on becoming more aware of emotions ($M = 4.23$), contributing to effective team play ($M = 4.15$), and staying focused ($M = 4.07$). The volleyball participants also endorsed practicing mindfulness during games ($M = 4.07$) and the benefit of coaches learning mindfulness skills ($M = 4.0$).

The soccer participants had the highest average ratings for mindfulness contributing to effective team play ($M = 4.26$), applying mindfulness to other sports ($M = 4.26$), mindfulness helping with awareness of body sensations ($M = 4.0$), and coaches benefiting from learning mindfulness skills ($M = 3.94$).

The results presented in Table 3 are the percentage of volleyball and soccer participants rating formal mindfulness practices as not helpful, helpful, and very helpful. The highest helpful rating by volleyball participants was for concentration meditation—internal object (76.9%) and the highest very helpful rating was for mindful movement practice (61.5%). The range of combined helpful–very helpful
Table 2 Average Numerical Rating per Questionnaire Statements for Volleyball and Soccer Team Participants

<table>
<thead>
<tr>
<th>Questionnaire statement</th>
<th>Average rating: soccer</th>
<th>Average rating: volleyball</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Mindfulness has helped me to be more present in my life</td>
<td>3.84</td>
<td>3.84</td>
</tr>
<tr>
<td>2: Mindfulness has helped me act with increased awareness</td>
<td>3.89</td>
<td>3.69</td>
</tr>
<tr>
<td>3: Mindfulness has helped me become more aware of my emotions</td>
<td>3.89</td>
<td>4.23</td>
</tr>
<tr>
<td>4: Mindfulness has helped me become more aware of how my body feels</td>
<td>4.0</td>
<td>3.46</td>
</tr>
<tr>
<td>5: I practice mindfulness during practices</td>
<td>2.94</td>
<td>3.84</td>
</tr>
<tr>
<td>6: I practice mindfulness in preparing for games</td>
<td>3.57</td>
<td>3.61</td>
</tr>
<tr>
<td>7: I practice mindfulness during games</td>
<td>2.84</td>
<td>4.07</td>
</tr>
<tr>
<td>8: Mindfulness helps because it supports me in staying focused</td>
<td>3.73</td>
<td>4.07</td>
</tr>
<tr>
<td>9: Mindfulness helps because it allows me to be less distracted</td>
<td>3.73</td>
<td>3.84</td>
</tr>
<tr>
<td>10: Mindfulness helps because it allows me to perform with less tension in my body</td>
<td>3.63</td>
<td>3.61</td>
</tr>
<tr>
<td>11: Mindfulness helps because it allows me to be less distracted by my worry thoughts</td>
<td>3.47</td>
<td>3.92</td>
</tr>
<tr>
<td>12: Council practice helped in processing team issues and conflicts</td>
<td>N/A</td>
<td>4.15</td>
</tr>
<tr>
<td>13: Council practice improved our team chemistry</td>
<td>N/A</td>
<td>4.07</td>
</tr>
<tr>
<td>14: Council practice was an opportunity for our voices to be heard</td>
<td>N/A</td>
<td>4.30</td>
</tr>
<tr>
<td>15: Mindfulness has allowed me to be a better teammate</td>
<td>3.84</td>
<td>3.53</td>
</tr>
<tr>
<td>16: I think mindfulness is as important as strength training and lifting weights</td>
<td>3.78</td>
<td>3.53</td>
</tr>
<tr>
<td>17: Mindfulness contributes to a team playing together effectively</td>
<td>4.26</td>
<td>4.15</td>
</tr>
<tr>
<td>18: Mindfulness has helped me cope with athletic competition pressures</td>
<td>3.78</td>
<td>3.76</td>
</tr>
<tr>
<td>19: Mindfulness has helped me cope with performance expectations</td>
<td>3.84</td>
<td>3.76</td>
</tr>
<tr>
<td>20: Mindfulness has helped me deal with judgments from teammates and adults</td>
<td>3.47</td>
<td>3.46</td>
</tr>
<tr>
<td>21: Mindfulness supported me in appreciating and loving myself</td>
<td>3.57</td>
<td>3.46</td>
</tr>
<tr>
<td>22: Coaches can benefit from learning mindfulness skills</td>
<td>3.94</td>
<td>4.0</td>
</tr>
<tr>
<td>23: My impression is that my coaches practice mindfulness themselves</td>
<td>3.84</td>
<td>2.84</td>
</tr>
<tr>
<td>24: I expect to practice mindfulness in the future</td>
<td>3.89</td>
<td>3.84</td>
</tr>
<tr>
<td>25: I can apply mindfulness to other sports that I play</td>
<td>4.26</td>
<td>4.30</td>
</tr>
</tbody>
</table>

*Note. N/A = not applicable.*
<table>
<thead>
<tr>
<th>Formal mindfulness practices</th>
<th>Percentage: Soccer</th>
<th>Percentage: Volleyball</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not helpful</td>
<td>Helpful</td>
</tr>
<tr>
<td>Concentration meditation—external object</td>
<td>21%</td>
<td>47.3%</td>
</tr>
<tr>
<td>Concentration meditation—internal object</td>
<td>—</td>
<td>63.1%</td>
</tr>
<tr>
<td>Sitting body scan</td>
<td>—</td>
<td>68.4%</td>
</tr>
<tr>
<td>Lying down body scan</td>
<td>5.2%</td>
<td>36.8%</td>
</tr>
<tr>
<td>Befriending–loving kindness</td>
<td>10.5%</td>
<td>63.1%</td>
</tr>
<tr>
<td>Mindful movement practices (serving, passing)</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Note. N/A = not applicable.
ratings was 84.5–100%. Soccer participants had the highest helpful rating for sitting body scan (68.4%) and the highest very helpful rating for lying down body scan (57.8%). The range of combined helpful–very helpful ratings was 78.8–100%.

Discussion

This study addressed the experiences of female high school athletes who participated in a sports-focused mindfulness training program. Our assessment methodology incorporated a standardized questionnaire that sampled opinions and attitudes about specific mindfulness practices and the general and sports performance effects of mindfulness training. As noted previously, there has been limited social validity research concerning the exposure of athletes to mindfulness and mindfulness-based practices (Baltzell et al., 2014) and none conducted with students at the high school level.

We found similar and dissimilar ratings between the volleyball and soccer participants. The highest common average ratings were the effects of mindfulness on emotional awareness and staying focused. The volleyball and soccer participants similarly endorsed the contribution of mindfulness to the team’s playing together effectively, having coaches learn mindfulness skills, and applying mindfulness to other sports. These findings align closely with some of the results Baltzell et al. (2014) reported with collegiate soccer players, namely that mindfulness training enhanced emotional functioning, focusing, and team bonding.

Compared with the soccer participants, the volleyball athletes endorsed more strongly that they applied mindfulness during practices and games. One possible explanation for this difference is that the training for volleyball integrated mindfulness with serving and passing movements, perhaps facilitating application by the participants on the court. It is also unclear whether the inclusion of council practice with the volleyball participants affected their use of mindfulness outside of sessions. The question of how mindfulness actually translates to sports performance and the adoption of mindfulness-based practices by competitive athletes remains a topic of heightened research attention, and notably, results thus far have been equivocal (Baltzell & Akhtar, 2014; Pineau et al., 2014; Sappington & Longshore, 2015).

The mindfulness training program evaluated in this study was implemented by the same instructor and included a generally similar format between volleyball and soccer participants. However, two components of training, council practice and mindful movement practice, were instituted with the volleyball team exclusively. The high approval ratings for council practice and the apparent positive effect of movement practice on applying mindfulness during volleyball games suggests that these components should be included in future versions of the mindfulness training program. Note, too, that the duration and number of mindfulness training sessions with athletes and teams have varied considerably and would be expected to influence outcome (Aherne, Moran, & Lonsdale, 2011; Baltzell et al., 2014; John, Verma, & Khanna, 2011; Kaufman et al., 2009). Accordingly, our findings should be interpreted with regard to the relatively abbreviated mindfulness training program conducted with the volleyball and soccer participants.

Although the current study revealed several self-perceived benefits from mindfulness training and high approval of specific practices, the direct effects on performance, alluded to previously, require further evaluation. For example, both the
volleyball and soccer participants in this study had equivocal ratings (neither disagree nor agree) for the effects of mindfulness training in helping them cope with athletic competition pressures, performance expectations, and judgments from teammates and adults. In addition, the social validity assessment did not elicit responses about behavioral outcome measures during competition, in effect, whether mindfulness training was associated with quality of play, points made, goals scores, and the like. Certainly, the many outcomes from mindfulness training would be expected to differ between individual athletes and among players on the same team, thereby supporting the need to strategically assess their opinions and attitudes to revise and refine procedures for further evaluation. Relative to our findings, one direction might be to integrate practices more explicitly with performance by (a) simulating practice and game situations during training, (b) scheduling mindfulness-based practices such as a meditation before athletic events (Baltzell et al., 2014), and (c) training team coaches to support and cultivate mindfulness with their players.

Other limitations to the study were the relatively small sample size, inclusion of only two athletic teams, and assessment conducted with female but not male participants. Any of these factors constrains generalization of our findings to other athletic populations. Two additional assessment concerns are worth noting. First, we did not perform postassessment interviews with the participants as a way to gather more information about their perceptions of the mindfulness program, how the program affected their on-court/on-field performance, and suggestions for future intervention with athletes playing the same and different sports. Second, the social validity questionnaire did not report participant ethnographic data that may have elaborated their attitudes about the value and utility of the mindfulness program. A larger sample size, ideally across several schools, would expand the quantity, range, and association of outcome measures with the results of social validity assessment.

In summary, this exploratory study illustrates the process of socially validating mindfulness and mindfulness-based practices (Felver, Frank, & McEachern, 2014; Luiselli, Worthen, Carbonell, & Queen, 2016) and the relevance of such assessment to sports-performance research. As mindfulness continues to expand within elementary and secondary educational settings (Huppert & Johnson, 2010; Zenner, Herrleben-Kurz, & Walach, 2014), more student-athletes will have training opportunities that can enhance their well-being on and off the field. Self-assessment of their experiences with mindfulness will contribute greatly to making training programs and practices the most fulfilling they can be.

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References


