LIVED OUTCOMES OF AMPUTEES WHO PRACTICE YOGA: A QUALITATIVE STUDY INFORMED BY PHENOMENOLOGY

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Elizabeth (Deedee) Myers

Abstract

In the United States, there are 507 amputations each day, a number expected to grow with the increases in obesity and diabetes. This study investigated the lived experience of yoga for amputees. The researcher studied the phenomena of amputees doing yoga—*ampyogis*—for the first time, what the amputees learned about their soma through yoga on the mat, and the significance of transference of their learning from the yoga mat to their lives off the mat. Existing literature defines rehabilitative practices for amputees to take care of daily life necessities, such as learning to walk with a prosthetic, as well as the impact of yoga on multiple populations, such as cancer survivors, those with multiple sclerosis, trauma victims, and children with attention deficit disorders. There is a current body of literature on somatic practices, moving the body with intention to produce a certain outcome in the soma. This was a qualitative study informed by phenomenology. The researcher designed semistructured interviews to follow the participants' narratives about events that led to amputation, their postamputation felt sense of self, and the impact of yoga on shifts in their felt sense of self. Findings indicate themes of organizing principles for the ampyogis that reflect the embodied motivation to enact change on, through, and with their bodies. Themes observed included demonstrated increased capacity among ampyogis to self-accept, to appreciate their bodies and minds, and to self-generate their choices and decision-making. Findings suggest that participants shifted their somas; and increased capacity for self-accountability regarding somatic choices from, for example, feeling depressed and frustrated,

to feeling more alive, balanced, and graceful. Participants reported increased capacity for self-confidence, self-appreciation, and self-accountability. This research adds to literature on yoga as a rehabilitative practice for amputees. It also adds to the body of literature on somatics and shifting the soma through intention and practice. Additionally, this study demonstrates that somatics in action creates change in the soma.

Key Words: amputee, amputee rehabilitation, ampyogi, organizing principle, somatics, transformative learning, yoga

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Dedication

I dedicate this research to my mother, Marian Almira Young Myers, fondly called Snuffy. Her passion for continuous learning, questioning, and listening has fueled me along many rough roads. Clifford Edward Myers held resolute belief in my potential and held me in a space of love and possibility.

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CHAPTER ONE: INTRODUCTION

I am a person born with a limb difference; one of my limbs is different than most of the population. My lower left arm extends 3.4 in (9 cm) past the elbow joint. The nurses, who were also nuns in the local Catholic hospital, wanted to place me in an institution instead of taking me home. They advised my mother; she ignored this advice. The prevalent thinking of the hospital staff was that I would not be able to function in a normal household.

At birth, I was also jaundiced and had issues with my gall bladder; these symptoms disappeared with time and diet adjustments. What did not disappear was the stigma of being born with a different body shape, and the constant adjustments to using equipment, driving a car, cutting a steak, riding a bike, or being seen as whole. Developing childhood relationships was a struggle; some kids were afraid of me or did not know how to be with me. One time, a neighbor asked my mother to keep me in the house when her kids were out because I frightened them.

In my life, I move right into many activities without thought of adjustment for not having a full left arm and hand, because the action is so embodied, or I am comfortable with the environment. There are the activities I do with conscious attention to how I do them so that I do not hurt myself or someone else. My conscious attention heightens when I am challenged by someone about my ability to achieve a certain physical move requiring two hands or when a mother tells her child not to point at me or ask me what happened to my arm.

One poignant moment in my adult life was the day I was bringing home my babies from the hospital. I was astonished that the hospital staff subjected me to a test the day my

husband and I were to bring home our newborn babies. In order to pass a test, I had to prove that I could change a diaper and bathe a baby, even after the nurses had seen me do these activities numerous times over 4 weeks with my quadruplets during their hospital stay. My husband did not need to go through the same qualification test. The feeling of being demeaned was visceral.

On the home front, I went into foster care after my 16th birthday; I had experienced emotional, sexual, and physical abuse, and had developed a deep-seated fear in my body that still shows up from time to time. After high school graduation, when I turned 18, I no longer had the benefit of respite through foster care. I desperately needed a job to pay for the basic necessities of life, a place to live, and food. Job hunting after high school was quite a challenge. Job counselors told me to hide my arm with long sleeves so that my left arm was not noticeable. People would not hire me for an office job because they thought I could not type. My 55 words per minute with zero to one error were below their standard. Restaurant managers thought I could not carry a tray of food.

Through an introduction from a friend's father, I did land a job with an insurance company, only after I proved that filing in alphabetical order was not an issue. In retrospect, I realize that people did not see my graduating from high school with high honors as an asset; I was still seen in the social environment as intellectually challenged.

Every day, I went to the insurance company, did my job, and gained promotions quickly, which helped me realize that I could be in control of my life. My dream became to graduate from college; earning a diploma was, to me, a metaphor for proving I have smarts no matter what I look like.

In early adulthood, I fell in love with running and became a proficient marathoner and ultramarathoner. I signed up for a triathlon as part of a team, and when our swimmer was a no-show on the day of competition, I decided to learn to swim so that I could do the entire event. I also had to learn how to ride a bike, and shifted the brake lines to the right side of the bike so that I had access to both front and rear brakes. At some point, I decided to become a certified aerobics and step instructor, taught 12 to 15 classes per week, and had success with teaching prime-time classes.

In the beginning, placing my body in the front of a room as a teacher to an exercise class of fully limbed people was a challenge; I frequently wondered if the class would see me as proficient, and often wondered what I looked like moving my body in rhythm to music in front of the class. Teaching was quite fun and joyful for me; I have always enjoyed moving and exercising, and I always looked forward to teaching. Some days, I was very self-conscious, and other days, my uniqueness was slightly on the periphery of my awareness. Once I started moving, though, I totally forgot about how I looked. The movement, breathing, and the music were connections for me—like there was nothing else.

One day, all the fun of running, triathlons, and aerobics stopped. My body no longer could perform in its favorite movement activities. My spine needed a fusion, and the pain, in the months before the surgery, was debilitating. I could not walk more than 10 feet. After surgery and convalescence, I realized how much my body missed running. When I went out for a walk, my body wanted to run so much that some days I saw a shadow of myself taking off running, and realized I was still walking. The inability to run and teach classes took my body off center, lost in itself and in how to be without movement. In retrospect, and as a result of this research project, the loss of running and teaching was a major event in my life,

and I was grieving over a major loss (Kubler-Ross & Kessler, 2005). I remember being in denial that I could no longer run, and then became angry with myself and my body. Some days, I rationalized and bargained, "If I run just 1 mile, it won't matter." Over time, I became gloomy and moody, lost motivation for healthy nutrition, and gained weight.

I had watched other people take up yoga, and seen how much they enjoyed the practice because of their attitudes and the way their bodies felt. Later in this research study, I include a section of my autobiographical experience of starting a yoga practice, and the endless gifts the practice offers to me. This research project has helped me realize that I am a full person, whole in my body, mind, and spirit, and that I am more accepting of who I am in mind, body, and spirit. The lived outcome of connecting my somatic self to breath and movement in yoga has provided new possibilities for self-development, learning, and inner strength.

Amputees in the News

The past 10 years have evidenced increased attention on amputees, the journey of becoming an amputee, and re-entry into the world postamputation. In the United States, there are 507 amputations per day, and nearly 2 million people living with limb loss (Amputee Coalition™, 2011). Print media, television, and online articles and videos have featured the return of wounded military from war and the loss of limbs from improvised explosive devices, or IEDs. Bethany Hamilton, a young girl, lost her left arm from a shark attack while surfing; soon after, airports had billboards of her standing with a big smile and her surfboard (Collins, 2010). Tammy Duckworth, a Blackhawk pilot, the first female double-amputee soldier to arrive at Walter Reed Hospital, is now a Congresswoman (Canzano, 2013). Oscar Pistorius, a South African known as the Blade Runner, ran in the

London 2012 Olympic Games (Associated Press, 2012). *Grey's Anatomy* (OandP.com, 2013), an ABC television series, included a story line about the amputation of a main character's leg, and her emotional and physical journey through trauma and rehabilitation (Amputee Coalition™, 2012). The Boston bombing, during the Boston Marathon on April 15, 2013, resulted in 20 to 25 amputees (Trotta, 2013).

Limb loss occurs because of trauma, infection, diabetes, vascular and other diseases, cancer, war events, accidents, and natural disasters (National Limb Loss Information Center, 2008). Limb loss for health and trauma reasons is the amputation of one or more limbs. Some children are born with congenital limb loss or congenital limb difference (National Limb Loss Information Center, 2008). Limb loss affects physical movement and may involve phantom limb pain of the residual limb, and skin problems and/or ulcers associated with use of a prosthetic.

Amputations in the United States

There are 2 million people in the US living with limb loss (Freeland & Psonak, 2007), with a projection that this population will grow to just under 4 million by 2050 at an annual rate of 185,000. The increase in nontraumatic lower-limb amputations is an outcome of an aging population with obesity and diabetes, which is disturbing because the projection is that, by 2030, vascular disease, a contributing cause of amputation, will double. Peripheral arterial disease, hypertension, inactive lifestyle, and smoking require more intervention in order to reduce limb loss (Ziegler-Graham, Mackenzie, Ephraim, Travison, & Brookmeyer, 2008). Of the 507 amputations per day in the United States, 255 are due to complications of diabetes. Living with limb loss is a niche in the clinical field requiring ongoing education for the amputee, the caregivers, and professionals alike. According to Centers for Disease

Control (2010), the likelihood of a second amputation is greater than 50% within 3 to 5 years after a first amputation.

Amputation, a traumatic event, produces several changes in a person's life, well-being, quality of life, and autonomy (Freeland & Psonak, 2007). Rehabilitation programs are structured to return persons to their own environment with the ability to perform activities of daily living, such as domestic chores, gainful work, and basic home and car maintenance (Zidarov, Swaine, & Gauthier-Gagnon, 2009). However, health survey questionnaires are not customized for the amputee population. For example, the SF-36 (Short Form 36 Questions; Ware & Gandek, 1998) and Quality of Life (Ware & Gandek, 1998) surveys are widely used short-form health surveys used to assess quality of life, yet neither considers the unique needs of persons living with limb loss. Further, there is minimal research available regarding rehabilitation inclusive of practices for the amputee in managing self-perception, self-confidence, and stress.

Personal Interest

In 2008, I was asked to facilitate an all-day workshop for amputees at the Amputee Coalition™ (2013) during their national conference. The workshop focused on restoring dignity and direction in the lives of amputees—persons who wanted to get back to work, take more control of their lives, or simply step up on the city bus and go to the market. Participants in the workshop had been amputees anywhere between 3 months and 2 decades; one person was a volunteer amputee scheduled for surgery the following month. To this day, I can see their faces of hope and possibility, the power of commitment and self-belief, and renewed hope.

How did this happen—supporting amputees in yoga practice? I could say it started years ago, when I was an avid long-distance marathon and ultramarathon runner, and a triathlete, but then, overnight, was no longer able to run. I could say it started with spine degeneration through years of high-impact exercise and carrying twins and quadruplets. I could say it started in an advanced somatics class, discovering more of who I was and who I wanted to become. Or, I could say it all came together when my co-teacher and son, Peter, and I wanted to drum up attention for amputee yoga at the conference, and he said "Mom, do a handstand. That will get attention."

My internal response was, "You do the handstand, Peter. You're much better at it!" Peter, though, had four full limbs, and I have three. Because of the conference population, I needed to make the first move. The external response was much different. I was outside of myself, seeing myself move, as if in slow motion: picking up my blocks as my handstand props, putting my right hand on the floor and my left stump on the block, and going upside down. In those brief moments, a thousand thoughts and images went through my mind, heart, and body. My breath caught in my chest with embarrassment, self-consciousness, and humiliation. The room became quiet, and the air was very still. I was too embarrassed to reverse and come upright, so I just hung out there, upside down. After several breaths, my body started to relax and feel the sense of being in the right place at the right time, the phenomenon of feeling *on purpose*. I noticed people moving toward us, others stopping, pointing, and smiling—the smile of, "Look, she can do that. Let's try it, too"—the smile of possibility. In that upside-down moment, I started my internal journey of understanding the phenomenon of being an amputee on the mat.

Impact of Being an Amputee

It is understandable that amputees experience grief and self-esteem issues in reference to their new body shape: once an amputee, always an amputee. Regardless of sophisticated prosthetics that have the look and feel of skin, amputees experience a deep sense of loss that impacts their self-esteem, dignity, and identity (Senra, Oliveira, Leal, & Vieria, 2012; Sinha, van de Heuval, & Arokiasam, 2011). Much of the research to date on amputees is on occupational rehabilitation, proper fitting and use of the prosthetic, and some recent attention to self-identity and the prosthetic.

Overnight, the body changes, physically and emotionally, because of amputation. Losing a limb, or two, three, or four limbs, is a major event that has the potential to shift and rock upside-down one's identity within one's socially constructed world. Looking in the mirror, adapting to achieve basic skills that once were natural, and redefining what is normal are just a few considerations.

Another major issue for amputees, beyond the focus of this research, is adequate insurance for arms and legs (prosthetics), for which reasonable insurance coverage is unavailable in 30 states (Amputee Coalition™, 2009). The Amputee Coalition™ (2013) is working for passage of federal-level insurance for amputees because "Arms and Legs Are Not a Luxury" (2009). The fact that it is problematic for amputees to obtain insurance coverage for an arm or leg further marginalizes an already marginalized group of 2 million people in the United States.

Research Question

Through the years of my experience as a yoga practitioner and my own community work bringing yoga to amputees, I have been inspired and motivated by the transformative

effects of yoga within myself and through my witness of the yoga journeys of others. Yoga has offered me a place, space, and time to explore my journey of self-discovery, inward and outward, and to realize fully that my body does not define me. Yoga's sequences of intention, breath, movement, and practice have awakened me to what I had long forgotten: that I am who I am from the inside out.

My community work, over the 5 years preceding this research, has been to bring yoga to amputees at a national conference (Amputee Coalition™, 2013) for individuals living with limb loss. Every year, I continue to be impressed, amazed, and appreciative of the commitment by others living with limb loss to live a full life. These individuals live with one, two, three, or no limbs. Their experiences of limb loss occurred because of cancer, accidents, disease, gunshots, shrapnel, or diabetes.

My enthusiasm and curiosity regarding the human experience of the amputee and yoga grew as I learned about the wonder and depths of phenomenology. The increased number of individuals becoming amputees, and my personal interest in yoga as a rehabilitation practice for self, necessitated this research of yoga. How does yoga positively impact sense of self, self-esteem, and self-confidence? Do amputee yogis—*ampyogis*—experience changes in themselves and in their lives? Hence, this research answers the question: What are the lived outcomes of individuals living with limb loss and who practice yoga?

In this qualitative dissertation research study, I investigated the lived outcomes of the experience of yoga by individuals with one or more limb amputations. Rich descriptions of why the participants began yoga, their experience of yoga, and their lived outcomes of the yoga practice were collected, transcribed, and analyzed using Edmund Husserl's (Natanson,

1973) eidetic method to reveal and understand the essence of the participants' lives as outcomes of their yoga practice. I employed a phenomenological perspective, focusing on Van Manen's (1990) phenomenological writing protocols, to understand the phenomenon of the amputees on the yoga mat and outcomes of the amputees' yoga practice. Phenomenology is the study of the experience of what being human is like, especially in terms of what is important to us (Smith, Flowers, & Larkin, 2009). Husserl, considered the founder of phenomenology (Bentz & Rehorick, 2008/2010), developed a unique approach to understanding consciousness, and developed a means whereby one could come to know the depth of one's own experience of a particular phenomenon and be able to identify its essential qualities (Smith, Flowers, & Larkin, 2009). Phenomenological inquiry "enhances understanding of what humans actually experience in their situation and lives" (Bentz &Rehorick, 2008/2010, p. xv), and is a way of knowing which employs embodied awareness through an immersion in the phenomenon itself. Unlike other research methods, phenomenology challenges the researcher to let the "phenomena reveal themselves, rather than predetermining what phenomena are" (Bentz & Rehorick, 2008/2010, p. 3). This last statement clearly summarizes what this research revealed regarding the phenomena and an understanding of the lived experience of yoga for amputees.

Somatics is relevant because the study of somatics includes the body in awareness and attention; the body in the past, present and future; the psychobiology of the individual; and the history stored in the body (Amann, 2003; Behnke, 1996, 1997, 2009; Beaudoin, 1999; Cioffi, 1991, 1996; Haines, 1999; Hanna, 1970, 1983, 1988, 1996; Herman, 1992; Levine, 1997, 2010; Merleau-Ponty, 1945/1962; Shusterman, 1999, 2006; Siegel, 2011;

Strean & Strozzi-Heckler, 2009; Strozzi-Heckler, 1984/1993, 1997, 2007; van der Kolk, 1996), thereby converging with phenomenology.

This research integrates somatics and yoga, in reference to amputees in a phenomenological perspective. Therefore, the exploratory nature of this research suits a qualitative approach (Creswell, 2009).

Somatics

The term *somatics* represents a field of inquiry concerned with the experiential study of the body. The Greek word *soma* is defined as the first-person experience of the body (Hartley, 2004) and reflects the integrated model of the whole person, including body, mind, and psyche or spirit. Changes in the body's consciousness through movement become a grounded living reality (Hartley, 2004). The human being, including his or her body, holds multiple interpretations of the self and world created from historical family, societal, and life events, and from traumas. How the body exists in the world directly correlates to how the individual makes meaning in the world (Beaudoin, 1999; Merleau-Ponty, 1945/1962; Strozzi-Heckler, 2007, 2009). What is past is in the present and may have an ongoing effect (Heidegger, 1962). Somatics is relevant to this research project because the body has fixed interpretations, unless the individual utilizes a new first-person lens to understand and explain one's own body (Beaudoin, 1999: Strozzi-Heckler, 2007, 2009).

The attention and meaning people attribute to physical sensations and the goals and strategies associated with those sensations have potential as coping strategies (Cioffi, 1991). The satisfaction of life quality necessitates individual postamputation coping strategies to support the amputee; yet fitting a prosthetic often subordinates these coping strategies (Lange & Heuft, 2011). Somatic practices can be used by mentally, physically, and spiritually

healthy individuals to enhance their quality of life (Behnke, 1996, 1997). Persons with physical, mental, and spiritual pain have experienced transformation with the support of a trained somatic therapist or body worker (Behnke, 1996, 1997).

Somatic practices of *intention followed by action* create what Bentz and Rehorick (2009) described as a mirror for individuals to see themselves and their bodies and develop specific interpretations. These interpretations hold individuals in the past, or support them as they move into futures that hold sustainable qualities of life (Beaudoin, 1999; Cioffi, 1991, 1996; Haines, 1999; Hanna, 1970, 1983, 1988, 1996; Herman, 1992; Levine, 1997, 2010).

Yoga

Yoga practice spans more than 5,000 years (Emerson & Hopper, 2011), originating in what is now Pakistan and India (Feuerstein, 2008) in the Indus and Sarasvati Valleys (Emerson & Hopper, 2011). Many yoga scriptures and hymns were written originally in Sanskrit and passed on generation to generation by a disciplined chain of oral recitation. Archaeological research in the Indus and nearby valleys uncovered early Sanskrit literature indicating that yoga is the product of a mature civilization, the Indus-Sarasvati civilization (Feuerstein, 2008).

There are multiple branches and schools of yoga;

> Yoga is a spectacularly multifaceted phenomenon, and as such it is very difficult to define because there are exceptions to every conceivable rule. When all branches and schools of Yoga have in common, however, is that they are concerned with a state of being, or consciousness, that is truly foundational. (Feuerstein, 2008, p. 3)

Traditional yoga is an inquiry of the mind through the body. “We can modify the yoga to suit our needs and still call it yoga because the practice has survived by being so expansive and adaptable” (Emerson & Hopper, 2011, p. 27). Through their practice, yoga

practitioners seek answers into inquiry of the self-questions. Examples of such questions are, "Who am I, where do I come from, where am I going, and what must I do?" We might forget to ask these questions, constantly ignore them, or procrastinate in asking and answering these questions until a crisis or trauma requires conscious attention. Asking these questions of during yoga practice supports the safety structure provided by the yoga teacher for the practitioner to self-explore (Emerson & Hopper, 2011); questions are invitations to understand what it means to be alive. Conscious attention to self-inquiry is movement toward being more fully human (Strozzi, 2007).

Yoga is inclusive of all bodies and cultures, is adaptable to the particular needs of the individual, and can be many things to many people (Emerson & Hopper, 2011). Each *yogi*, the yoga practitioner, has a unique practice for his or her own body. Patanjali developed the "eight limbs of yoga" (Emerson & Hopper, 2011, p. 26) and believed in the philosophical dualism of yoga whereby the body is both matter and spirit; yoga separates the two for the sake of restoring purity of spirit. The eight limbs are a series of guidelines designed to focus the mind and connect us with the Divine, or spirit (At One Yoga, 2010).

As yoga advanced through the centuries, yoga masters developed practices designed to prolong life, and rejuvenate and renew the body, thereby paying attention to both the body and spirit. Through the centuries, there have been inspiring teachers and branches of yoga. The Dalai Lama, winner of the Nobel Peace Prize, brought the principles of yoga into a busy personal and political life (Feuerstein, 2008).

Yoga business, in the United States, had an annual growth rate between 2005 and 2011 of 9.5%, with 25,445 yoga studios in 2011, and a vast yoga clothing industry popularized in yoga studios and specialty stores (Clifford, 2011). Studios offer a variety of

classes in different types of yoga, such as ashtanga, vinyasa (Kelan, 2011), hot vinyasa, restorative and yin yoga, hatha, and Iyengar. Although this research is inclusive of all yoga types, brief definitions are in order because research participants referred to their preferred type of yoga as reported in the findings of the study.

Hatha yoga focuses on postures, breathing, and drills constructed to strengthen the body and mind (Broad, 2012). Offspring of hatha are ashtanga and Iyengar, which are popular forms of yoga. Iyengar (1979) yoga focuses on physical alignment of the body and encourages the use of props to support body alignment until the body is open enough to align on its own (McCall, 2007). Ashtanga yoga links postures together with flowing movements, gaze, breath, and energy flow. Ashtanga practice cleanses, stretches, and strengthens the body, and focuses and calms the mind (McCall, 2007). With frequent practice, yogis experience a deeper sense of self.

Significance of This Research

Vinyasa, the yoga I practice, is a form in which one repeats various poses with increasing difficulty (Kelan, 2011). By their nature, these poses create phenomena in the body and therefore may create a new mirror that transforms how the amputee sees him- or herself as holistically functioning in the world. For example, what is the phenomenon, the felt experience, of an amputee with one arm and one leg who performs a handstand? Does that experience affect his or her sense of self-esteem and dignity? Does yoga shift the amputee's felt sense of his or her body? Does the amputee feel more or less alive in his or her body with a yoga practice? What are the phenomena of life in the body during a particular asana? Does yoga extend into life off the mat, giving somatic practices that support enacting the amputee's vision of his or her future? Researchers regard yoga as an

evidenced-based, complementary intervention in rehabilitation protocols for pain management, cancer survivors, arthritis, and other illnesses or diseases (Raub, 2002; Schell, Alliolio, & Schonecke, 1994). The focus of this research is on the effects of yoga for amputees.

Chapter Conclusion

The purpose and significance of this research was to provide understanding of the lived outcomes of amputees as a result of practicing yoga. To accomplish this, this research used somatic theory to explore the phenomena of the participants, their somatic sense of self while moving through asanas, and their subsequent somatic sensibilities of lived outcomes. This research provides data on participants' distinctions between yoga and rehabilitation, and yoga's influence on their self-esteem and sense of self. This research provides an evaluation of the impact of yoga practice into daily life, and if and how the participants' perceptions of self shifted as a result of yoga. Practices learned on the mat are applicable and relevant in other life domains, and in how ampyogis makes sense of their somatic sensibilities. This research adds a unique perspective by blending somatics, yoga, and amputees. The research is significant because of the increase of amputations and the common need for each person to feel wholly human.

CHAPTER TWO: LITERATURE REVIEW

In this literature review, I explore existing research on somatic theory and yoga as an intervention for rehabilitation. The first part of this chapter focuses on somatic theory, followed by an examination of the various domains of yoga studied in the context of addressing the psychological and physical needs of individuals. Lastly, I examine literature on somatic yoga, which is the combination of somatics and yoga.

In this literature review, I explore these questions: Does scholarly literature integrates somatic theory and practice with amputees practicing yoga, and if so, what does the literature say about using somatic yoga as an intervention or rehabilitation practice for restoring dignity and self-esteem in amputees?

Somatic Theory and Research

Based upon the research reviewed herein, the field of somatics is fashioned into two basic distinctions. The first emphasizes body awareness and attention, whereas the second emphasizes changes noticed as a result of somatic practices.

A strong body of literature on somatic theory focuses on directing attention to the body, or maintaining awareness of the body, in reflection and/or in movement (Beaudoin 1999;, 1996, 1997, 2009; Cioffi, 1991, 1996). At the same time, scholarly research is increasing on yoga as a rehabilitative practice for breast cancer survivors (Raub, 2002; Schell et al., 1994), lower back injury patients (Raub, 2002; Schell et al., 1994), and trauma survivors (Emerson & Hopper, 2011), as well as for those with other illnesses and diseases (Galantino, Galbavy, & Quinn, 2008).

This part of the literature review focuses on the core literature pertaining to somatics and its changing theoretical landscape, followed by critiques and statements regarding the gaps, ambiguities, and opportunities presented by the literature. Following this critical review, I present the focus of this research, based on this critical assessment of the requirements to forward the scholarly conversation on somatics.

Somatic Theory: Mindfulness and Body Awareness

Somatics is a term used in scholarly literature to refer to the felt sense of the body. This body of literature on somatics and the application of somatic theories has grown over the past 3 decades. This literature review presents the work of several somatic theorists—Amann (2003), Beaudoin (1999), Behnke (1996, 1997,); Cioffi (1991, 1996); Haines, (1999), Hanna (1970, 1983, 1988, 1996), Herman (1992), Levine (1997, 2010), Merleau-Ponty (1945/1962, 1945/2012), Schulyer (2010), Shusterman (1999, 2006), Siegel (2009, 2011), Strean and Strozzi-Heckler (2009), Strozzi-Heckler (1984/1993, 1997, 2007), and van der Kolk (1996)—all of whom have moved forward the scholarly field of somatics. All of these theorists include the term *body* in their discussions of somatic theory. Several of these theorists present similar views on somatics, whereas others stand alone in their perspectives. This portion of the literature review highlights these various theoretical perspectives, followed by a critique of each.

A somatic literature review must include the work of Maurice Merleau-Ponty (1945/1962, 1945/2012), a phenomenological philosopher who believed that categorization of perception misleads the capture of phenomena. For example, if we place the phenomena on either side of the distinctions of inner, subjective experience and external, objective facts, we lose sight of the phenomena. However, if we explore both internal, subjective experience

and external, objective facts, we link the intentional and bodily rather than positing the two as an either/or proposition. Merleau-Ponty (1945/1962, 1945/2012) believed that we are responsible for our own outcomes—our own fate—because we are able to reflect on our history and then set intention for our future actions. Merleau-Ponty is considered a leading theorist in the phenomenological and philosophical work regarding the body's role of primacy in being fully human, being aware of our somatic self (Nahai, 2012).

Merleau-Ponty's (1945/1962) work in embodiment challenged mechanistic physiology, including the study of phantom limb syndrome, which he stated could not be understood through philosophical reduction or irreducible psychological account. Phantom limb syndrome, Merleau-Ponty (1945/2012) posited, is a result of the ambiguity of the amputee being in a world with a *habitual body* and, postamputation, of how objects in the amputees' world continue to appeal to a limb that no longer exists. Merleau-Ponty presented an "intentional arc [that] projects around us our past, our future, our human milieu, our physical situation, our ideological situation, and our moral situation; or rather ensures that we are situated within these relationships" (1945, p. xli). This "intentional arc" frames this literature review of somatic theorists.

Theorists use varying definitions and language descriptive of somatics. The term *somatics* is derived from *soma*, a Greek word referring to life and the body. Thomas Hanna (1976, 1983) introduced the term *somatics* to situate his work in the field of mind-body integration. C. Bennett (2012) represented a field of inquiry concerned with the experiential study of the body. Hanna (1988) defined somatics as "the body experienced from within, where we experience mind/body integration" (p. 4). Sensory-motor amnesia was the basis of

Hanna's theory, in which he proposed that certain muscles forget how to act or move and perform only conditioned responses.

Levine (2010) posited that the human organism has an innate capacity to self-organize its restoration to good health and harmony. The body's tremendous capacity for self-regulation (Hanna, 1976, 1980, 1988; Levine, 2010) helps us manage our own states of arousal and excitation. Strozzi-Heckler (2007, 2009) distinguished the anatomical body and the skeletal framework as not being the body in its entirety. Rather, the body is a collection of experiences over time, and how the person has experienced life and increased capacity for new possibilities through practice. Behnke (1997) connected the choreography of the body to how the body lives, and, like Strozzi-Heckler, presented the body as having the ability to shift through distinctive phases of practice, feedback, and refinement of practices that support self-accountability and actions that produce new outcomes.

Van der Kolk (1996) and Herman (1992), psychiatric researchers at Harvard, conducted research in the field of trauma recovery on the role of the limbic system of the brain and its sensorimotor pathways as responsible for storing traumatic memories, rather than the verbal regions of the cortex, as in normal memory (Woolger, 2002). The body experiences the felt sense of physical trauma and emotion, and thus if (e.g., in therapy) only the cognitive understanding of an experience is the focus, then the body will remain ignored and neglected. Through facilitated catharsis, the body releases the stress of an experience. In his article, *The Body Keeps the Score*, van der Kolk (1994) explained that the body stores memories of trauma and that releasing the residual and lingering effects of trauma must therefore involve the body. Van der Kolk focused on trauma in the body, specifically, positing that the musculature holds past traumatic experiences as armor, and that the healing

process requires reliving of the traumatic event causing the ailment. The body produces armor in the form of unconscious muscular contractions, such as through a traumatic episode or series of episodes, in response to the unconscious denial of life.

Haines (1999) applied van der Kolk's (1996) work to recovery from sexual abuse, including somatic awareness, listening to and living inside sensations, deconstruction of the shape constructed from the abuse, and new possibilities for feeling more alive somatically. Haines theorized that the somatic process includes three components: awareness, deconstruction, and learning new practices. He posited that only through this 3-step process can the symptoms of trauma—which include emotional numbness; avoidance; irritability; difficulty focusing; lower levels of activity (Leitch, Vanslyke, & Allen, 2009); disassociation and distancing in relationships; loss of appetite, sleep, and energy levels; and depressed moods (Mitchell, 2012; Tylee & Ghandhi, 2005)—be released and healed. Haines theorized that transformative changes in the body occur through practices, an important point to which I will return in my critique.

Siegel (2011) introduced *mindsight* as a practice through which one develops recognition of the inner workings of one's mind and escapes from one's autopilot-like ingrained behaviors and habitual bodily responses. He espoused mindful awareness as a method of promoting positive awareness, which catalyzes mindful traits and results in resilience and vitality (2009). Cultivation of mindsight, through a focus on one's internal world, can result in changed neural pathways, which stimulate growth in various parts of the brain that impact mental health and ultimately transform one's life experiences.

Behnke (1996, 1997, 2009) illuminated the body's importance to phenomenology, and in *Ghost Studies* (1997) discussed how deeply rooted the habitual body is in its

comportment and tendencies toward movement. She introduced somatically related terms, such as *trying*, *bracing*, and *freezing*, and related body terms to socially constructed phenomena that carry repetitive modes of responsiveness. Behnke (1997) presented an understanding of the origin of our body movements, and provided insight into how a particular body lives, and the communal legacy—through social construction—held and reflected in its movement. Behnke focused on kinesthetics: how the body moves, holds still, sits, stands, touches, and manipulates objects. As a reference point for launching her work, she addressed how social and cultural environments shape movement patterns. Her primary focus was on the ways in which social shaping is ongoing and lived out through individual moving bodies.

Cioffi (1991, 1996) distinguished the factors that influence *somatic expression*, a verbal report of a somatic phenomenon. The verbal report of a somatic experience may alter the subjective experience and the subsequent experiences of the reporter. However, Cioffi (1991) presented the logical argument that attention and affect interact to produce a particular somatic meaning. Somatic awareness has plasticity, and sensory input can influence the meaning of observed sensory information. The act of reporting a somatic sensation can alter the subjective meaning of an experience, the behavior of the reporter, and the way in which the reporter uses words to describe the sensation.

Cioffi (1996) presented a challenge to other researchers as to the method(s) used for somatic data collection, because the line dividing antecedent somatic data from consequential data is not always explicit or clear. One overarching concern is that data collection using impersonal surveys and checklists eliminates colorful, descriptions that inform researchers of social contexts, which are seldom conveyed using standardized questionnaires. The meaning

assigned to a somatic sensation is contextual (Cioffi, 1991), and the possible ambiguities in collected data present a model of somatic interpretation that may not adequately represent the reporter's phenomena. Top-down influences situate the perception of somatic sensations, which may determine the contextual relationship of the somatic distraction.

Previous theorists focused primarily on how individuals increase awareness of their bodies and the possible meanings associated sensations in the body. The following group moves beyond, and yet incorporates mindfulness and awareness into producing choice and new actions through heightened somatic sensibility.

Theorists: New Action Through Somatic Sensibility

Strozzi-Heckler (2007) and Strean and Strozzi-Heckler (2009) found the self and the body to be the same, saying that, "the self is indistinguishable from the body" (Strozzi-Heckler, 2007, p. 92). Three time dimensions are integrated in our bodies: the past is the history embodied in our bodies, the present moment is in the center of being and action, and the future is the trajectory of our felt imagination, where we are compelled to arrive (Strean & Strozzi-Heckler, 2009; Strozzi-Heckler, 2007). The more the body feels and senses, the more fully alive one is (Strozzi-Heckler, 2007).

Schulyer (2010) conducted seminal somatic work on organizations, including the incongruence of the thoughts and actions of leaders. Schulyer argued that the body, when trained in a specific way, supports leadership development and may provide a method for uprooting destructive emotions before they take over and unintentionally dominate the leader's actions; this would reduce stress and reduce conflict in the workplace. Schulyer drew on Goleman's (2000, 2006) emotional intelligence research and the Dalai Lama's (2003) work on practices for training the mind. Schulyer's perspective involved integrating

attention and awareness to develop more powerful actions; acting with awareness of one's actions; being fully present in one's actions; and letting go of expectations, fears, and habits. Schulyer coined the term "repetition of discovery" (p. 13) to describe the value of repetition in mindful practices used to eradicate negative emotions.

Beaudoin (1999) classified somatic learning—how learning happens through somatic practices—into a multi-stage approach to recognize whether the individual (a) is actively engaged in learning (Amann, 2003), (b) participates in the repetition and adaption of a behavior, (c) turns the learning into new action, (d) internalizes the learning, (e) applies the learning to multiple contexts, or (f) disseminates the learning to others. Beaudoin reported that a small percentage (7%) of the participants internalized the learning, and that none reached the last stage of somatic learning (dissemination), which could have been a result of the research methodology.

Thus far in this literature review, I have highlighted the works of several somatic theorists, their perspectives, and their definitions of somatics. There are two bodies of somatic literature: one on mindfulness and awareness, and the other on taking the mindfulness and awareness into new action by transforming the body through access of somatic sensibility. Mindfulness and awareness are required for training the body in the context of somatic sensibility. All of the theorists and researchers included in this review have indicated the importance of mindfulness, and a subset of them has taken somatic sensibility to the next step in somatic learning and transformation into a more positive future (Amann, 2003; Beaudoin, 1999; Haines, 1999; Strozzi-Heckler, 1984/1993, 1997, 2007). Herman (1992), van der Kolk (1996), and Levine (1997, 2010) researched trauma healing with the support of a trained therapist, releasing trauma in the body's somatic sensibility.

Haines' (1999) and Strozzi-Heckler's (1984/1993, 1997, 2007) research crossed domains: trauma healing and transformation through new action. In the next section, I provide critiques of the theorists and describe gaps and possible advances in somatic theory.

Critique of Somatic Theory

Thomas Hanna (1970, 1983, 1988, 1996) popularized the distinction between body awareness and attention, first published in 1970 and expanded over the next few decades into mind-body approaches to enhance bodily awareness. Shusterman (1999, 2006) was closer to Hanna than to theorists Amann (2003), Beaudoin (1999), Haines (1999), and Strozzi-Heckler (1984/1993, 1997, 2007) in the somatic learning distinction; his theory on somaesthetics leans toward awareness, rather than learning in action.

Cioffi's (1991, 1996) work was highly advanced, as her work delved into distraction theory and attention theory, which I see as subsets of learning. Cioffi conducted research on distraction theory as an adaptation to an unpleasant sensation, versus attention theory's focus of attention to the unpleasant sensation. Perhaps the long-term benefit of being distracted from an unpleasant sensation versus focused attention on it is to learn that its source and potential remedy may have potential in somatic learning.

Cioffi's 1991 research left an opportunity to explore marginalization, which she bypassed to expand her research into how top-down influences produce somatic marginalization of individuals and communities. Schulyer's (2010) work falls more into the category of mind-body awareness, because of its overarching focus on moving away from negative emotions. This is not a generative approach to somatic sensibility, because inclusion of social context is a relevant somatic consideration, as is the attention generated from unpleasant somatic sensations.

The second distinction of somatics, on which I have placed greater emphasis in this literature review, focuses on intentional practices and new possibilities, beginning with the work of Merleau-Ponty (1945/1962, 1945/2012). There appear to be two areas of focus within this distinction: one is on trauma, and the other is on what I broadly call *learning*. The trauma discourse includes the works of Herman (1992), van der Kolk (1996), and Levine (1997, 2010), whereas the learning discourse is the realm of Strozzi-Heckler (1984/1993, 1997, 2007), Beaudoin (1999), Amann (2003), Strean and Strozzi-Heckler (2009). Haines' work (1999) crossed back and forth between somatics and trauma and learning through new practices.

Theorists in the trauma discourse have posited the production of needed healing from an episode or episodic events (Haines, 1999; Levine, 2010; van der Kolk, 2004). The healing process includes reliving the episodic event, experiencing relevant sensations, and staying in the sensations until they dissipate, minimize, or absolve on their own. A trained therapist supervises and facilitates the treatment episode, to provide a safe environment that allows for the reliving of an event. The somatic healing process requires facilitation by a third party. Thus, although the process may take care of healing, it may not produce ongoing, self-generated development for new contexts.

The learning discourse (Amann, 2003; Beaudoin, 1999; Haines, 1999; Strozzi-Heckler, 1984/1993, 1997, 2007; van der Kolk, 2006) comprises a platform in which to explore, experiment, and create new skills and competencies directly connected to what is meaningful and important in one's future. Once an individual arrives at this platform, one undertakes a degree of reflection and sorting out of what is important, and develops an understanding of what is needed for learning and unlearning (Haines, 1999). Beaudoin

(1999) pointed to the learning component in her somatic learning research on internalization and dissemination of the learning through sharing the lessons with others. Unfortunately, her work stopped short of address of why research participants could not apply the new learning to future actions. However, applying somatic learning to new practices is the work of Haines (1999), Strean and Strozzi (2009) and Strozzi-Heckler (1984/1993, 1997, 2007), all based on Merleau-Ponty's (1945/1962, 1945/2012) work.

Existing literature on somatic learning (Amann, 2003; Beaudoin, 1999; Haines, 1999; Strean & Strozzi, 2009; Strozzi-Heckler, 1984/1993, 1997, 2007) presents an opportunity for research of somatic learning in unlearning habits and conditioned tendencies. Based upon the work of Strozzi-Heckler (1984/1993, 1997, 2007), Haines (1999), Strean (2007), and van der Kolk (2006), somatic learning requires understanding the historical and present shapes of somatics as integral to shaping a new future through somatic learning. If the body has armor, as van der Kolk (2006) stated, one must unfreeze and unlearn that armor before reshaping it. Conceptually, it would be interesting to determine whether the Lewin (Weick, 2008) 3-step model of change (unfreezing, moving, and refreezing) has somatic applicability (Burnes, 2004), because the model seems similar to existing knowledge of somatic change.

Common threads regarding conditioned tendencies, embedded patterns, and armoring or bracing appear in the work of Herman (1992), van der Kolk (1996), Behnke (1996, 1997, 2009), and Haines (1999). The work of Merleau-Ponty (1945/1962, 1945/2012), Strozzi-Heckler (1997, 2007), and Levine (1997, 2010) evidences overlapping threads on how the body-self organizes to restore harmony, and Cioffi (1991, 1996) presented an attentional theory relevant to a somatically self-organizing body.

Haines (1999), Strozzi-Heckler (1984/1993, 1997, 2007), and Strean and Strozzi-Heckler (2009) were aligned regarding attention, awareness, choice, practice, and, to some degree, feedback from social context. Haines (1999) and Strozzi-Heckler (1984/1993, 2007, 2009) described the importance of sociocontext in a manner that expanded the fundamental understanding of the body. Haines (1999) placed more emphasis on social context and invited somatic learning into courageous actions undertaken to produce a new future.

Strean and Strozzi-Heckler (2009) shared authorship of an article about somatic sport coaching, which has application in somatic learning through training the body. Strozzi-Heckler (2007) presented the somatic discourse of attention, awareness, choice, and practice in-depth, and introduced the notion of self-accountability to support the advancement of change in the body. Strozzi-Heckler's (2007) self-accountability expanded the somatic learning introduced by Beaudoin (1999) and Amann (2003) into the individual's self-accountability for generating learning in multiple contexts. This contrasts with the mindfulness and awareness focus of Hanna (1988, 1992), Levine (1997, 2010), and Shusterman (1999, 2006).

Thus this section encompassed a summary of the somatic theory literature and two major segments of the field. The first emphasizes bodily awareness and attention; the second includes an increasing emphasis on practice and new possibilities. The second distinction appears to have two focuses: one on trauma and the other on learning. The latter distinction—somatic learning and self-accountability—is a topic of related to my research, further explored in the next segment on opportunities.

Opportunities for Continued Scholarly Research on Somatics

Thus, the existing research evidences several gaps, and presents research opportunities and possible evolutions of theory in somatic literature. First, many scholars' definitions of somatics are ambiguous: theorists have used *life, body,* and *felt sense* frequently to describe somatics. For example, Hanna's (1988, 1992) definition of somatics in the context of the experiential study of the body seems to marginalize and minimize the distinguishing essence of humans from other animals.

The definition of somatics should evolve to include sociocultural context and changes in bodily experience. First, it is important to establish a definition of somatics that includes attention, awareness, and change through practices. Based upon the literature reviewed herein, the definition of somatics should establish somatics as a change theory, through which we embody change in, on, and through our bodies. I believe this definition includes the attention and awareness aspects of somatics as well as new practices that create futures of sustainability.

Cioffi (1991, 1996), Beaudoin (1999), and Strozzi-Heckler (2007, 2009) presented somatically induced social contexts which, when supported by attention and awareness, lead to practices that have particular outcomes within a social context. To adopt a practice requires that an individual has a choice and a sense of self-accountability for successfully performing the practice. There is an opportunity in the scholarly literature to research and publish articles on two somatic distinctions:

- *somatic choice*: The first somatic distinction, which I term *somatic choice*, describes how an individual unlearns a conditioned habit so that choice is more readily available. This implies that choice is not available until attention and awareness become intentional practices.

- *somatic accountability*: The second somatic distinction, which I term *somatic accountability*, can be presented in two parts: How does an individual create self-accountability through somatics *and* invite others to shift their own accountability, with communal somatic practices that allow all to be more fully alive, minimize conflict, and have more meaningful conversations?

Somatic choice. As an example of somatic choice, a woman is attentive to feeling strength and dignity in her body and, through practices, becomes aware of her body's conditioned reaction to becoming small when entering an unfamiliar environment because her new body has two stumps below the knee resulting from a double amputation. Her head goes down, her shoulders draw in, and her voice becomes faint. At this point in her self-awareness, she has a choice to remain in this shape or shift to a posture of strength and dignity.

This bifurcation is what I term *somatic choice*: a conscious choice made from a somatic sensibility, such as remaining small and minimized, or somatically shifting to strength and dignity. A *bifurcation point* (Pearce, 2013) is a specific place at which the actor makes a choice, often an unconscious choice based upon embodied patterns (Beaudoin, 1999; Strozzi-Heckler, 2007). As evidenced by the participants in this study, individuals with increased attention and awareness of bifurcation points will make more informed conscious choices.

Somatic accountability. The second research opportunity is to address how self-accountability—for congruent thought, language, and action—is self-embodied. Self-accountability to new actions supports a different future through transformative learning through, on, and with the body (Haines, 1999; Stearn & Strozzi-Heckler, 2009).

This research project explores somatic choice and somatic self-accountability and adds to the current literature on creating change through, on, and with the body. The

participants in this study made choices based upon somatic sensations and created a systematic approach to self-accountability that created transformation change in, on, and through their bodies.

Focus of Research on Somatic Theory

The focus of this research is the somatic sensibilities of an amputee while on a yoga mat and whether those somatic sensibilities transfer to life off-the-mat. Based upon existing scholarly research on somatics and change in the felt sense of the body, this research integrates somatic awareness with somatic learning to explore *somatic choice* as an outcome of CMM (Pearce, 2007) and bifurcation points (2013).

Synthesis of Somatic Theory Literature

This aspect of the literature review highlighted the core somatic literature and the perspectives of 14 theorists who have distinguished ways of defining somatics. Some theorists have focused on attention and awareness of the body (Hanna, 1970, 1983, 1988, 1996). Others have used somatic practices to heal trauma (Herman, 1992; Levine, 1997, 2010; van der Kolk, 1996). A third group has used somatics as a method of learning how to change the body in order to produce different futures (Amann, 2003; Beaudoin, 1999; Haines, 1999; Strean & Strozzi, 2009; Strozzi-Heckler, 1984/1993, 1997, 2007). As an outcome of this critical review of this literature, I emphasized the need for a somatic perspective that includes the sociocultural context. I noted distinctions in the application of somatics, which evolved into comments regarding the varying definitions of somatics and opportunities to advance the scholarly literature.

Yoga Theory and Research

This section of the literature review presents critical examination of theory and research regarding yoga as a rehabilitation intervention, with attention to the various domains of research for various populations, in addition to yoga for amputees. Yoga is a major research topic, evidenced by a plethora of research on yoga for mindfulness, stress reduction, pain relief, and overall quality of life in numerous situations including cancer, addiction, and back pain, with nominal literature on the self-esteem and dignity of the amputee following traumatic amputation.

Yoga is inclusive of all bodies and cultures and is adaptable to the particular needs of the individual. Emerson and Hopper (2011) advocated that the inclusive and adaptive nature of yoga could be many things to many people; each yogi has a unique practice for his or her own body.

Yoga business in the United States had an annual growth rate between 2005 and 2011 of 9.5%, with 25,445 yoga studios in 2011, and a vast yoga clothing industry that has developed in recent years (Clifford, 2011). Even the Amputee Coalition™ (2013) conference yoga program has its own T-shirt offering that states *Amputee Yoga—A Body of Dignity*. Studios offer a variety of classes, including ashtanga, vinyasa, hot vinyasa, restorative, yin, hatha, and Iyengar yoga, as well as varying levels of advancement.

Yoga and Amputees

This literature review focuses on yoga, rehabilitation, and life practices for individuals with limb loss, or amputations. The literature includes a considerable number of research studies on the clinical rehabilitation aspect for amputees, and some research on amputees and depression. At the time of this literature review, for instance, Clinicaltrials.gov

(n.d.), “a registry and results database of publicly and privately supported clinical studies of human participants conducted around the world” (p. 1), had posted 79 clinical studies with the term *amputee* and 183 studies with the term *yoga*. Included in this review are examples of rehabilitation programs for amputees and studies of the clinical use of yoga. At the time of this research, no clinical trials involving both yoga and amputees were listed. Thus, the following clinical trials relate to amputees or yoga research. They are included in this research review because there is an interest by some researchers to study the rehabilitation of amputees and other researchers study the effects of yoga as a rehabilitation practice. It was my intention to look for overlaps and gaps in existing research.

Research on rehabilitation and pain management for amputees. The first group of studies in this section relates to amputee rehabilitation and pain management. Following coverage of this group of studies is another section focused on research with yoga as an intervention or rehabilitation practice.

An interventional study of the Evidence-Based Amputee Rehabilitation (EBAR) program (Department of Veterans Affairs, 2008) was designed to determine if an evidence-based exercise intervention improved the functional mobility of diabetic amputees (single lower-leg amputation) who have already completed standard rehabilitation and prosthetic training. The 20 participants received clinical strength training, attended three 45-min rehabilitation sessions per week for 8 weeks, and performed intermittent 6-min walk tests in this trial completed in May 2008 with no results posted.

The purpose of a proposed study of acupuncture for the treatment of postamputation residual and phantom limb pain (Walter Reed Army Medical Center, 2006) was to identify the optimum combination of acupuncture points and treatment sequence to relieve

postamputation residual and phantom limb pain. Participant criteria included amputations greater than fingers or toes, clearance for prosthetic fitting, reported phantom or residual limb pain >/=3/10, and receipt of military benefits. No study results were posted.

In a study of home-based, self-delivered mirror therapy for phantom limb pain by Oregon Health and Science University (2009), subjects conduct at-home mirror therapy 20 to 30 min per day. Prior to beginning treatment, subjects complete standard questionnaires designed to measure phantom pain level, function, depressive symptoms, pain-related anxiety, catastrophizing, and sleep quality. The design of the study is to determine if self-delivered, home-based mirror therapy decreases frequency and intensity of phantom limb pain. Last updated in September 2009, trial status was unknown at the time of this research.

Johns Hopkins Bloomberg School of Public Health (2005) conducted a study using a participatory action research method to evaluate the feasibility and effectiveness of a self-managed intervention within a support group of limb-loss participants. One hypothesis of the study was that participants with amputation, depression, pain, and anxiety would demonstrate improvements in self-efficacy, catastrophizing, and overall satisfaction with their prosthetics.

Research with yoga as an intervention or rehabilitation practice. Yoga studies have spanned a broad range of participants, from adolescents to seniors. Clinical trials include yoga in studies involving heart failure, breast cancer, ovarian cancer, addicts, high stress, medical personnel, schools, pain management, cessation of smoking, chronic low back pain, and posttraumatic stress disorder (PTSD). At the time of the literature review informing this study’s design, there were 183 clinical trials listed with www.clinicaltrials.gov with a yoga focus; four examples are presented here.

Promising therapies for chronic low back pain, such as yoga, merit research because conventional treatments such as medication, physical therapy, and surgery frequently do not provide lasting relief (Boston Medical Center, 2009). Sherman and colleagues (Sherman, Cherkin, Erro, Miglioretti, & Deyo, 2005; Sherman et al., 2010) completed their research in 2009, concluding that their studies provide evidence that yoga is a valuable therapeutic option for treatment of chronic low back pain. A randomized control trial was designed to examine an Iyengar yoga program for young adults with rheumatoid arthritis (University of California, Los Angeles, 2010). The study examined the impact of yoga on pain and quality of life. A qualitative study of lower limb amputees, Senra et al. (2012) concluded that self-identity changes after a lower limb amputation and new relationships evolve with the amputated limb and prosthetic. The researchers described patients as being in transition and negotiation with a new self-identity.

Numerous research articles have been published regarding yoga programs as evidenced-based, complementary interventions and rehabilitation protocols for pain management, cancer survivors, arthritis, and dozens of others too numerous to list. There was no available research on yoga for amputees. Emerson and Hopper (2011) studied the effect of yoga on trauma survivors, though I did not see reference to amputees in their yoga and trauma work.

The results of a controlled research study on the effects of yoga practices indicated that yoga is a useful rehabilitation practice for mentally challenged individuals (Uma, Nagendra, Nagaratha, Vaidehi, & Seethalakshmi, 1989). Another study examined how visually impaired children learned the asanas, and concluded that the children learned them

with ease. After 3 weeks of practice, their breath rates decreased and irregular breathing patterns became regular (Telles & Naveen, 1997; Telles & Srinivas, 1998).

In India, 1.8% of the population experienced locomotor disorders such as poliomyelitis; in rural areas, 53.3% of this population had deformities, predominantly in the lower limbs (Mukherjee, Phil, & Mokashi, 1987; Telles & Naveen, 1997). Iyengar (1979) found two yoga poses to be beneficial in relaxing and stretching the bodies of members of this population: the *paschimotanasana* (the posterior stretch), and the *sushtrasana* (the camel pose). For an advanced practitioner, paschimotanasana, also known as a *seated forward fold*, can stretch the back of the body; massage the heart, spinal column, and abdominal organs; and increase oxygenated blood flow to the pelvic area. Sushtrasana encourages the body not to slouch, stimulates abdominal organs, and increases flexibility of the abdomen, chest, and neck to encourage healthy abdominal skin and flexibility in the back (Iyengar, 1979).

DiBenedetto et al. (2005) conducted an exploratory study of a gentle Iyengar program on the gait of the elderly with 23 healthy adults ranging in age from 62 to 83. This was a 3-part quantitative test, pre- and postintervention, of participants who attended two 90-min classes per week in a medical center. The results indicated increased hip extension and stride length, and reduced average pelvic tilt due to strengthening from yoga. Thus, yoga programs designed for elderly adults may offer a cost-effective intervention or prevention of age-related gait dysfunction (DiBenedetto et al., 2005).

The literature contains systematic reviews regarding the influence of yoga on quality of life, cancer survivors, children, prisoners, and other populations. Galantino et al. (2008) reviewed literature concerning the pediatric population and found psychological benefits of yoga in rehabilitation of children, yet recommended research to demonstrate measurable

outcomes through clinical trials. Their literature review covered 24 studies of variable quality on the neuromuscular, cardiopulmonary, and musculoskeletal effects of yoga. A multiplicity of yoga regimens used over a variety of pediatric populations led them to conclude that more focused, measurement-oriented studies were needed to conclude whether yoga has long-term positive effects.

A study on pediatric patients with asthma demonstrated that after 40 days of yoga practice in the original intervention, 14 children who continued 15 to 30 min of yoga daily remained asymptomatic after 26 months (Galantino et al., 2008). Related to the growing concern regarding obesity in children, one study included yoga along with running, jumping, and strengthening over a 12-week program. The impact of yoga was difficult to determine because the overall physical fitness components of this study included other modalities than yoga (Slawta, Bentley, Smith, Kelly, & Syman-Degler, 2006; Slawta 2010).

One patient who used gentle yoga postures during her treatment of cancer asserted that the practice helped her take back control of her life (Strauss & Northcut, 2013). In a study of the efficacy of yoga in prevention of primary and secondary ischemic heart disease, researchers reported the importance of exploring the practicality of incorporating yoga in a rehabilitation program (Telles & Naveen, 1997). A literature review on stroke rehabilitation, and a small pilot study of 13 participants over 12 weeks of kundalini yoga practice, demonstrated improved aphasia (Lynton, Kliger, & Shiflett, 2007).

McGonigal (2009) described yoga as the most powerful overall remedy for pain. A body in constant pain triggers the body's stress responses system, such that the body is "on" most of the time or in a state of high alert. When the body is in stress, the breath is faster and uneven, and mood plummets. Yoga is a system to reduce stress and shift from the fight-or-

flight reactive mode to a more relaxed state. McGonigal studied the inner connectedness of the mind and body and how conscious intention shifts biochemistry and the biological self. One antidote for stress is relaxation, a state in which the brain is quiet (Lasater, 2011). The interaction between psychological processes and the nervous system is part of the mind-body study, psychoneuroimmunology (Lasater, 2011). Restorative yoga is presented as a solution for physical ailments, stress, stimulation and soothing of organs, better hormone balance, and more restful sleep. McGonigal (2009) and Lasater (2011) described effectively the science of yoga and practices. There are over 300 studies of yoga and heart disease.

Broad (2012) researched the risks and rewards of yoga, motivated by a limited field of study of yoga yet bold claims of rewards. Broad traveled extensively and sought out original texts and master teachers to learn about yoga. He researched individuals with injuries due to over practice or misalignment in asanas that result in harm. His research captured incidences of overuse and misuse of yoga that caused harm. His *The Science of Yoga: Risks and Rewards* is constructed loosely as a discussion of styles of yoga, moods, injury, sex benefits, and healing.

Khalsa (2007) provided an in-depth overview of multiple studies on the therapeutic use of yoga and the shift to a Western style that includes meditation, physical movement, breath control or intention, and isometric postures. Khalsa's review is comprehensive of studies conducted in India and the United States; and scientific study of yoga in Japan, the United States, and Europe. His study review included the impact of yoga on asthma, hypertension, heart disease, depression, and anxiety. His work was similar to Broad's (2012), yet with a less sensational approach, and covered contraindications and possible constraints and restrictions specific to the practitioner.

Online, on sites such as YouTube and Facebook include personal stories about being an ampyogi. Danzig (2012) published a narrative of her journey with cancer that led to an amputation as a child; now she has a private yoga practice and business. Sundquist (2013) is a lower extremity amputee who writes and delivers motivational speeches. One of his videos lightheartedly touched on not judging another until you walk in their shoes, especially when they have no shoes. In an inspiring video, Wilds (2013), an adaptive yoga instructor, and her client began working together to use yoga to relax the mind, stretch the body, and build balance; the client was later able to bend over and pick up his keys from the floor with two prosthetic feet. Although not research in a scholarly social science tradition, YouTube and Facebook have most of the anecdotal amputee yoga information available in the public domain.

Somatic Yoga

Criswell (1987) discussed somatic yoga in the context of inner wisdom accessed through yoga practices. The text, advanced at its time, was grounded in Criswell's own experiences and those of her clients, but not grounded in scientific research. A future edition of *Somatic Yoga* should be more advanced in research methodology and application.

Yoga teachers, while teaching, often speak about being mindful during yoga practice and listening to one's own body. I posit that more yoga teachers should guide their classes to observe their bodies on the mat, in a difficult or a least favorite asana, and to take that same observation off the mat. A lower extremity amputee, for example, moving into a balancing pose, might experience certain moods, thoughts, and sensations while balancing or sustaining the balance for a few seconds. Outside the yoga studio, when balancing with their prosthetic(s) in moving through their day, are the same moods, thoughts, and sensations

present? Given the limited research available on somatic yoga, this is an area explored in my research.

Recent phenomenological yoga studies reflect heightened awareness of interest in yoga as a method of transformation. Acebedo (2012) researched ashtanga vinyasa yoga (AVY), concluding that yoga is a practical method producing mind and body experiences that align Merleau-Ponty's (1945/1962) prereflective state, the living body, and the synthesis of the body. The meditational qualities of AVY influence positively one's ability to pay attention and focus, and increase capacity for attention, which contributes to transpersonal development (Acebedo, 2012). Nahai (2012) researched kundalini yoga as a yoga technology for healing trauma, concluding that embodying awareness is the essential nature of healing, and that kundalini yoga offers a sequence of postures, breath, mudras, and mantras that affect the nervous system positively and aid in healing. Nahai advocated kundalini yoga as an appropriate tool for people who can face challenging situations in extraordinary ways.

Morley (2001) summarized classical yoga concepts and transcendental phenomenology in his discussion on phenomenological reduction, or *epoche*, set out by Husserl (2012) as a complete suspension of belief about the existence of the world and its objects. Morley (2001) noted that the epoche of transcendental phenomenology converges with yoga literature, particularly the *nirodaha*, a meditative chant which posits yoga as the suspension of the fluctuations of thoughts (of the world). Morley suggested that once a practitioner reaches pure consciousness, one cannot describe this self-evident knowledge, and that to do so would objectify the knowledge and distort its meaning. Morley (2001) followed

Merleau-Ponty's (1945/1962) notion that the internal and external body should not be segmented, and that the *pranayama*, breath control, in yoga, overcomes this alienation.

Last, it is important to include two important texts on yoga. Iyengar's (1979) *Light on Yoga* is the text often referred to in yoga certification programs. The path of yoga keeps the mind, intellect, and self under control so that the person is one with the spirit within and with "deliverance from contact with pain and sorrow" (p. 19). The second text is an electronic version of the *A Treatise on the Yoga Philosophy* by N. C. Paul (1851/2005). Paul uncovered how the practice of yoga can slow the metabolism by the slowing down the number of breaths per min to increase carbon monoxide levels, which depresses metabolism; Broad (2012), on a study trip to India and after many days and weeks of searching, found the Paul text.

Critique of Yoga Literature

Yoga theory and research literature, similar to somatic theory literature, seems to focus on two distinctions: the mind-body meditative component and the movement of the body to breathe. The literature suggests that the mind is the opening to the body and that, with an intentional practice, results are positive.

There is a plethora of literature on yoga as an intervention for asthma (Galantino et al., 2008; Khalsa, 2007); cancer survival (Culos-Reed et al., 2006; Strauss & Northcut, 2013); multiple sclerosis (Finlay, 2006); heart disease (Telles & Naveen, 1997); and other physical chronic ailments (Raub, 2002; Schell et al., 1994). A major gap in yoga research is the lack of attention to amputees and their unique needs. Yoga styles are diverse across the existing studies and the age range of participants is large, except for the studies focused on pediatric or youth populations. However, research is limited in that only a few studies to date

have been qualitative and it was difficult to ascertain which yoga asanas were used in the studies, which contributed to the inconsistencies across studies. The only resources located on yoga amputees were anecdotal online YouTube videos and websites (e.g., Amputee-life.org, n.d.; AmputeeMommy, n.d.; Orner, 2013). Overall, the studies indicate short- and long-term benefits to yoga (Culos-Reed et al., 2006; Raub, 2002, 2007; Schell, Alliolio, & Schonecke, 1994; Strauss & Northcut, 2013.

Further Yoga Research

Further research on yoga is warranted for amputees; the YouTube videos are not adequate, nor evidenced-based research, even if they tell a compelling story of an individual and his or her yoga experience.

Based upon the current literature on yoga as an intervention, there is a definite opening to explore the merits of yoga as a viable practice for amputees and to evaluate adaptive training programs for the amputee population. In this research, I studied ampyogis and their experiences and stories about yoga on and off the mat to determine yoga's qualitative benefit on and off the mat.

Conclusion: Integration of Somatic Theory and Yoga for Amputees

Based upon the evolving somatic research and the popularity and growing use of yoga, there was a definite gap in research, addressed in this study. This research was designed to clarify the distinctions between attention—what we attend to, via intention, actions, and consequences (Haggard, 2008; Tsakiris & Haggard, 2003)—and awareness—having knowledge, being cognizant or conscious about an object or action (Haggard, 2008; Strozzi-Heckler, 2014; Tsakiris & Haggard, 2003). I see these as two distinctions; first, what needs our attention, such as our bodies; and second, how our focus follows attention and then

we become more aware. The body has involuntary and voluntary actions; the involuntary actions happen first, and the voluntary actions happen later, in response (Haggard, 2008; Tsakiris & Haggard, 2003) to a thought or externally generated event. Once we establish where we need to focus, our awareness has more relevance and generates opportunity for intentional change (Haggard, 2008; Strozzi-Heckler, 2014; Tsakiris & Haggard, 2003). For example, when an amputee becomes anxious or frustrated and attends to understanding the source of the anxiety or frustration, then awareness increases in those moments and result in voluntary action (Haggard, 2008; Tsakiris & Haggard, 2003). This research explores, first, the focus or attention that led the amputee to practice yoga; second, whether yoga increases the amputee's awareness; and third, if and how the attention and awareness may result in more effective action by the ampyogi participant through a yoga practice.

In addition to evolving somatic theory, this study adds to the body of qualitative research on the use of yoga in a marginalized population, in this instance, amputees. As noted in this chapter, there are numerous yoga research studies with multiplicities of other populations, yet very few with amputees. Research indicates that yoga has positive influence on other populations, and the intent of this research was to collect data on yoga and amputees.

Combining somatics and yoga, this study explores the value of somatic yoga. There is nominal research on somatic yoga and this study augments the contribution of somatic yoga. An outcome of this research may be a new practice to rehabilitate amputees and other populations through somatic yoga.

CHAPTER THREE: RESEARCH METHODOLOGY

In this chapter, I outline the research methodology, beginning with the research design, methods and procedures, interview question protocol, and pilot study. Following those sections are a summary of the refined internal review board (IRB) process, participant selection, and research steps.

Research Design

During the early formation phases of this research, I evaluated quantitative, qualitative, and mixed methods of research. Each method provided a possibility to understand yoga's impact on amputees. A quantitative research method could have been useful to facilitate analysis of the quality of life for amputees who practiced yoga compared with a control group that did not practice yoga, whereas mixed methods research may have been useful to explore narratives of ampyogis' yoga practices and their measurable impacts. I looked for surveys to include in this research and discovered none specifically designed for individuals who were living with limb loss (Ware & Gandek, 1998), nor would surveys provide ampyogis' subjective interpretations of their lived experience and outcomes with yoga.

Some things, such as thoughts, sensations, and emotions, are difficult for a researcher to observe because they are neither measurable nor linked to a quantifiable observable outcome (Finlay, 2011). Understanding how ampyogis describe the experiences and outcomes of yoga is best served through a phenomenological methodology due to the relationship between the ampyogi and his or her yoga practice, and perhaps his or her yoga teacher and/or the integration of yoga practices into the ampyogi's daily living.

Quantitative research requires the researcher to be objective, neutral, and detached, and to use numbers rather than words and interpretations of meanings (Finlay, 2011). The very nature of phenomenological research explores perspectives, meanings, and subjective interpretations which are possible through interviews, observations, connections with the participants' worlds, and first-person writing and storytelling. Unique to this research is the researcher's perspective as an ampyogi, which brings a highly qualified, subjective perception to the quality of the research (Finlay, 2011).

This study's purpose was to capture each participant's distinctively individual experience with yoga. The literature review reveals *how* yoga is practiced, *why* various populations, and the essence of a somatic experience practice it for the practitioner. The empirical research to date, combined with this phenomenological inquiry, offer a more complete understanding (Rehorick & Nugent, 2008/2010) of the full experience of amputees, somatics, and yoga. Reviewing the literature provided the theoretical background of yoga and somatics, and this phenomenological inquiry adds to our understanding of the lived outcomes using a phenomenological framework, approach, and structure.

Central to this research is gaining an understanding of the ampyogi's insights, and determining if and how yoga opens up new possibilities away from the yoga mat. I also focused the research design on giving voice to the experience of the ampyogi's decision to practice yoga and how his or her initial experience compared with his or her current experience. Phenomenological research focuses on a phenomenon and its particular, unique appearances (Gallagher & Zahavi, 2012). How the phenomenon appears to the individual in the phenomenon, and what the phenomenon provides to the individual, create a place for my subjective interpretation.

Phenomenological research includes a focus on lived experiences and meanings using rigorous, rich, and resonant descriptions. A concern with existential issues is necessary, as is the assumption that the body and the world are intertwined (Finlay, 2011). The focus on lived experiences and their meanings must be clear to the researcher in order for six aspects to be possible (Finlay, 2011): be of interest to the researcher; experience it (the lived experience) as it is lived; differentiate between the appearance and the substance of the lived experience; use language and thoughtfulness in describing; stay true to the orientation of the researcher; and, balance emerging details.

Van Manen (1990) noted that qualitative phenomenological research is quite demanding for the researcher. For instance, the researcher must maintain a certain quality of focus and orientation of the research question throughout the research, and resist the distractions of many peripheral opportunities on other paths of corollary interest. Staying interested and remaining passionate support the researcher in not settling for superficial descriptions, and the potential depth of insight in phenomenological research brings the researcher to the lived experience with the ability to be oriented to the "revealing power" (p. 33) of the phenomenon and its essence.

The phenomenon of the ampyogi during yoga already exists. The "reality of lived experience is there-for-me because I have a reflexive awareness of it, because I possess it immediately as belonging to me in some sense" (Dilthey, 1985, p. 223). The moment belongs to the participant, and comes alive through the felt sense of the moment (Strozzi, 2007). This research was designed to capture that moment.

Research Methods and Procedures

This research project design blends Moustakas' (1994) phenomenological research methodology with van Manen's (1990) existential protocols, as described in this chapter.

Moutaskas' (1994) phenomenological method and procedures informed the qualitative aspect for this research, to satisfy my goals of an organized and systematic study. In summary, they included the following:

- a topic and research question with autobiographical meaning and value for the participants, and social meaning and significance. The topic of this research has autobiographical and social meaning, value, and significance for amputees, and by inference, relevance for any person with a unique body. The research question was, What are the lived outcomes of amputees who practice yoga?

- a comprehensive review of professional and scholarly research on yoga and somatics with a relevant segment on phenomenology.

- creation and use of a set of criteria to select research participants: amputees with one or more amputations who practice or practiced yoga.

- conduct, recording, and extensive note taking of interviews ranging from 65 min to just over 2 hr.

- study and organization of the data into a somatic process of learning (Strozzi-Heckler, 2000), as described more fully in Chapter 4; attentiveness to awareness, choice, volition, action, and accountability; use of van Manen's (1990) writing protocols to describe four existentials—lived space, lived time, lived body, lived other—as detailed later in this chapter. This step included the protocols of a somatic theorist and practitioner, Strozzi-Heckler (1984/1993, 2007, 2009, 2012), with an expert in phenomenological inquiry, understanding, and writing (van Manen, 1994).

Research Question and Interview Protocol

The primary research question for this study was as follows: What are the lived outcomes of amputees who practice yoga? The interview protocol was designed to elicit amputees' experiences of their bodies before, during, and as an outcome of yoga, to be

uncovered during the interviews (e.g., how the ampyogi experiences time in the yoga studio, time on the mat, and time outside the studio with the felt sense of yoga in daily life). Drawing upon the felt sense, the soma, and the bodily responses gives insight to the participant's experience (Finlay, 2011). The essence of the amputee's experience on the mat is the structure of the phenomenon that this research explores, and because the experience includes the body's felt sense, the somatic aspect of the experience is important to the study.

I designed the interview questions to elicit participants' descriptions of the yoga experience, what led the participants to try yoga for the first time as amputees, and what they wanted to gain from yoga. Understanding the motivation to start yoga provides valuable insight into the phenomenon of yoga for the participants.

Further, I designed the interview protocol to uncover valuable, intimate, and personal details to answer the following questions:

- How do amputees describe the experience of yoga?
- How do amputees describe the phenomenon of adapting their yoga practice to accommodate their limb loss?
- What is the phenomenon of the amputee experiencing a yoga class of fully limbed participants?
- What new life quality or new story is possible after practicing yoga that is adapted for an amputated limb or limbs?
- Is yoga a possible intervention in rehabilitating individuals postamputation in an effort to reduce pain, increase flexibility and mobility in their bodies, and enhance their sense of self?

The interview protocol used in this research appears in Appendix G.

Pilot Study

Prior to the main study, I conducted a pilot study to test the interview protocol and procedures and to highlight and reflect on what worked well and what I wanted to change in

future interviews. My intention in this reflection was to understand how to organize a successful interview and focus on the participant's story before proceeding to the main study.

One participant was included in the pilot study based upon faculty and IRB approval on March 1, 2013. The pilot participant, Dannie (a pseudonym), was a female in her late 20s who had a lower extremity limb amputated at the age of 15, at the knee joint, due to bone cancer. She had experienced 10 years of chemotherapy, scans, and surgeries. She elected amputation; subsequently, the doctors discovered that the cancer had spread to her lungs. She continued with another 5 months of chemotherapy and four lung surgeries. At the time of this research, for the first time in a decade, she had been cancer-free for 3 years. Dannie practiced yoga and used her prosthetic during her practice. Dannie shared her rich story during the interview.

The pilot provided the opportunity to test the proposed research methods, the technology, the interview questions, and my interview skills. I located the participant through social media (e.g., Facebook and blogs). She accepted my invitation to be the pilot participant, and completed the pre-interview questionnaire (Appendix A) and informed consent form (Appendix C). We tried three different audiovisual technologies—GoToMeeting, Skype, and Google+ Hangout—with the intention of recording both audio and visual. Eventually, we used Google+ Hangouts because the technology worked for her and the audiovisual worked well. The interview had an audio recording only because Google+ did not have a video-recording option, so we were not able to record video.

The interview time flew by; at close to 2 hr, I decided to close and, with Dannie's permission, requested feedback on the process. The pilot participant's feedback was positive, as detailed below. The only glitch, which was remedied, was the technology

component. The pilot participant enjoyed my approach of listening and asking questions. Dannie provided positive feedback on the interview and was surprised that 2 hours had passed so quickly. The pilot participant's interview results are included in the results section in Chapter 4, along with those of the main study participants.

I reviewed with the participant her completed confidential pre-interview questionnaire (Appendix F), in which participation was voluntary and the interview confidential. For the interview itself, I used a semistructured interview process with primary and secondary questions (Creswell, 2009). Participants answered most of the secondary questions in response to the primary questions. My perspective was phenomenological, in order to document the participant's significant lived experiences of yoga.

The interview lasted 127 min; I recorded and transcribed it into 57 pages. We could have talked much longer, but I decided to close the interview because we were over the 2-hr suggested in the pre-interview letter (Appendix A).

The participant's comments regarding the interview were,

> I think what worked really well is the talking aspect. I think if you ask people to sit down and write something, . . . they tend to edit, and they tend to be like, "Oh, that's not what I meant, I'm going to change [it]." When you get people talking, I feel like more comes out. Like, there's a couple things that you asked, and I said it, I was like, "Oh, I never quite put it in that way before."

In response to the order of the questions asked, the participant responded:

> Good questions. Really good questions. And the progression. It followed a really natural conversation, which is good. . . . I've been interviewed for a variety of things before, and there's definitely been interviewers that have made me feel like, "This feels [like a] really unnatural place." A really excellent job [this interview].

Refinement for Subsequent Interviews

Overall, I was satisfied with the interview protocol in the pilot study. Minor adjustments for subsequent interviews in the main study were as follows:

- Changed procedure to receive the confidential pre-interview questionnaire (Appendix F) in advance. The pilot participant had cancelled and rescheduled our appointment for this, and thus the questionnaire came in as we were starting the main interview. I realized that I would feel more prepared with the information available in advance. There was an answer to one question, which I noticed only after the main interview, on the written pre-interview questionnaire that would have led to an even richer interview: "What is most challenging for you as an amputee? *Worrying about maintenance costs and time for appointments, body image, occasional cuts, and injuries that interfere with quality of life."* Had I noticed this response prior to the main interview, I could have asked relevant questions during the interview.

- Planned to confirm that, if intending to use an Internet audiovisual interview, the technology is compatible for the participant and me. Ultimately, used Google+ Hangouts with video and audio.

- Planned to allow time postinterview to record my observations. The pilot interview took place late in the evening, rescheduled from an earlier time, and I had other commitments postinterview. In future interviews, I scheduled space and time postinterview to record my own observations.

One interview was only partially recorded; my notes were extensive and complete.

Postpilot IRB

A fast-tracked IRB approval of the following minor adaptations was granted on June 6, 2013:

- Use of a transcriptionist;

- Participant recruitment through referrals and public media sources such as blogs, websites, YouTube, and the like (Appendix B);

- Deletion of "hermeneutic analysis" from the research summary component of my IRB application; and

- Clarification that digital recordings may include video in addition to audio.

Pilot Study Data Analysis

I read the interview transcript read three times and listened to the audiotapes twice prior to the analysis stage. I found it important to read the interview transcripts and listen to

and view the audio and video recordings to obtain a full sense of the participant responses prior to moving to the analysis.

After the third reading, I used the serpentine modeling process (Pearce, 2011) to arrange visually participant phrases and comments on oversized sticky notes on a butcher paper on the wall. Per the serpentine model process, I arranged the order of the flow: first, by the sequence of the story as told by the participant; and then, in the chronological order of the actual life events, regardless of where described in the participant's storytelling process (e.g., when she became sick, her treatment, decision to amputate, postamputation, journey to yoga, and teacher training). The two versions of order were necessary so that I could first visualize the sequence of the interview, and then make sense of her time and experience of yoga as an amputee and her current lived outcomes of these experiences.

I was excited to see a natural emergence, from the participant's interview and reflected on the sticky notes, of a natural flow of the four phenomenological existentials of lived space, lived body, lived time, and lived other (van Manen, 1990). Standing in front of this serpentine model on the wall, realizing the essence of the phenomenon, validated my belief in doing this research. What a moment!

Participant Selection

I selected participants based on the criteria of missing one or more limbs and engagement in yoga practice. They came from two primary sources: social media, and my amputee network. The population for this research is limited and not easily identified as a group. Because regional or local yoga classes for the amputee population are not a national standard, looking for potential participants involved media research, phoning prosthetic and orthotic businesses, and in-depth networking in amputee field and support groups.

The IRB approved my research with the inclusion of three to five participants; the study included five. The pilot participant's data was included in the final analysis because her descriptions were compelling. I considered inclusion of my own experiences in the study, but ultimately decided to move forward without inclusion of my data; in the analysis phase, it was clear to me that living with congenital limb loss versus living with an amputation and experiencing yoga were distinct enough to merit separate research projects or comparative study. Further, the five research participants in this study all experienced cancer or bone infections, which resulted in one to three amputations, and their lived outcomes, because of those previous illnesses, are vastly different from those of a person with limb difference who did not experience life-threatening illness that led to amputation.

I used referrals and contacts from my own network to source research participants. My social media sources and my network in the amputee community provided potential participants. Recruiting viable research participants was more difficult than originally anticipated. Many more individuals were interested than participated; their schedules did not allow for the time, they were being fitted for new prosthetics, or had just one experience with yoga at an amputee conference. I also searched for potential participants on Google, using the descriptor "amputee yoga," which produced several social media results that led to several potential participants who ultimately enlisted in the research project. The remaining participants were recruited from past connections through yoga and the amputee conferences sponsored by the Amputee Coalition™ (2013).

I addressed confidentiality and anonymity issues as noted in the Ethical Considerations section of Chapter 4.

Pre-interview Work and Procedures

For the main study, prior to each interview, the participant received a series of documents included in the appendices:

- Appendix A: Research Participant Solicitation Letter: Participants received a copy of the Research Participant Solicitation Letter describing the study, its purpose, and anticipated outcomes, and requesting their participation in the study. This letter was tailored to each participant.

- Appendix B: The Research Participant Solicitation Letter of Referral was used for participants referred by another party. It included statements on

  - How the participant came to be nominated for the research study.

  - Coercion: Assurance that no one should feel forced to participate and that any participant could withdraw from the study at any time—before, during, or after the interview—without negative consequences.

  - Confidentiality: Use of pseudonyms for any quotes that might be included in the final research report. For those wishing to associate their real names with their stories, they could do so in the electronic database and archive that would be created from these interviews and would be available for future research, education, recognition, and healing.

  - Data Storage: Transcripts, and possibly other related research materials to be included in an electronic database and archive.

- Appendix C: Each participant was required to sign The Informed Consent Letter prior to the outset of the research. This letter explains how the study would proceed, the confidentiality of the information shared, and the opportunity to review transcripts. This letter also described the possibility of greater awareness and emotional discomfort as a result of participation.

- Appendix D: Professional Assistance Confidentiality Agreement. This was used for a third-party interviewer for my bracketing work, and for transcriptionists.

- Appendix E: Permission to Give Name and Address to Researcher. This document granted permission to a referral to provide me with the prospective participant's name and address.

- Appendix F: The Confidential Pre-interview Questionnaire. This form was designed to obtain key information about the prospective participant and his or her background (including location of amputation), to verify that the prospective participant met the research participant selection criteria, and to inform the

qualitative findings. Questions encompassed demographic data and relevant periods of the individual's life, including the reason for amputation(s) and the individual's yoga experience. Background information was collected about the participant along with why the person selected yoga as a practice. The questionnaire further inquired about other physical forms of exercise and the focus of the individual's rehabilitation physical therapy. The questionnaire was provided electronically in advance of the interview in order to help participants to think about their yoga experiences and how these experiences may have affected their life stories.

Qualitative data in the form of narratives and/or stories was elicited using the Interview Protocol (Appendix G) as a guideline only. In practice, as the researcher, I followed each participant's narrative.

Once the forms were complete, I designed the steps for the interview including how I would manage my attention during the interview and maintain a research perspective relevant for the project.

First Step: My Awareness and Attention During Interviewing: Personal Experience, Epoche, and Bracketing

This research employed what Moustakas (1994) described as an experience rooted in the autobiographical meaning of my own experience with yoga as a person with limb loss. Using the Husserlian (Moustakas, 1994) approach, the interview and data analysis analyzed, as best possible, the nature of the matter for the amputees and their lived outcomes of yoga. To arrive at the nature of the matter, it was important for me to suspend my deep assumptions and what I have conditioned as *familiar* (Natanson, 1973) in my own experience of living with limb loss and experiencing yoga. Only through bracketing were my body and mind prepared to listen to the participant. For example, as I walk and take a step, and another step, and another, I am not seeing each step as a single step, only a series of steps (Natanson, 1973). The act of walking is "familiar," and only through bracketing what I presuppose as familiar was I best prepared to listen and hear each participant's story. After each interview,

my capacity for being grateful expanded and, after a while, I totally forgot, or moved into the background, my own body and experiences—not forgotten, but no longer as much in the foreground.

An important aspect in the process of effective bracketing was writing my own autobiography. I used a third-party interviewer to interview me, using the questions approved in the pilot study, as part of the process to create my own autobiography. The results of this interview, using van Manen's (1990) protocols, are part of the final chapter. Over several weeks, I read and reread my own interview transcript and listened to the audio file. As I listened, the expansion and contraction of emotion and the strength of commitment in my voice provided insight to my own storytelling in newfound ways that would not have happened without this process. The importance of lived space, lived time, lived body, and lived relations (van Manen, 1990) are very much a deeply embedded part of me—either as a conscious effort or a conscious yearning.

Through my own interview process and study of the transcript, I developed a heightened understanding of the necessity to bracket my own knowledge, judgments, experience, and personal understandings (Rehorick & Bentz, 2008/2010). Listening to the audio file and reading the transcript of my own interview compelled me to increase my awareness of bracketing and intentionally shifting from unconsciousness to consciousness my embodied and deeply embedded assumptions and lessons from my own experience living with limb loss (Moustakas, 1994).

In this bracketing, consistent throughout the actual interviews and data analysis, I refrained from making assumptions or imagining the spatiotemporal existence of the participants. This epoche, through my disciplined, conscientious process and practice of

awareness and attention, allowed me to focus on the participants and bracket my own perceptions (Moran, 2013).

Second Step: Phenomenological Reduction

I used phenomenological reduction to open the door to epoche. Natanson (1973) described reduction as “a radical shift in attention from factuality and particularity to essential and universal qualities” (p. 65); this shift turns fact into essence, an eidetic reduction (Natanson, 1973). Eidetic reduction allowed me to notice and observe the subtlety of the participants’ experiences and to have a glimpse of their absolute being (Moran & Cohen, 2012), their commitment to live, and the subsequent powerful actions in support of that commitment.

The aim of epoche was not to abandon or exclude my own sense of self in this research; rather, it was to suspend or neutralize my own fixed reality in order to focus on the horizons of the experiences, one by one, giving each its own characteristics (Moustakas, 1994). The development of epoche was a continual and ongoing process of evolving my own ability to suspend belief for the sake of deepening insight into the phenomenon (Gallagher & Zahavi, 2012).

Third Step: Existentials

Qualities of evaluation and presentation of phenomenological research are judged by the researcher’s ability to share the discoveries of the phenomenon and to invite and draw in readers to the lifeworld of the participants (Finlay, 2006). Finlay (2006, 2011) and Nahai (2012) offered Polkinghorne’s (1983) four qualities of validity and trustworthiness of presentation of phenomenological research: vividness, accuracy, richness, and elegance.

Van Manen's (1990) phenomenological protocols were in the foreground of my consciousness throughout the research design and data analysis processes particularly, as participants shared what was important, what they sought to change, their commitment and energy behind the commitment, and their actions and self-accountability. Phenomenological research explores beyond the concepts of the event or phenomenon, into the experience itself (Nahai, 2012). The ampyogis had a consciously created sense of understanding the observed change in their bodies, which sense of understanding was resonant with what Bentz and Shapiro (1998) stated, that phenomenology is not designed to explain the phenomenon, but rather to awaken an understanding of the phenomenon as sensed by the observers and observed. I designed this study to capture the felt-sense phenomenon of the ampyogi, not to explain it. As detailed in Chapter 4, participants captured the felt sense of the amputee in the four phenomenological existentials of lived space, lived body, lived time, and lived other (van Manen, 1990).

Van Manen's (1990) lifeworld existentials are a reflective guide into the "lived world as experienced in everyday situations and relations" (p. 101). Description and interpretation of these experiences invite an understanding of the complexity of the lifeworld of the ampyogi and, as a by-product, a deeper glimpse into the lifeworld of the amputee population, a different lifeworld than many of the readers of this study. Van Manen categorized the most basic and general lifeworld into thematic structures, four of which are used in this research. He selected these four because they pervade across all lifeworlds regardless of one's daily life role, relationships, or place of work or home. These four strictures are termed *existentials* because they cross all distinctions of human phenomena and are relevant guides for reflection on phenomenological data: lived space (spatiality), lived body (corporeality),

lived time (temporality), and lived human relations (relationality or communality; van Manen, 1990). The following subsections distinguish these four existentials in the context of this research.

Lived Space or Spatiality

Lived space (spatiality) is distinct from a measurable or mathematical space, and defined in the context of how we feel in a certain space (van Manen, 1990). In this research, the lived space refers to the space in the yoga room or on the yoga mat as the defined space. Another distinction is the felt space within the body (e.g., how yoga increases or expands space in the body). Lived space might also be the space within, or toward, or away from which the amputee moves with the felt sense of the prosthetic(s).

Lived Body or Corporeality

Lived body (corporeality) is physical or bodily presence, and how one reveals oneself to others and perhaps to oneself (Husserl & Welton, 1999; van Manen, 1990). In the world of the amputee, the lived body is the body upon which someone else looks upon or upon which the amputee looks in the mirror or reflective glass. In both distinctions, it is possible that the body loses its naturalness and becomes objectified (Husserl & Welton, 1999). The focus of the eye of the viewer may be drawn to the amputated limb rather than to the body as a whole human.

Lived Time or Temporality

Lived time (temporality) is subjective rather than measurable time (van Manen, 1990). In the context of this research, lived time is the participant's personal life history: past, preyoga, in one's most recent experience of yoga, and in one's perceived or hoped-for future as a result of the lived experience of yoga. It is the distinctions of how the ampyogi

participant interprets his or her body in the past, and now, in the present; interpretation of one's body, or, more clearly, the shape of one's body, mind, and spirit. In this study, lived time provided an indication of the participants' hopes for and expectations of the future life to come as a direct connection to the lived experience of yoga.

Lived Other or Relationality

Lived other (relationality) refers to the relationships amputees maintain with others in shared space (van Manen, 1990). In the context of this research, lived other is the shared space and interpersonal relationships in the yoga studio or other locations that connect to the lived experience of yoga for the research participant, and whether or how the perception of the observer in the relationship shifts as an outcome of the lived experience of yoga for the ampyogi.

Fourth Step: Finding and Explicating Themes

I categorized the data into six themes: what needs attention, awareness, choice, volition, action, and self-accountability:

- *What needs attention*: The first theme is what the ampyogi sees as needing his or her attention because of his or her perceived need for a change or transformation.
- *Awareness*: The second theme focuses on where the ampyogi increases his or her awareness with regard to the perceived need for change.
- *Choice*: The third theme is the ampyogi's moment of choice to enact the change.
- *Volition*: The fourth theme is the degree of volition, the ampyogi's commitment to the change.
- *Action*: The fifth theme is the actions taken, or not taken, by the ampyogi to enact the change.
- *Slef-accountability*: The sixth theme is the ampyogi's sense of self-accountability to the change perceived as needed.

These themes are revisited in the thematic analysis in Chapter 4, followed by a summary illustration.

Research Preconceptions

Good qualitative research requires the researcher to be aware of preconceptions: the lenses through which I view the participants, the evolving data, and my unique perspective (Husserl & Welton, 1999; van Manen, 1990). Prior to the conduct of the research, I identified my epistemological lenses as follows:

- I have an upper extremity, below-elbow limb difference.
- I practice yoga.
- I believe body, mind, and spirit are connected.
- I believe that change happens through, on, and with the body.
- I believe that practice, preceded by commitment and choice, drives change.

I describe the bracketing of my research preconceptions in the Ethical Considerations section.

Ethical Considerations

Ethical considerations that focus on issues, activities, and situations were important due to the nature of my congenital limb and the amputated limbs of the participants. I, like the participants, live in a world where four limbs are the norm, and yet their limb difference was the result of cancer or infections. Also important was to maintain the security of the participants, bracket my own experiences, and to ensure that participants felt safe at all times.

Security and Consent Form

Ensuring the protection of the participants started with securing a signed or electronically provided consent form (Appendix C; Creswell, 2009) directly from the

participant prior to the interview. Subsequently, at the start of the actual interview, I confirmed with the participant and received and verbal affirmation of his or her desire and willingness to participate in the study. At the end of the interview, I asked each participant once again if he or she was satisfied and comfortable with the interview, questions, and responses; all participants gave permission to use the interview in the research.

Bracketing My Own Experiences

Bentz and Shapiro (1998) stated that the use of Buddhist doctrine in cultivating a boundless heart toward all beings is with nonattachment and love. If one person merges with another, then the sense of self is lost along with the ability of awareness.

Phenomenologically informed qualitative research is ideal for the researcher to stop taking for granted what we normally take for granted and, therefore, become more mindful (Bentz & Shapiro, 1998). In this research, it was important for me to dispel that my reality is real, and to be mindful that each participant had his or her own reality and that my role was to learn each participant's perspective of his or her reality. Prior to each call, I reviewed the confidential pre-interview questionnaire (Appendix F) for each person. I offered a prayer to be whole, with integrity and dignity, during the interview.

Within moments of connecting with the participant on video or audio chat, I felt relaxed and at ease. Participants were eager to be in the interviews and to share their stories. As I listened to their stories, I was further mobilized to be a good listener; the stories were compelling and so unique from my own that I forgot about my own limb difference. My organizing principle for the interviews was to focus entirely on their stories and experiences with being an amputee and practicing yoga.

My experience in a yoga studio with a missing limb required a blend of sensitivity and objectivity during the research. The sensitivity was relevant because of my own insights and abilities to notice issues (Corbin & Strauss, 2008), to probe with secondary questions (Appendix G), and to deepen analysis. I believe that my experience and mental capacity supported me in relevant and appropriate responses during the interview and subsequent analysis (Corbin & Strauss, 2008).

Safety at All Times

Initially, I asked each participant if he or she preferred the use of a pseudonym to preserve confidentiality. One participant replied that she did want to use a pseudonym and I learned that her chosen pseudonym was a nickname she used frequently with friends and families. Thus, to ensure anonymity and confidentiality of all participants, I used my own generated pseudonyms for all participants. Two participants did not want to share some of their stories; accordingly, I redacted those data from the transcripts and analysis.

Summary

Data presentation is rich in language and imagery; I envisioned the felt sense of the ampyogi in the moments each participant described in the interviews: walking into yoga for the first time, the first headstand, the sense of space on the mat, and the most recent experience of yoga. The next chapter presents analysis and detailed distinctions of the essential structures gleaned from the participants' descriptions of their lived experiences of and because of yoga. I invite the reader to use their own variation of imagination to recognize the described phenomenon from one's own experiences as one reads these clear and poignant episodes.

CHAPTER FOUR: FINDINGS

Persons who experience amputation lose body parts in just a few moments. However, that instant and permanent change has a long-lasting impact. Yoga, too, has a long-lasting impact on the practitioner's life. The life-changing potential of yoga helps yogis feel better, increases energy, shifts moods, increases flexibility and range of motion, and enhances quality of life for those with chronic health problems (McCall, 2007). Exploration of the experience of the ampyogi offers a rich and deep understanding of the complexity of the ampyogi life and how yoga has transformed lives of anxiety, uncertainty, and fear into new possibilities, self-generation, and feeling more alive in the soma—the life in the body.

The participant interviews began with contextual questions to develop a framework for each participant's story of amputation and decision to practice yoga (Appendix G). A thematic analysis of the participants' stories, the origins of these stories, and views of the impact of yoga in their lives yielded the findings that follow. Responses to the contextual questions revealed more information than was expected; accordingly, this information is included in some depth. The participants highlighted their motivations to start yoga, the stigma related to being amputees and ampyogis, and how these experiences shaped their perceptions of their bodies.

This study represents the lived experience of the ampyogi. An experience necessitates movement; the movement in yoga is breath, transitioning from one asana to another, and being still in a pose. The experience of movement has conscious or unconscious intention. Husserl & Welton (1999) used the term *act* in reference to experience because an experience is an act and an act represents an intention. The intention of the ampyogis in

experiencing yoga is important to this study: why they began a yoga practice, their motivation, what they wanted to change or shift, and what action took place as a result of their intention and attention. The next section introduces the study participants and their reasons for starting a yoga practice, and presents a profile of each participant.

Study Participants

This study comprised examination of five individuals living with one to three amputations over the prior 2 to 30 years. One participant underwent three amputations at the same time; another had one, followed in 2 years by a second. Three were cancer survivors, and amputation was part of the survival plan. Another participant experienced bone infections complicated by diabetes, and another had vascular disease. All five research participants were professionals with some college education, two with bachelor's degrees and two with master's degrees. Two participants were certified yoga instructors. Three participants worked full-time, one was transitioning between jobs, and the fifth taught part-time for a college. To preserve anonymity and confidentiality, a pseudonym identifies each participant herein; although three participants provided permission to use their names, for consistency, pseudonyms identify all five herein.

The literature review indicates an opportunity to advance somatics in action: what actions impact the soma of the body (Beaudoin, 1999; Behnke, 1997). In that regard, two somatic distinctions are of interest in this study: somatic choice and somatic accountability. Setting an intention as an outcome of motivation, or an organizing principle, creates an opportunity to recognize that choice is available. In the context of this research, the choices observed in the data related to somatic choice, such as increased awareness of the current body, how the body serves the individual, and what change or transformation the individual

needs in the body or soma. Data were analyzed to understand what the ampyogis wanted to change in their bodies, how they wanted to organize differently (motivation), what choices they made in daily life activities to enact that change, and what actions they took or practices they adopted to support their organizing principle or motivation. I analyzed what happened after each ampyogi made a choice; the indicated strength of the amyogis' commitment, how they moved into action, and how they knew that the change they wanted was forthcoming.

The following subsections introduce each participant (by pseudonym); present their experiences of change in the body through amputation and the experience of yoga; and explore their commitment to fulfill new desired outcomes, choices made, and how their commitment manifested in practice.

Robogirl

Robogirl (pseudonym) was in her mid-50s, had a bachelor's degree, and worked in information technology. Robogirl had her above-the-knee amputation in her early teens due to cancer. Her rehabilitation was as needed, essentially in maintenance mode, and she wore her prosthetic approximately 15 hr a day. She did not have contractures in her amputated limb, yet she required massage on her remaining leg versus the residual limb. Contractures occur with "permanent or semi-permanent restriction of soft tissue due to shortening and/or structural changes in the connective tissues of the body" (LaRaia, 2010, p. 1). A remedy for contractures is self-stretching or manipulation by a physical therapist (LaRaia, 2010). However, some of her greatest challenges were the effort involved in doing things that typically require two legs, and dealing with the limitations involved with living with lower-extremity amputation, such as getting in and out of the car.

Robogirl did not have a yoga practice before amputation because she had had her leg amputated in her early teen years, at which time yoga practice was not common. She began yoga practice 40 years after amputation, introduced to it at the Amputee Coalition™ (2013) conference in a yoga class specifically designed for amputees.

Increasing strength, stretching muscles, and calming her mind were Robogirl's primary reasons for starting a yoga practice. She had wanted to start yoga, and waited until the community of amputees at the amputee conference offered a class. She thought it would be easier for her to integrate into a class of amputees rather than going into a yoga studio. Going into a neighborhood yoga studio would have been intimidating for Robogirl; she knew nothing about yoga, needed adaptations to the practice for her prosthetic, and was unaware of any yoga studio that practiced yoga for amputees.

Shortly after practicing yoga at the amputee conference, Robogirl hired a private yoga teacher who had worked with other amputees in the past. She met with him once or twice each week for several months until he convinced her that it was time to go to a yoga studio and integrate into a public course. She found a local studio and had been practicing there for the previous 2 years. In class, she arranged her space with her mat next to a wall or a pole she could hold for balance when required. She enjoyed a mixture of different types of yoga and frequented beginning yoga classes. In addition to yoga, Robogirl took spin-cycle classes, biked, engaged in aquatic exercise, and utilized a rowing machine and free weights.

Following the amputee conference, Robogirl thought about taking yoga classes because the morning classes 3 days in a row made her feel graceful. Yoga helped her in two areas: "Taking the time for myself felt so good and relaxed, and laying on the floor and

stretching; I was more in tune with my body, graceful." The stretching was beneficial, and she learned that her preconception about needing to be flexible to do yoga was not true.

Recently, she had not felt as strong as she preferred, was a bit down in spirit and depressed, and was losing physical strength. Her mind was busy and nervous, and she felt that if she went to yoga, she would feel better about herself, be more relaxed, and forge relationships with other classmates, which would help her feel more comfortable about going to yoga in her community.

Dannie

Dannie (pseudonym), a woman in her late 20s, lived in the West. Her highest level of education was a bachelor's degree and her current employment was as the assistant manager of a retail operation; she was also a freelance writer. She was divorced without children, and a spiritual practice was very important in her life. Her amputation occurred in her midteens; she underwent knee disarticulation.

The primary reason for her amputation was bone cancer and, for several years following her amputation, Dannie received several related treatments and surgeries. Multiple medicines, some experimental, were pumped into her body. Major frequent treatments plus surgery every 2 years led to her developing a strategy of actively disconnect from her body. This helped her get away from her body; get out of her body; and get away from the pain, from the needles, and from whatever sensation she was feeling. Dannie said that she felt that she disassociated from herself; her major amputation in her teens did not support positive self-esteem and self-image, and disassociation helped her ignore both the physical and psychological pain.

Dannie was an advanced user of her prosthetic and required only infrequent maintenance. She always wore her prosthetic, except when resting at night, and she received frequent residual limb massages. Her major challenges as an amputee were worrying about maintenance costs, making time for appointments, and body image. Additionally, occasional cuts and injuries to her stump interfered with her quality of movement.

Dannie found helpful recovery and rehabilitation practices in yoga, writing, family, and reaching out to others. Dannie practiced yoga as much as possible, often three to five times per week. Her yoga practice started postamputation, and she had recently completed yoga-teacher training. Prior to amputation, she had no idea what yoga was, and noted that her lack of awareness was likely because yoga was not a visible practice at that time. When she was sick, people gave her books on meditation and relaxation, and she had previously read about Eastern philosophy. Her yoga practice started with a 20-min routine in her room followed by practicing yoga flow with a video. Finally, she was convinced to go to a class.

The first time she went to experience yoga, it was in one of those "horrible gym rooms that wasn't equipped for yoga," with beer signs on one wall and windows out to the gym on the other, the worst place to practice yoga for anybody.

She found one little corner where she would not be visible in the mirror or in the window, "just kind of in my own little world." She positioned her mother between her and the rest of the class, like a barrier.

Prior to going to her first class and experiencing the uncomfortable gym room, she watched yoga being practiced on video and read a book. Her theater professor in college taught voice and movement for actors, and Dannie wanted to take yoga to help her theater practice. She was too afraid to go to the yoga class on campus, but knew that yoga would

really help her move on stage and move in the world. Hence, she began researching, and a few people gave her yoga books as gifts.

Dannie noted, “I have to do something different in my life because I’m getting out of shape, I’m not getting healthy, I’m not feeling good about my body, and not feeling good about my life.“ Yoga appealed to her because it touched on all of those aspects of her life.

She had turned to yoga 3 years prior to the interview. Dannie noted that she appreciated yoga because it is about feeling sensation and being present—very different than her previous negative associations with her body. When she was younger, before she became ill, she was a track athlete and had thus learned to compete with other athletes. At the time of the interview, however, she considered her mind to be her biggest competitor, and believed that her yoga practice supported her in overcoming many issues. She noted that sometimes she felt frustrated when she was on the mat: frustrated with not being able to do what everyone else in the room was able to do. In those moments, she connected with her breath to move through those frustration points, and came out on the other side saying, “Oh, I can do this. My body can do this.” Frequently, she accomplished things she had never thought were possible with her amputation.

One such unanticipated accomplishment was being able to do a headstand—a physical metaphor for what she could do off the mat outside yoga. The vulnerable movements happened in yoga on her mat as well as off her mat. The wheel or backbend, in particular, exposed her chest, throat, and stomach. She worried that her foot would slip out from under her or that her hands would be too sweaty and she would fall. The first time she did a wheel, she was surprised that she was able to accomplish the pose: “My first headstand, I was shocked. I didn't expect my feet to come off the ground, but it happens.

One foot was up, and then, all of a sudden, the other foot was up, and I was upside down." She did not fall; she pushed through the moment and was amazed that she could do it. She realized that she could push through fear on her yoga mat and, consequently, off her mat outside the yoga studio. Dannie said that one of the biggest things for her was to acknowledge the fear and to say to herself, "Okay, I'm really scared I'm going to slip, but let's just push up anyway and see what happens."

Dannie had a special relationship with her yoga mat and considered it a "safe space." She could play on the mat, try new postures, or just move through different yoga positions. Walking into the yoga studio and unrolling her mat was a welcoming sensation for Dannie. She noted that she often said to herself, "Okay, I have this little rectangle: It's this *safe place* in a rectangle." Rolling out her mat had a positive association for her, allowing her to view the yoga space as a place where it was okay to play and try new things, to drop in, and to be connected to her breath. The yoga space provided her with an instant calm, no matter what was happening in her day.

It took Dannie a long time to actually get a mat and not borrow one at the gym. She felt that, when she had her own mat, she would be a "real yogi"; she had continued to tell herself that, "I wasn't a real yogi; I was just trying it out." Buying a mat was a rite of passage, and the ownership of the mat allowed her to call herself a yogi and carry around the mat as a symbol of identity. The more she practiced yoga on her mat, the more yoga influenced her mindset in the rest of the world. She spoke about the yoga mindset changing the patterns in her brain; her patterns of thinking were now more positive and connected to the present moment.

Claire

Claire (pseudonym) was in her mid-50s, born in the Northeast, and, at the time of this study, lived in the Southeast. Her highest level of education was a master's degree and she was employed as a special educator working with intellectually challenged children.

Claire was in her teens when she had her amputation, a hip disarticulation, at the hip joint, as a result of cancer. She had been an amputee for well over 30 years and was fully functioning, working, driving, swimming, practicing yoga, and socializing. She did not have contractures, nor did she require residual limb massage. Her greatest challenge as an amputee was her prosthetic rubbing on or causing her stump to blister. Due to the nature of her amputation, her prosthetic rubbed and dug into her if she was involved in cardiovascular activity, which often became quite painful. She had a fear of falling on uneven or wet surfaces.

Claire practiced yoga without her prosthetic, primarily on her mat, and she had learned to adapt her yoga practice to what made sense for her. She practiced without her prosthetic for two reasons: because her prosthetic cut into her hip area and caused pain, and because the prosthetic felt like a 10-pound weight which she could not control. Her ability to do an unsupported headstand gave her a sense of accomplishment. It was safer to do a headstand without the prosthetic because the dead weight would pull her right over. Claire was a certified yoga instructor in *sivinanda* yoga. This style of yoga has 12 basic, consistent postures. Claire selected this style of yoga because she found the consistency and predictability of the sequence beneficial, and the resting pose between each move allowed her body and mind to regain stillness.

Cardiovascular exercise that requires lower extremities was not practical for Claire because her amputation was so high in her hip area. As such, finding sivinanda yoga was important to Claire. She learned of it via a flyer given to her at work. The flyer stated that the style of yoga was adapted for blind people, and Claire decided to visit the class to see if the yoga would work for her. The instructor told her, "I don't know what we're going to do with you," and "allowed" her to come in. The instructors did not know how she would do the sun salutation pose, because she could not stand without her prosthetic. She adapted by sitting on her mat, taking off her prosthetic, and practicing the sun salutation from her mat. During these afternoon classes, the lead instructor was teaching three other women to be adaptive yoga instructors for the blind. Within a short time period, one of the instructors told Claire that she was ready for a regular class.

Claire had experienced cancer twice in her immediate family; in addition to her own cancer, her husband had died from cancer several years prior to the study, after 4 years of treatment. She had served as his caretaker, and yoga was beneficial for her in maintaining resilience and mental health while in service to her husband. Claire had recently lost her job and was trying to decide how to make an income while doing work about which she was passionate: bringing yoga to what she described as the able-bodied population.

The year prior to the interview, Claire had become a certified yoga instructor in sivinanda yoga, and later drove the entire length of the East Coast by herself for a 30-day yoga retreat and teacher-training event. She described herself as being able to keep up with the 20-something-year-olds for 4 hr of yoga each day, and spoke with pride in her voice.

Claire described herself as a spiritual person, believing that yoga and meditation helped her accept life, and that yoga and meditation would someday will help her see the

other side, beyond life on earth. She had recently participated in a yoga event at the national amputee conference sponsored by the Amputee Coalition™ (2013). She was passionate about yoga and encouraged everyone she met, fully or partially limbed, to try it.

Dan

Dan (pseudonym), in his early 60s, lived in the southwest. He worked for an electronics manufacturing company in what he described as a sedentary, highly stressful job. Dan had two lower extremity amputations, one 4 years prior and the more recent 2 years prior to the interview. He was in his second marriage; his first wife had left him and their three daughters; he had since remarried and had two more children.

A foot-bone infection was problematic for 2 years. After fighting the infection without success, and in consideration of the added complexity of being diabetic, he decided to volunteer for an amputation. He characterized it as, "I gave up." Hooked to intravenous therapy at home and in and out of the hospital, amputation was the best solution. Two years after his foot was amputated, Dan contracted another bone infection in his other foot and decided—to spare his wife the constant trouble of continually taking him back and forth to the doctor—to "have that one cut off fairly quickly." After the second amputation, Dan was confined to a wheelchair, and felt his body starting to atrophy within a week or two. Thus, he made a commitment to return to excellent physical condition. He wanted to get back up and walk, and not merely walk, but also have a functional gait and stability to be able to navigate stairs and uneven terrain.

Years before amputation, Dan was in excellent shape, and at about 9% body fat. One of his favorite exercises was to do lunges for a mile carrying 20-pound weights. He described his physique as in shape, with strong legs, upper body, and core. Being in good

health with a strong body had always been important to Dan. It made sense, after amputation, to seek therapeutic exercises so that he could learn to walk again. He felt that physical therapy did not help as much as he had wanted, and he was unable to walk steadily, stand still, or carry a plate of food or a drink in an open cup. He admitted that, at times, he was moody and difficult to get along with at work. Dan met his adaptive yoga instructor through the office and she promised Dan that yoga would calm his mind, and help him to achieve balance and a steady gait.

Dan started his yoga practice in his apartment with a personal teacher, which continued for several months until he gained enough strength and steadiness in his legs to climb the two sets of stairs to get to the yoga studio. His teacher worked with Dan in adapting yoga poses and with how to get into and out of poses. She ultimately went on to earn an adaptive yoga instructor certification so that she could be more supportive to Dan. One method that worked for both of them was for her to demonstrate a pose; Dan, as best as he could, would mimic her pose, and from there they would adapt to what worked best for him.

They decided to start without the prosthetics because of uncertainty about his instability during beginning yoga classes. At the time of the interview, at studio yoga, he used his prosthetics. At home, he would do some yoga stretches without his prosthetics. At the time of the interview, Dan had been unable to do yoga with prosthetics because he had lost so much weight that the prosthetics had become squishy and ill fitted and, as he moved his stumps within the prosthetics, he developed painful ulcers.

Through the process of learning to practice yoga, Dan had shifted his initial goal, calming his mind, to add the goal of being able to easily stand, walk, and build and maintain

a strong core that kept him upright and allowed him to get in and out of a chair easily. An added expectation and condition of success for Dan was to be able to bend down, without holding onto a chair or wall for support, and pick up his keys from the floor. Moving forward, his next condition of success was being able to walk up a flight of stairs from one floor to another at the office carrying an open plate of food and an open beverage container. He openly stated that he was accountable to reach this goal and would be able to do so only with a rigorous and frequent practice of yoga complemented by walking and swimming.

Janie

Janie (pseudonym), a woman in her 70s, lived in the northeast. She had been an amputee for over 20 years. Her highest level of education was a master's degree, and she had taught at the graduate level for many years. At the time of the interview, she taught a course for a local college. A recent project of Janie's was to write a booklet on opening doors to inclusive recreation for children. Her community had an amputee support group in which she had a leadership role, organizing meetings, peer support, and activities to encourage amputees to remain active and healthy. In recent months, Janie had functioned as a peer supporter for victims of the Boston Marathon bombings who are now amputees.

Janie had two adult children and had been divorced for over 20 years. Soon after her triple amputation, she and her husband started divorce proceedings. She experienced recovery and rehabilitation as a single mother. After leaving the hospital and rehabilitation, Janie decided she needed to get her master's degree so she could earn a living as a single parent of two children.

Janie became an amputee in her early 50s due to a recurring vascular disease. She had diminished blood circulation to her heart, so much so that her extremities had no blood

flow for a period of several hours and consequently developed gangrene. She had a below-the-knee amputation on the one leg and a partial foot amputation on the other; she also had a partial hand amputation. She wore a prosthetic on both lower limbs whenever she was out of bed.

Janie was in intensive care for 3 weeks and believed that one of the factors that kept her alive was that she was a self-described "old bitch." In addition, she credited her physical training program, which, before becoming ill, was 3 days per week at the gym doing weight training and walking two to three miles 2 to 3 days each week. She was on a respirator for almost 2 weeks and noted that rate of survival while on a respirator drops precipitously after 48 hours. Doctors gave her another 3 weeks to see whether circulation would return to her extremities. Over that period, the gangrene receded, which led to less drastic amputations.

Janie had Raynaud's disease, a condition that causes some areas of the body, such as fingers, toes, the tip of the nose, and the ears to feel numb and cool in response to cold temperatures or stress. With this disease, smaller arteries that supply blood to the skin narrow, which results in limited blood circulation to affected areas. Women are more likely than men to have Reynaud's disease, and it is more commonly found in people who live in cooler climates (Mayoclinic.com, 1998-2014, 2013). She believed that one of the unique factors of having Reynaud's is that she could still feel her toes, even though they did not physically exist. Even after 20 years, she could "wiggle" her toes. One of the side effects of this disease is a heightened physical sensitivity, which serves as an early warning sign of developing illness in need of attention. At one point, she noted that she began to feel sensitivity in her nonexistent toes. She went to the hospital and was diagnosed with pneumonia. This proprioception had been helpful to her in her life as an amputee. Her

body's ability to perceive movement had been a tremendous support aid in being able to walk with two lower-limb prosthetics.

Janie's first introduction to yoga was at the Amputee Coalition™ (2013) national conference 4 years earlier. It was the first year that the Amputee Coalition™ had scheduled yoga classes three mornings in a row. Janie arrived every morning knowing that she would need to adapt, not only for her three amputations, but also because she was recovering from rotator cuff surgery. The adaptive methodology of the teachers was so encouraging that she became an advocate for the class and recruited other participants for the remainder of the conference. She used yoga techniques and stretching, complemented by intentional breath, in her current physical activities. Because of pain in her lower extremities, she decided to practice yoga on the wall versus yoga on the mat, and learned to adapt *chaturanga* yoga on the wall as a way to strengthen her upper body.

After returning home from the conference, Janie began efforts to locate an adaptive amputee yoga program, but had not yet found one. She participated in exercise programs such as swimming with other amputees. She stated that if she could find an amputee yoga practice in a community program, she would attend it. In her home environment, Janie incorporated what she had learned at the Amputee Coalition™ (2013) yoga program into a daily exercise routine. Exercise 5 to 6 days per week was very important to Janie, and she demonstrated a strong commitment to a healthy body, mind, and spirit.

The quality and adaptive ability of the yoga teacher were important to Janie because some movements are tricky and can cause pain. She appreciated the one-to-one attention to each person that she found at the conference for her unique abilities, and was impressed. "By the time I got to that third session, I thought, I saw those people there and I was thinking,

‘This teacher and class are amazing.’” At home, she tried one teacher who did not adapt for her needs; “I don't think he quite got it.” Eventually, she incorporated yoga in her daily exercise routine at home.

Presentation of Data and Description of Themes

Before discussing their experiences of yoga, I asked the participants to describe the event(s) that led to amputation. These stories are personal and, therefore, shared selectively herein. The participants described a number of experiences involving their personal lives and family. All of the participants were severely ill; many had family issues involving spousal separation, death, or divorce; and each one’s illness resulted in amputation. Their stories about the transition to a new normalcy reflected tenacity and courage.

Each of the participants had thought of and wanted to explore yoga as a practice, yet none had taken action alone to practice in a community studio; the space of a community studio did not represent safety and like-bodied people. Uncertainty about future ability to function created a sense of urgency to take control and be accountable for their own bodies. However, even in this self-accountability, there was a yearning to feel internally and externally authentic, to feel graceful internally while moving externally in action with grace.

Each participant described the reason for and the time at which he or she had made the choice to practice yoga: “I want to feel connected” (Dannie); “I want to feel graceful, like when I used to dance” (Robogirl); “Being in a wheelchair is not an option” (Dan); “I am a single mother with two kids” (Janie); and “I want to exercise, and yoga is the best choice” (Claire).

The moments that the ampyogi participants described were bifurcation points (Pearce, Sostrin &, Pearce, 2011), places in time at which a change had significant implications in

their lives. These decision-point moments were fearsome for participants, yet each one held hope for a better life; looking backward was no longer an option. One had a spouse walk out, leaving five children; a second was left with two children; another realized that the body she had had when she was married was different from her current body, and this realization affected her partner relationship; another became caretaker for her husband; another was left alone because of cancer. "Being in choice" was a common thread in the lived experiences of the ampyogi participants.

The following subsections present my thematic analysis of the participants' data into common themes. There are thematic statements of fear of being seen, watched, and judged; loss of identity and self-power; detachment, disconnection, and self-pity; choice points and motivation; self-accountability and self-generation; self-acceptance; and quality of movement and action. There are brief statements regarding how one ampyogi developed relationship with her mat. The last theme presented is the transference of learning on the mat to off the mat.

Theme: Fear of Being Seen, Watched, and Judged

Participants shared openly their fear, which tended to appear in moments of entering into yoga and going to their first classes. Being different, missing limbs, using prosthetics, and not knowing yoga impeded the participants' first yoga experiences. The desire to go to yoga was strong, yet the fear overshadowed going alone the first time, creating a strong sense of being hyperalert and aware of their body. Two of the participants hired private instructors, one joined a class with a blind population, one learned yoga at an amputee conference class and took home what she had learned, and another brought her mother to class. Going to a class was fearsome for participants, which is why two hired private teachers.

My history is parallel; I, too, was afraid of being called out in a class as being different and challenged on my ability. I would not go alone, and waited 2 years before going with someone with whom I felt safe from being judged. The following statements illustrate one participant's embedded fear.

Dannie was fearful of being exposed as different: "The first time I did it, I was really convinced, and concerned, that I would be asked to leave the class. So, standing outside with my mom—who made me go, [be]cause I had been practicing in the living room—and I was like, 'They're going to ask me to leave.'"

Robogirl felt vulnerable: "I was afraid to try yoga by myself and would not go to the local studio." She hired a private teacher and, after 3 months, was nudged from the private space to the public space: "I still would not go into a group class after the conference. I found a private yoga teacher and after a few lessons, he told me to go to a regular class—I was afraid to because I did not know what to expect and did not feel as safe as being alone."

Claire started yoga when she saw a brochure about yoga for blind people, among whom she would not be seen. The teachers responded frankly to her request to attend class: "I saw a brochure at work about a yoga class for the blind, and called up and asked if I could join the class. They said, 'We don't know what we are going to do with you, but come and join the class.'"

Janie and Dannie aptly described a visceral reaction that all participants voiced in some way with regard to their fear of being seen, rejected, and not accepted. Janie was upset by the following event: "There was a woman who had come in with her little girl to go swimming. And the little girl . . . took one look at me, and just burst into tears, screaming, you know, running to her mother. I got angry." Dannie exhibited duality about being seen

and her proactive organizing to self-isolate: “I found one little corner where I could be not in the mirror, not in the window, just kind of in my own little world. [I] put my mom between me and the rest of the class, like a barrier.”

Where they located themselves in the room was important to the participants—a coping strategy for managing their fear and sense of self-consciousness. Robogirl needed to be near a pole, so that she had support; Claire put her mat down in the back of the room and just needed a place to put her leg (prosthetic) next to her. “I would just roll out my mat, take off my leg, and plop myself down.” Similar to my first several times with yoga in a studio, Dannie said that being out of the way, in a corner or next to a wall, was easier, and very important emotionally.

The participants expressed vulnerability easily. There were three levels of concern, or stress, about starting a new practice. First, meaningful statements regarding their desire yet concern to join a community yoga class were poignant. The action to enter a studio caused stress. Subsequently, a conscious decision on how to enter a room and where to place their mat on the floor created another level of stress. A third level of stress related to the fear of being rejected.

Theme: Loss of Identity and Self-Power

Dan’s fear of loss of identity and self-power was reflected in his response to attending a local amputee support group. He described his somatic reaction: “I went to an amputee support group a couple times and will never go back. It was a downer session. They just complain, and are downers. I don’t want to be like that. Most of them are in wheelchairs and won’t even try.”

Dannie described her fear of losing her self-power in response to her own action of doing an inversion in yoga:

> It was one of those senses that, "I'm going to fall on my head," and there's a moment of fear, and I tell myself, "You can't do this. You're going to slip and break your neck in front of the whole class, and that's going to be traumatizing." Whenever I do something that I thought I would never be able to do, then I also have that sense of the drop-in (of my breath). Like, "Oh, wow, here we are, this moment, and my body can do this." That kind of sense of like, "I didn't think I would be here. Here I am, I'm in a headstand. Who would have thought?" You know?

Attempting an inversion was a practice that Dannie started well into her yoga practice rather than in her first few classes. Notably, she remarked about her breath, which was a learned response to her noticing that her body was afraid or anxious about how she would be seen in the class if she fell; she would consciously breathe and sense her anxious energy dropping, calming her state of mind.

Dan's fear of loss of identity was a driver for him to start yoga, whereas Dannie's fear was being seen if she fell from an inversion. Yet, as she moved through the inversion, with conscious breath, the fear of falling passed, making way for wonderment of self, with her body moving in a new way thought impossible until that moment.

Theme: Detachment, Disconnection, and Self-Pity

A common theme common in the participants' narratives was their awareness of conscious detachment, disconnection, and self-pity. Dannie looked for ways to avoid sensing her body during cancer treatments, but this was before her yoga experiences. Surgeries and treatments were unpleasant and painful; her best coping strategy was to disconnect as she went through treatments pre- and postamputation. During treatments, Dannie organized to not sensate, to detach from herself (or perhaps her body). "Whatever procedure was taking place, and there's the numbing-out phase, where you I say, 'Just knock me out a bit, I don't

want to feel it.'" Proactively, she looked for a way to disconnect from her body: "I feel like there's something, anything, I can do to not connect with my body, because, at that point, when you've been through so many surgeries, and had so much stuff stuffed into your system, you really do start to detach from your body."

Constant tension in Robogirl's body, particularly her hips, impacted her ability to feel balanced. The lack of balance created tension in her body. "I could see the tension in my body. I felt self-pity, incompetent, and frustrated." Robogirl knew her body was tense and unbalanced, whereas Dannie did not want to feel herself and worked toward "finding the best strategy to not connect to your body, because it's painful."

In summary, participants acknowledged their felt sense of disconnection, detachment, and self-pity that contributed to the cultivation of fear of being seen, watched, and a perception of being judged.

Theme: Choice Points and Motivation

Belief in self was foundational for the participants, especially when the ampyogis reached bifurcation points (Pearce, 2013) at which they needed to make a choice to change substantially how they felt about themselves; and how their mind, body, and spirit were affected. Explicit goals impacted quality of movement, felt sense of self, and their ability and capacity for independent living, which enhanced participants' motivation for change. This theme focuses on specific illustrations of personal agency (Bandura, 1993) as motivation for change. Each ampyogi embodied a need for change that no longer could be ignored or unattended. Each knew that he or she needed a change, that his or her circumstances were taxing, and that only he or she, through personal accomplishment

(Bandura, 1993), could enact the change. Bandura (1981, 1993, 1994) referred to this as *self-efficacy*, the belief in the ability of the self to make change.

Participants moved cognitively toward and into phenomena that would, they expected, create change, and did so with varying degrees of uncertainty about the change process. Pursuant to the earlier statement regarding self-accountability for action, whereas participants wanted to align their embodied internal and external change, they knew the quality of change they wanted, yet were unsure how to enact the change. Thus, enacting the change required an internally generated motivation that led to the choice to produce new actions to produce the change. Just thinking about or just wanting the change did not evoke the change; participants needed to move past a solely cognitive state to embodiment of choosing the new action of being self-generative and self-accountable, thereby creating the action to produce the change.

Interspersed throughout their statements were reflections regarding the ampyogis' motivation for deciding to experience yoga; feeling balanced on one or two prosthetics, not being confined to a wheelchair, and feeling more connected are examples. The participants' data for motivation overlaps other themes of self-accountability, self-generation, self-acceptance, and improved quality of movement.

Theme: Self-Accountability and Self-Generation

Participants increased their awareness of bifurcation points (Pearce, 2013) in which they could make decisions to self-author change in the mind and body. Decisions to enact those changes increased their capacity to accept their bodies and to be accountable for making the changes. These two themes are described in this section.

Self-accountability was a dominant theme for the ampyogis' experience of yoga, illustrated through internally generated motivation, moving into action, and building a personal foundation relevant to generating a new somatic sensibility about their bodies. This internal voice and foundation were followed by commitment (Magolda, 2008) to do what is necessary to evolve new somatic sensibility (Strozzi-Heckler, 2007, 2009). Commitment was evident in the ampyogi self-authoring actions, recognizing that change would happen through their actions.

I analyzed and organized the data to illustrate the ampyogis' statements regarding taking accountability to self-author change in their lives, which led to the practice of yoga. Each participant had to shift a pattern and/or feared that an unwanted life pattern might emerge and debilitate quality of movement, such as being wheelchair bound. Motivations included organizing and caring for the body to prevent atrophy in a wheelchair, being physically able to care for children, and being relevant to others in the community. As I analyzed the data, the ampyogis' choices made as an outcome or in support of changing sense of self were evident, as was an action or practice.

The direct quotes in Table 1 demonstrate the change that participants wanted to self-generate, and statements indicative of participants' felt sense of self-accountability and the choices they made that led to new action or practice. For example, Dan did not want wheelchair confinement, because it felt like death. Therefore, he learned yoga to increase his physical strength to that required to lift out of a chair. To sustain this strength, he practiced yoga and core exercises 5 to 7 days a week. Self-accountability and self-generation of new actions and somatic sensibility, as illustrated by Table 1, increased participants' capacity for self-acceptance as described in the next section.

Table 1

Self-Accountability and Self-Generation

Quote	Choice	Action in practice
"I'm done with the wheelchair. The wheelchair to me is like a death." (Dan)	Practice yoga for physical strength in core and legs; be able to get in and out of chair	Practice 5-7 days per week including core exercises and holding poses.
"I really didn't go into it for the yoga I went into it for, to help get my mind to calm down, because my mind does not turn off very easily. Even with sleeping pills, I can talk myself right through the whole night. So my brain didn't shut down but she got me into yoga saying it would help me overall and everything." (Dan)	To calm mind and body	Holding and fine-tuning poses helped stretch my muscle and calm my mind.
"I got through several courses of physical therapy and found them to be less than what I wanted." (Dan)	After second amputation, chose yoga over physical therapy	Continuance of his physical training routine of yoga, Pilates, speed walking.
"The part about survival was that you realize, 'Oh, I get it. So, you know, I'm going have, I'm going to lose body parts. I'm getting divorced. I don't know what life is going to be like. And you've got two teenage kids at home, so how are you going to handle that?' Not by lying on your back." (Janie)	Get out of bed Be on the journey of self-acceptance	Working out 5 days per week; trying new forms of exercising and adapting.
"I didn't know what my own limitations were going to be. And then they didn't tell me what I couldn't do. And I'm very grateful for that. I thought well, if I don't know what I can't do then I'll assume that I can do it." (Janie)	To not have limits imposed by self or others	Trying new things with others. Continual discovery of possibilities with her body and three amputations.
"I just get up and I walk (to the gate). But that's self-preservation 'cause you want to make the flight." (Janie)	Take initiative to build strength in body	Not missing a day of exercise.
"And there's some, you know, tae kwon do place where she lives and she asked me if I would go with her and I said sure. I'll support you, which is funny, you know, looking at me. Supporting somebody with a whole limb." (Janie)	To be relevant – reinterpret self – identity, self-generate – being as a teacher. She is teacher. Acknowledge positive image produced by others.	Helping others through role modeling
"As I began to learn, if I'm just really, really present when this happens, it never hurts as much as when I'm fighting it" (regarding receiving cancer treatments). (Dannie)	To not hurt physically and emotionally	Practice yoga poses that feel vulnerable for the sake of increasing capacity to move through something uncomfortable

Table 1, *Self-Accountability and Self-Generation,* cont'd

Quote	Choice	Action in practice
"It was kind of at a point where I'm like I have to do something different in my life, because I'm getting like out of shape, I'm getting unhealthy, I'm not feeling good about my body, and [not?] feeling good about my life. So, that was kind of something that appealed to me, because it touches on all those levels. It's not just the physical practice, but it appealed to me, that calming that stress, and I was really looking for a way to stay out of the hospital, as well. So, I needed all those levels." (Dannie)	To feel healthy in mind, body, and spirit. Take action to become healthy.	Taking the first step into the yoga room. Buying her first yoga mat. Becoming a certified yoga instructor.
"I wanted to feel graceful again." (Robogirl)	Appreciate self and decision to use yoga to feel graceful. Get out of bed.	Working out 5 days per week; trying new forms of exercising and adapting.
"I have to constantly try to be balanced in my body. Doing yoga to feel graceful while trying to be balanced felt so good." (Robogirl)	Practice yoga with eyes closed to practice grace.	Holding on to the wall when needed for support.
"I needed exercise and with my amputation could not do cardio that others can do." (Claire)	Learn yoga with the blind.	Showed up, put down her mat, took off her leg and learned. Now practices 5 days per week.
"I teach able-bod[ied] people who are overweight or have diabetes." (Claire)	To be an offer and advocate for others.	Looking for a place to hold an ongoing class. Uses a CD to guide others through yoga or does her own instruction. Charges nominal fee.

Theme: Self-Acceptance

Another theme for ampyogis was their motivation to accept and believe in their sense of self as integral to change (Table 2). Participants spoke of the qualities of self-acceptance of the soma increasing as they practiced yoga, and supplanting some of the organizing principle experienced prior to yoga. As illustrated in the earlier Theme: Fear of Being Seen, Watched, and Judged, participants expressed fear and anxiety about being seen and feeling vulnerable, such that many would self-isolate while fearing rejection. Over time, the value of participants' yoga practices expanded their capacities and outcomes for self-acceptance.

Table 2

Self-Acceptance

Quote	Subtheme	Choice	Action in practice
"It's having that perception of yourself: if it's going to happen, you're going to have to do it." (Janie)	You are the change agent.	Not allow limits imposed by self or others to set boundaries.	Paying attention to breath while moving produced calming
"It has taken many years to be an advocate to bring able body people to the class." (Claire)		Learn and adapt. Be of service, relevant; advocate for yoga.	Believing in self; being the change first then modeling for and teaching others
"It's having that perception of yourself, if it's going to happen, you're going to have to do it." (Janie)		The mind thinks about the action; the body makes it happen.	
"If there's one message that I try to leave with a person is that, you know, you have hope and, you know, where you are today, if you work at it, is not where you're going be 2 weeks from now, or even 2 months from now, or 2 years from now. You have every reason to think you can go back to living the kind of life that you lived before. You will have to make adaptations, but you can do it." (Janie)			
You feel more a sense of like I see you, and I acknowledge, and I remember, that you were going through exactly what I'm going through." (Dannie)	Be seen. Belong.	Be in control of emotional reaction; sensate and connect; be in community; belong.	Noticing others in yoga, on their mats; trying to be the best they can and acknowledging others outside of yoga as going through life in their special way
"It's not just the physical practice, but it appealed to me, that calming that stress, and I was really looking for a way to stay out of the hospital, as well. So, I needed all those levels." (Dannie)	Feel healthy in mind, body, and spirit	Practice yoga for calming and enhanced mood and regaining respect for body.	Practicing yoga 5-7 times per week; paying attention to breath
"I was feeling self-pity, felt incompetent, and frustrated, and out of shape. Doing yoga helped me figure that out." (Robogirl)			

Table 2, *Self-Acceptance*, cont'd

Quote	Subtheme	Choice	Action in practice
"Sometimes, especially as an amputee, things break. You get sores, things break, you have to change your plans, and to just accept." (Dan)	Let go of perfection.	Accept being unbalanced in moments.	Practice going into balance on the mat; notice the sensations of moving into a pose that is shaky and completing it with or without falling and I'm OK.
"In the Western world, we're very much of a staircase kind of thinking. We're like, once I get to step 5, I don't want to go back to step 2, and yoga teaches you, 'No, no, no, no, no.' It's wherever you are today. It's not your past, your future, just now, on this mat, this little rectangle in time and space." (Dannie)			

Within the theme of self-acceptance, the participants practiced yoga up to seven times per week and did not accept limits placed upon them by others, for the sake of achieving balance in their bodies and a calm mood; a balanced and calm mood supported acceptance of self, as compared to anxiousness and frustration prior to yoga.

Also noted in Table 2 are subthemes within self-acceptance, such as acceptance of being one's own change agent. Another subtheme was participants' expanded self-acceptance through choice, followed by action, thus being accountable for bringing into reality their original motivation for practicing yoga.

Theme: Quality of Movement and Action

Quality of movement was another theme for these ampyogis. Examples included the need to be able to move with ease and flexibility during daily living: getting out of the car, carrying a plate of food, and feeling more stable and less fatigued (Table 3).

Table 3

Improved Quality of Movement and Action

Quote	Choice	Action in practice
"I would be much more physically disabled. Getting in and out of the car would be more difficult. Getting in and out of the shower. We over compensate with leg and arms and wrists with legs that have to bend over. Physically I would need much more help. Helps physically, emotionally, sense of accomplishment." (Claire)	Practice yoga for mobility purposes, getting in and out of car, managing basic daily living skills, being emotionally sound.	Practices favorite yoga pose, the sun salutation. Advocates for other yogis. Teaches yoga.
"This is my goal: to take a plate of food with nothing wrapped around it and put food, take an open cup of drink, okay, and walk up the middle of the stairs at work." (Dan)	Practice yoga for strength, to be physically able to move as full-limbed persons; independent living.	Practices 5-7 days per week including core exercises. Holding poses. Doing Pilates and yoga. Practices carrying open containers of food and drink. Practices walking on uneven surfaces and stairs without falling. Can now walk up and down stairs to yoga; first few times, practiced with teacher in apartment until he could navigate stairs.
"Find something (yoga) to increase flexibility and strength; feel more stable on leg; less tired. Regain balance." (RoboGirl)	Decided between private versus group instruction; chose private for 3 months.	Met twice each week for 3 months then graduated to larger public course.
"Yoga taught me to be aware of what was going on, and not just on guard, because, in a lot of ways, I would guard, and protect my leg like it would fall off. Yoga taught me to trust my prosthetic, not worry I was going to trip on something." (RoboGirl)	To be aware of how her body stands and walks.	Actively practices trust of her body, reorienting hipbones so they face forward.
"My biggest challenge is stamina, moving throughout the day outside the home." (Janie)	Get out of bed every day, and exercise, and be in community.	Exercises with her standard routine 3-5 days per week; bowls and swims other days. Used to row until shoulder injury.

During the interviews, I asked participants, "What would your life be like now if you had not started practicing yoga years ago?" and/or, "What do you want to share with other amputees about yoga?" Overall, the participants indicated that daily living necessities required a quality of movement that led to the choice of yoga.

The practice of yoga enhanced improvement of quality of movement. Two ampyogis' discussions about their use of the mat for their yoga practice comprised another theme, illustrated in the next section.

Theme: The Ampyogi Mat

The space in which ampyogis practice yoga includes two dimensions of space. One is the studio or room and who is in that space, wherein the ampyogi feels safe and less vulnerable. The second is the space the yoga mat represents. Two participants spoke about their mats during the interview. Dannie spoke regarding her relationship to her mat as a safe space to do practice, thereby constructing a safety zone:

> I think it's really interesting, because yogis do have a weird relationship with their mats; I think it is, it's, in a lot of ways, a safe space. When you really think about it, you don't need the mat as much as you think you do. Like, you can do yoga on the grass, you can probably do it on a hardwood floor, too, and it really isn't that necessary in a physical sense. It's not really going to be that big of a deal to have your hands on the ground, and your knees on the ground. (Dannie)

When another person touches Dannie's mat, it is an infringement of her spiritual space:

> My personal mat is for me. I have guest mats that I let people use [laughs], and [my mat] is my little spiritual place, and, you know, sometimes, people walk on it, and I'm a little peeved. "What are you doing? [laughs] Putting your feet on my mat, here. Come on, now!" (Dannie)

The yoga mat represents a safe space to practice; once the ampyogi rolls out the mat, the embodied practice of yoga begins immediately—an instant letting go of the outside world and a reset that begins to happen on the mat, with breath and movement. Unrolling the mat is symbolic of a declarative space: "I would just roll out my mat, take off my leg, and plop myself down" (Claire).

> Wherever you roll it out, it has that positive association for you, and, "Okay, this is a yoga space, and the yoga rules apply when I stand here." And so it's okay to play,

> and try. It's okay to drop in; it's okay to be, you know, connected to your breath. It calms you, kind of instantly, to just [see it?] back [again]. And, so, that's why I think I take it places, and roll it out, and I'm like, "Okay, I'm on my mat now." It's like everything's going to be okay. "It's okay, whatever happens on this little rectangle, we're okay." It's kind of this like little safe, you know, box that you can explore in, and it really does. (Dannie)

The yoga mat represented a place of safety to work through new practices, explore new ways of being with your body, and practice with intention in a semistructured environment. The teacher would guide through the asanas and the ampyogis adapt for their unique bodies. "It is a safe space," said Dannie. Strozzi-Heckler (2014) defined the dojo as a place to learn, come awake, transform within the guidance of experienced teachers.

Participants said their yoga teachers often reminded them that yoga can be practiced anywhere, whether there is a mat or not. Claire was matter of fact about using or not using a mat:

> During teacher training, we would practice on the grass, on the wood deck outside. Mats were not needed—we could just practice wherever we were. . . . I'm going to the beach this weekend and practice yoga. Just roll my mat out on the sand and take off my leg.

Buying a personal mat symbolizes a major commitment to a new identity. The first time I bought a mat, it was an indication of commitment and self-accountability to continue a regular yoga practice three to five times per week. Comments from participants echo the same: "You know, the funny thing is, is it took me a really long time to actually get a mat, and not borrow the one at the gym, because, I think, once I had the mat, it was like, 'You're a real yogi now'" (Dannie).

> That sense of like getting your first mat is going to be in yogi terms, like a rite of passage, because it means your accepted, I'm going to do this to where I need one. You know, I'm not officially, kind of, going to call myself a yogi, you know? I'm going to carry it around like you know? And I think that has a lot of like identity to it, when you get your first mat, and when you start carrying it around, and then you don't want to get rid of it. (Dannie)

As an ampyogi, I echo what participants say about the mat. As soon as the strap comes off my mat and it rolls out on the floor, my body feels the familiarity of being in a safe space; my breath automatically becomes more deliberate and fills my heart space more readily. The personal relationship with the mat and yoga practice transfers to life off the mat. This is the focus of the next section.

Theme: Transference of Learning on the Mat to off the Mat

Increasing balance, learning stability in the body, calming the mind, moving the body in unfamiliar ways, and building capacity to be self-aware are guided practices through a yoga class. Ampyogi participants practiced yoga several times per week and what they practiced on the mat began to find its way to relevance in their lives off the mat. Achieving balance, for Dannie, both on the mat and in her life off the mat, was equivalent for her achieving happiness in her life.

> Life off the mat. That's why I love yoga so much. There's just like no other. . . . Maybe other sports have some good metaphors for life, but the idea of balance is amazing in yoga. Taking that off, into the mat, off the mat, into the world, . . . in our society, we have this idea of, "I'm going to line my ducks up in a row, and if I can just get every point in my life to the right place, then I'll be happy." (Dannie)

Perfection and happiness as a destination was a lesson Dannie learned as an amputee and yogi. Working hard and not being satisfied that life is perfect creates an unwarranted illusion.

> You're striving, and striving, and striving, and striving for constant good, and you're looking around, going, "Why isn't everything perfect? I've been working so hard, I've been doing everything everyone says to me, and, yet, life isn't lining up the way I think it should line up." The yoga mindset is, "It's all going to come." No matter what you do, you're not going to reach a place where there is no pain. No matter what you do, you're not going to ever reach a place where everything is even in life. That was such an important lesson to me, because, in a lot of ways, I'm very perfectionistic, and a very Type-A personality. (Dannie)

In yoga, teacher-assisted adjustments and modifications support the yogi moving into alignment in a pose that is transferable off the mat. For example, if hips are misaligned in a half moon pose or warrior one pose, walking off the mat with misaligned hips is more probable, which is highly problematic for a lower extremity amputee. Don worked with his instructor to align his hips forward during yoga so that he could walk straighter. "I remember trying to get my hips to move forward because they were actually pointed backwards." Don spoke about watching other amputees walk by swinging their leg out to the side; he wanted to walk straight with his two lower extremity prosthetics. He had observed some amputees walking with a side leg swing: "They swing out, and that's how they walk, okay? Because they don't lift the leg. The leg, obviously, if you swing it out, it's going to get raised, and then swing it out in front of them, and put it down." With intention and conscious practice in yoga, Don took his alignment practice into walking down the hall or across the parking lot, keeping his legs straight.

The ability and confidence to walk straight was an organizing principle for Don. Building his core strength, lifting his legs, and having strong arms to carry items were actions he supported during yoga. Don and his teacher practiced relevant yoga poses to support his goal of strength building:

> That means I've got control to walk up the stairs, means I've got control and balance to keep the stuff from falling out and spilling, and that will be my achievement, and that's what I'm working towards. Because then that means I can walk down any stair, whether it's got handrails or not; and once I get to a landing, I can turn and I can work the next step, because I already know where I want to do this at work. (Don)

Don was used to strong support from his yoga teacher, who, playfully, yet in a rigorous manner, kept him focused in his yoga practice. Dannie illustrated her historical need to ask for help as an amputee as she realized that total independence was an illusion.

Accepting modifications and supportive help from the teacher, or grabbing a block as a prop, was asking and receiving support, metaphorically, on the mat. Yet, she learned that she transferred this learning to life overall as she was building the competency to decline help when she could manage what she needed to manage. Her belief was that everyone, amputee or not, needs assistance in life in certain moments.

> Being an amputee really begins to teach you that sometimes you have to ask for help, and, you know, growing up with a chronic illness teaches you. You're never going to be able to have the illusion of, "I'm totally independent," because you're not. And nobody is, but it's just a bigger demonstration of that idea of, "I need help, and I need to know when I need to ask for it." And I need to know when I need to say, "Okay, I found my balance, let me stand on my own for this part." Every time I get adjusted, or I grab a block, or I grab a prop, it reminds me of whatever is needed in this moment. (Dannie)

Robogirl felt that, "All things are possible" when she completed her first yoga class. After her first yoga class, she climbed a rappelling rock wall, something she had never thought she could achieve. What she learned about her body in her first yoga class was immediately transferable hours later. She scaled the rock-climbing wall with strength, confidence, and grace. Both the yoga and the rock climbing took place at a conference for amputees, which produced a safe space to try new practices.

During yoga, Robogirl had flashbacks to when she was a dancer, pre-amputation. At the time of the interview, she noted that often, in her daily postamputation life, she felt more graceful, less frustrated, and more at ease with her body.

> I am more peaceful. There is congruence between how I feel on the inside to the outside strength in my whole body, not in just in my arms. My mind and spirit, particularly my mind, is peaceful. . . . I feel fit in my body, too, and I am more aligned in my shoulders. I used to carry babies on one hip, and now that my children are older, I feel my hips were out of alignment. Now they feel better, aligned even.

In sum, the ampyogis noticed that what they learned on the yoga mat manifested as relevant in their lives off the mat. The core strength-building practices learned on the yoga

mat supported Don in walking up and down stairs. The memory flashbacks of being a dancer contributed to a more peaceful mind and fit body for Robogirl. Learning that life does not offer perfection was a powerful lesson for Dannie. Overall, increased self-acceptance, and self-appreciation of body, mind, and spirit resonated with participants both on and off the mat.

Summary of Themes

The descriptions of the findings presented in this chapter emphasize the ampyogis' experiences of being in a yoga practice and the outcomes of yoga in their lives. The experience of yoga started with an organizing principle with a fear-based theme. The fear was of being, seen, watched, and judged, and the potential loss of identity and self-power. It is apparent that amputees who experience yoga, with or without other physical training modalities, experience an increased capacity for self-accountability and self-generation, self-acceptance, and lasting quality of movement.

There is evidence of transferring learning on the yoga mat to life off the yoga mat. Moving through unfamiliar poses on the yoga mat teaches the ampyogi to breathe through the fear and anxiety. Core strength training and balance are transferrable off the mat into daily living. The experience of yoga is important to the ampyogi because the body is moving, and, in that movement, the body practices a new way of being in the world. The ampyogi wants to feel balanced on one or two prosthetics, so the ampyogi practices moving in balance on the yoga mat. Alternatively, feeling graceful on the yoga mat translates to grace off the mat, a quieter mind off the mat, less frustration, and reduced anxiety. Each ampyogi had a compelling motivation to feel and be different in the world, and all organized their yoga practice to fulfill that intention.

Yoga, in essence, is breath with intentional movement. This is distinguishable from receiving a massage or other bodywork wherein the client is not moving and remains the recipient of the treatment on the massage table. This statement is not intended to minimize bodywork, but to emphasize the power of the body with intention and breath in movement.

The commitment of the ampyogi participants in this study to enact change through, in, and with their bodies through the experience of yoga is clear. To move—from being fearful of living in a wheelchair—to organizing around the possibility of the next cancer treatment, or the inability to be physically active—or to a space in the body, mind, and spirit with a strong core, confidence, and grace—is impressive.

Stress and hyperalertness regarding doing something new that involved the body comprised full-bodied awareness by the amputee. Participants verbalized awareness regarding desire and need to practice yoga, fear of their own bodies, and fear of how others would see their bodies. Even with this compelling fear, the ampyogis moved forward into their commitment to self and, with hyperattention, located their mat in the room.

Once their bodies were moving in the practice, their hyperattention focused in, on, and with their bodies. The breath in the body, how the prosthetic was on and with the body during movement, as well as a greater sense of being with one's own body in a new way were somatic examples. Intention of movement coupled with intention of breath became a way to move more gracefully and calmly in the world.

The participants' experiences herein support the six steps of learning (Strozzi-Heckler, personal communications, 2000-2011) modified for this study. According to Strozzi-Heckler, the six steps of learning are *attend to, awareness, choice, volition of commitment, action,* and *accountability*. I have modified Strozzi-Heckler's six steps of

learning as follows: *organizing principle, awareness, attention to self, somatic choice, volition, action in practice,* and *self-accountability*. Starting with the organizing principle of fear, the ampyogis had awareness of how they did or did not want to practice yoga, and made decisions based upon those choice points, termed bifurcation points (Pearce, 2013) in this study. The last two steps of action in practice and self-accountability reflect the organizing principle and that to which the ampyogi attends.

My intent in this chapter was to illustrate the lived experience of yoga for amputees. In the next chapter, I assess and integrate the study's findings with the literature, followed by a look forward to the opportunities for further inquiry that this research highlights.

CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

This study's findings highlight amputees' experiences with yoga and the outcomes of a yoga practice for ampyogis. Consequently, this study contributes to the understanding of yoga, the soma of the ampyogi, and how life in the body changes through a deliberate and intentional yoga practice involving the breath and body movement.

Amputees experience trauma to both body and sense of self-efficacy with the abrupt change that amputation produces. Amputation happens because of complications of diabetes, cancer, vascular disease, gangrene, motor vehicle and train accidents, and injury from gunfights or war incidents. Recurring cancer and ongoing infection or pain can result in amputation. Amputation can save a life or, in some cases, increase the quality of living.

The United States has an increase in amputations due to our aging population and high rates of obesity and diabetes. An estimated 2 million people live with limb loss in the United States today, and that number is expected to double by 2030 (Amputee Coalition™, 2011). Of the 507 amputations daily, approximately 50% are due to complications of diabetes (National Limb Loss Information Center, 2008). These statistics underscore the need for study of yoga and the amputee.

This study answers the primary research question: What are the lived outcomes of individuals with limb loss and who practice yoga? This study also provides answers to the secondary questions: Does yoga positively impact sense of self, the ability and capacity to be self-generative and self-confident? What changes does the ampyogi experience in his or her body as a result of a yoga practice?

I conducted qualitative interviews with a sample of five ampyogis dispersed across the United States. Participants' amputations ranged from one to three limbs, with varying degrees of limbs amputated. For example, one person experienced a hip disarticulation whereas another had one foot, toes on the other foot, and fingers amputated. Due to the varying reasons for amputation, an early interview question asked participants to describe what led to their amputation(s), as applicable.

Once participants shared their respective stories about the history of their amputations, further questions elicited each amputee's experiences of his or her body before, during, and as an outcome of yoga, to uncover the outcomes of participants' yoga practice. For example, interview questions explored what led to the decision to try yoga, and participants' motivation and subsequent choices that led to a practice of yoga. Interviews uncovered somatic sensibility of the participants, their awareness of bodily sensations and thought processes connected to walking into a yoga studio for the first time, where in the room they placed their mat, and what differences they noted after a yoga practice.

Participants described relationships with their yoga instructor and changes in relationships outside the yoga studio. They also described the differences in their lives, particularly the shift of their views of their bodies pre- and postyoga, and shifts in their life perspectives. The ampyogis also noted changes in their perspectives of self, and how they now viewed their bodies.

I transcribed, read, storyboarded (Pearce & Sostrin, 2013), and analyzed the interviews for themes. I read the interview transcripts and observation notes with openness to themes in the participants' descriptions as well as themes present in the literature. I storyboarded the transcripts first in the sequence of the each interview, and then rearranged

in the sequence of the historical timeline presented by each the participant. For example, each participant reflected on a time in his or her life as a teen experiencing amputation, or the first days after learning that they needed an amputation. Through chronological rearrangement of each storyboard, I noted observations of themes of a life storyline that shaped the basic themes present in the participants' descriptions.

Consistent with Strozzi-Heckler's (personal communications, 2000-2010) six steps of somatic learning, this study's participants' experiences revealed these six steps: fear-based organizing principle, somatic awareness, somatic choice, volition, action in practice, and self-accountability. Within somatic awareness, participants noted a distinction in their quality of awareness preyoga versus postyoga. Two additional findings related to the yoga mat: one participant developed an identity with her mat that was noteworthy because of its significance in her life perspective; the second topical area regarding the yoga mat was the transference of what the ampyogis learned on the mat to life off the mat.

The following section integrates the research findings with current literature, evolves somatic theory, and adds to the body of qualitative research on the use of yoga in a marginalized population.

Integration of Research Findings With Literature

Several theoretical perspectives and fields of research provided a framework for understanding the participants' lived outcomes experienced as a result of yoga. The following text is a discussion of findings within the contexts of (a) current theory and research, and (b) how the findings inform the fields of yoga and amputees, and somatics. The sections interweave agency, somatics in action, and yoga as a modality for the transformation in the body of an amputee.

The findings of this research align with somatics, defined in the context of the extension of body awareness and attention into action, to produce a new somatic sensibility of the body and, therefore, new possibilities (Amann, 2003; Beaudoin, 1999; Haines, 1999; Strozzi-Heckler, 1984/1993, 1997, 2007, 2009). Participants, because of heightened awareness of their bodies' moods, sensations, emotions, and movement, were able to make new choices that supported their intentions of a fit mind and body. These choices required unprecedented actions that became repetitive and frequent. To produce new actions through the body requires somatic learning (Amann, 2003; Haines, 1999). To produce new actions through the body, the amputee takes on the role of being one's own change agent to create and sustain strong self-efficacy.

These findings support the work of four somatic theorists, highlighted for their theoretical work in somatic learning or learning through somatic practices. Amann (2003) highlighted learning of the individual as an engagement of repetition and adaption of a behavior, thereby turning the learning into new action. Beaudoin (1999) studied the actual engagement of participants in her research and the outcome of engagement on learning. Haines (1999) theorized that transformative changes occur in the body through repetitive practices. Strozzi-Heckler (1984/1993, 1997, 2007, 2009) distinguished the skeletal body and its anatomical framework as not being the body in its entirety. The body is also a collection of experiences over time—how the individual has experienced life in the past, experiences it in the present, and imagines the future body (2007, 2009).

Somatic Learning

In the literature review, I offered two somatic distinctions plausible in this research regarding the amputee on and off the mat. These somatic distinctions, I posit, are required

for somatic learning. The first is somatic choice: understanding bifurcation points (Pearce, 2013) and what accompanies the distinctive somatic choices in enhancing somatic sensibility. The second is somatic accountability: how the mind and body build and access resilience to stay on course through obstacles and challenges. To discuss these two somatic distinctions requires attention to organizing principles and awareness (Strozzi-Heckler, 2007, 2009, 2013, 2014; personal communications, 2000-2011), which precedes somatic choice and somatic accountability, according to this research. Two other distinctions emerged as part of somatic learning: awareness of the body, moods, sensations, and emotions; and volition, or the degree of commitment attributed to choice and follow-through of action (Strozzi-Heckler, 2007, 2009, 2013). The steps of somatic learning as identified in this research are organizing principle, awareness, attention to self, somatic choice, volition, action in practice, and self-accountability. The following sections discuss each of the themes of these seven steps in the context of findings integrated with current literature.

Organizing Principle: Fear

The ampyogis' foundational organizing principle was fear-based—fear of being unfit, being judged, or being seen and watched. A common theme was fear of being unfit and unable to perform independent daily living with dignity and grace. Fear of an unhealthy body, increasing tension and distraction, and fear of being bound to a wheelchair compelled participants to seek options to counter the current trajectories of their bodies. Fear of rejection created hesitation and resistance for participants independently starting a yoga program. However, prior to the forward action of changing the trajectory of an unhealthy body and mind, participants experienced stigmatization as abnormal (Goffman, 1963/2009). Living with the stigma produced a conscious detachment from the body. Active engagement

to numb the body and isolate the self from the social environment further conditioned the body, in its present state, to minimize the felt sense of life in the soma.

The fear-based organizing principle led to a bifurcation point (Pearce, 2007). The present state of the body and the imagined future state (Strozzi-Heckler, 2007, 2009) of the current trajectory of behavior were no longer acceptable to the participants. A defining moment, or wakeup call, presented a choice—transform or stay with the imagined future of the current body. Pursuant to the decision to create a new imagined future of the body, participants selected yoga as the vehicle of change.

A dual existence of fear was clear: fear of current state in tension, and fear of moving into the change. Participants wanted the change, yet another manifestation of fear burdened the change—the actual starting point of change, which required instigating a yoga practice. Fear of being seen and stigmatized as abnormal (Goffman, 1963/2009) in the yoga studio, fear of being isolated as the only amputee, fear of being asked to leave, and/or fear of being called out as not belonging, delayed and complicated the amputees' entering a yoga studio for the first time. In the next section, I describe the turning point, or moment of choice, from which the desired change emanated.

Awareness

Awareness is a state of being in which one experiences "an internal felt sense of and connection to the body, mind, and spirit, and the external sense of connection with others and the world at large" (Nahai, 2012, p. 14). The practice of awareness—initially generated through yoga with attention to breath—ultimately moved forward into other horizons, such as work, traffic, and managing commitments.

Somatic awareness: To what is the body listening? The amputee is in frequent, if not constant, reflection on how his or her body is moving, feeling, and seen. The participants described their own sense of awareness of their bodies and sensations, and their unique interpretations of these sensations, preyoga, during yoga, and outside the yoga studio or room. The participants revealed evolving levels of awareness, starting with awareness before starting a yoga practice, an evolving awareness as result of yoga, and the role of the yoga teacher in increased awareness, each addressed in the subsections that follow. Through evolved self-awareness, the ampyogi moved to self-acceptance and self-accountability. The fear was still present, yet accompanied by self-efficacy of self-acceptance, as demonstrated in the following sections.

Preyoga awareness. Participants described feeling emotional numbness, avoidance of others, irritability, disassociation, lower levels of activity, and lack of joy and happiness as preyoga sensations. All of the participants described a turning point, a moment in which they decided that how they felt about themselves, their minds, and bodies were no longer tolerable; feeling numb, disconnected, detached, moody, or frustrated was no longer acceptable.

Participants were aware of tightness in their bodies, anxiety, frustration, and active minds that they could not calm easily. This awareness manifested in exhaustion at the end of the day, feeling a sense of low or no accomplishment during the day, and frustration while stuck in traffic.

Participants' sense of dissatisfaction with self, body, and mind culminated in a turning-point moment representing each participant's acknowledgement that he or she needed new action and practices to produce a healthier mind and body. The turning-point

moment was opportunity for the amputee to establish efficacy expectations, and to create changes in self-confidence, self-image, and self-esteem. Strong self-efficacy produces the conviction that behavior will be successfully executed (Bandura, 1993).

Figure 1 illustrates the integration of increased capacity for self-efficacy with choice, commitment, and volition. The amputee has a turning-point moment, also described in this research as a bifurcation point (Pearce, 2013). The amputee has awareness of two choices, C1 and C2. C1 represents no new action. C2 represents new action. V1 and V2 represent differing degrees of volition, the strength of conviction and commitment to make change, which leads to the type and frequency of new action in practice to produce the required change.

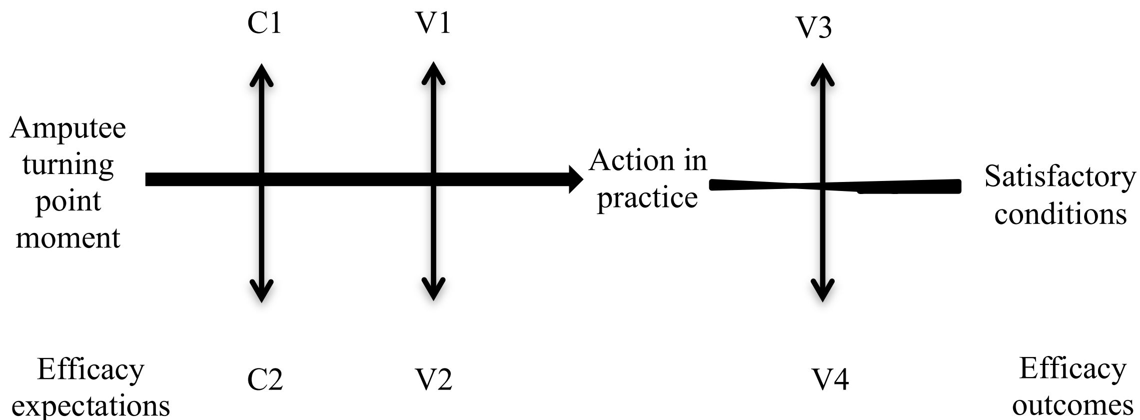

Figure 1. Diagram of amputee self-efficacy growth with choice and volition. Legend: C1 = Choice 1; C2 = Choice 2; V1 = Volition 1; V2 = Volition 2; V3 = Volition 3; V 4 = Volition 4.

In this research, the amputees built expertise through mastery experiences, thereby increasing self-efficacy (Bandura, 1993), which amplified volition (V3 and V4), to realize

outcome expectations and satisfactory conditions. Awareness of success post-C2 and -V2 increased the degree of volition (V4) to realize outcome expectations.

Increased awareness as a result of yoga. Participants unanimously concurred that life would be different without yoga. They shared awareness of increased ease of getting in and out of a chair unaided, and entering and exiting a car. They experienced increased awareness of greater balance in the body and decreased overcompensation with other parts of the body. Participants noticed improved ease of entering unknown environments and feeling less threatened. They acknowledged that every fully limbed person has his or her fears and challenges in life and that, regardless of the number of limbs, each person needs help in certain moments.

Role of yoga teacher in increased awareness. Participants' newly embodied somatic awareness came about because of constant attention and guidance by yoga teachers for participants to be aware of sensations in the body, to notice what is different, have attention to breath, and be present in the moment on the mat. When participants practiced awareness of breath, they noticed changes in the body in the moment. Awareness of breath in a new pose, or holding a difficult pose, produced immediate feedback of the physical benefit of staying in the pose.

Over time, participants learned that their bodies could manage more difficult poses because of continual practice. Notably, participants experienced a feedback loop: the noticed sensation of tension leaving the body during a pose held with a calm breathing pattern. Holding the pose with relaxed breath created space in the body (hips, back, legs, mind), softened the body, and released tension and anxiety.

Participants noticed awareness of changes in the body after the yoga class and throughout their days after yoga. Easier movement replaced stiffness; better moods and increased flexibility at work improved relationships; and feeling graceful produced more ease and less frustration in managing daily tasks. Awareness of balance in the body produced the assessment by others that the ampyogi seemed happier.

Additional attributes reflected in the participants' experiences include heightened awareness of regaining balance in the body for the sake of physically supporting oneself. Yoga supported the physical strength required for stamina and resilience for participants of all ages, from younger to mature adults. The participants indicated increased awareness of mood outside the yoga space, feeling more connected to others, feeling more connected to oneself, feeling connected to humanity, awareness of breathing or not breathing, feeling graceful, breathing with movement, feeling balance, feeling safe, having a new awareness of moments of frustration, being calm or not calm, being at peace with feeling uncomfortable, identifying the prosthetic as an embodied body part, feeling intrinsic individual value, being at peace with not knowing the answer, a positive image of how one looks and feels, and continual monitoring of body and spirit. All participants expressed increased senses of soma and feeling alive through increased capacity for awareness of the body and mind.

Yoga teachers guide students through self-awareness techniques as a personal-reflection-guided practice. Participants spoke about their teachers guiding them through an awareness practice for how the body is feeling: to listen to the body, and to notice or be aware of the body before and after a yoga practice. For example, a pause after an asana on one side of the body, and a noticing of the difference between the two sides of the body, increased participants' abilities to notice their bodies and moods associated with sensation.

Yoga teachers encouraged these ampyogis to consider the mat as a safe place to try new things, and to be aware of how the body responds to change in movement. As the ampyogis advanced in their yoga practice, they observed that they paid less attention to what others thought about them, and increased awareness and attention to their own selves in movement. Acknowledging that each ampyogi had a unique body and self-generative practice created a sense of normalcy. Participants increased capacity to be consciously self-aware, when and where attention (Cioffi, 1991, 1996) was placed on the breath through movement of the body.

Awareness of the prosthetic and stump was an important safety and comfort factor. How ampyogis' stumps felt in the sockets was an indication of their ability to practice. If the sockets were soft and squishy, ulcers developed, and ulcers meant missing yoga, which created a sense of frustration and moodiness. One ampyogi was in the process of having a new socket fitted and another discussed having a spare leg in the closet.

Awareness of the body and breath is foundational for an ampyogi's increasing capacity for self-efficacy. The role of the yoga teacher in guiding the ampyogi through movement and self-awareness practices enhanced the ability of the participants to feel safe on the mat and in the environment, thereby releasing tension in the body and creating space for the body to develop a new sense of being in support of a healthy mind and body.

Once the ampyogi realized his or her ability to increase capacity of awareness of his or her body, prosthetic(s), breath, and mood, each began to pay a different quality of attention. The ampyogis were more in tune with their bodies in the moment, and more aware of how tension increased or decreased, as explained in the next section.

Attention to Self

Attention to the self, in the moment, was a conscious effort following increased awareness, as discussed in the previous section. Participants often used awareness and attention in the same sentence during interviews; the following are distinctions. Strozzi-Heckler (2007, 2009, 2014) referred to somatic awareness in the context that mind and body are not separate. Through yoga practices, the participants increased awareness of their automatic contractions of breath, increases or decreases in stress through certain practices, and recognition of self-generated fear.

Participants were committed to changing their bodies and, in that commitment, they organized attention toward more positive moods, calm bodies, and increased balance, for example. They noticed in the moment when they self-generated the tension, the shallow breath, or how they used a prosthetic. Their attention increased in these moments. In the increase, or shift of quality, of attention, participants were more conscious of their bodies in that point of time. Being present with their body provided an opportunity to understand how they were accountable for breath contraction and release, tightness in their legs, or use of core muscles in body balance. In a singular moment in time, in the environment conducive to allowing space for attention, the participant learned more about their bodies. They were fully present, aware of their breath in movement, and paying attention to how conscious use of breath increased space in the body.

Organizing principle, awareness, and attention produced opportunities for somatic choice. Choices were available and simple: either stay with the current body or create opportunity to feel different, to self-generate self-efficacy and a resilient body in the future.

Somatic Choice

Through a back-and-forth horizontalization, identification of the distinctive characteristics of the phenomenon (Nahai, 2012) of the experience of increased awareness emerged as a central theme of *being in somatic choice*. The distinctions of being in choice came as a result of that to which the ampyogis paid attention, their organizing principles, and increased awareness of self. In the space of increased awareness, bifurcation points (Pearce, 2013), or moments of choice, emerged.

The somatic distinction of choice is relevant to the participants' fear-based organizing principle and awareness to shift their felt senses of life into and through their bodies. Somatic awareness, listening to and living inside the sensations, preceded somatic choice for the ampyogi participants. Participants wanted to be more alive somatically. To be more alive somatically requires deconstruction of the old self (Haines, 1999). This deconstruction (Haines, 1999), or somatic unlearning (Amann, 2003; Beaudoin, 1999), in the context relevant for each participant, was a precondition for reconstruction, in order to be open to new possibilities to being more alive somatically. The soma of the body is how the body experiences itself (Levine, 1997, 2010; van der Kolk, 1996). Participants wanted a different experience of their bodies that would create a shift from disconnection, detachment, and self-pity toward self-generation and self-accountability.

Social contexts prompt somatic reactions through how the self responds in social context (Beaudoin, 1999; Cioffi, 1991, 1996; Strozzi-Heckler, 2007, 2009). Throughout numerous cancer treatments, one participant consciously disconnected from herself to minimize psychological and physical pain; disconnection was a conscious choice. Later in

her life, practicing yoga was another somatic choice, a choice to feel more alive and balanced.

Cioffi (1991, 1996), Beaudoin (1999), and Strozzi-Heckler (2007, 2009) presented somatically induced contexts which, when supported by attention and awareness, led to practices that have particular outcomes in the body. To adopt a practice requires choice and embodiment of a sense of accountability for successfully performing the practice. Participants made a choice to change how they felt in their bodies; I term this *somatic choice.* This section of findings highlights the choices participants made to start yoga practice and how they entered into those choices.

The choice to start a yoga practice is more difficult than continuing a yoga practice. Understanding the outcome of a new practice that involves moving the body in an unfamiliar setting presents varying levels of difficulty. No participant simply decided to show up alone at a community studio for the first yoga class. Once the participant made the choice, a community of like-bodied people was a significant decision factor in beginning the practice of yoga. For example, yoga-for-amputee classes at a national amputee conference, a class for the blind, and private tutoring created a safe enough environment for the ampyogi to start. Still present were anxiety and trepidation, which began to diminish by the end of the first or second class.

The choice to go to that first yoga class required the framework of a safe space before meaningful consideration of entering the room. Attending yoga-for-amputee classes at the national amputee conference made it both safe and convenient to take the first yoga class for two of the participants. Going with a mother, having the yoga instructor come to the house, or attending yoga for the blind all presented safe spaces in which to experiment with yoga.

Once the ampyogi participants saw attending and participating in yoga classes as possible, participants organized their days to include yoga practice. Commitment to ensuring a yoga practice was sustainable and relevant to the participants' degree of volition. The next section focuses on findings on the degree of volition: how much of a commitment the participant made to the practice of yoga for the sake of enacting the desired change in his or her mind and body.

Volition

As detailed above, preceding the horizon of somatic choice is the thread of attention to an organizing principle and awareness. The essential theme of being in choice could not have happened without an organizing principle and increased awareness. Each participant had a fear-based organizing principle, a reason why he or she chose to practice yoga. This organizing principle is what the ampyogi attended to with a yoga practice: managing fear, being more alive, having a strong core for stability, and/or better alignment in the body, for example. With something to attend to or organize around, the quality of awareness was meaningful in the choices the ampyogis made and in their respective degrees of volition.

Nahai (2012) described awareness as "a state of being that is experienced and achieved through an internal felt sense of and connection to the body" (p. 14). I have extended this definition of awareness to include felt sense of the body in action. Through awareness, the participants increased their capacity to self-observe, recognize choice making, and understand the risks and rewards of choice. As an example, awareness of the fear associated with doing a first headstand, and increased connection to breath as a support mechanism for moving through the fear of inverting one's body, allowed participants the space for choice to continue moving through the fear in the headstand. Following the

headstand came the realization that the body can move through an uncomfortable state in order to achieve change. The moments of choice, moving through the uncomfortable space of a new way of being in the body, and coming through the movement, increased the ampyogis' self-efficacy expectations and enhanced their ongoing commitment to change

The ampyogis based their choice to practice yoga on a perceived need to change the self, the mindset, or body of the participant. The decision was intentional, based on the history of the amputee. In line with Merleau-Ponty's (1945/2012) position that we are responsible for our own outcomes and set intention for future actions, the amputees took ownership of how they want to perceive their bodies in the future. Some participants felt the need to calm their minds and reduce frustration and anxiety, whereas others needed an exercise practice amenable to a body with limb loss. All participants embodied a sense that, without taking a different action with their bodies, the health of their minds, bodies, and spirits would continue to suffer, impairing their self-efficacy and relationships with others. The body was the center of orientation for each research participant, and the way that the body presents itself is the center of attention (Husserl & Welton 1999).

I posit, within the findings of this research, that ampyogis have a different quality of attention to their moving body parts than fully limbed yogis. Ampyogis with conscious intention are aware of how each body part moves, and their qualities of attention and awareness focus on being safe with their prosthetics, a phenomenon unique to amputees. Fully limbed persons only infrequently attend to the location of their body parts (Kinsbourne, 1995). Yet, the more a body has short-term intentional awareness to bodily sensations and movement (as in yoga class), the more the body feels complete (Kinsbourne, 1995; O'Shaughnessy, 1995). The body feels complete if it is not otherwise signaling that it is

incomplete, as in fully alive and feeling sensation (Kinsbourne, 1995). Not included in this research was fully limbed yogis' degree of attention to and awareness of their moving body parts. The findings of this research indicate that ampyogis have increased attention and awareness of how their bodies move in yoga and, thus, feel more complete and alive.

Volition is one's capacity for voluntary action (Haggard, 2008) and the degree or extent of one's choice making and actively entering into change. Amputees take action in their daily lives to make active choices based upon an organizing principle. Volition was required to change automatic habits, routines, and processes (Baumeister, Muraven, & Tice, 2000).

One of the ampyogi participants stated, "I'm staying alive," voicing a powerful motivation to value the self-care framework of yoga. A strong degree of volition is evident in committing to staying out of the wheelchair, being relevant in the workplace, and engaging in life-sustaining practices.

A consistent theme was participants' awareness of how their bodies, minds, and spirits felt as an outcome of yoga and in other aspects of daily living. This thread of awareness reaches through to multiple horizons: awareness of mood while driving in traffic; awareness of frustration because of an ill-fitting prosthetic, which impairs walking and yoga; awareness of feeling more beautiful and graceful. Driving in traffic, noticing frustration, choosing not to be frustrated, and using breath to calm the mind and body are examples of self-efficacy in positive action.

Action and Practice

New action was a requirement to begin a yoga practice. Such action is segmented in two categories: yoga organized in a specific space and time orientation, and yoga integrated

into daily movement and daily thought. The action and practice of yoga was so impactful for these ampgoyis that each had also become an advocate for yoga for amputees.

Space- and time-oriented yoga. Once the choice was made to practice yoga, participants began practicing five to seven times per week. Their degrees of volition strengthened as participants became aware of positive changes in their bodies and minds. Further, as they progressed in yoga practice, participants received positive assessments from third parties about observed improvements in mood and emotion.

Each action of going to yoga requires commitment. Every time ampyogis organize to leave the house, they don one, two, or more prosthetics; pick up their yoga mat and water bottle; make their way to the car; and do so with conscious attention to balance and strength. Buying a yoga mat is a supporting action. Calling and meeting, for the first time, with a private yoga instructor are actions. Opening the car door, exiting the car, and crossing the threshold in the yoga studio are new, conscious actions. Attending a class with an unfamiliar teacher is an action that requires conscious attention to self and movement through the fear of a potentially unsafe environment, yet doing so supports the commitment to self-efficacy.

A dominant factor in the participants' space to practice yoga was the sense of safety that space produced for the ampyogi. For the ampyogis to consider the space safe, they needed their teachers to remind students that their own mats are places to practice, that each body in the room is unique, and that each yogi moves in his or her own special way; to remind students that if they fall, they can always get up and go again; to remind students to stress awareness of their bodies in each pose, to pay attention to their breathing patterns, and that yogis have everything they need at that moment. The ampyogis' teachers spoke about being connected and present in the moment in this particular time. At the end of the classes,

many teachers reminded the yogis to continue their yoga practice outside of the yoga studio, taking the felt sense of yoga off the mat.

Yoga integrated into daily movement and daily thought. Ampyogis took the action of yoga off the mat into daily living, to breathe through uncomfortable situations, to breathe when the body feels panic or anxiety, and to rest or pause in order to regain control of breath and movement. An outcome of the yoga practice, even outside the yoga studio, was that participants continued to practice yoga and were aware that this ongoing yoga practice off the yoga mat was occurring. The off-the-mat experience was so meaningful to participants, that all participants became advocates for yoga for amputees.

Ampyogis in action as advocates for yoga for amputees. The ampyogis scheduled time to practice, made decisions on where and how to practice, and integrated yoga into their calendars several times each week. Each ampyogi became an advocate for yoga for amputees through realization of expected outcomes. They demonstrated advocacy through communicative action (Searle, 1969/1975) in the form of offers. Language is a form of action; we open our mouths to speak, which is a form of our bodies in action. Life is generated through language, and speaking words generates moods and actions that either support or derail ambition and creativity (Budd & Silverstein, 2000). Habitual patterns of behavior reflect unconscious incompetence in language (Budd & Silverstein, 2000). This research study did not focus on language, so there are no related in-depth findings. The observations noted merit mention because of a direct link to forward action in support of other amputees. Each ampyogi took specific actions to advocate for yoga for amputees through offers of invitation to classes, doing YouTube videos, or providing one-to-one teaching.

Somatic Self-Accountability

The defining moment of choice created a new distinction of accountability: taking care of oneself for the sake of living, and living as well as possible. Examples of choices that led to self-accountability for effective action included feeling connected versus disconnected, feeling graceful versus ungraceful, living in a wheelchair versus living on two feet, being a victim versus being a survivor, needing help getting out of a chair or car versus being independent, or walking only on even surfaces versus being balanced on uneven surfaces.

This step in the cycle of somatic learning is self-accountability; if a participant wanted to feel better in his or her body, it was his or her responsibility to make the choice

and move into effective action. A distinct accountability to self is viscerally present in the ampyogis' experiences. For example, only the ampyogi can move his or her body to produce the desired outcome, and after experiencing yoga and its outcomes, the participant knows fully that he or she is responsible for creating the change in his or her body.

Congruency in thought, language, and action, for the sake of an effective yoga practice to support an organizing principle, requires ampyogi self-accountability for frequency of practice and for taking yoga off the mat into life. Findings indicate a cycle that ends and begins with self-accountability. Through yoga, the participants shifted their senses of self and began to shift their organizing principles. For example, the initial organizing principle of fear shifted to a new organizing principle of moving their bodies with strength and agility. This shift came about as an outcome of somatic choice and somatic accountability. Participants consciously selected to produce a new somatic sensation in their body and developed a practice of self-accountability.

These ampyogis came to embody frequent yoga practice, and consequently made time every day to create that space. Participants who could not attend yoga for a few days because of schedule, prosthetic, or illness were compelled to get back in practice as soon as possible.

Summary: The Cycle of Somatic Learning for Transformative Change

The previous sections described findings of somatic learning that followed these seven steps: organizing principle, awareness, attention to self, somatic choice, volition, action in practice, and self-accountability. Figure 2 illustrates the cycle of somatic learning found in this research.

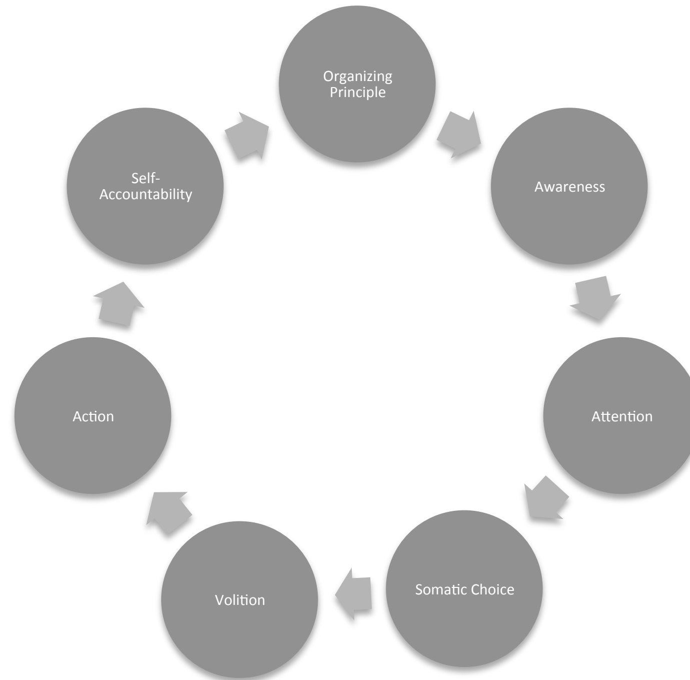

Figure 2. Diagram of Cycle of somatic learning for transformative change.

As ampyogis gained comfort and competence in their yoga practice, they realized their efficacy expectations. Attainment of efficacy expectations increased their commitment to stay in effective action and, at the same time, shifted the organizing principle from fear to sensating strength and agility. Within the cycle of somatic learning, ampyogis distinguished between their first and last (most recent) time practicing yoga. Increased competence and self-efficacy came about as a result of repetitive practices (Amann, 2003; Beaudoin, 1999; Haines, 1999; Strozzi-Heckler, 1984/1993, 1997, 2007, 2009), small successes along the way, and realization of expected outcomes (Bandura, 1977, 1981, 1982, 2010). Each of these additional findings is illustrated next.

Additional Findings

Two additional findings were noted and merit mention. The first finding is the first and last time each participant experienced yoga and related distinctions. The role of the

teacher was noteworthy as a catalyst in somatic learning for the ampyogi. Also noteworthy is the role of agency in self-generation and self-accountability.

First Time and Last Time

Participants described their first time with yoga and their last (most recent) time with yoga. Without exception, each ampyogi shared angst about his or her first time with yoga, whether it was with a private tutor or a class designed for the amputee population. The first few times practicing yoga, the ampyogis had to filter their actions through the organizing principle of fear. Focused attention was on the best coordination between the body and prosthetic to achieve alignment in the asana. How and where to place the prosthetic foot on the mat to maximize benefit of the asana while maintaining safety and minimizing falling was a concern. It was not unusual for ampyogis, for most of the first several classes, to lag in following the movements directed by the teacher; it takes time to figure out how to position the body, where to place the prosthetic, and where to connect the prosthetic to the mat to avoid slipping and falling. The first time, the ampyogi experiences a lot of anxiety about "doing it right" and angst about falling. After a few times, the ampyogi feels more comfortable with the possibility of falling, even though no ampyogi participant noted having ever fallen. The transformative change experienced by the ampyogi was a result of intention and practice (Haines, 1999). A result of continued practice is greater comfort for ampyogis not moving at the same pace as other yogis in the room because some transitions from one asana to another take longer to negotiate with a prosthetic or prop. Over time, with increased fitness, flexibility, and, in some cases, modifications, the ampyogi feels satisfied with his or her pace in class.

When asked about the last (most recent) time he or she attended yoga, each ampyogi stated with conviction that the experience was enjoyable; the participants felt invigorated, with a strong core, and with confidence that was not present preyoga. Their responses focused less attention on what other yogis were doing in the room and more on how the ampyogis were feeling in their own poses.

Between the first time and the last time practicing yoga, ampyogis practiced with conscious attention and intention toward a goal. The distinction between the two times was noticeable. The first experience was marked by anxiety, whereas ampyogi participants experienced the last with ease generated through positive, repetitive action. Bandura and Schunk (1981) stipulated the importance of goals and how the impact of achieving those goals is influenced by how far into the future goals are projected through a cognitive process. Participants who projected mind and body into the future set a goal of a healthy mind and/or a fit body. To realize the healthy mind and fit body requires a certain degree of tenacity, resilience, self-confidence, and self-esteem. Bandura (1977, 1981, 1982, 2010) termed these requirements as *efficacy expectations*.

Typically, the amputee selected a calm mind or fit body as the initial goal when considering yoga. Ultimately, however, the ampyogi came to appreciate the interconnection between mind and body realized in yoga. For instance, one might start a yoga practice with the goal of calming the mind, and shortly thereafter, become convinced that a fit body helps calm the mind, thereby altering the goal to include both calm mind and enhanced fitness of the body. According to Bandura (1977), once individuals recognize that successful events are connected, the interconnection of the mind and body is more emphasized than prior to that realization. Once the interconnection of mind and body becomes a cognitive process for

the amputee, the amputee begins to embody an increased degree of volition to practice yoga in order to produce the expected outcome that leads to feelings of satisfaction with the body and the mind. This volition increase produces a strong commitment by the amputee to prioritize behavior and action.

Efficacy Expectations

Efficacy expectations are distinct from response-outcome expectancies (Bandura, 1977). Outcome expectancies, such as a level of fitness or graceful movement, manifest as a result of a certain behavior or practice. Efficacy expectations are characterized by a certain volition and commitment of the amputee to expect success in realizing the desired change through behavior to produce a fit mind and body. As the amputee perceives the desired changes in his or her level of physical fitness, capacity for and agility of self-efficacy increase. Once the ampyogi achieves his or her outcome expectations, self-efficacy expectations contribute positively to coping strategies. The stronger the amputee's perceived self-efficacy, the more success the amputee has in facing obstacles and challenges presented along the path toward outcome expectations.

The findings illustrate participants' desires for certain outcome expectations, of a fit mind and body—which requires a certain action to realize. Yet, none of the amputees could take the action of beginning yoga practice in a community studio without the support of a friend, ally, or adaptive setting. Participants thought about a course of action yet could not visualize how to begin without such a support mechanism. Fears of being seen, rejected, and/or humiliated overrode the desire to reach an outcome expectation. Figure 3 illustrates the flow of the amputee's efficacy needs, the requirement of community or peer support in

taking the initial action to practice yoga, and realization of an outcome that leads to satisfactory conditions of a fit mind and body.

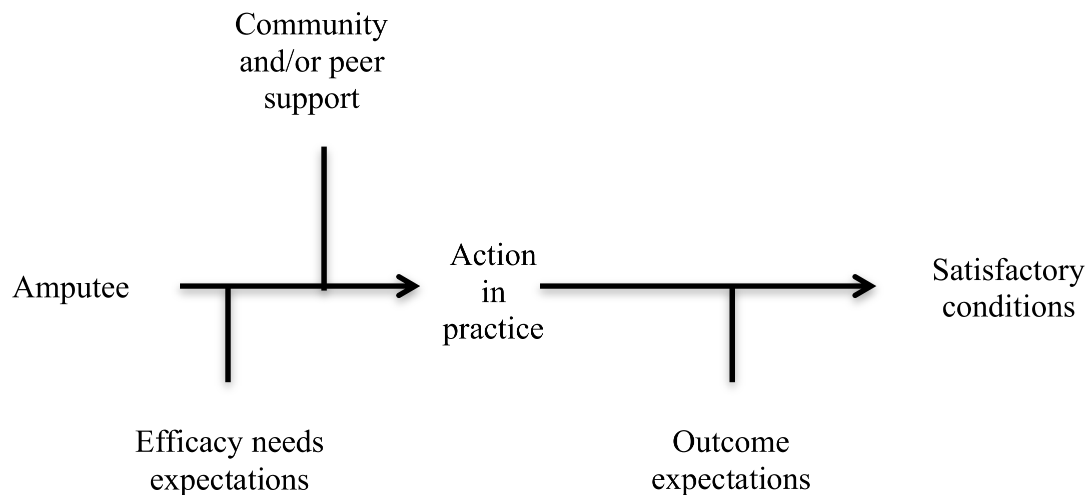

Figure 3. Diagram of efficacy and outcome expectations with community or peer support, drawing on material from Bandura (1977).

One source of self-efficacy is performance accomplishments (Bandura, 1977), which are characterized by the participants' being in the practice, accepting and appreciating their bodies, repetitive practice, and positive self-talk during practice. Yoga enhances one's self-perception, self-acceptance, and self-appreciation of the body as one moves through asanas and transitions on the mat, and these practices are transferable to off-the-mat living. The decision to try a new asana may be accompanied by self-talk that illustrates internal fear (e.g., going into a headstand)—knowing one's body is going into the inversion (accepting what may come, e.g., going upside down or falling), followed by the voice that says, "I did it!"

Verbal persuasion is another source that fuels increased capacity for self-efficacy (Bandura, 1977, 1993). A friend, relative, or other support person (i.e., yogi friend)

introduced the participants to yoga, and the preferred method of practice was to attend yoga with like-bodied people. Yoga participants at the conference experienced verbal persuasion to show up to class, as did the research participants. Once in the room, the participants needed emotional arousal, another source of self-efficacy, to return to yoga and develop a repetitive practice. Research participants felt supported by their teachers and returned to practice in part because of their teachers' verbal support.

The role of the teacher was instrumental in generating expanded self-efficacy for participants through continued verbal support, appropriate challenging, and nudging the ampyogi to attempt advanced practices. In my experience, the amputee yoga classes at the Amputee Coalition™ (2013) conferences expand in attendance each subsequent day. On the first day of class, usually about 15 people show up, but then attendees say good things about the class and bring friends the second day. By the third day, the room is at capacity, with 35 to 40 people, and new attendees admit that they waited to hear about the class before showing up. Often, the room is packed wall-to-wall with unique bodies on each mat, some with arms and legs off, and some with them on. The vicarious experiences modeled by attendees generate ongoing interest in the classes. New attendees have said that they heard about the class, saw attendees demonstrating yoga poses, and remarked on how their bodies felt different after yoga. Many of the amputee-conference yoga attendees needed to hear about the class first, understand the benefits, and start to realize that they could do yoga with or without a prosthetic before showing up for the class. Vicarious experiences and witnessing other ampyogis doing yoga without being hurt or threatened is another source of self-efficacy (Bandura, 1977).

According to Bandura (1993), people use the mechanism of personal agency to contribute causally to their own outcome expectations. Core to success of expectation outcomes is the participant's belief in one's own capabilities to exercise control and take effective action to realize desired success. The study participants needed a certain familiarity with what yoga is and how to be in a yoga room prior to venturing out solo. The participants often heard about yoga and knew that they would need a mat, yet did not really understand what was involved until their first class. As the ampyogis became more familiar with yoga, and realized efficacy and outcome expectations, they adapted more readily yoga into their mainstream physical exercise or took on a regular, multiple-times-per-week practice within a studio. Hence, the choice of yoga setting interconnects with perceived self-efficacy.

Self-efficacy becomes more positive and expansive as the ampyogi experiences yoga and movement with breath, thereby enhancing the life, the soma, of the ampyogi. The next section summarizes the integration of findings of this research with somatic literature and yoga research in terms of this study's implications for practice.

Implications for Practice

A scholar-practitioner links theory and practice. The knowledge gained from this research is valuable to amputees because it offers a practice that has positive implications for the rehabilitation and ongoing support for the amputee. Implications for further practice include (a) yoga teacher training that includes the amputee population, (b) yoga studios offering introductory yoga classes for amputees, (c) physical therapists including adaptive yoga for amputees, (d) videos for upper and lower extremity amputees that demonstrate how to start a yoga practice, and (e) increasing acceptance for all populations to increased somatic sensibility and, therefore, self-efficacy. Overall, based upon this research, yoga is a possible

intervention in rehabilitating individuals postamputation to increase flexibility, mobility, and enhance sense of self.

Critical Review of Methods

This research study began as a phenomenological study and, based upon participant interviews, shifted to a phenomenologically informed thematic analysis study. The rich descriptions of the participants came from the perspective of experiencing amputation after life-threatening illnesses. My story, of a congenital limb difference, comes from a different starting point, limb loss at birth. My intent was to do a thorough study of the amputee population and I believe that my story would cloud the results.

Summarizing critical comments about the methodology, (a) during the interviews, open-ended questions were used and participants shared valuable information. As part of the process of studying the transcripts, I found that I could have taken some comments to a second-level question; (b) one participant had a noisy environment that required the participant's constant attention. I believe the interview went well and, given a more managed environment, could have gone deeper into reflective oriented questions.

Study Limitations

The study had some limitations that merit address in further research. One limitation was the small number of participants. Given another 6 to 12 months to locate additional participants, the study would have been richer. The population of ampyogis is difficult to find and requires an ongoing snowball effect of continual networking to locate new participants. At the time of this study, yoga was a new practice for amputees. Over the next few years, the ampyogi population will increase. Another limitation is the male and female

sample, one male and four female participants. The inclusion of additional men would have provided possibilities for a male-female comparison.

The next version of this research needs to include resources of the Amputee Coalition™ (2013) and the approval of their IRB. The Amputee Coalition™ has access to the population of amputees and can, with its IRB's approval, be a valued resource in such research.

New Research

Since conducting the literature review for this study, new research substantiates that ongoing research for yoga and amputees is needed. Highsmith (2013) stated that,

> It would be remiss not to point out that the success of Yoga intervention in the management of the amputee population is also lacking. Maintaining sustained positions inclusive of balance and weight bearing offer[s] many challenges that the amputee may benefit from[;] however[,] some have expressed concern about the ability to perform them with their prosthesis. (p. 2)

Participants in this research started on the mat and then, when core was established, three of them were able to do standing asanas for balance. One participant was unable to stand for yoga as a result of a hip disarticulation. She was satisfied with sitting on the mat, and eventually certified as a yoga instructor. Another participant used a chair, sat on the mat, and used a wall for modifications. According to Highsmith (2013), balance on prosthetic was a concern for amputees. However, this research illustrates that yoga is adaptable for individual bodies. All of the ampyogis in this study worked with their own teachers to develop a yoga practice that was effective for their individual, unique bodies.

Summary and Conclusion

The findings of this research align with current somatic literature that focuses on somatics in action (Amann, 2003; Beaudoin, 1999; Haines, 1999; Strozzi-Heckler,

1984/1993, 1997, 2007, 2009). Somatics in action extends the somatic awareness, or mindfulness, into action that creates new possibilities as an outcome of new practices involving the body. Somatics in action characterized by seven steps, as illustrated in Figure 2; to learn a new way of being requires the body to move with attention to (a) an organizing principle, (b) somatic awareness, (c) attention to self, (d) somatic choice, (e) a strong degree of volition, (f) relevant action in practice, and (f) self-accountability as the agent of change. The self is the agent of change in this research and somatics is the change modality. Somatic learning is a change theory wherein the agent of change is the actor of the change. This research study demonstrates that yoga is a viable practice for amputees. Amputees can move through stigma, feel more normal, and become self-accepting of body and its strength and resilience through a yoga practice. Increased self-efficacy, with yoga, enables the amputee to be more balanced on the prosthetic(s), use positive language in a communicative process, and have a higher quality of independent living and mobility.

Strozzi-Heckler (personal communications, 2000-2010/ 2014) revealed six steps of somatic learning required for transformation: attention, awareness, choice, volition of commitment, action, and accountability. The steps grounded in this research include organizing principle and awareness before attention, and denote action as action in practice. The ampyogi participants were more effective in choice and new action in practice once they understood their organizing principle. I added *practice* to *action* because both are relevant to self-efficacy as detailed earlier in this chapter. This research began before Strozzi-Heckler (2014) published his new work and I had his permission to include the steps of transformative learning once I saw them in the thematic analysis.

Recommendations for Further Research

Moving forward, there are several opportunities for continuing research regarding amputees and yoga. This research study should be replicated with more participants, as discussed in the Study Limitations section. Other recommendations for future research include comparative studies of amputees' and nonamputees' first experiences with yoga and a comparative study could determine if there is a different experience with yoga for individuals born with limb difference versus individuals with amputations. The steps of transformative learning in general populations, other than amputees, is a viable methodology to research for transformative change. More in-depth research is needed on shifting organizing principles as an outcome of transformative change, investigating if the organizing principle changes to a new one, or remains fundamental within the amputee after practicing yoga and realizing the expected outcomes. A research study of yoga for combat-related amputees has significant potential value to rehabilitation practice as does study of yoga for trauma survivors and bystanders. Last, a study involving the steps of transformative learning with yoga for adolescents is interesting due to the shaping of their growth and development. Knowing what they organize around and consciously and unconsciously practice might provide positive self-generative behaviors and values.

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Appendix A: Research Participants Solicitation Letter

[Date]

Dear [amputee yogi],

I am doing a pilot study of experiences of individuals with one or more amputations and who practice or have practiced yoga and ask that you participate in a pilot study. This research will study how you experience yoga. You are being asked to participate in this study because of your amputation and experience with yoga.

All interviews will be done in person or on the telephone, audio recorded, and confidential. The interview may last 2 hours. All information will be held confidential, and you can end the interview at any time.

Before meeting, you will be asked to complete a pre-interview questionnaire to obtain background information about you and your situation. You will also be requested to sign an Informed Consent Letter addressing issues of coercion, confidentiality, and data storage.

In addition to contributing to research, participation in the study provides an opportunity to tell and document your story about yoga. Learning from your story may result in improved understanding about more effective ways to support other persons with amputations. You, and other participants, may also benefit from an increased self-awareness and understanding of your experience through the process of telling your story.

If you are interested in participating and meet the criteria, have further questions, or know someone else who might be interested in participating, please contact me at the phone number, email address, or mailing address below.

Thank you—

Deedee Myers
PhD Student, Fielding Graduate University
[address]
emyers@email.fielding.edu

Appendix B: Research Participants Solicitation Letter: Referral

[Date]

Dear [amputee yogi],

You have been nominated by ____________ to participate in a pilot study of experiences of individuals with one or more amputations and who practice or have practiced yoga and ask that you participate in a pilot study. This research will study your experience of yoga. You are being asked to participate in this study because of your amputation and experience with yoga.

All interviews will be done in person or on the telephone, audio recorded, and confidential. The interview may last 2 hours. All information will be held confidential, and you can end the interview at any time.

Before meeting, you will be asked to complete a pre-interview questionnaire to obtain background information about you and your situation. You will also be requested to sign an Informed Consent Letter addressing issues of coercion, confidentiality, and data storage.

In addition to contributing to research, participation in the study provides an opportunity to tell and document your story. Learning from your story may result in improved understanding about more effective ways to support other persons with amputations.

If you are interested in participating and meet the criteria, have further questions, or know someone else who might be interested in participating, please contact me at the phone number, email address, or mailing address below.

Thank you—

Deedee Myers
PhD Student, Fielding Graduate University
[address]
emyers@email.fielding.edu

Appendix C: Informed Consent Form

What is the Lived Experience of Yoga for Amputees?

You have been asked to participate in a research study conducted by Deedee Myers, a doctoral student in the School of Organization and Human Development at Fielding Graduate University, Santa Barbara, CA. Leonard Baca, PhD, supervises this study. This research involves the study of How Amputees Experience Yoga as a Recovery Practice and is part of Deedee's Fielding dissertation. You are being asked to participate in this study because you were referred by (insert name).

The study involves completing a Confidential Pre-Interview Questionnaire, which is attached, and an interview that will be taped, to be arranged at your convenience. This will last approximately 2 hours. The total time involved in participation will be approximately 3 hours.

The information you provide will be kept strictly confidential. The informed consent forms and other identifying information will be kept separate from the data. All written materials will be scanned and store in a password protected electronic file; the originals will be shredded after being scanned. The digital recordings will be password protected and listened to only by Deedee Myers, possibly a Confidential Research Assistant who has signed the attached Professional Assistance Confidentiality Agreement, and my Dissertation Chair, Leonard Baca, PhD. I will destroy any records that would identify you as a participant in this study, such as informed consent forms, approximately 5 years after the study is completed. You will be asked to provide a different name for any quotes that might be included in the final research report. The results of this research will be published in my dissertation and possibly in subsequent journals or books.

You may develop greater personal awareness and understanding of your experience of yoga as a result of your participation in this research. The risks to you are considered minimal; there is a small chance that you may experience some emotional discomfort during or after your participation. Should you experience such discomfort, please contact me for a list of therapists.

You may withdraw from this study at any time, either during or after your participation, without negative consequences. Should you withdraw, your data will be eliminated from the study and will be destroyed.

No compensation will be provided for participation. You may request a copy of the summary of the final results by indicating your interest at the end of this form.

If you have any questions about any aspect of this study or your involvement, please tell the Researcher before signing this form. You may also contact the supervising faculty if you have questions or concerns your participation in this study. The supervising faculty has provided contact information at the bottom of this form.

If you have questions or concerns about your rights as a research participant, contact the Fielding Graduate University IRB by email at irb@fielding.edu or by telephone at 805-898-4033.

Two copies of this informed consent form have been provided. Please sign both, indicating you have read, understood, and agree to participate in this research. Return one to the researcher and keep the other for your files. The Institutional Review Board of Fielding

Graduate University retains the right to access the signed informed consent forms and other study documents.

____
NAME OF PARTICIPANT (please print)

____
SIGNATURE OF PARTICIPANT

____
DATE

Leonard Baca, PhD
Fielding Graduate University
2112 Santa Barbara Street
Santa Barbara, CA 93105
805-687-1099

Deedee Myers, MA
[address & phone]

Yes, please send a summary of the study results to:

____
NAME (please print)

____
Street Address

____
City, State, Zip

Appendix D: Professional Assistance Confidentiality Agreement

Title of Research Project: What is the Lived Experience of Yoga for Amputees?

Name of Researcher and Affiliation:

Deedee Myers
PhD Student
Fielding Graduate University
2112 Santa Barbara Street
Santa Barbara, CA 93105 USA

I have agreed to assist Deedee Myers in her research study on "What is the Lived Experience of Amputees and Yoga" in the role of confidential Research Assistant, Transcriptionist, Second Reader, Co-investigator, or Advisor. I understand that all participants in this study have been assured that their responses will be kept confidential. I agree to maintain that confidentiality. I further agree that no materials will remain in my possession beyond the operation of this research project and I further agree that I will make no independent use of any of the research materials from this project.

Signature ___________________________ Date ___________________

Printed name _____________________________________

Title ____

Appendix E: Permission to Give Name and Address to Researcher

I, [name of potential participant], agree to allow [name of referring person] to give my name and contact information to Deedee Myers as a potential participant in her research study titled "What is the Lived Experience of Amputees and Yoga?"

I understand that Deedee Myers will contact me within 2 weeks to discuss her research, and to determine if it would be mutually beneficial for me to participate. At the time of this first contact, I may agree or disagree to participate in her research. I may also withdraw from being a participant at any time during the process.

My referring person will **not** be notified whether or not I choose to participate in this research. Once she/he gives this form to Deedee Myers, there will be no discussion of my participation in the research or any part of the interview between that person and Deedee Myers.

If I wish to contact Deedee Myers before she contacts me, I may do so at [phone number] or emyers@mail.fielding.edu. I will retain a copy of this form for my records.

Signed: [name] [date]

[phone number] [e-mail (optional)]

Appendix F: Confidential Pre-Interview Questionnaire

The purpose of this questionnaire is to collect background information about you and your experience of yoga. It is being given to you in advance of the interview to help you gather the facts comfortably and privately. We will review these responses during the interview and you can expand on any points in more detail. During the interview you also will have the opportunity to tell your story and talk about how you thought, felt, and acted at various stages of the yoga experience—your first experience with yoga, your most recent experience with yoga, what you are thinking about during yoga, your most poignant memory of yoga and your life outside of yoga.

Your participation is voluntary and you can end participation at any time. All information will be held confidential, except in cases where current abuse to a child or elder must be reported. No criminal activities, whether listed here or raised in the interview, will be reported.

Personal History

1. Name (First, Middle, Last):

2. Name or pseudonym you would like used to identify yourself in this study:

3. Mailing Address:

4. Telephone Number(s) (Including area code):

5. Fax (If applicable):

6. E-mail Address (If applicable):

7. Race/ethnicity

8. Age

9. Date of Birth

10. Where were you born?

11. Where did you grow up?

12. When did you move to your current location?

13. Highest level of education:

14. Current employment:

15. Marital/Partner Status (Married/Single/Divorced/Widow(er):

16. Children (Gender, Age):

17. How important is your faith or spiritual practice in your life?

18. Age at amputation:

Amputation Information

1. Location of amputation. Circle which apply and add comments as needed:

    a) Above knee (AK)
    b) Below knee (BK)
    c) Above-elbow (AE)
    d) Below elbow (BE)
    e) Contiguity (at a joint) location:

    Comments:

2. Limb(s) is/are affected by amputation. Circle which apply and add comments as needed:

    a) Partial Foot or Toe(s) (incl. Symes)
    b) Below Knee (incl. Rotationplasty)
    c) Above Knee (incl. Knee Disarticulation)
    d) Hip Disarticulation or Hemipelvectomy
    e) Bilateral Lower Limb Loss
    f) Partial Hand or Finger(s)
    g) Below Elbow (incl. Wrist Disarticulation)
    h) Above Elbow (incl. Elbow Disarticulation)
    i) Shoulder Disarticulation or Forequarter
    j) Bilateral Upper Limb Loss

    Comments: ____

3. Main reason for amputation. Circle which apply and add comments as needed:

    a) Vascular disease: ____

    b) Oncologic: ____

    c) Disease: ____

d) Trauma: ____

e) Limb difference: ____

f) Other: ____

4. What is your state of rehabilitation? Circle which apply and add comments as needed:

a) Postoperative phase
b) Preprosthetic phase
c) Preparatory prosthetic training phase
d) Definitive prosthetic training phase
e) Reintegration phase
f) Maintenance as needed

Comments:
____

5. Prosthesis wear. Circle which apply and add comments as needed.

a) Not wearing yet
b) Wear
c) Sometimes wear:
d) Do not have prosthetic:
e) Have a prosthetic and do not wear:
f) Other:
____

6. Do you have contractures? If yes, where are they are and when do they occur?

7. Residual-limb massage: Do you have massages? How often?

Yes: _______ Frequency: ______________

8. Do you have range of motion and stretching exercises you practice? If yes, how often?

____

____

9. What have been helpful practices for your recovery and rehabilitation?

____

____

10. What is most challenging for you as an amputee?

____

Yoga Practice

1. Did you have a yoga practice before amputation? Yes ___ No ____

2. If yes, why did you start a yoga practice?

3. If yes, how long were you practicing yoga before amputation?

4. If not, how long postamputation did you start your yoga practice?

5. Why did you start a yoga practice postamputation?

6. Do you use your prosthesis during yoga? Circle which apply and add comments as needed:

a) Not Use

b) Sometimes Use

c) Does not support my yoga practice:

d) N/A (do not use a prosthetic or other reason)

7. Frequency of yoga. Times per week: ______ Times per month: ________

8. Where do you practice yoga? Circle which apply and add comments as needed.

a) Home: ____

b) Studio: ____

c) Fitness Center: ____

d) Private Teacher: ____

e) Corporate/Community Setting: ________________________________

f) Other: ____

9. What is your preferred style of yoga? For example, Vinyasa, Hatha, Ashtanga, or a mix.

____

10. In addition to yoga, what are your other exercise practices and frequency?

____

____

Please return this questionnaire and the Informed Consent Form via e-mail or mail to:

Deedee Myers
[address]
emyers@mail.fielding.edu

Deedee Myers will contact you within 2 weeks of receiving this questionnaire to schedule the interview.

Appendix G: In-Depth Interview Protocol

Basis

The interview protocol is shaped by a blend of phenomenological and somatic protocols taught by Valerie Bentz, PhD, Fielding faculty member, phenomenological protocols taught by David Rehorick, PhD, former Fielding faculty, and informed by the work of Max van Manen (1984, 1990).

Rationale

The framework for questions is the use of o*pen-ended questions* as presented here serves as a guideline. Although the researcher may have direct questions in the background, they will not be asked of the participant. Open-ended questions will help elicit the participants' experiences they have had with yoga during the practice, preparing for the practice and after the practice.

Open-ended questions are intended to elicit responses encompassing the experience of yoga the first time, yoga as a practice, the felt sense of yoga, and how the yoga practice influence's the participant in other domains of life. Some participants may be able to articulate their life stories with little prodding; others may require some additional probing questions. However, most amputees I meet are open, extended, and ready to talk.

Probing questions are included as reminders to solicit and listen for, but not to specifically ask for, amplification of statements that may indicate presence of phenomena of particular interest or pertinence to this research. Some examples of situations that may invoke probing questions are

- Repetition of specific words, themes and expressions that may indicate change, increase or decrease in confidence, self-esteem, challenges, transformation, coping, resilience, or growth. Describe the experience during, pre or post yoga practice when these occur. Listen for opportunities for repetition of the theme or expression in other domains of the person's life.

- Critical event or turning point in experiencing yoga on the mat; listen for a particular moment or incident that provoked changed and was it externally or internally created? Elicit information, details, sensations, emotions and more to get at why this event is important.

- Story lines that reveal a sense of being on a "quest" for something that is manifested in the yoga practice. Ask for details about the origin of this quest, when it started, constancy of the goal and how it shows up.

- Listen for continuity in story line pre and post amputation; for example, did the sense of self-transform or was it more explicit post amputation?

- Coping skills and strategies on the mat to produce a meaningful yoga experience.

- Presentation of self and body and esteem. Listen and observe for congruence in language, mood, and actions.

During the interview, it may become apparent that some aspect of the interview process may be affecting the way the participant is responding to the questions. It may therefore become necessary to modify aspects of the interview to obtain more useful responses.

Process questions attempt to understand any impact or influence of the interview process on the participant's responses. These may include

- Time pressure. Does the participant have other things on their mind that may be affecting their ability to relax and provide complete information on various aspects of her story? Should the interview be rescheduled?

- Environmental concerns. Is the room quiet, comfortable in temperature? Should we relocate?

- Personal comfort. Does the participant need breaks, assistance to rest rooms, or snacks or drinks?

- Demonstration: Does participant want to demonstrate a particular asana, or yoga posture, to accentuate their story?

- Modality. Would the participant prefer to write out responses to some questions in private, perhaps with more time to reflect?

Process

During the interview, keep the primary research question in mind: What are the lived outcomes of individuals and amputees who practice yoga?

Secondary questions, which add to the depth of understanding of this experience, may include

1. How do amputees describe the experience of yoga?

2. How do amputees describe the phenomenon of adapting their yoga practice to accommodate for their limb loss?

3. What is the phenomenon of the amputee experiencing a yoga class of fully limbed?

4. What new life quality or new story is possible after practicing yoga adapted for an amputated limb?

5. Is yoga a possible intervention in rehabilitating individuals postamputation to reduce pain, increase flexibility, and mobility in their bodies, and enhance their

sense of self?

- Start each section with a review of the corresponding Pre-Questionnaire responses, then delve further with additional open-ended and probing questions.

- Accept the story as given, do not read between the lines, refrain from analyzing the person's story aloud as I listen to it, allow the story to emerge, and use neutral clarifying questions, e.g., Can you say more about that," "What were your thoughts about...," "How did you think about...," "What else occurs to you about that," and "Does anything else about that come to mind...?"

- Be somatically attentive to what is too much for the participant.

- At the end of the interview, keep the recorders running for those last, often revealing, words that come out during the farewells.

Interview Protocol

Introductory Comments

- Your participation is voluntary and you can end participation at any time, with no consequences.

- All information will be held confidential, except in cases where current abuse to a child or elder must be reported.

- No criminal activities will be reported.

- If needed, referrals will be made for mental health services.

- Please take the time you need.

- I am here to listen. I won't interfere with your story.

- I may ask a few questions in the process.

- Talk about how you thought, felt, and acted.

- Tell me what happened.

A. Personal history

Review Prequestionnaire Section A Responses:

1. Describe your daily life (work, school, community, family, personal interests, friends).

B. Interview Questions:

1. Describe your earliest, or first, experience of yoga as an amputee.
2. Describe your most recent experience of yoga (as an amputee).
3. Describe your most poignant memory of yoga (as an amputee).
4. Describe your thoughts during yoga.
5. Describe what you notice about yourself during yoga.
6. Describe what you notice about others in yoga.
7. Describe your life outside of yoga.
8. What else would you want to share?

Possible Probing Questions

If an opening is presented, the following are sample probing questions:

1. What lead you to try yoga?
2. What was your mood of sense of self as you entered the yoga studio the first time?
3. Did you notice any sensation or mood shift in a particular asana (warmth, cooling, opening, tightening, fear, etc.)?
4. Were particular asanas more challenging than others?
5. Did you have a conversation with the instructor before the start of class?
6. How did you feel about the instructor's ability to integrate you in the class?
7. Can you say anything about your thoughts or feelings of other persons in the class who have four functioning limbs?
8. From what you remember, how you were different as a result of the first yoga experience?

9. What else occurs about your first experience with yoga?

10. Do you decide to set a particular intention for each yoga event?

11. Do you use props? If so, which ones? What do you notice about yourself when you use a prop?

12. What yoga sequence is your favorite? Share more about that . . . .

13. Do you feel more or less connected to others at the end of practice? Can you share anything about that connection?

14. Can you recall a time when a memory was evoked during your yoga practice? If so, what was the asana? Describe what you noticed during the asana and about the memory.

15. Can you share anything about your sense of self as you practice? (For example, what do you notice that is embodied and familiar to you? What is not familiar? What are you willing to share?)

16. What do you notice during your first down dog of the day and how you connect to the mat? (What is the felt experience as fingers, stump, feet, elbow touch the mat)?

17. What do you notice as your different limbs or stumps touch the mat? Is there a differentiation in each limb or stump touching the mat (use appropriate terminology and listen for the participant's willing to share)?

18. What relevance, if any, does yoga have on your overall life (personal care, relationships, work, overall quality of life, confidence, self-esteem, dignity, pain)?

19. What story about your body do you now have as a result of yoga?

20. How has yoga contributed to your recovery?

21. How has yoga changed your life, if at all?

22. If asked, what would you share with other amputees about yoga?