Mindfulness: Effective Therapy for Stress and Anxiety

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Abstract

This article explores the history of mindfulness, its relation to health and exercise science and its ability to reduce the negative impact of stress and/or anxiety on the human body. The use of mindfulness has increased in the medical field in recent years, based on evidence regarding its ability to relieve pain and reduce stress in patients (Mindfulness, 2016). It has also increasingly been used in the athletic realm and has been promoted by professional and Olympic athletes (Angle, 2018; McLeod, 2018). The thesis statement addressed in this article is: Mindfulness can reduce the negative effects of stress and/or anxiety on the human body. Twenty-five articles will be reviewed from all five levels of evidence (OCEMB, 2011). The evidence shows subjects experienced improvement in stress and anxiety through a variety of mindfulness methods. Some limitations to the research include the subjective nature of many of the studies utilized. The results of this paper support that mindfulness training is effective for reducing stress and/or anxiety in humans and can be translated to the human healthcare, academics, and athletics.

Keywords: Mindfulness, anxiety, stress, exercise sciences, health science

Introduction

This article will discuss the history of mindfulness, its relation to health and exercise science, and its ability to reduce stress and/or anxiety in the human body. It will address the thesis statement: Mindfulness can reduce the negative effects of stress and/or anxiety on the human body. It will also look at how this topic can empower life for all people, including the importance of leading by example and adaptability in one's own life. Stress has been proven to complicate and worsen many diseases (Mindfulness, 2016). If stress is reduced, it could be concluded that disease would be less prevalent, or at least reduced in its effect. Stress does not only affect human's health, but also the ability to learn (Palmer, 2013), and perform at their peak in the athletic realm (Bennett & Lindsay, 2016). Mindfulness has been utilized for many purposes, one being the reduction of stress and anxiety.

Figure 1: (Tongee, V., 2018)

Background and History of Mindfulness

Mindfulness, defined as a conscious directing of awareness, is rooted in Buddhist psychology dating back almost 2000 years (O'Dowd, 2015). Its beginnings are strongly rooted in Buddhist Vipassana meditation, but modern mindfulness has removed the religious affiliation (Fernandez, 2017). John Kabat-Zinn, a biomedical scientist from the University of Massachusetts Medical School, is credited with bringing the non-religious

version of mindfulness to western society in the 1970's (O'Dowd, 2015). According to O'Dowd (2015), Zinn created an 8-week mindfulness course (Mindfulness Based Stress Reduction (MBSR)) to assist individuals in coping with pain and illness. MBSR combines the mind, body consciousness, and yoga (Fernandez, 2017). In the 1990's, Zindel Segal, Mark Williams, and John Teasdale created their own version of mindfulness, Mindfulness Based Cognitive Therapy (MBCT), which is more tailored to individuals with Major Depressive Disorder (O'Dowd, 2015).

Mindfulness has had significant influence on the health science world and is becoming increasingly more accepted in the medical field as a form of treatment for pain and disease. Dr. Ronald Siegal of Harvard Medical School states, in a 2016 *Harvard Health Newsletter* article, that he has observed an exponential growth in the acceptance of mindfulness by doctors as a form of treatment for patients. In fact, Siegal also states that almost 80% of medical schools are now teaching courses in mindfulness (Mindfulness, 2016). Fernandez (2017), a specialist in Naturopathy, believes mindfulness will revolutionize the healthcare system. Fernandez (2017) cites evidence that MBSR can reduce stress in both patients and practitioners. In addition, she states that MBSR can reduce or eliminate chronic pain, one of the leading complaints presented to primary care physicians (Fernandez, 2017). The *Harvard Health Newsletter* (2016) discusses mindfulness and its ability to activate the relaxation response in the body by lowering epinephrine and cortisol production, blood pressure, heart rate, and oxygen consumption. Stress and its related physical responses are known to complicate many diseases; thus, from a mechanism-based reasoning perspective, a reduction in stress would constitute an increased ability for the body to heal (Mindfulness, 2016). Dr. Siegal goes so far as to call mindfulness the "medicine of the future" for people who are willing to work on themselves (Mindfulness, 2016).

Mindfulness has also developed a strong presence in today's exercise science world. Elite athletes are using mindfulness in areas such as sport performance enhancement and treatment of injury. In an article published in *Self* Magazine, journalist Sara Angle interviewed Mental Skills Coach, Dr. Colleen Hacker (2018). Dr. Hacker has served in the capacity of Mental Skills Coach for the US Women's National Soccer team, the US Women's Olympic Hockey team, and for many other professional athletes around the world.

Figure 2: Dr. Colleen Hacker with Olympic gold medalist Hillary Knight (Hacker, 2017)

In this interview, Dr. Hacker discusses why she believes mindfulness is a valuable tool for her clients. Hacker reports studies showing that most humans spend 30% of their time thinking about the past, 60% about the future, and only 10% on the present (Angle, 2018). Studies in human motor behavior reveal that performance is reduced when attention is divided (Schmidt & Lee,

2014). Thus, if athletes can learn to focus on the present with the use of mindfulness, this can translate to an increase in their performance. Professional women's soccer goalkeeper, Erin McLeod, practices mindfulness mediation twice a day for 10 minutes (E.K. McLeod, personal communication, March 28, 2018). McLeod began playing for the Canadian Women's National soccer team in 2002 and has played professionally around the world since 2004 (Canada, n.d.). Erin suffered her third ACL injury in 2016 and experienced a significant amount of occupational deprivation. The injury occurred just months before the 2016 Summer Olympics and Erin was forced to watch her team earn a bronze medal from her television at home. Erin became very depressed and wondered if her soccer career was over. She was then introduced to mindfulness and began using this technique

Figure 3. Canadian Women's National Team goalkeeper, Erin McLeod (Hayword, 2018).

as a tool in her recovery (E.K. McLeod, personal communication, March 28, 2018). Erin successfully returned to professional soccer 14 months after her injury. Not only does McLeod believe mindfulness helped her recover from her injury, but she also believes mindfulness has made her a better athlete. She attributes her improvement to mindfully focusing on the present instead of past mistakes (E.K. McLeod, personal communication, March 28, 2018).

A case study by Bennett and Lindsey (2016) demonstrated a similar use of mindfulness training with a female hockey player. The athlete was experiencing fear of return to play after an injury. Like McLeod, the hockey athlete utilized mindfulness training to eliminate her anxiety and was able to return to play at full capacity.

Mindfulness' ability to reduce or eliminate pain (Fernandez, 2017) has large ramifications in the exercise science world. An athlete's ability to rise above the pain threshold can be the difference between first or second place in their event. Dr. Colleen Hacker, who has worked with professional athletes for almost 30 years, explains that at the professional level the difference between good and great professional athletes is the ability to win the mental game (Angle, 2015). If athletes can win the mental battle with pain, they are less likely to be sidelined by chronic injury.

In addition, many athletes are also students, which provides an added stressor in their lives. Stress or anxiety in academics can lead to test anxiety and a reduced cognitive ability, reducing the students' ability to learn effectively (Palmer, 2013). Poor performance in school can lead to even more stress or anxiety, creating a cycle of negative physical and emotional outcomes.

Literature Review

After discussing the negative effects of stress and/or anxiety on humans in academics, athletics and human health, it is evident that stress and/or anxiety can greatly reduce one's quality of life and therefore cause one to feel less empowered. The proposed thesis statement, as a solution to this conclusion, is that mindfulness can reduce the negative effects of stress and/or anxiety in humans.

In reviewing literature from the past 10-years, it is evident that research gives credence to the ability of mindfulness training techniques to reduce stress and/or anxiety in medical patients, students, and athletes.

Health is an area of life that affects all human beings. Life altering disease in one's own life or in the life of loved ones can greatly increase personal stress and/or anxiety. Research utilizing mindfulness with patients in the medical field has shown its ability to reduce stress and/or anxiety in cancer patients and survivors (Dobos, et al., 2015; Huang et al., 2016; Lengacher et al., 2014), employees suffering mental distress from career burnout (Juper & Johansson, 2013), cardiovascular patients (Abbott et al., 2014; Momeni et al., 2016), mental health patients (Hjeltnes et al., 2017; Kelly & Garland, 2016; Luberto & Magidson, 2017; Mountain, 2015), burn patients (Gomez, et al., 2017), and patients suffering from Multiple Sclerosis (Simpson, Mair, & Mercer, 2017). Other experts in the medical field tout the effectiveness of mindfulness to reduce patients' anxiety and thus improve their ability to heal from injury and/or disease (Fernandez, 2017; *Harvard Health Newsletter*, 2016).

Stress and/or anxiety has become an increasing concern in the area of academics. Stress and/or anxiety has been shown to decrease cognitive function, reducing students' ability to learn (Palmer, 2013).
In response to this concern, many studies have sought an effective intervention for this outcome. Research has shown the effectiveness of mindfulness intervention in the reduction of stress and/or anxiety in medical students (Vinothjumar et al., 2016), college students (Caldwell et al., 2010; Dundas et al., 2016; Mahfouz, 2018), high school (Gouda et al., 2016), middle school (Dariotis et al., 2016), and elementary students (Rempel, 2012; Schonert-Reichl & Lawlor, 2010). Results from these studies indicate a reduction in test anxiety

Figure 4: (Leonova, 2017)

(Cho et al., 2016; Dundes et al., 2016), the ability to think more clearly and focus on school-related tasks (Furrer et al., 2015; McConville et al., 2017), and improve sleep quality (Caldwell, 2010; Dvorakova, 2017).

Athletics is a source of joy for most participants; however, many athletes experience a significant amount of stress and/or anxiety associated with their sport. The negative symptoms of stress and/or anxiety can significantly reduce the quality of an athlete's performance, causing even more

Figure 5: (Benzel, n.d.)

mental distress.

Studies have shown that mindfulness is an effective tool for reducing stress and/or anxiety in athletes (Benier et al., 2014; Bennett & Lindsay, 2016; Kaiseler et al., 2017; Petterson & Olson, 2017; Vicic et al., 2017). Results of mindfulness intervention show reduced incidence of injury (Petterson & Olson, 2017), reduced stress (Furrer et al., 2015; Petterson & Olson, 2017; Scott-

Hamilton & Shutte, 2016), improved athletic performance (Moen et al., 2015), improved flow in sport performance (Scott-Hamilton &

Figure 6: LeBron James using mindfulness during a game (Athletes, 2013)

Shutte, 2016), increased athletic coping skills (Vicic et al., 2017), a decrease in anxiety and pessimism (Scott-Hamilton & Shutte, 2016) and a reduced likelihood of burnout (Furrer et al., 2015; Gerber et al., 2018; Moen et al., 2015).

Discussion

Review of the literature supports the thesis statement that mindfulness can reduce stress and/or anxiety in humans, looking specifically at athletics, academics, and physical and mental health. As stress and anxiety have shown to reduce physical and mental health, academic performance, and athletic performance, its negative impact on life cannot be overlooked. It could be surmised that the negative impact of stress and/or anxiety on one's life could cause individuals to feel a lack of empowerment. The definition for empowerment is, "The process of becoming stronger and more confident, especially in controlling one's life and claiming one's rights" (Empowerment, 1989). It could then be concluded that an improvement in the feeling of control one has over their life, whether it be through improved health, athletic, and/or academic performance could increase feelings of empowerment in individuals. One of the basic tenets of mindfulness is to view thoughts in a non-judgmental way (O'Dowd, 2015). This allows for greater adaptability in the presence of challenging health, athletic, or academic circumstances. This adaptability could also be described as an improved coping skill, a common benefit of practicing mindfulness (Vicic et al., 2017). This ability to adapt in the midst of challenging life circumstances could also increase feelings of empowerment in individuals leading to an overall healthier and happier life.

When discussing mindfulness as a treatment for stress and/or anxiety in the health, academic, and athletic industries, it is

Figure 7: (Sperlazza, n.d.)

important to look at those prescribing, recommending, or implementation mindfulness programs. In these situations, health practitioners, teachers or administrators, and coaches are the ones in this role. In the same way that a doctor who smokes loses credibility with a lung cancer patient, it is vital that those recommending or prescribing mindfulness use this technique themselves, and thus lead by example.

Some limitations to the studies included in the literature review include the subjective nature of many of the testing procedures. All studies, except for Pascoe et al., (2017) included at least one section of subjective symptom reporting. However, the number of individuals utilized in the studies included in this literature review (approximately 7,000) gives more credibility to the results despite their subjective nature.

Studies by Pascoe et al., (2017) and Momeni et al., (2016) give physical objective evidence (reduced blood pressure, heart rate, and cortisol), to support the subjective findings of the other studies. Professional athletes such as Erin McLeod and the professional ice skaters in the case study by Bernier et al., (2014) and Bennett and Lindsay (2016) demonstrate measurable improved athletic performance. Although still subjective, outside observers such as teachers in a classroom observing improved focus or behavior in students (Arder, 2016) give additional credence to the subjective findings reported by participants. In addition, most subjective measures utilized in the studies involve measures regularly used and accepted in the psychology profession to measure outcomes such as stress and/or anxiety.

Conclusion

In conclusion, mindfulness is a form of meditation originally rooted in Buddhism. Modern mindfulness was brought to western cultures by John-Kabat Zinn (O'Dowd, 2015), and the religious aspect was removed. Mindfulness involves paying attention in a non-judgmental way, in the present moment. Many benefits of mindfulness have been touted and evidenced by an increase in its usage in the medical field. The thesis presented in this paper was: Mindfulness can reduce the negative effects of stress and/or anxiety on the human body. After reviewing 25 articles from all five LOE, the thesis statement was supported. Mindfulness training has shown great ability to reduce the negative effects of stress and/or anxiety on the human body. Further research with objective measures is recommended.

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