

More than the Physical: Running as a Spiritual Experience

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Abstract

Running is generally considered to be a form of health maintenance, understood in the context of a secular practice, yet personal testimonials and various studies may suggest a spiritual component. In this thesis, I investigate running as a form of spiritual experience.

Considering the current context of religion in the United States, with a small decline in traditional measures of religiosity yet with many people still finding religion to be important in their lives, this work looks toward new forms of engaging with and experiencing religion and spirituality. Throughout this thesis, I analyze larger themes such as the relationship between science and religion, finding that these two have many areas of overlap, and the relation of spirituality to secular practices, like sports. I also address the complex interaction between the mind and body, highlighting the importance of the physical action in altering mental states. Through the use of personal testimonials, discussions in popular culture, scholarly study, and an analysis of scientific studies, I argue that running can be described as a form of spiritual experience.

This investigation is rooted firmly in the metamodern context, which emphasizes the attempt of the Millennial generation to create space for the sacred in the secular. Analyzing running as a form of spiritual experience is one example of many new forms of religious and spiritual experience that can all be considered in the context of metamodernism.

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Introduction

It is a truism of the mid-20th century that religion would cease to exist with the progression of modernity and industrialization, yet the United States is one obvious example that undermines these hypotheses. Studies show that religion remains an important aspect of the majority of Americans' lives but they also evidence a decrease in traditional markers of religiosity, such as attendance at religious services.¹ How can we reconcile these two facts? If religion continues to be so important, what can explain the statistical decrease in religiosity? One answer to these questions is to consider that "religion" is constantly undergoing these processes of change such that "traditional" markers of religiosity are no longer representative of the current expressions of religion and spirituality.

Just as new forms of religion have emerged and developed over the centuries, this process is continuing today, with one important shift; studies of religion in the United States show a trend away from "religion" and towards "spirituality." This general, popularly ascribed change in terminology highlights important differences in both thinking about religion for the 21st century and finding new ways to experience the religious and/or spiritual. As Linda Ceriello has found, one of the central elements of these new experiences, part of a larger trend which she names "metamodernism," is that people are now interested in finding space for the sacred within the context of the secular.² This is where the use of the term "spiritual" fills in a gap. In light of these ideas, this thesis will investigate running as a form of spiritual experience. Running is

¹ Cary Funk and Greg Smith, "'Nones' on the Rise: One-in-Five Adults Have No Religious Affiliation," *Pew Research Center: Pew Forum on Religion and Public Life*, October 9, 2012, 17.

² Linda C. Ceriello, "Contemporary Narratives of the SBNR and Nones: Toward a Metamodern Reading of Millennial Mysticism," (working paper, presented at AAR Annual Meeting, Atlanta, GA, December 2015), 1.

generally considered to be a form of health maintenance, understood in the context of a secular practice, yet personal testimonials and various studies may suggest a spiritual component.

The terms “religion” and “spirituality” will be defined in detail in chapter two but I will use these two terms with specific connotations in mind for each. Namely, when I use the term “religious,” I want to emphasize the communal aspect of religious experience, whereas I will tend to use “spiritual” to indicate the individual experiential aspect. As discussed in chapter two, these designations resonate to some extent with colloquial use of these terms, even if there is a general overlap in the meanings of religion and spirituality.

This differentiation between religious and spiritual through notions of community versus individual experience resonates with the definitions of religion given by two separate founding figures within the field of religious studies. Emile Durkheim, a sociologist, defined religion as “a unified system of beliefs and practices relative to sacred things, that is to say things set apart and forbidden—beliefs and practices which unite into one single moral community called a Church, all those who adhere to them.”³ Durkheim was concerned primarily with how religion functioned in society, leading him to view religion as an important force in social cohesion. On the other hand, William James defined religion as the “feelings, acts, and experiences of individual men in their solitude, so far as they apprehend themselves to stand in relation to whatever they may consider the divine.”⁴ James focused on the variety of religious expressions, highlighting the importance of individual experience. Certainly I am here oversimplifying a more complex interaction between communal and individual aspects of religiosity, however for the sake of this heuristic study of running, presenting these distinctions in such stark terms, even

³ Emile Durkheim, *The Elementary Forms of Religious Life*, trans. Karen E. Fields (New York: The Free Press, 1995), 44.

⁴ William James, *The Varieties of Religious Experience: A Study in Human Nature* 2nd ed., (Mineola, NY: Dover Publications, 2002), 31.

at the risk of oversimplifying them, turns out to be useful. Although I will be separating the “religious” from the “spiritual” and thus the communal from the experiential, this does not mean that spiritual experience necessarily precludes community. While this investigation will primarily focus on running as an individual spiritual experience, running can also promote “religious” experience in terms of providing community.

Through the analysis of running as a spiritual practice, this thesis will address another truism of the 20th and 21st centuries, namely that religion and science are opposed and that they occupy different spheres of life. I will discuss the multiple layers of religion and science that play out for adherents of running and for those who study running, arguing that these two concepts do not occupy distinct spheres of life and that they do overlap in several areas, including healthcare. Moreover, this discussion will emphasize that these new distinctions between “religion” and “spirituality” allow for more interaction between the “religious” or “spiritual” and science. These connections open up an arena in which to view the effects of religious and spiritual practice from a scientific perspective in order to relate running to more traditional forms of practice.

Chapter one will introduce the main themes of this thesis. I begin with a discussion of the relationship between religion and science in which I highlight a complex interaction that negates the view that these two concern separate spheres of life, at least in terms of how both runners and people who study running think of what it means to run. Following this, I present the second main theme, the interaction between the mind and the body, highlighting a bidirectional relationship between the two. Studies of religious and spiritual experiences, including prayer and meditation, suggest a top-down causal relationship from mind to body. On the other hand, studies of running indicate a bottom-up relationship from body to mind, yet not

just in ways that indicate a mechanical or physicalist effect from running, but rather in ways that seem to produce an emotional, even spiritual, top-down causality, also arising through running. The last theme discussed in this chapter contextualizes this thesis within the current atmosphere of religion in the United States. I analyze studies which show a decline in traditional measures of religious commitment and the rise of new groups such as the “nones,” those who do not affiliate with a particular religious tradition, and the “spiritual but not religious,” arguing that these groups signal new ways of understanding and experiencing religion and spirituality. This is especially important in the context of running since running is historically understood as a secular, body-oriented practice and not a spiritual or religious practice. I discuss the distinction of “religious” and “spiritual” and the importance of this differentiation for this thesis in that it provides a new sphere of “spirituality” with more opportunity for overlap with science.

In chapter two, I review other approaches that have been taken to view running and sports as means for spiritual experience. I begin with a discussion of the spiritual side of running in personal testimonials published in popular culture sources and move through to a scholarly study of the spiritual elements in sports. I conclude this chapter by narrowing the field of sport to focus specifically on the scholarly analysis of the spiritual side of running.

Chapter three analyzes the connection between running and other forms of religious and spiritual experience from a scientific perspective. This chapter examines the psychological and physiological effects of religious and spiritual practices, which can be related to similar effects produced by running. Using neuroimaging studies and a discussion of biochemical processes, this section examines the complex interactions between the mind and body. This chapter concludes with a discussion of the similarities of religious and spiritual experience and running in terms of the psychological and physiological effects produced by each.

Through this investigation, I encourage an expansion of the traditional notions of religious and spiritual practice to incorporate new forms of expression. Embracing the metamodern roots of this thesis in the sense of finding the space for the sacred in the secular, I locate one of these new forms of expression in the act of running, analyzing the spiritual nature of this practice from a variety of different perspectives.

Chapter One: Main Themes

This chapter will examine some of the main themes of this investigation. I will begin with a discussion of the relationship between religion, spirituality, and science. Some theorists, including Richard Dawkins, a biologist from the UK, assert that religious and spiritual concerns are antithetical to science, arguing that the two cannot coexist.⁵ Dawkins states that religion is dangerous, or rather specifically fundamentalist religion, because it “actively debauches the scientific enterprise.”⁶ Dawkins is an atheist and a public persona critiquing the role of religion for contemporary society. Yet others, such as Stephen J. Gould, an American biologist, posit an alternative view of the relationship between religion and science. Gould suggests that they can and should coexist, as religion and spirituality inhabit a sphere distinctly separate from science.⁷

Arguments can be made for a variety of relationships between religion, spirituality, and science. Here for this thesis my goal is to offer a nuanced version of how science and religion interact, or rather very precisely to demonstrate that contemporary spiritual understandings of running derive from both science and religion to understand running as a practice. I argue for a sphere of overlap between the realms of the religious and spiritual and that of the scientific, which, by the way, does not preclude an antagonistic relationship. I will further this idea through the discussion of a second main theme, the interaction between the mind and the body. Probably the dominant scientific view of the interaction between body and mind is strictly bottom-up causality. However, much inquiry also suggests a downward causal relationship from the mind to the body. Through this thesis, I will suggest a complex interaction between the two, with each having the capacity to elicit change in the other. The final theme of this thesis contextualizes this

⁵ Richard Dawkins, *The God Delusion*, (Houghton Mifflin Company: Boston, 2006).

⁶ Ibid., 284.

⁷ Stephen Jay Gould, “Nonoverlapping Magisteria,” *Natural History* 106, no. 2 (1997): 16-22.

investigation in contemporary trends in religion and spirituality, locating this work within what Linda Ceriello describes as a “metamodern” framework.⁸ Religion in the United States shows a significant trend away from using the term “religious” and toward notions of spirituality, visible through the shift of individual classifications away from traditional denominational choices and in favor of not affiliating or considering oneself to be “spiritual but not religious.” The new direction of religion and spirituality in the United States demonstrates the impact of science on religious belief and provides more opportunity for overlap with science. These themes collectively root this study in the midst of contemporary trends in religion and spirituality and offer another perspective from which to view religion and science. This thesis will argue for an expanded notion of the means through which to experience the spiritual, focusing primarily on running as one form of spiritual experience.

Scientific and religious thought have a long and complicated history. The literature written on this subject evidences that arguments can be made for many different relationships between the two, including one of the more popular ideas which regards the two as separate spheres of life. This particular stance, which one finds as early as Augustine’s use of the relevance and neutrality principles, has been in the making for centuries and has garnered support from many important thinkers, including centuries-old figures, such as Galileo, and contemporary intellectuals, as exemplified by Stephen Gould. In terms of Galileo’s advocacy for religion and science inhabiting two separate spheres, this played out in the controversy around his work supporting Copernicus’ heliocentrism, a theory that placed the sun at the center of our solar system.

⁸ Ceriello, 1.

The Roman Catholic Church in the 16th and 17th centuries supported a geocentric model for our solar system, with the Earth at the center and the planets and sun revolving around the Earth. Aristotle was one of the first philosophers to consider the Earth to be the center of the universe.⁹ This geocentric model was incorporated centuries later into Church thought primarily through the writings of Thomas Aquinas, who used Ptolemy's models of planetary motion that supported the geocentric model. The Church incorporated these scientific models as European society at that time was very familiar with Aristotelian physics. Aristotle divided the cosmos into the realms of the heavens and the Earth and argued that stones "fell into place" because the Earth resided at the center of the universe and everything moved toward the center, conceptions which were supported by a geocentric model for the solar system.¹⁰ The situation of Earth at the center was especially important for Aquinas because it proved that the heavens were ordained by God to revolve around humans. There was some dissent over the years between Aristotle and Galileo with various figures supporting a heliocentric model of the solar system yet much of this dissent was dismissed. Copernicus was one of the first Western intellectuals to seriously consider the heliocentric model, yet he framed this theory as a purely hypothetical endeavor because he was afraid of being ridiculed by colleagues and of being excommunicated from the church.¹¹

Galileo, drawing from Copernicus' work, was an ardent supporter of the heliocentric model of our solar system. He published at risk of being excommunicated from the church and his work contradicted the widely accepted notion of a geocentric cosmos that persisted even amongst fellow astronomers. In his *Dialogue Concerning the Two Chief World Systems*,

⁹ Albert Van Helden and Elizabeth Burr, "Copernican System," *The Galileo Project*, last modified 1995, http://galileo.rice.edu/sci/theories/copernican_system.html.

¹⁰ Ibid.

¹¹ Ibid.

published in 1632, Galileo undermined Aristotle's geocentric model with support from his own telescopic discoveries. Due to the common notion that the heliocentric model was believed to contradict various passages in the Bible, Galileo interpreted a problematic section in Joshua to conform to his ideas. He argued that the Bible was written in the language of the common person who is not an expert in astronomy. He stated "the Bible tells us how to go to heaven, and not how the heavens go."¹² This centuries-old quote highlights the idea that religion and science occupy two separate spheres of life. While Galileo likely took this position as a way to reconcile his belief in the heliocentric organization of the cosmos with his belief in the Church, he highlights an important trend in attempting to reconcile the seemingly contradictory doctrines of the church and scientific thought. As a way to make room for advances in scientific thought, Galileo and others have attempted to separate religion from science, yet these spheres of life are not as separate as Galileo may have liked.

Stephen J. Gould, a contemporary paleontologist, evolutionary biologist, and science historian epitomizes the continuation of this trend in modern times. In response to the growing concerns that religion and science were altogether contradictory,¹³ he formulated a hypothesis in which he considered the two to be "nonoverlapping magisteria."¹⁴ Gould argues that there should be no conflict between science and religion because there is no overlap in their "domains of professional expertise."¹⁵ Science, he states, concerns the "empirical constitution of the universe" whereas religion revolves around the "search for proper ethical values and the spiritual

¹² Ibid.

¹³ Dawkins, 284.

¹⁴ Gould, 16.

¹⁵ Ibid.

meaning of our lives.”¹⁶ In other words, each sector “has a legitimate magisterium, or domain of teaching authority, . . . and these magesteria do not overlap.”¹⁷

In this investigation, I will complicate this hypothesis. While I agree with Gould that being a Christian or a member of a religious group does not necessarily preclude one from also believing in the principles of science and evolution, this is not because they have distinct concerns. There is more overlap in these fields than he is willing to concede. One prominent example in today’s society is the case of the Creationists, who believe that the Bible is true, word-for-word, offering a conception of the origins of the cosmos that contradicts the Big Bang Theory, which explains the origins of the cosmos with support from scientific analysis. While the origins of the cosmos do not necessarily fall under Galileo’s notion of the sphere of the religious concerning “how to get to heaven,” in some cases these origins are an important facet of belief, overlapping into the realm of the scientific, which discusses “how the heavens go” and how they have gone in the past. In any case, the boundary between the two spheres is ambiguous, without a distinct line separating two, thus allowing for overlap.

Another focus in this investigation is the idea of mind-body interaction. Early philosophical inquiry pondered the idea as to how the immaterial mind or soul could interact with the body.¹⁸ With a widespread philosophical repudiation of the idea of a soul and advances in the field of neurology, the contemporary rendition of this problem concerns the mind’s relationship with the body, the latter including the brain.¹⁹ Some philosophers have concluded

¹⁶ Ibid., 17.

¹⁷ Ibid., 19.

¹⁸ David Robb and John Heil, “Mental Causation,” *The Stanford Encyclopedia of Philosophy*, Last modified January 14, 2013, <http://plato.stanford.edu/entries/mental-causation/>.

¹⁹ Ibid.

that in terms of causality, the mind initiates a sequence of events in the body, which leads to physical change, such as movement or sensation.

The idea of downward causality from mind to body can be seen in studies of meditation. As will be discussed in chapter four, mindfulness meditation has been found to change morphology in certain brain regions,²⁰ as well as increase immune system function.²¹ These physical changes are effects of alterations of various mechanisms that began in the mind.

While there appears to be sufficient evidence for a downward causal chain from mind to body,²² I suggest that this is not a one-way street. The subjective experience of the runner's high is more than just a physical occurrence; running can be more than an activity to promote physical health; physical actions have the ability to induce change in the mind. As seen in studies of running and other forms of physical exercise, these activities can produce not only physical changes in brain morphology, but can also lead to euphoria, positive affect, and a decrease in depression and anxiety. Considering this, it seems as though the mind and body interact with each other in much more complicated ways than a simple causal link, upward or downward, as physical action can effect change in the mind and vice versa. Chapter four will examine the interaction between mind and body, analyzing top-down mental causation in studies of meditation and the opposite relationship in studies of running.

There is a link between ideas regarding the mind and body in both sports and meditation and the interest in redefining what it means to be religious or spiritual. This connection is

²⁰ Omar Singleton et al., "Change in Brainstem Gray Matter Concentration Following a Mindfulness-Based Intervention is Correlated with Improvement in Psychological Well-Being," *Frontiers in Human Neuroscience* 8, article 33 (2014): 33-40.

²¹ Richard J. Davidson et al., "Alterations in Brain and Immune Function Produced by Mindfulness Meditation," *Psychosomatic Medicine* 65, no. 4 (2003): 564-570.

²² Carol D. Ryff, Burton H. Singer, and Gayle Dienberg Love, "Positive Health: Connecting Well-Being with Biology," *Philosophical Transactions of the Royal Society of London-Biological Sciences* 359, no. 1449 (2004): 1385.

especially visible in the rise of the “nones,” a title that refers “to people who answer a survey question about their religion by saying they have no religion, no particular religion, no religious preference, or the like.”²³ The rise of the “nones” and the increasing importance of mind-body interactions and felt experiences may be due in part to the influence of science, an area of life which has sometimes been found to be in opposition to religion, as discussed above, encouraging people to explore new ways of connecting with the spiritual while avoiding tension with science. The third central theme roots this inquiry in contemporary trends in religion and spirituality. The United States offers an interesting context for religion, as there are people constantly advocating in favor of religious freedom yet there exists a strong background in Christian traditions. As people have immigrated to the country, these Christian roots and ideals of religious freedom have been stretched by an increasing number of diverse beliefs and practices. Despite this diversity, the United States continues to highly emphasize religion, yet there is evidence of a slight decline in religious commitment.²⁴ Between 2003 and 2012, the number of U.S. adults indicating that they seldom or never attended religious services increased from 25% to 29%.²⁵ In addition, the percentage of Americans who declare that they have never doubted God’s existence has decreased from 88% to 80% between 1987 and 2012.²⁶ The decrease in overall religiosity may be signaled by the willingness of those who aren’t particularly religious to be increasingly comfortable describing themselves as “atheist, agnostic, or nothing in particular.”²⁷

Many scholars in the 20th and early 21st centuries were advocates of the secularization hypothesis, proposing that as societies progressed, religion would become increasingly less

²³ Funk, 7.

²⁴ Ibid., 17.

²⁵ Ibid.

²⁶ Ibid., 18.

²⁷ Ibid., 19.

important until it faded from social life. However, this has not happened and there are there no indications that this will happen. There have been various religious revivals throughout the world and belief in God in the United States remains high, with only a 3% decrease from 92% to 89% in the last seven years.²⁸ Moreover, the large majority of Americans consider religion to be important in their lives, with only a small decrease in that number over the last seven years.²⁹ The statistics above may signal a decline, yet this change does not seem to indicate a sweeping revolution of leaving behind religion altogether. Religion remains to be an important factor in the every day life of most Americans but “religion” itself is changing drastically.

The current religious landscape of the United States consists of a diversity of professed beliefs and practices yet also includes a steadily increasing number of those who fail to claim belonging to any single tradition. The “nones” are considered to be the fastest growing “religious group” in the nation; in 2014, the number of religiously unaffiliated individuals rose to 22.8% of the total population of the United States.³⁰ Jeffrey Kripal refers to this trend as the movement towards the “religion of no religion,”³¹ whereas Robert Wuthnow describes the United States as a nation of “seekers” of spiritual experience rather than “dwellers” in a set religious affiliation.³² Kripal’s use of the phrase “religion of no religion” refers to the embrace of no single religious tradition, but a broader sense of spirituality, repudiating standard forms of

²⁸ Alan Cooperman, Gregory A. Smith, and Stefan S. Cornibert, “U.S. Public Becoming Less Religious: Modest Drop in Overall Rates of Belief and Practice, but Religiously Affiliated Americans Are as Observant as Before,” *Pew Research Center*, Nov. 3, 2015.

²⁹ Ibid.

³⁰ Greg Smith et. al., “American Changing Religious Landscape: Christians Decline Sharply as Share of Population; Unaffiliated and Other Faiths Continue to Grow,” *Pew Research Center*, May 12, 2015, 3.

³¹ Jeffrey J. Kripal, *Esalen: American and the Religion of No Religion* (Chicago: University of Chicago, 2008).

³² Robert Wuthnow, *After Heaven: Spirituality in America since the 1950s* (Berkeley and Los Angeles: University of California Press, 1998).

religious expression. This classification encompasses some “nones,” as this group is characterized by their choice not to affiliate with any particular religion. However, this does not necessarily mean that the “nones” do not have religion, as many “nones” practice and believe in a variety of religious and spiritual traditions. Moreover, some “nones” do not consider themselves to be religious or spiritual in any way, thus excluding them from Kripal’s sense of the movement towards the “religion of no religion.” Another group, the “spiritual but not religious,” discussed in the following paragraphs, differs from the nones in that many of those who consider themselves to be a part of this group affiliate with a particular religious tradition.

A closer look at this growing population of “nones” reveals that they are “less religious than the public at large on many conventional measures, including the frequency of attendance at religious services and the degree of importance they attach to religion in their lives.”³³ However, many members of this group have been found to be “religious or spiritual in some way.”³⁴ This includes 68% professing a belief in God, 58% stating that they feel a “deep connection with nature and the earth,” 37% labeling themselves as “spiritual but not religious,” and 21% stating that they pray every day.³⁵ In general, the “nones” consider religious organizations to be “too concerned with money and power, too focused on rules, and too involved in politics.”³⁶

Various factors are believed to have played a role in the growth of the religiously unaffiliated. Generational replacement is thought to be a major factor in the rise of the “nones.”³⁷ Among the youngest of the Millennials (born between 1990-1994), 34% are religiously unaffiliated in comparison to 9% of the Silent Generation (born between 1928-1945)

³³ Funk, 9.

³⁴ Ibid.

³⁵ Ibid., 9-10.

³⁶ Ibid., 10.

³⁷ Ibid., 16.

and 5% of the World War II-era Greatest Generation (born between 1913-1927).³⁸ However, this does not explain all of the growth as certain generations have become increasingly unaffiliated over the last couple of years, including the Gen Xers (born between 1965-1980) and the Baby Boomers (born between 1946-1964). Between 2007-2012, the percentage of Gen Xers and Baby Boomers who claimed to be religiously unaffiliated increased by 3% from 18% to 21% and 12% to 15% respectively.³⁹

Of utmost importance in this movement away from institutional religion is the perception of this change through the lens of other Americans who see this process as either a “severe crisis or a burgeoning spiritual revolution.”⁴⁰ The “nones” comprise a broad category of people who profess a multiplicity of different beliefs and employ different rationales. While groups such as atheists and agnostics have been around for some time, one phenomenon that has come under the spotlight with the rise of the “nones” is the group of people claiming to be “spiritual but not religious,” comprised of both people who choose to affiliate with a religious group and those who do not.

Linda Ceriello discusses the “nones” and “spiritual but not religious” as two groups which “represent a new means of engaging with mysticisms through what may be described as a metamodernist sensibility.”⁴¹ The “metamodern sensibility” is characterized by “a polymorphic pluralism” with the bifurcation of are/are not meaning less in terms of identity formation and classification, the increasingly fluid and public construction of identity, the encounter of “mystical and spiritual phenomena in secular settings,” and an active engagement with other

³⁸ Ibid.

³⁹ Ibid.

⁴⁰ Linda A. Mercadante, *Belief without Borders: Inside the Minds of the Spiritual but not Religious* (New York: Oxford University Press, 2014), 2.

⁴¹ Ceriello, 1.

beliefs, world views and “mystical realities.”⁴² Metamodern spirituality emphasizes one’s “felt experiences of the truths, or meanings, available . . . through all the epistemes.”⁴³ These ideologies are helpful in this investigation because they provide a way to examine sports as an avenue for religious and spiritual experience. In this sense, polymorphic pluralism, which is about the embrace of multiple forms of religious and spiritual experience, is applicable to the use of sports out of context in the arena of spirituality. This analysis of sports as a means for spiritual experience stems from the incorporation of scientific ideas of the mind and body. These ideas will be fleshed out through the utilization of neuroimaging studies and analyses of biochemistry.

Ceriello discusses metamodernism as a possible successor to postmodernism with the ability to “account for shifting levels of normativity around mysticism in contemporary culture and . . . expose a new dimension of the choice to identify as “SBNR” or “None”.”⁴⁴ She describes this new dimension of choice as a “means of constructing spaces of liminality analogous to the mystical encounter itself, which mirror contemporary individuals’ felt experiences: of being in between, of being neither this nor that, and . . . a sense of being both . . . secular and spiritual.”⁴⁵ In other words, she has found that the Millennial generation has generated an atmosphere in which the “sacred finds belonging in the secular.”⁴⁶ This thesis examines the sacred in the secular through the analysis of sports, primarily running, as a means of spiritual experience.

⁴² Ibid., 3.

⁴³ Ibid., 5.

⁴⁴ Ibid., 1.

⁴⁵ Ibid.

⁴⁶ Ibid., 6.

While relatively little research exists regarding the beliefs of the “spiritual but not religious,” this trend of differentiation between “spiritual” and “religious” highlights a relatively common modern-day conception.⁴⁷ In many cases, the terms “spirituality” and “religion” are used interchangeably. However, as evident by the designation of “spiritual but not religious,” in addition to those who state that they are “spiritual and religious,” there are others who find this distinction to be pertinent. Despite its importance, this separation is difficult to define. What is considered to be “spirituality” today has some resonance with the historical idea of piety which “referred to both one’s particular type of spiritual practices and . . . to the vitality of one’s faith [that was in no way] . . . rigidly divorced from communal faith identity;”⁴⁸ spirituality was an essential aspect of religious practice.

Many modern-day conceptions surrounding spirituality are diverse and increasingly broad in scope. In the literature, many authors are reticent to give a definition of “spirituality.” As defined in the Merriam-Webster dictionary, spirituality refers to “the quality or state of being concerned with religion or religious matters: the quality or state of being spiritual.”⁴⁹ Spiritual, in turn, is defined as “relating to, consisting of, or affecting the spirit . . . or relating to sacred matters, . . . [or] concerned with religious values . . . or relating to supernatural beings or phenomena.”⁵⁰ Popular opinion asserts that spirituality is “hard to define, but important.”⁵¹ “Spirituality” has been used in diverse contexts to refer to “interest in angels, New Age interest

⁴⁷ Ibid., 5.

⁴⁸ Ibid.

⁴⁹ Merriam Webster Dictionary, “Spirituality,” Encyclopædia Britannica, accessed November 6, 2015.

⁵⁰ Merriam Webster Dictionary, “Spiritual,” Encyclopædia Britannica, accessed November 6, 2015.

⁵¹ Nancy Ammerman, “Spiritual But Not Religious? Beyond Binary Choices in the Study of Religion.” *Journal for the Scientific Study of Religion* 52, no. 2 (2013): 265.

in crystals and psychic readings, and evangelical or Pentecostal religious experiences.”⁵² In common conception, and as a way to distinguish this concept from “religion,” “spirituality” is often used “to refer to the interior life of faith.”⁵³ Some have found that it connotes “that area of belief or faith that actually energizes or motivates our ethical and public living.”⁵⁴ The “spiritual” often refers to the “invisible or deeper world of the “spirit”” as the area of knowledge which is “experiential and heart-felt,” allowing for the personalization of one’s spiritual quest.⁵⁵

In one study examining the meanings associated with the word “spiritual” through an analysis of context in which this term was used, researchers found that “spiritual” or “spirituality” was invoked across a broad range of situations, referring to a religious tradition, ethics, God, practices, mystery of occurrences, meaning in life, belief, transcendent connection, ritual, awe of transcendent wonder and beauty, and the sacredness of the individual.⁵⁶ Despite widespread connotations, the study found there to be three common trends within definitions of spirituality, namely “theistic, extra-theistic, and ethical [spirituality].”⁵⁷ In the analysis of running as a form of spiritual experience, this type of spiritual experience would fall under the realm of “extra-theistic” spirituality. As defined below, running promotes extra-theistic spirituality as it can provide a sense of community, a space for thinking about life’s “big questions,” and for finding meaning.

⁵² Brian J. Zinnbauer et al., “Religion and Spirituality: Unfuzzifying the Fuzzy,” *Journal for the Scientific Study of Religion* 36 no. 4 (1997): 550.

⁵³ Mercadante, 6.

⁵⁴ Chris Baker and Johathan Miles-Watson, “Faith and Traditional Capitals: Defining the Public Scope of Spiritual and Religious Capital—A Literature Review,” *Implicit Religion* 13, no. 1 (2010): 17-69.

⁵⁵ Mercadante, 6.

⁵⁶ *Ibid.*, 263-264.

⁵⁷ *Ibid.*, 266.

“Theistic” spirituality draws on “the institutional beliefs, practices, and experiences that are fostered in the United States, primarily within the organizations associated with Christian traditions,” using spirituality as a way to name the “presence and actions of a personal god:” the gods and goddesses embody the meaning of spirituality.⁵⁸ This type of spirituality was accompanied by the “openness to seeing a miraculous dimension in life.”⁵⁹ “Extra-theistic” spirituality focuses on “a different kind of transcendence, of experiences . . . beyond the ordinary,” with spirituality located “in the core of the self, in connection to community, in the sense of awe [of the natural world],” and in the individual’s search for meaning.⁶⁰ This spirituality can be linked with finding one’s own “spark of the divine.”⁶¹ As stated above, running promotes a type of spiritual experience that falls beneath this category of spirituality. Ethical spirituality is, for conceptual purposes, the underlying commonality between “theistic” and “extra-theistic” spirituality. Each of these types agrees that “real spirituality is about living a virtuous life, one characterized by helping others, [and] transcending one’s selfish interests to seek what is right.”⁶²

While “theistic” and “extra-theistic” spiritualities may have some overlap, where people locate this spirituality differs significantly in each group. Those engaged in a particular religious tradition linked affiliation with their sense of spirituality, whereas those who reject traditional religious institutions correlate belonging to these very institutions with an “absence of spiritual authenticity.”⁶³ Thus, the first group finds no conflict between “religion” and “spirituality” whereas the latter group finds a great amount of tension between these two concepts. This study

⁵⁸ Ibid.

⁵⁹ Ibid., 267.

⁶⁰ Ibid., 268.

⁶¹ Ibid., 270.

⁶² Ibid., 272.

⁶³ Ibid., 273.

argues that those stating they are “spiritual but not religious” are using the perceived tension between “spirituality” and “religion” to promote their perspective that organized religion is an oppressive power that deprives individuals of both personal and political freedom, further utilizing this distinction to “pit religious belief against reason.”⁶⁴ With many now finding a lack of authenticity in traditional religious experience and shifting towards “extra-theistic” spirituality, running may be one way in which people are exploring spiritual experience.

Another study regarding the popular distinction between “religiousness” and “spirituality” found the latter to be associated with a “connection or relationship with a Higher Power of some kind, belief or faith in a Higher Power of some kind, or integrating one’s values and beliefs with one’s behavior in daily life.”⁶⁵ While some of these elements were shared with conceptions of “religiousness,” ideas surrounding “spirituality” emphasized the personal qualities of connection or relationship with a Higher Power.⁶⁶ In some cases running may provide a means through which to connect with a Higher Power; however, this is not a necessary component of running, as others have found that it promotes spiritual experience in different ways that will be discussed further in chapter three.

Religion, on the other hand, is a relatively modern social construct in that the ideas referred to by the modern-day usage of the term “religion” were in other periods of time inseparable from cultural and national identity. In the last couple of centuries, “religion” has come to embody a diverse set of meanings, as seen by the two distinct definitions given by William James and Emile Durkheim in the introduction.⁶⁷ James focused more on the individual, experiential aspect of religious experience, whereas Durkheim was concerned with

⁶⁴ Ibid., 275.

⁶⁵ Zinnbauer, 557.

⁶⁶ Ibid.

⁶⁷ Refer to introduction, page 6.

how religion worked to unite communities. Mark C. Taylor captures the ambiguous nature and meanings attributed to the word “religion,” defining it as “an emergent, complex, adaptive network of symbols, myths, and rituals that, on the one hand, figures schemata of feeling, thinking, and acting in ways that lend life meaning and purpose and, on the other, disrupt, dislocate, and disfigure every stabilizing structure.”⁶⁸ These definitions evidence the historically broad scope of the term “religion” that has included both individual and institutional beliefs and activities.⁶⁹

The continuation of the broad scope of “religion” is encompassed by common conceptions of “religiousness” connoting ideas such as church attendance, to altruistic acts, to the performance of religious rituals.⁷⁰ However, as “spirituality” has become differentiated from “religion,” taking with it various aspects of “religiousness” that are visible in historical conceptions, “definitions of religiousness have become more narrow and less inclusive.”⁷¹ In contrast to the individual aspect of “spirituality,” religion has come to be more closely associated with formal structure, religious institutions, set and mandated theology, and rituals.⁷² Popular conceptions of “religiousness,” while sharing many aspects of spirituality, including belief in a higher power, focus on “organizational or institutional beliefs and practices.”⁷³ Moreover, “religion” has obtained a negative connotation as something that hinders personal experiences of the transcendent, an essential component of spirituality.⁷⁴

⁶⁸ Mark C. Taylor, *After God* (Chicago: University of Chicago Press, 2007), 12.

⁶⁹ Zinnbauer, 551.

⁷⁰ *Ibid.*, 550.

⁷¹ *Ibid.*, 551.

⁷² *Ibid.*

⁷³ *Ibid.*, 557.

⁷⁴ *Ibid.*, 551.

For purposes of the movement of the “spiritual but not religious,” the use of the word “religion” is often associated with “the necessary communal and/or organizational component [of faith].”⁷⁵ Moreover, many see religion as “the concrete and tangible actions and resources that faith groups contribute to civil society.”⁷⁶ The religious component is used to refer to the “mundane, material reality,” the “beliefs [and] dogmas” of a tradition, or the “institutional container—or hindrance—to [faith].”⁷⁷ This separation eliminates the religious baggage of “authorities, traditions, [and] institutional bonds” from the concept of “spirituality.”⁷⁸ While some argue that this separation may be more of a rhetorical device than a true differentiation, there is evidence to suggest that religiousness and spirituality describe different concepts.⁷⁹ This differentiation is useful as it allows space for running to be considered a spiritual practice, more focused on individual experience.

This separation between “religion” and “spirituality” is especially important as it creates a more flexible space in which “spirituality” and science can interact. While there may or may not be any antagonism between “religion” and science, the discussion of spirituality and science does not encounter the same obstacles that it does with religion. This shift in terminology from religious to spiritual opens up opportunity for crossover whereas religion is often times seen as entirely distinct from science, as seen with Galileo and Gould. This is evident in Ceriello’s description of the metamodernist sensibility, in which she states that Millennials engage “their secular technologies . . . in a manner that does not pit them against spirituality.”⁸⁰

⁷⁵ Mercadante, 5.

⁷⁶ Baker, 18.

⁷⁷ Mercadante, 6.

⁷⁸ Ibid.

⁷⁹ Zinnbauer, 561.

⁸⁰ Ceriello, 11.

These themes—the overlap of religion and/or spirituality and science, mind/body interaction, and contemporary religious and spiritual trends—will continue to be expanded upon throughout the rest of this thesis. Subsequent chapters will continue to develop these theories for each theme, providing a broader perspective from which to view individual religious and spiritual experience.

Chapter 2: The Spiritual in Sport

This chapter will explain other investigations of running as a form of spiritual experience. Spiritual undertones of running have been discussed in popular literature sources, as well as studied by scholars. This chapter will lay the groundwork for other analyses, rooting this investigation within a broader atmosphere of considering the spiritual in sport and providing a context from which to view running as a spiritual activity.

Keeping in mind Ceriello's discussion of the metamodernist incorporation of the sacred into the secular and contemporary movements which focus on individual spirituality, I will encourage an expansion of the traditional notions of religious and spiritual experience to consider running as one activity through which these experiences may be attained. This may sound absurd, as running is generally conceived of as a form of physical exercise, to maintain health, and in some cases it is considered to be an enjoyable leisure activity. However, many people seem to find something deeper in the act of running, as demonstrated by recent book and article publications focusing on the spiritual side of running. Titles such as *Running & Being: The Total Experience*, written by Dr. George Sheehan, and *Running the Spiritual Path: A Runner's Guide to Breathing, Meditating, and Exploring the Prayerful Dimension of the Sport*, written by Roger Joslin, focus on the experience of running beyond the physical. In an article from the Huffington Post, Michael Rossman, a Jesuit priest, argues that there is a spiritual side of running, as it offers hours of solitude and time to "think about some of the big questions in life."⁸¹ Another article from Runner's World discusses the "roads and trails as places of

⁸¹ Michael Rossmann, "The Spiritual Benefits of Running," *Huffington Post*, Oct. 30, 2011, http://www.huffingtonpost.com/michael-rossmann-sj/spiritual-benefits-running_b_1032685.html.

worship, where [runners] reflect, dream, and give thanks.”⁸² In this article, runners discuss their sense of the spiritual through running, a time for connecting with teammates, for self-reflection, and for tuning out the rest of the world.

Aside from the popularity of running and other types of physical exercise as forms of spiritual experience within popular culture, various scholars have taken to formally studying the spiritual nature of physical exercise. One of the more recent examples, bridging the gap between popular culture and scholarly study, comes from the New York Times belief columnist, Mark Oppenheimer in his piece “When Some Turn to Church, Others Go to CrossFit.”⁸³ CrossFit is a fitness program that is “broad, general, and inclusive,”⁸⁴ prescribing physical exercise that includes “constantly varied, high-intensity, functional movement”⁸⁵ in order to optimize physical ability in the ten fitness domains of “cardiovascular and respiratory endurance, stamina, strength, flexibility, power, speed, coordination, agility, balance, and accuracy.”⁸⁶ The goal of CrossFit is to enhance an individual’s abilities in all physical tasks.⁸⁷

Oppenheimer’s article discusses Harvard Divinity School’s interest in CrossFit as a space separate from a church that functions as a religious community, illuminating larger questions as to what constitutes “religion.” As stated by Oppenheimer, “in an increasingly secular America,

⁸² Marc Bloom, “Spiritual Movement: Running Isn’t a Religion, but it can Feel Like One. Here’s How to Enhance the Ritual.” *Runner’s World*, Sept. 10, 2006, <http://www.runnersworld.com/runners-stories/running-is-spiritual>.

⁸³ Mark Oppenheimer, “When Some Turn to Church, Others Go to CrossFit,” *New York Times*, November 27, 2015, <http://www.nytimes.com/2015/11/28/us/some-turn-to-church-others-to-crossfit.html>.

⁸⁴ “What is CrossFit?” CrossFit Inc., accessed Jan. 23, 2016, <http://www.crossfit.com/cf-info/what-crossfit.html>.

⁸⁵ Greg Glassman, “Understanding CrossFit,” *CrossFit Journal*, April 1, 2007, <http://journal.crossfit.com/2007/04/understanding-crossfit-by-greg.tpl>.

⁸⁶ Greg Glassman, “Foundations,” *CrossFit Journal*, April 1, 2002, <http://journal.crossfit.com/2002/04/foundations.tpl>.

⁸⁷ Glassman, “Foundations.”

all sorts of activities and subcultures provide meaning that in the past, at least as we imagine it, religious communities did.”⁸⁸ Members of the community highlight the family-feel of the community, using language similar to that used when people talk about their local synagogue or church. Greg Glassman, founder of the CrossFit franchise recently spoke about the worldwide community using religious language such as “sin” in a talk titled “CrossFit as Church?!” with a focus on the salvific nature of CrossFit, noting that it saves lives by combatting obesity. Students at Harvard Divinity School were surprised by the number of people who brought their children to the CrossFit box and the aura of remembrance that accompanies workouts performed in honor of fallen soldiers, both things that you would expect to see in a church. Moreover, one of the members of the box interviewed for the article discussed a culture that can produce the broader effects associated with churches.

Although Oppenheimer’s column incited controversy, these debates are not new as ideas of spiritual and/or religious undertones of physical exercise have been around for many years.⁸⁹ Michael Murphy and Rhea White co-wrote a book published over 35 years ago in which they argue “sport produces a range of metanormal events that approaches the richness of experience evoked by religious practice.”⁹⁰ The authors discuss a range of “extraordinary functioning in sport,” what they define to be “moments of illumination, out-of-body experiences, altered perceptions of time and space, exceptional feats of strength and endurance, [and] states of ecstasy.”⁹¹ Whereas Oppenheimer’s article discussed CrossFit as religion in the Durkheimian sense of the word, focusing on the social dimensions of religion, Murphy and White focus on the

⁸⁸ Oppenheimer.

⁸⁹ Refer to introduction, page 6, for situational distinction between “religious” and “spiritual.”

⁹⁰ Michael Murphy and Rhea A. White, *In the Zone: Transcendent Experience in Sports*, (New York: Penguin Books, 1978), ix.

⁹¹ *Ibid.*, 1.

subjective aspects of religious experience, echoing William James' notion of religion focused on individual experience. Here again we see our distinctions between religious and spiritual in one sense, and at the same time Oppenheimer's article about CrossFit demonstrates how the communal, thus the "religious" can be embedded within what is understood as a secular practice. In terms of Murphy's use of sport as a method for the "spiritual," for transcendence, he states that "sport has enormous power to sweep us beyond our ordinary sense of self, to evoke capacities that have generally been regarded as mystical, occult, or religious,"⁹² positing that similarities exist between religious and/or spiritual life and physical exercise or sport in both their "methods and states they evoke."⁹³ Murphy and White discuss sport as a manner by which people can "discover [spiritual] experiences their own way."⁹⁴ In this discussion, they argue that these spiritual experiences are available to all people, as evidenced by testimony not only from highly trained athletes but also those without natural athletic abilities.

According to the authors, a wide variety of experiences within sport speak to its ability to invoke a sense of the spiritual. Personal testimonials from many athletes who have felt something beyond mere play or exercise attest to the complex nature of physical exercise. Athletes report metanormal experiences ranging from "surges of speed and power to moments of mystery and awe, from ecstasy to peace, from instinctive right action to intimations of immortality, from detachment and freedom to a sense of unity with all things, from feeling of being "at home" to uncanny incidents when the body, as if weightless, tells the brain that it is floating or flying."⁹⁵ In some cases, these sensations arise in professional athletes at the peak of their physical performance. However, the experience of the spiritual in sport is not limited to

⁹² Ibid., 4.

⁹³ Ibid.

⁹⁴ Ibid., 5.

⁹⁵ Ibid., 9.

these individuals, as many accounts come from people far removed from pursuing professional athletics or peak performance.

As evidenced by the title, *In the Zone*, much of the work focuses on the psychological space occupied by individuals while in pursuit of various athletic endeavors. Although this “zone” is something achievable by the average person, professional athletes often have greater insight as they have more experience in this state of mind and the ability to achieve the highest levels of human performance. Pittsburgh Steelers defensive tackle Joe Greene described peak performance as feeling “beautiful. . . . You reach a peak in every part of your being. You reach an emotional high, a physical high . . . You have a great awareness of everything that is happening around you and of your part in the whole.”⁹⁶ While other experience within sport can elicit mystical or spiritual sensations, this description of peak performance evidences a psychologically elevated state, achieved through physical exercise, which may be considered spiritual. As seen in many religious communities, Greene here describes a sense of something larger than himself with an emphasis on his belonging in that entity.

One of the more interesting effects of physical exercise is a sense of well-being. While this feeling can occur with many types of sport, Psychiatrist Thaddeus Kostrubala describes it as something that came to him through running, an activity he originally began to improve his physical fitness. After running for a couple of months, he noticed not only an improvement in his physical fitness, but at the end of each run, he “had a sense of energy and kind of pleasure . . . It was a sense of well-being, a sense of energy. . . . [He] seemed to be more cheerful.”⁹⁷ Another runner and physician, George Sheehan, describes his running experience as partly promoting a

⁹⁶ Bob Oates Jr., *The Winner's Edge: What the All-Pros Say About Success*, (New York: Mayflower, 1980), 31-32.

⁹⁷ Thaddeus Kostrubala, *The Joy of Running*, (Philadelphia: Lippincott, 1976), 66.

joy for his physical capability and partly “for [his] soul.”⁹⁸ During his runs he sees himself “not as an individual but as part of the universe,”⁹⁹ giving a sense of connectedness that is a key component in building his sense of well-being. Yet another physician and athlete described one of his early ventures climbing, recalling the sense that “everything suddenly had more meaning.”¹⁰⁰ These sensations promoted by physical exercise go above and beyond simple physiological exhaustion or contentment with the completion of physical feats. William Glasser, a psychiatrist, studied various sensations, such as feelings of well-being, experienced by meditators, runners, and craftsmen; he concluded that these individuals had formed “positive addictions” to their respective activity. By “positive addictions,” Glasser refers to “a trancelike, transcendental mental state that accompanied the addictive exercise.”¹⁰¹ This state, he argued, is the same state “that the exercisers reach indirectly and that the meditators are trying to reach directly.”¹⁰² Belonging to some type of religious community, as will be discussed later, has been found to produce similar feelings of well-being and increased optimism. Furthermore, thoughts regarding the meaning of life mirror religious dialogue concerning fulfillment beyond mere physical, tangible reality.

Another sensation produced by sport is the feeling of floating, flying or weightlessness.¹⁰³ Long-distance runner Bill Emmerton, after running 600 miles, had a “light feeling, [he] felt as though [he were] going through space, treading on clouds.”¹⁰⁴ Marathon runner Ian Thompson states that he only has to “think of putting on [his] running shoes and the kinesthetic pleasure of

⁹⁸ George Sheehan, “Basics of Jogging,” *Runner’s World*, August 1977, 36.

⁹⁹ *Ibid.*

¹⁰⁰ Galen Rowell, *In the Throne Room of the Mountain Gods*, (San Francisco: Sierra Club Books, 1977), 69-70.

¹⁰¹ William Glasser, *Positive Addiction*, (New York: Harper and Row, 1976), 46.

¹⁰² *Ibid.*, 46-47.

¹⁰³ Murphy, 17.

¹⁰⁴ George Leonard, *The Ultimate Athlete*, (New York: Viking, 1975), 40.

floating starts to come over [him].”¹⁰⁵ According to Murphy and White, this experience of weightlessness can be categorized as spiritual as it resembles “mystical ecstasies in which the feeling of being outside oneself is a primary feature.”¹⁰⁶ After running 600 miles, it seems counterintuitive that Emmerton would feel light, yet his ability to psychologically detach himself from the physical pain, a practice used by mystics in meditation, could make this feeling possible.

As argued through *In the Zone*, other mystical sensations elicited by sport include peace, calm, stillness, detachment, freedom, ecstasy, power, control, being in the present, instinctive action and surrender, mystery and awe, feelings of immortality, and unity.¹⁰⁷ The authors posit that stillness is one example in sport with a direct connection to mystical pursuits. In their eyes, certain sports which “stretch the athlete to the limit and strip away the comforts of everyday life . . . may create a silence like that which mystics reach through withdrawal and contemplation” as these athletes must also temporarily extricate themselves from the world, pursuing only their sport in a form of “concentrated meditation.”¹⁰⁸ Marghanita Laski studied the circumstances under which individuals experienced feelings of ecstasy, finding that one was movement. The two most relevant forms of movement to the experience of ecstasy are “regular rhythmical movement such as walking [or] jogging along on a horse, . . . and swift movement, such as running [or] flying.”¹⁰⁹ These sensations represent feelings beyond what is expected of the physical experience from sport. White and Murphy go on to describe different kinds of “altered perception” that occur in sport which, they argue, resemble altered perceptions reported by

¹⁰⁵ Valerie Andrews, “The Joy of Jogging,” *New York* 10, no. 1 (1976): 61.

¹⁰⁶ Murphy, 17.

¹⁰⁷ *Ibid.*, 11, 14, 16, 18, 20, 22, 24, 27, 30, 31.

¹⁰⁸ *Ibid.*, 12.

¹⁰⁹ Marghanita Laski, *Ecstasy*, (Bloomington: University of Indiana Press, 1961), 198.

“yogis, Zen masters, and other contemplatives.”¹¹⁰ *In the Zone* examines a variety of emotions and sensations produced through religious and spiritual experience, finding that running produces many of these same feelings. Murphy and White argue that because running has been found to produce similar feelings, it may perform comparable religious or spiritual work.

In the Zone offers an interesting mix of testimonials from athletes who participate in a range of sports in addition to some theories as to why sport has the ability to produce spiritual experiences. One of the primary reasons for this, as given by the authors, is the “physical and mental demands of sport” which require that athletes “give up habits and responses that impede their performance [and] . . . acquire (or discover) another nature.”¹¹¹ Running specifically promotes a plethora of physical changes including “breaking down . . . fat, muscle, and capillaries so that the body can re-form itself for more efficient movement” which may include developing “miles of blood vessels,” changing the balance of hormones, and restructuring entire muscle groups.¹¹² Runners also change their attitudes towards fear and discomfort as they strive to push their bodies beyond their perceived physical limits.¹¹³ According to the authors, “particular attitudes [and] bodily structures” are stretched and altered, leading to a change of self, an experience similar to a religious awakening.¹¹⁴

Sport also requires sustained and focused attention. Attention is essential in some aspects of religious life and also applies to sport because, Murphy argues, sport has the ability to quiet the mind and encourage us to discover our true selves.¹¹⁵ The authors posit that this focused attention is important in that through sport “pain is consciously invited so that it might turn into

¹¹⁰ Murphy, 35.

¹¹¹ Ibid., 104.

¹¹² Ibid., 105.

¹¹³ Ibid.

¹¹⁴ Ibid., 106.

¹¹⁵ Ibid., 109.

strength and joy,” a task similar to that of religious contemplatives.¹¹⁶ In Zen Buddhism, monks often meditate for extended periods of time, as many as 16 hours a day, with pain and distraction arising often, yet these practices continue because of their ability to produce a sense knowledge, joy, and freedom.¹¹⁷ Psychiatrist Thaddeus Kostrubala likens “running itself to one of the major techniques of meditation, and sometimes prayer” in that “by means of repetition, the . . . touching of another state of consciousness . . . is achieved” and the “repetitive rhythm of slow long-distance running” promotes the same process.¹¹⁸ Running is an activity that can encourage both incorporation into a group and time for clearing the mind, for grounding, and for oneself. In a sense, running can fulfill the Durkheimian notion of religion by providing community and also the sense of religion as defined by James, encouraging individual spiritual experience.

Murphy and White also found that sport is practiced in a sacred time and space, with competitions that resemble “the cadenced life of ashrams and monasteries”¹¹⁹ or expeditions similar to religious pilgrimages: “the spatial and temporal boundedness of sport, by ordering and sublimating our energies and by closing off the world’s drudgery and confusion, can evoke our spiritual depths like a work of art or a monastic discipline.”¹²⁰ They argue that sport also encourages the development of intrapersonal and interpersonal integration, similar to religious life.¹²¹ Moreover, sport pushes the exploration of human limits as seen also in spiritual adventure, both growing out of the uniquely human desire to “express the richness of existence.”¹²²

¹¹⁶ Ibid., 128.

¹¹⁷ Ibid.

¹¹⁸ Kostrubala, 103.

¹¹⁹ Murphy, 107.

¹²⁰ Ibid.

¹²¹ Ibid., 112.

¹²² Ibid., 113.

While Murphy and White offer a discussion of the spiritual side of sport as a whole, Noora Ronkainen, a master's student in Sport and Exercise Psychology at the University of Jyväskylä in Finland, explored the spiritual side of running in particular. Ronkainen decided to study the spiritual dimension in endurance running as she had personal experience with running as something "much more . . . than an effective form of exercise or a competitive pursuit."¹²³ She describes her experience as something that made her "aware of [her] deeper thoughts, ideas and feelings, as well as the sensations and joys of movement in [her] body."¹²⁴ More importantly, while running she sensed herself and the beauty of her surroundings "in dimensions not accessible during everyday living."¹²⁵

After running for a couple of years, Ronkainen experimented with the idea of a structured training program, observing her heart rate and daily running practices to improve her performance. Through this experience, she became worried that the meaning of running as a whole would change too drastically. Furthermore, this period of time allowed her to realize that running had "opened up a way for [her] to experience the world more deeply, made [her] more aware of the miracles of everyday life and [her] body, and it had become [her] own safe space wherever [she] went."¹²⁶ Not only was running helpful in organizing her thoughts and refreshing her perspective on life, but running itself had intrinsic value. Running was her "experience of the world through bodily movement."¹²⁷ Ronkainen focuses specifically on the idea of running as an experience that allows for the ability to sense the presence of the Spirit.¹²⁸ Her runs were

¹²³ Noora Ronkainen, "That is Why I Gave in to Age My Competitive Ability but Not My Soul' –A Spiritual Journey in Endurance Running," (master's thesis, University of Jyväskylä, 2011), 3.

¹²⁴ Ibid., 6.

¹²⁵ Ibid., 7.

¹²⁶ Ibid., 8.

¹²⁷ Ibid.

¹²⁸ Ibid., 7.

important in that they were ordinary, mundane activities with the power to allow her to connect to herself, the world, and her Creator.¹²⁹

The sense of the spiritual in running became especially powerful for Ronkainen after her studies of theology, in particular the writings of Karl Rahner, who emphasized the mystical, spiritual experience in every day life.¹³⁰ For Rahner, “divine grace” was present in all facets of human existence.¹³¹ Rahner’s thought became an encouraging starting point from which to investigate the spiritual in the seemingly mundane act of running.

Much of Ronkainen’s interest also comes from the complex religious background of Finland. As with much of Europe, Finland experienced a rapid decrease in communal religious participation and yet studies have shown that on an individual level, many maintain religious beliefs: the belief in God, spirit or life force has not decreased in over 40 years.¹³² Considering the endurance of belief but with little traditional participation in religious activities, Ronkainen focused on sport and exercise as possible spiritual experiences. This aspect is also important in relating her study to the United States context. As discussed in the previous chapter, religion remains to be important in the lives of most Americans, yet attendance at church is decreasing and there seems to be new ways in which people are experiencing religion and spirituality.

While Ronkainen references various areas of sport psychology which focus on transcendent experiences, she specifically analyzes the sensation of the “runner’s high,” a phenomenon described as a “euphoric sensation, . . . usually unexpected, . . . in which the runner feels a heightened sense of wellbeing, enhanced appreciation of nature and transcendence of

¹²⁹ Ibid., 8.

¹³⁰ Ibid., 7.

¹³¹ Ibid.

¹³² Ibid., 9.

barriers of time and space.”¹³³ The “runner’s high” may be a key component in leading individuals to consider their experience to be a spiritual one. However, one study suggests that many ultramarathoners have never had this experience,¹³⁴ causing Ronkainen to shift her gaze to focus on an alternative hypothesis that the spiritual aspect of sport is essential in times of transition, especially from a competitive sport career into post-career athletics.¹³⁵ Although this last shift towards spirituality in times of transition strays from the ultimate goals of this investigation, Ronkainen offers interesting insight into the spiritual experience of running.

Moreover, whether or not many runners experience the sensation of the “runner’s high,” Ronkainen found that spirituality remains an important aspect of running. Through her analysis of a Finnish runner’s magazine, she found most discussion about the spiritual side of running to consist of a discovery of the broader purpose of both sport and life without emphasis on altered psychological states.¹³⁶ Running was often described as an experience that offered deeper connection to oneself, the world, nature, or the transcendent.¹³⁷ Other more explicitly religious language was used to describe running as the “purpose and gift of Creation” and as the “nurture of the soul.”¹³⁸ For individuals who wrote columns in the Finnish runner’s magazine, running consisted of a physical experience that promoted feelings of “freedom, authenticity, will, hope, creativity and faith.”¹³⁹ This may be in part, as stated by one runner, due to “the boredom of

¹³³ Michael L. Sachs and Gary W. Buffone, *Running as Therapy: An Integrated Approach*, (Lincoln, Nebraska: University of Nebraska Press, 1984), 274.

¹³⁴ Edmund O. Acevedo, David A. Dzewaltowski, Diane L. Gill, and John M. Noble, “Cognitive Orientations of Ultramarathoners,” *The Sport Psychologist* 6, no. 3 (1992): 242.

¹³⁵ Ronkainen, 31.

¹³⁶ *Ibid.*, 23.

¹³⁷ *Ibid.*

¹³⁸ *Ibid.*

¹³⁹ *Ibid.*

monotonous movement . . . [which acted as] a facilitator to free the mind and spirit.”¹⁴⁰ As opposed to an action, running was often referred to as a state of being.¹⁴¹ Many stories of runners’ experiences had similarities to modern-day religious experience, such as keeping these experiences private and the idea that running provided an alternative lifestyle.¹⁴² Some runners felt that running could not be adequately described by words, requiring personal experience in order to understand these sensations.¹⁴³

As presented above, running has been considered to be a spiritual practice through both sources in popular culture as well as scholarly analysis, each pointing to various aspects of running which liken it to other types of spiritual experience. Running in some cases fulfills the Durkheimian notion of religious experience, providing a sense of community. However, the sources above argue that the spiritual aspect of running comes through the experience of repetitive motion, a time for clearing the mind and providing space to think about oneself and the bigger questions in life. Although the idea of running is often considered to reside in the realm of the secular or “not religious,” this chapter evidences the possibility of a spiritual side of running. Furthermore, the consideration of the spiritual side of running firmly roots this thesis within the metamodern context, as it mirrors one of the defining characteristics of Ceriello’s metamodernism, to find the sacred within the secular.

With the rise of the “nones” and decrease in communal religious participation and in profession of belief in God across the United States, this country is in a position similar to that of Finland. This trend is even more prominent when acknowledging the complexity within the “nones” and the widespread self-identification of many members of this group to be spiritual,

¹⁴⁰ Ibid., 27.

¹⁴¹ Ibid., 24.

¹⁴² Ibid.

¹⁴³ Ibid., 27.

religious, or both. The persistence of the importance of religious and spiritual experience within American culture also begs the question as to how these experiences are now taking place. One option, as hypothesized by Ronkainen, may be in sports and physical exercise and as highlighted above, there are many reasons to consider this as a possibility.

Chapter 3: The Science of it All

Since the beginnings of the study of religion, various theories have been proposed as to why, as the American Academy of Religion website states, “we find religion everywhere we turn.”¹⁴⁴ As I noted earlier, William James, one of the discipline’s foundational thinkers and a psychologist in the late 19th and early 20th centuries, believed that religious experiences were important in that they connected people to a greater, fuller reality which was inaccessible through their other experiences with the world.¹⁴⁵ Emile Durkheim, a prominent sociologist and contemporary of James, saw religion as a socially constructed force, important in its ability to reinforce communal moral values and maintain social cohesion.¹⁴⁶ Many other sociologists suggest that religion functions to recreate and reinforce social hierarchies, social boundaries, and acceptable behavior.¹⁴⁷ Karl Marx, a famous philosopher and sociologist, argued that religion was the “opium of the people,” a repressive force, useful for maintaining social order and fostering inequality.¹⁴⁸ Other hypotheses posit that religion is a psychological coping mechanism for dealing with difficult situations. For example, in our global society, many people find themselves moving across the world and adapting to live in a foreign culture. In situations such as these, religion can be an important coping mechanism to deal with feelings of “foreignness and socioeconomic vulnerability.”¹⁴⁹

¹⁴⁴ Brad Herling, “Why Study Religion?” American Academy of Religion, last modified in 2004, <http://www.studyreligion.org/site/about.html>.

¹⁴⁵ James, 31.

¹⁴⁶ Durkheim, 44.

¹⁴⁷ Craig Martin, *A Critical Introduction to the Study of Religion*, (New York: Routledge, 2014), 98.

¹⁴⁸ Karl Marx, *Critique of Hegel’s Philosophy of the Right*, trans. Joseph O’Malley, transcribed Andy Blunden (Oxford: Oxford University Press, 1970), 3.

¹⁴⁹ Raza A. Mir, “Religion as a Coping Mechanism for Global Labor: Lessons from the South Asian Shia Diaspora in the US,” *Equality, Diversity, and Inclusion: An International Journal* 32, no. 3 (2013): 334.

While all of these theories have their place in analyzing religion, none can fully encompass all that religion is to those who take part, nor can it be credibly claimed of any of these theories to finally be capable of reducing religion to any one thing. However, it is important to examine the place of religion in various contexts and the factors that could influence an individual's decision to practice a certain religion or hold specific beliefs. As there exists an array of theories discussing the function and the reason for the continued presence of religion, it must have a variety functions on both societal and individual levels.

As I pointed out in the second chapter, contemporary research has shown a correlation between religion and spirituality and increased physical and mental health, providing yet another reason for the existence of religion, namely as a form of health maintenance. In this chapter I will provide detailed evidence from scientific studies to examine these links.

For instance, recent studies have found religious activities, such as prayer, to be important in dealing with depression, among other things.¹⁵⁰ Considering the many functions of religion, the relationship between religion and improved physical and mental health is not a way to explain away religion, but an interesting aspect of religious and spiritual experience.

In terms of this theoretical investigation, the relationship between religion and health provides one connection between running and other forms of physical exercise and religion or spirituality. The relationship between physical activity and well-being has been thoroughly studied from a variety of perspectives regarding effects on cardiac health, lung health, longevity, obesity, brain capacity, and mental health, among many other things. It is widely accepted that physical exercise has many positive effects on health, yet the relationship between religion and

¹⁵⁰ Amy B. Wachholtz and Usha Sambamthoori, "National Trends in Prayer Use as a Coping Mechanism for Depression: Changes from 2002-2007," *Journal of Religion and Health* 52, no. 4 (2013): 1366.

health is less well known and has only recently become an area of interest within the scientific community. By analyzing the relationship between religious and spiritual activities and health, I hope to also draw connections between running and religious and spiritual experience.

Moreover, this connection between running and religion and spirituality highlights Ceriello's description of the metamodern trend of finding space for the sacred within the secular. I am including religion and spirituality here together, but keep in mind the distinctions that I have made elsewhere in this study, especially in the introduction and in chapter two.

To begin with, we should note that religion and health have been intertwined for centuries. Ancient belief systems, such as those of the Ancient Mesopotamians and Early Christians, considered physical illness to be a punishment from the gods for individual or group transgression.^{151, 152} While healthcare today seems to interact less with religion, especially considering advances in the sciences promoting the germ theory of disease and other natural mechanisms for the onset of an illness, religion continues to play a large role in health. I will first look at the links between mind and body in terms of how the mind can affect physical health through religious and spiritual practices. Following this, I will look at the mind-body interaction from the other angle, analyzing how some physical exercises, running in particular, can spill over into the realm of the spiritual. This will be a continuation of points I made in chapter three.

Recent studies show that prayer is one of the most frequently used forms of “complementary and alternative medicine” or CAM.¹⁵³ In 2004, one trial showed that 62% of

¹⁵¹ Roy Shephard, *An Illustrated History of Health and Fitness, from Pre-History to our Post-Modern World* (Cham, Switzerland: Springer International Publishing, 2015), 79.

¹⁵² Hector Avalos, *Health Care and the Rise of Christianity* (Grand Rapids, MI: Baker Publishing Group, 1999), 34.

¹⁵³ Karin Jors et al., “Personal Prayer in Patients Dealing with Chronic Illness: A Review of the Research Literature,” *Evidenced-Based Complementary and Alternative Medicine*; eCAM 2015 (2015): 1.

both healthy and sick Americans had used some sort of CAM over the last year. Within this list, three forms of prayer for health were in the top five types of CAM used: prayer for oneself (43%), prayers of others for oneself (24.4%), and participation in a prayer group (9.6%).¹⁵⁴ In an analysis of 16 studies, researchers found that there were five types of prayer that patients used in relation to health care. In order from most to least common, disease-centered prayers which relate directly to patients' illnesses, assurance-centered prayers providing "patients with confidence and comfort that their God does and will continue to take care of them" and relate to protection, strength/hope, trust, gratitude, and forgiveness, god-centered prayer focusing on the relationship between the individual and God, others-centered prayer, and lamentations of fear, complaints, and doubt.¹⁵⁵ Though intended as a call for improvement of an illness or relief of pain, many did not "believe or even hope for a cure" out of fear that God may not answer their request or that they should have faith in his plan.¹⁵⁶ As a way to sustain belief that God can intervene in worldly affairs, many prayed for the ability to find something positive from their experience.¹⁵⁷ This discussion of prayer in healthcare settings is by no means the only use of religion for health today, yet prayer serves as an especially popular example. This continued use of prayer in healthcare exemplifies the blurriness of the boundary between religion and science, if not the overlap of these two fields. Because of this use of prayer and other religious mechanisms in healthcare settings, many studies have begun to analyze whether or not prayer and other religious and spiritual activities, such as meditation, have an effect on healthcare outcomes.

¹⁵⁴ Patricia M. Barnes et al., "Complementary and Alternative Medicine Use Among Adults: United States, 2002." *Seminars in Integrative Medicine* 2, no. 2 (2004): 54.

¹⁵⁵ Jors, 3, 8-9.

¹⁵⁶ *Ibid.*, 9.

¹⁵⁷ *Ibid.*

Studies of specific religious and spiritual activities, primarily focused on prayer and meditation, have found that both of these activities positively impact health. Frequent prayer has been associated with better physical and mental health.¹⁵⁸ Some analyses consider prayer to be comparable to meditation as a type of “private spiritual and cognitive practice or discipline . . . intended to focus on inner experiences,” making prayer likely “associated with measurable changes in brain activation levels.”¹⁵⁹ Studies of prayer and other religious experiences, such as glossolalia, or speaking in tongues, show a variety of regions of brain activation. In one study performed on fifteen Carmelite nuns, blood-oxygen-level-dependent (BOLD) signal changes were measured during a mystical condition, a control condition, and a baseline condition.¹⁶⁰ In the mystical condition, nuns were asked to remember and relive their most intense mystical experience, in the control condition, they were asked to relive the most intense state of union that they had experienced with another human being, and the baseline condition was a normal, restful state. The mystical condition was associated with activation in the “right medial orbitofrontal cortex, right middle temporal cortex, right inferior and superior parietal lobules, right caudate, left medial prefrontal cortex, left anterior cingulate cortex, left inferior parietal lobule, left insula, left caudate, left brainstem and the extra-striate visual cortex.”¹⁶¹ The researchers hypothesized as to what activation in each area could signify, from feelings of joy and love through activation in the caudate, to activation of the right superior parietal lobule which may indicate a modification of body schema as participants perceived that something greater than them would

¹⁵⁸ Neal Krause, “Religion, Aging, and Health: Exploring New Frontiers in Medical Care,” *Southern Medical Journal* 97, no. 12 (2004): 1218.

¹⁵⁹ Patrick McNamara, Jensine Andresen, and Judit Gellard, “Relation of Religiosity and Scores on Fluency Tests to Subjective Reports of Health in Older Individuals,” *The International Journal for the Psychology of Religion* 13, no. 4 (2003): 260.

¹⁶⁰ Mario Beauregard and Vincent Paquette, “Neural Correlates of a Mystical Experience in Carmelite Nuns,” *Neuroscience Letters* 405, no. 3 (2006): 186-7.

¹⁶¹ *Ibid.*, 186.

absorb them. Results of this study suggest that several brain regions and systems mediate mystical experiences and further research is necessary in order to determine the accuracy and consistency of activated brain regions and the correlated response.

While other studies have yet to further examine these findings, this perspective offers a possible neurological explanation for the mechanism by which religious activity such as prayer may promote positive affect and physical health, as activation in each brain region affects change. This study also contributes to the discussion of the mind enacting change in the body. Although this study did not analyze the effects of brain activation in prayer, further studies will develop the idea of changes in the mind producing change in the body.¹⁶² However, this study provides a background for these ideas, evidencing areas of change in the mind that, as discussed in the following sections, may be correlated with changes in the body and brain.

Many theories, discussed later in this chapter, consider the effects of religion on health to be related to the social aspect of religious involvement, yet these theories cannot explain how private religious practices such as prayer also have beneficial effects on both physical and mental health. Some theorists posit that prayer for others enhances positive “self-feelings,” taking the mind off of one’s own problems and increasing feelings of self-worth with the underlying belief that God answers prayers at the right time and in the right way.¹⁶³ Prayer and other private spiritual and religious practices may create a psychological state of optimism or relaxation, which helps to reduce unhealthy levels of stress and other negative emotions.¹⁶⁴ More religious people in general are less likely to experience negative psychological states and more likely to

¹⁶² Ryff, 1383-94.

¹⁶³ Krause, 1218.

¹⁶⁴ McNamara, 260.

enjoy positive psychological states.¹⁶⁵ Furthermore, these psychological states have a positive effect on physical health and can even induce biological changes.

In one study, a group of 135 women between the ages of 61 and 91 were analyzed for measures of well-being and correlates with biological markers, hypothesizing that well-being was accompanied by optimal performance of various physiological systems.¹⁶⁶ Biomarker data was collected over the course of an overnight stay at the General Clinical Research Center at the University of Wisconsin-Madison. Researchers analyzed two types of well-being, eudaimonic, or the realization of personal potential, and hedonic, or experiences of happiness and satisfaction. Results from this study showed that eudaimonic well being, a positive psychological state, was associated with lower cortisol levels, an important hormone involved in stress responses, lower levels of inflammation response, lower waist/hip ratios, and higher levels of HDL, the good cholesterol.¹⁶⁷ Another study replicated these results, analyzing the effects of optimism and pessimism on salivary cortisol levels in 80 Chinese men and women, measuring the salivary cortisol levels six times on two different days.¹⁶⁸ This study concluded that those with higher levels of optimism had lower levels of cortisol secretion at the beginning of each day and higher positive affect was associated with lower cortisol levels.

In contrast, other studies have been performed to analyze the effects of negative moods and emotions. One such study analyzed the effects of negative affect on risk of stroke.¹⁶⁹ Researchers used a sample of 2,478 adults from five counties in North Carolina, with no reported

¹⁶⁵ Joonmo Son and John Wilson, "Religiosity, Psychological Resources, and Physical Health," *Journal for the Scientific Study of Religion* 50, no. 3 (2011): 589-90.

¹⁶⁶ Ryff, 1385.

¹⁶⁷ Ibid., 1390.

¹⁶⁸ Julian C. L. Lai et al., "Optimism, Positive Affectivity, and Salivary Cortisol," *British Journal of Health Psychology* 10, no. 4 (2005): 467.

¹⁶⁹ Glen V. Ostir et al., "The Association Between Emotional Well-Being and the Incidence of Stroke in Older Adults," *Psychosomatic Medicine* 63, no. 2 (2001): 210.

history of stroke, following-up with annual interviews for six years, between 1986-1992. After controlling for factors such as sociodemographic characteristics, blood pressure, body mass index, smoking status, and various chronic diseases, researchers found a 4% increase in risk of stroke for each point increase on the depression scale. These results suggest that increased positive affect is associated with a reduced risk of stroke.

These studies, along with a cohort of other literature, suggest that psychological state may play a large role in physical health, with the ability to induce physiological changes. More importantly, considering the literature that suggests the role of religion and spirituality, and in activities such as prayer, in promoting positive affect and coping with stress, this may be one mechanism by which these activities promote physical health. These studies provide further evidence that the mind is important in eliciting change in the body, as these positive psychological states led to healthier people in a variety of measures.

Meditation has been studied more in-depth than prayer and results indicate that it may be associated with improvements in anxiety, depression, pain, and stress levels.¹⁷⁰ Prayer and other religious activities, which produce effects similar to meditation, may then be related to similar changes in the brain that affect both physical and mental health. Although it is still unknown whether specific brain or neurophysiological systems contribute to the psychological state of well-being and health as experienced by religious and spiritual people, neuroimaging studies suggest that meditation may change brain morphology in several regions. One study analyzed 14 people meditating over an eight-week period and measured their self-reported psychological well-being by examining answers to a variety of questions that test self-acceptance, positive

¹⁷⁰ Madhav Goyal et al., "Meditation Programs for Psychological Stress and Well-Being: A Systematic Review and Meta-analysis," *Journal of the American Medical Association Internal Medicine* 174, no. 3 (2014): 364.

relations with others, environmental mastery, autonomy, purpose in life, and personal growth.¹⁷¹

The magnetic resonance imaging (MRI) studies performed in the two weeks before and after the eight-week meditation class showed increased grey matter concentration in the brain areas of the pons/raphe/locus coeruleus area of the brainstem, which have a role in mood and arousal.

Moreover, they found a correlation between improvement in psychological well-being and increased grey matter in these areas, suggesting that the morphological changes may underlie the changes in well-being.

Other studies analyzing meditation have found similar changes in physical health and psychological well-being. In one study, researchers performed a randomized, controlled study on the effects of brain and immune function of subjects who underwent an eight-week mindfulness meditation program.¹⁷² They measured electrical activity in the brains of 25 subjects before, after, and four months after they underwent mindfulness training, also measuring the brain electrical activity for 16 people in a control group at the same time. After finishing the eight-week meditation program, both groups were injected with the influenza vaccine. The researchers found increased left-sided anterior activation of the brain and increased production of antibodies to the influenza vaccine in the meditators as compared with the control group. Furthermore, the magnitude of left-sided activation predicted the magnitude of production of antibodies. This study suggests that increased left-sided anterior activation is correlated with decreased anxiety and increased positive affect, as well as improved immune function.¹⁷³

¹⁷¹ Singleton, 33.

¹⁷² Davidson, 564.

¹⁷³ Ibid., 569.

Religion has been studied as means to cope with stress, with many analyses indicating that those who rely on religious coping responses are more effectively able to deal with stress.¹⁷⁴ Moreover, stress can have very negative effects on immune functioning. The results above indicating that meditation can lead to improved immune function may be explained in part by the ability of those individuals to more effectively deal with stress, thus bypassing the negative effects of stress on the immune system. However, this does not account for all of the biological changes associated with increased measures of religiosity and spirituality.

Although the mechanism has yet to be confirmed, these studies also support the idea that changes in the mind produce effects in the body, especially evident in analysis of antibody production against influenza after mindfulness meditation. However, the previous study also shows a correlation between meditation and physical as well as psychological change; the act of meditation led to changes in brain morphology that were correlated with an increased sense of well-being, displaying a causal chain initiated in the mind.

One of the major limitations of these studies has been in the lack of control for the placebo effect, yet a recent study suggests that mindfulness meditation changes people's brains and improves their health whereas the placebo effect did not produce these same changes. This study analyzed a sample of 35 people, performing neuroimaging studies and blood tests, before randomly splitting the group into two: 18 were selected for an intensive three-day mindfulness meditation and 17 were sent to do a three-day relaxation residential retreat intervention.¹⁷⁵ Participants were then retested within two weeks of completing each retreat, with a final follow-up four months later. The study concluded that mindfulness meditation training, as compared to

¹⁷⁴ Krause, 1217.

¹⁷⁵ J. David Creswell et al., "Alterations in Resting State Functional Connectivity Link Mindfulness Meditation with Reduced Interleukin-6: A Randomized Controlled Trial," *Biological Psychiatry*, published online January 29, 2016: 5.

relaxation training without mindfulness, was associated with increased resting state functional connectivity between the default mode network in the posterior cingulate cortex, an area associated with mind-wandering, and the left dorsolateral prefrontal cortex (dlPFC), a brain region implicated in executive control. This coupling may be important for emotional regulation and stress resilience, as greater activation and connectivity within executive control regions has been associated with reduced pain,¹⁷⁶ negative affect,¹⁷⁷ and stress.¹⁷⁸ Moreover, these results are associated with a decrease in biomarkers of inflammatory disease in the mindfulness meditation training group as compared to an increase in the relaxation group. These results support the results of the studies above yet suggest that these results are not replicable through the placebo mechanism and are attainable through the use of mindfulness meditation, providing evidence that the placebo effect is not the means by which meditation enacts physical and psychological change.

These studies regarding the effects of prayer and meditation support the idea of the mind initiating and generating change in the body. While these two are often classified as “activities,” it is the mind that is doing the work; thus, these studies suggest that physical change, seen with improved health, is enacted through a causal chain beginning in the mind and affecting the body. As seen with increased positive affect, exercise of the mind may relate to improved mental state, complicating the top-down causality of mind to body and suggesting a more complex relationship. Moreover, prayer and meditation are generally considered to be religious and

¹⁷⁶ J. Lorenz, S. Minoshima, and K. L. Casey, “Keeping Pain Out of the Mind: The Role of the Dorsolateral Prefrontal Cortex in Pain Modulation,” *Brain: A Journal of Neurology* 126, no. 5 (2003): 1079.

¹⁷⁷ Philippe R. Goldin et al., “The Neural Bases of Emotion Regulation: Reappraisal and Suppression of Negative Emotion,” *Biological Psychiatry* 63, no. 6 (2008): 577.

¹⁷⁸ J. M. Cisler et al., “Differential Functional Connectivity Within an Emotion Regulation Neural Network Among Individuals Resilient and Susceptible to the Depressogenic Effects of Early Life Stress,” *Psychological Medicine* 43, no. 3 (2013): 507.

spiritual activities, yet these activities are used in an atmosphere dominated by science, healthcare. This speaks to challenge Galileo and Gould's assertion that science and religion occupy different spheres of life. The field of healthcare provides one glaring example of the overlap of these fields, signifying that maybe they are not as separate as some suggest.

Although the studies up to this point have shown the positive effects of religious activity on health, research has shown controversial data about the effects of prayer, religiosity, and religious belonging on health outcomes. There are some cases in which religion produces negative effects and leads to worse health outcomes, where beliefs may hinder treatment and higher levels of religiosity or spirituality have a negative impact on health.¹⁷⁹ In some situations, religious beliefs place restrictions on common, life-saving healthcare procedures, such as the Jehovah's Witnesses' refusal to accept blood transfusions, as they believe that God views blood as representing life and commands his followers to abstain from blood.¹⁸⁰ In one specific case, a young child died of complication with undiagnosed and untreated diabetes, a highly manageable disease in the United States, after her parents decided against seeing a doctor because they believed in the healing power of prayer and thought that the child was simply under a spiritual attack.¹⁸¹ Despite some issues with religious beliefs and refusal of medical treatment, an increasing number of studies have shown that involvement in religion, other than private religious and spiritual practices, may have positive benefits for their physical and mental health.

Many aspects of religious and spiritual experience, other than those previously discussed, have been found to positively affect both physical and mental health. Among the elderly in

¹⁷⁹ Krause, 1219.

¹⁸⁰ "Why Don't Jehovah's Witnesses Accept Blood Transfusions?" Jehovah's Witness, accessed Feb. 19, 2016, <https://www.jw.org/en/jehovahs-witnesses/faq/jehovahs-witnesses-why-no-blood-transfusions/>.

¹⁸¹ Dónal P. O'Mathúna and Kellie Lang, "Medicine vs. Prayer: The Case of Kara Neumann," *Pediatric Nursing* 34, no. 5 (2008): 413.

particular, religion has been found to improve health as it provides a community in which members offer emotional support, tangible assistance, and spiritual support.¹⁸² Many communities have the ability to provide emotional support and assistance, yet spiritual support, a unique benefit of religious communities, was found to be correlated with higher self-ratings of health and well-being.¹⁸³ Other studies have found a correlation between frequency of attendance at religious services and improved health through a variety of measures.

In one study, researchers used data from the General Social Survey (GSS), administered in 48 states to 3,000 people every two years, to analyze the effect of spiritual experience on psychological well-being.¹⁸⁴ This study focused on the GSS data from 1998 and 2004 as these years had special modules on religion and spirituality. From this data, researchers found the daily spiritual experiences scale to be a strong predictor of well-being in terms of happiness, excitement with life, self-esteem, and optimism.¹⁸⁵ Moreover, frequency of religious attendance had a modest yet positive association with well-being.

Another study examined the relationship between blood pressures and religious activities in 3,963 people aged 65 and older. This analysis accounted for other variables that may influence the relationship between religious activities and improved health such as demographics, physical functioning, cigarette smoking, and body mass index, in addition to the central measures of interest, blood pressure and religious activities.¹⁸⁶ Blood pressure measures were first self-reported, analyzing whether or not the subjects had been diagnosed with high

¹⁸² Krause, 1216.

¹⁸³ Ibid.

¹⁸⁴ Christopher G. Ellison and Daisy Fan, "Daily Spiritual Experiences and Psychological Well-Being Among US Adults," *Social Indicators Research* 88, no. 2 (2008): 251.

¹⁸⁵ Ibid., 266.

¹⁸⁶ Harold G. Koenig et al., "The Relationship between Religious Activities and Blood Pressure in Older Adults," *The International Journal of Psychiatry in Medicine* 28, no. 2 (1998): 189.

blood pressure, and were then taken following each interview. Researchers found that even after taking into account other variables, blood pressure was lower in those who frequently attended religious services and/or studied the Bible.¹⁸⁷

Multiple studies have replicated the original findings of Comstock and Partridge who examined the relationship between frequency of attendance at religious services and mortality due to arteriosclerotic heart disease, emphysema, cirrhosis of the liver, suicide, and rectal and colon cancers.¹⁸⁸ The original study was triggered by a 1963 census in Washington County, Maryland, which asked about religious affiliation and frequency of attendance at religious services. From this information, researchers analyzed mortality rates over a three to six year period for the causes listed above, accounting for frequency of attendance at religious services, and found an association between increased attendance at religious services and better health. These studies evidence some type of relationship between religion and health, one that points toward a positive correlation between increased religious activities and improved health. These studies further the idea that the mind and mental states influence physical being. Moreover, this information could be used to argue for more overlap between the field of healthcare, an area of study focused around scientific thought, and religion and spirituality, as a way to improve health outcomes.

Researchers have posed a variety of theories as to why frequent attendance at religious services may affect health. In one study in Alameda County in California, researchers analyzed mortality rates of 5,286 people between the ages of 21 and 65 in 1965, following them through

¹⁸⁷ Ibid., 208.

¹⁸⁸ George W. Comstock and Kay B. Partridge, "Church Attendance and Health," *Journal of Chronic Diseases* 25 (1972): 670.

1994.¹⁸⁹ This study took into account measures for attendance at religious services, religious affiliation, health practices and conditions, social connections, and improvement in health practices, increased social contacts, and stable marriages over the course of the study. The findings indicated that those who frequently attended religious services had lower mortality rates over the course of 28 years as compared to those who attended less frequently, with only modest impacts when accounting for the aforementioned variables. Researchers explained these results in part by improved health practices, increased social contacts, and more stable marriages in those who attended more frequently, yet none of these variables can fully account for lower mortality rates from the studied causes of death in those who were more religiously active.

Other studies utilize similar explanations by considering that attendance at church helps to broaden social support networks.¹⁹⁰ Social support is important in that people in the community often check up on members who miss services and other religious activities, increasing the likelihood that religious people will more frequently monitor for health problems.¹⁹¹ Some theories explain this connection between better health and religiosity by arguing that religion and spirituality encourage healthier lifestyles by promoting health and inhibiting behaviors injurious to health.¹⁹² Religious involvement has been associated with “lower rates of alcoholism, drug use, cigarette smoking, risky sexual activity, failure to wear seat belts, drinking while driving, and other hazardous activities.”¹⁹³

¹⁸⁹ William J. Strawbridge et al., “Frequent Attendance at Religious Services and Mortality Over 28 Years,” *American Journal of Public Health* 87, no. 6 (1997): 957.

¹⁹⁰ McNamara, 260.

¹⁹¹ Harold G. Koenig, “The Connection between Psychoneuroimmunology and Religion,” in *The Link between Religion and Health: Psychoneuroimmunology and the Faith Factor* (Oxford: Oxford University Press, 2002), 22.

¹⁹² Son, 589.

¹⁹³ Koenig, 21.

While prayer and meditation serve the interests of this paper in analyzing the relationship between the mind and body, other types of religious and spiritual experience affect health outcomes. As evidenced above, religious and spiritual experiences have been found not only to affect physical health but also to help promote psychological well-being, both fields that are primarily dominated by scientific thought. This integration of religious and spiritual with the scientific suggests a complex relationship between religion and science, much more integrated than the idea that they are two separate spheres of life that have different concerns. Moreover, the expansion of this investigation to analyze the physical and psychological effects of various aspects of religious and spiritual experience encourages the expansion of the bounds of what we may consider to lie beneath these designations. In light of the metamodern trend to find space for the sacred in the secular and contemporary movements away from traditional forms of religion, the next section will highlight reasons for considering running to be one possible form of religious or spiritual experience.

Running and other forms of exercise have also been found to greatly benefit physical and mental health. Regular physical activity increases longevity, protects against chronic disease, increases bone density and energy level, slows muscle atrophy, and assists with weight control.¹⁹⁴ Moreover, some studies have shown a positive correlation between exercise and increased mental health. Though certain diseases have been considered to cause permanent brain damage, such as Alzheimer's and Parkinson's, recent research has shown that certain brain regions in both mice¹⁹⁵ and in humans¹⁹⁶ retain the ability to generate new neurons into

¹⁹⁴ "Activity Benefits Go Beyond Weight Loss: Impact of Physical Activity Level is Twice That of Obesity," *Tufts University Health & Nutrition Letter* 33, no. 2 (2015): 1.

¹⁹⁵ Gerd Kempermann, H. Georg Kuhn, and Fred H. Gage, "More Hippocampal Neurons in Adult Mice Living in an Enriched Environment," *Nature* 386, no. 3 (1997): 493.

adulthood. In one study, mice were subjected to water-maze learning, enriched environment, forced exercise, voluntary exercise, or standard living conditions to determine which environmental changes encouraged neurogenesis.¹⁹⁷ The results showed that voluntary exercise led to increased cell proliferation, cell survival, and neurogenesis, suggesting that physical activity may have a significant role in promoting mental health and enhance cognitive and behavioral functions.

Various studies have found a positive correlation between regular physical exercise and a decrease in depressive symptoms. One study involved 202 subjects diagnosed with major depressive disorder that were assigned to aerobic exercise, antidepressant medication, or a placebo pill.¹⁹⁸ After four months, patients who performed aerobic exercise achieved comparable benefits as those on antidepressant medication with both of the above showing greater improvement than the placebo controls. Moreover, self-reported exercise over the course of the year was associated with lower depression scores and greater likelihood of “improved depressive status.”¹⁹⁹ In this study, researchers found an inverse linear relationship between amount of time exercised and severity of depressive symptoms, suggesting that physical exercise can affect mental health. A literature review of 15 studies and three meta-analyses regarding

¹⁹⁶ Peter S. Eriksson et al., “Neurogenesis in the Adult Human Hippocampus,” *Nature Medicine* 4, no. 11 (1998): 1313.

¹⁹⁷ Henriette Van Praag, Gerd Kempermann, Fred H. Gage, “Running Increases Cell Proliferation and Neurogenesis in the Adult Mouse Dentate Gyrus,” *Nature Neuroscience* 2, (1999): 266–70.

¹⁹⁸ Benson M. Hoffman et al., “Exercise and Pharmacotherapy in Patients with Major Depression: One Year Follow-Up of the SMILE Study,” *Psychosomatic Medicine* 73, no. 2 (2011): 127.

¹⁹⁹ *Ibid.*, 132.

exercise and depression evidenced that physical activity can both prevent and help to treat depression and may be as effective as cognitive therapy.²⁰⁰

Unhealthy lifestyles and an associated lack of physical exercise have been found to be positively associated with increased anxiety and depression, as well as other mood disorders. In one study, researchers analyzed 1,612 subjects who were at risk for cardiovascular disease, evaluating their cardiovascular risk factors, with results indicating that both anxiety and depression were significantly associated with physical inactivity and unhealthy lifestyle choices.²⁰¹ Current research shows support for the stress-reduction effects of exercise, the association of exercise and a positive mood, increased positive perceptions of self and body image, and improvement in cognitive function with increased fitness,²⁰² all of the above related to the effects of exercise on mental health. The ability of exercise to affect mental health calls into question the relationship between the mind and the body. Whereas the above section focused on the effects of religion suggested a downward relationship from mind to body, the changes in mood after running suggest the opposite, with physical action causing change in the mind.

Various mechanisms have been proposed for the improvement of mental health and sense of well-being, similar to that experienced by religious or spiritual individuals, with increased physical activity. One of the preliminary hypotheses for the association between exercise and positive mood relates to the increased flow of blood to the brain, which stimulates naturally

²⁰⁰ Marie E. Donaghy, "Exercise Can Seriously Improve Your Mental Health: Fact or Fiction?" *Advances in Physiotherapy* 9 (2007): 76.

²⁰¹ Fabrice Bonnet et al., "Anxiety and Depression are Associated with Unhealthy Lifestyle in Patients at Risk of Cardiovascular Disease," *Atherosclerosis* 178 (2005): 339.

²⁰² Donaghy, 77.

occurring mood-enhancing chemicals called endorphins.²⁰³ Endorphins, produced in the brain, pituitary gland, and other tissues²⁰⁴ generate similar effects as the drug morphine and have been associated with the “runner’s high,”²⁰⁵ a feeling of intense euphoria²⁰⁶ and a decrease in pain sensation²⁰⁷ elicited through physical exercise.

There are three major types of endorphins, enkephalins and dynorphins, which are distributed throughout structures in the central nervous system (the brain and spinal cord), and β -endorphins, which are primarily found in the pituitary gland and released into the blood stream.²⁰⁸ Although meditation likely affects immune function by means of a different mechanism, endogenous opioid peptides—endorphins, enkephalins, and dynorphins—can also affect immune function.²⁰⁹ As opioid receptors are present on some immune cells, it is possible that opioids may mediate immune alterations in response to exposure to stress.²¹⁰ In terms of positive affect, all endorphins have variable affinities for μ , δ , and κ opioid receptors²¹¹ and it has

²⁰³ Ibid., 84.

²⁰⁴ William P. Morgan, “Affective Beneficence of Vigorous Physical Activity,” *Medicine and Science in Sports and Exercise* 17, no. 1 (1985): 97.

²⁰⁵ Donaghy, 84.

²⁰⁶ Gina Kolata, “Runner’s High? Endorphins? Fiction, Some Scientists Say,” *New York Times*, May 21, 2002, <http://www.nytimes.com/2002/05/21/health/runner-s-high-endorphins-fiction-some-scientists-say.html>.

²⁰⁷ Morgan, 97.

²⁰⁸ Henning Boecker et al., “The Runner’s High: Opioidergic Mechanisms in the Human Brain,” *Cerebral Cortex* 18, no. 11 (2008): 2523.

²⁰⁹ Nicholas E. S. Sibinga and Avram Goldstein, “Opioid Peptides and Opioid Receptors in the Cells of the Immune System,” *Annual Review of Immunology* 6 (1988): 219-249.

²¹⁰ Bruce S. Rabin, “Understanding How Stress Affects the Physical Body,” in *The Link between Religion and Health: Psychoneuroimmunology and the Faith Factor* (Oxford: Oxford University Press, 2002), 50.

²¹¹ Ibid.

been well established that β -endorphins show μ and δ recognition,²¹² with μ -receptor activation linked to the sensation of euphoria.²¹³

The endorphin hypothesis was first supported by an experiment on rats that were forced to swim in an ice water bath for five minutes and tested against a control group of rats that did not swim but were placed in an ice bucket for five minutes.²¹⁴ Brain assays of the rats were used to measure the binding of [³H]D-Ala², a ligand that selectively binds opioid receptors, in order to measure changes in endorphin levels after exercise. The brains of rats in the control group, in the test group of swimming rats immediately after swimming, and five minutes after swimming showed no observable change in the binding of [³H]D-Ala². However, binding decreased by 40% between 15 and 20 minutes of recovery in the rats that swam and returned to normal levels after 45 minutes. The researchers concluded that the increase in opiate receptor occupancy was “due either to an increased release of enkephalin or endorphin onto opiate receptors or else a slowing of their dissociation rate from receptors.” In other words, as the binding of the radiolabeled ligand decreased, this means that the rats must have increased endorphin signaling and the endorphins displaced the radiolabeled ligand from the opioid receptors or the endorphins remained attached for a longer period of time, not allowing for the ligand to bind the receptor. Furthermore, they suggested that this “enhanced opiate receptor occupancy must . . . alter the psychological state of the rats into something . . . described as ‘relief euphoria’.”²¹⁵

²¹² Karen Raynor et al., “Pharmacological characterization of the cloned kappa-, delta-, and mu-opioid receptors,” *Molecular Pharmacology* 45, no. 2 (1994): 330.

²¹³ Richard J. Bodnar and Gad E. Klein, “Endogenous Opiates and Behavior: 2006,” *Peptides* 28 (2007): 2465.

²¹⁴ Candace B. Pert and Donald L. Bowie, “Behavioral Manipulation of Rats Causes Alterations in Opiate Receptor Occupancy,” in *Endorphins in Mental Health Research*, eds. Earl Usdin, William E. Bunney Jr., and Nathan S. Kline (New York: Oxford University Press, 1979): 100.

²¹⁵ Ibid.

In another experiment, rats performed mild exercise by running on a wheel for 15 minutes and an assay of their brains showed a decrease in binding of [³H]D-Ala² immediately after exercise but returned to normal levels within five to ten minutes. This study concluded that the cessation of running in rats was correlated with a “euphoric feeling induced by increased opiate receptor occupancy,” measured by the rats’ desire to continue exercise.²¹⁶ While the amount of time differed in the two experiments, each suggests that physical exercise is “associated with increased opiate receptor occupancy” and subsequent increase in euphoria, which may underlie the ‘runner’s high’ sensation.²¹⁷

This research was continued on humans through the measurement of plasma levels of β -endorphin/ β -lipotropin activity,²¹⁸ with one study finding significant increases in the levels of both after physical exercise.²¹⁹ However, this hypothesis was under question as it was only feasible to test endorphin levels in the blood, not in the brain, and endorphins cannot cross blood-brain barrier, leaving the question as to whether an increase in blood levels of endorphins was correlated with an increase in levels in the brain.²²⁰

A more recent study found support for the endorphin hypothesis by using a new tracer with similar selectivity as β -endorphin for μ , δ , and κ opioid receptors. The researchers performed two positron emission tomography (PET) scans on ten trained male athletes to compare the binding of this tracer under rest conditions and after physical exercise, namely after

²¹⁶ Ibid.

²¹⁷ Morgan, 97.

²¹⁸ Ibid.

²¹⁹ Daniel B. Carr et al., “Physical Conditioning Facilitates the Exercise-Induced Secretion of Beta-Endorphin and Beta-Lipotropin in Women,” *New England Journal of Medicine* 305, no. 10 (1981): 560.

²²⁰ Kolata.

a two hour run.²²¹ Results showed “specific regional changes in opioid binding after strenuous exercise,” especially prominent in the prefrontal and limbic/paralimbic brain regions, which play a key role in emotional processing.²²² The study concluded that “exercise-induced changes in mood [are] . . . a consequence of alterations in endogenous opioid release [and] . . . thereby [provide] a basis for understanding the link between exercise-induced psychophysical effects, [states of euphoria,] and changes in central opioidergic neurotransmission.”²²³ From this information, researchers concluded that there is a correlation between perceived euphoria in runners and the “release of endogenous opioids in the frontolimbic brain regions” after physical exercise, suggesting that the opioid system plays a specific role in the runner’s high sensation.²²⁴

As discussed above, these studies provide evidence that the relationship between the mind and the body may function in more complex ways than a simple downward causal mechanism. Seen specifically in the case with running, physical activity has the ability to produce changes in one’s mental state, leading to increased euphoria. While many examples show how the mind can produce change in the body, examples such as these highlight a relationship in which not only can the mind elicit change in the body, but also physical action in the body leads to change in the mind.

Researchers have proposed theories for the roles of other substances behind the “runner’s high,” including the function of endocannabinoids (eCB’s).²²⁵ Endocannabinoids are endogenous neurotransmitters that take part in generating neurobiological rewards, which are

²²¹ Boecker, 2523.

²²² Tim Dagleish, “The Emotional Brain,” *Nature Reviews Neuroscience* 5 (2004): 586.

²²³ Boecker, 2525.

²²⁴ Ibid., 2530.

²²⁵ David A. Raichlen et al., “Wired to Run: Exercise-Induced Endocannabinoid Signaling in Humans and Cursorial Mammals with Implications for the ‘Runner’s High’,” *Journal of Experimental Biology* 215, no. 8 (2012): 1331.

hypothesized to motivate endurance exercise²²⁶ “by activating cannabinoid receptors in brain reward regions during and after exercise.”²²⁷ One study analyzed eCB signaling in ten recreationally fit human subjects by measuring anandamide levels after a 30 minute run.²²⁸ The study found that running activates the eCB system whereas walking does not. Moreover, increased eCB signaling after exercise correlated with improved positive affect. Thus, the researchers concluded that eCB’s played a role in generating positive psychological states.

The mechanism behind this process has to do with anandamide, a ligand produced in periphery cells of the body that binds cannabinoid receptors and inhibits pain sensation,²²⁹ one of the reported effects of the runner’s high. Exercise elevates anandamide levels, which act on peripheral sensory neurons to relieve pain. Anandamide is readily able to cross the blood-brain barrier where it binds the cannabinoid receptors,²³⁰ located in the brain regions affecting the control of motor functions, emotion and cognition.²³¹ The effects of activation of cannabinoid receptors in the brain by exogenous substances mirror the effects of THC, including reduction in pain sensation, a sense of calm, reduced anxiety, and a sense of well-being.²³² As it is the binding of the receptors that elicits a response, endocannabinoids, endogenous ligands that activate these same receptors, could also produce these effects.

²²⁶ Panteleimon Ekkekakis, Eric E Hall, and Steven J Petruzzello, “Variation and Homogeneity in Affective Responses to Physical Activity of Varying Intensities: An Alternative Perspective on Dose - Response Based on Evolutionary Considerations,” *Journal of Sports Sciences* 23, no. 5 (2005): 485.

²²⁷ Raichlen, 1331.

²²⁸ *Ibid.*, 1333.

²²⁹ P. B. Sparling et al., “Exercise Activates the Endocannabinoid System,” *Neuroreport* 14, no. 17 (2003): 2209-10.

²³⁰ *Ibid.*, 2210.

²³¹ M. Glass, R. L. M. Faull, and M. Dragunow, “Cannabinoid Receptors in the Human Brain: A Detailed Anatomical and Quantitative Autoradiographic Study in the Fetal, Neonatal and Adult Human Brain,” *Neuroscience* 77, no. 2 (1997): 299.

²³² Sparling, 2210.

Few studies have been conducted to indicate which mechanism underlies the runner's high phenomenon, the endorphin hypothesis or the involvement of endocannabinoids. One study from 2015, which has yet to be replicated, found evidence for support of the role of endocannabinoids in the runner's high phenomenon over the role of endorphins.²³³ The study used mice that were habituated to running and subsequently blocked the ability to run in half of the mice and allowed continued running in the second group. Compared to the mice in the control group, those in the running group showed fewer signs of anxiety, spending more time in the light as opposed to their dark compartment, reduced thermal pain sensitivity when placed on a hot plate, and were less active after testing, indicating a post-exercise calm, three of the four components of a "runner's high." Some mice were injected with eCB receptor antagonists and others with endorphin receptor antagonists, antagonists being substances that bind the same receptor but do not allow for the same effects to be produced as the original ligand. Those injected with eCB receptor antagonists did not have decreased anxiety, pain sensation, or the post-exercise calm, leading researchers to conclude that in mice, the eCB system is crucial for the runner's high.²³⁴ Moreover, those injected with endorphin receptor antagonists did not display any change in affect from the original group of runners. While this experiment has yet to be performed on humans, this study provides some evidence for the importance of endocannabinoids in some effects of the runner's high, not endorphins.

In either case, whether it is through the mechanism of endorphins or endocannabinoids, these studies show that physical change in the body produces change in the mind. This is especially significant in that this change in mood and perceived euphoria can be related to

²³³ Johannes Fuss et al., "A Runner's High Depends on Cannabinoid Receptors in Mice," *Proceedings of the National Academy of Sciences* 112, no. 42 (2015): 13105.

²³⁴ *Ibid.*, 13107.

similar effects produced through religious and spiritual experience. However, despite the similarity in increasing positive affect, there are some differences to be considered in the act of running and religious and spiritual experience.

Although religious experience and running utilize different mechanisms, both appear to have the ability to produce similar effects on physical and mental health. The studies explained above for religious and spiritual experience centered on structural changes in the brain and regional brain activation patterns while undergoing meditation or prayer. In contrast, the studies explaining the effects and mechanisms by which physical exercise can affect mental health and positive affect revolved around opioid and endocannabinoid signaling. However, some studies have been done which show similar structural changes in the brain, an increase of grey matter, as those produced by the eight week meditation class. One study used data from 1,449 people who were investigated once at midlife as part of an aging and dementia study and re-examined them on average 21 years after their initial encounter.²³⁵ Functional magnetic resonance imaging studies from 75 subjects showed that those who actively participated in physical activity in midlife tended to have larger total brain volume and larger grey matter volume than those who were largely sedentary. Most of the discrepancies in grey matter volume between the two groups were localized in the frontal lobes. This finding is important as the frontal lobes have been associated with executive functions such as “initiation, planning, purposive action, self-monitoring, self-regulation, and volition.”²³⁶ Some research has also found the frontal lobes to be important in behavioral and emotional self-regulation. While this finding does not specifically correlate with the finding of increased grey matter concentration in the pons/raphe/

²³⁵ Suvi Rovio et al., “The Effect of Midlife Physical Activity on Structural Brain Changes in the Elderly,” *Neurobiology of Aging* 31, no. 11 (2010): 1927.

²³⁶ Donald T. Stuss, “Functions of the Frontal Lobes: Relation to Executive Functions,” *Journal of the International Neuropsychological Society* 17, no. 5 (2011): 759.

locus coeruleus area of the brainstem as seen after the eight-week meditation study, it may relate to the findings of activation in the frontal lobes during prayer²³⁷ and mindfulness meditation.²³⁸ More research is necessary to investigate whether there are more concrete similarities between the mechanisms that underlie increased positive affect and generalized well-being in religious or spiritual experiences and physical exercise. Surely the studies utilized in this investigation highlight some potential areas of overlap.

Despite the differences, each activity does have the ability to produce similar effects. Many runners report feelings of well-being, calmness, and clarity during and after their runs, sensations that can be considered spiritual. This connection between physical exercise and religion is furthered by studies recording physical change in the human brain, albeit different changes, yet they each underlie feelings of euphoria, well-being, and calm. While these sensations are shared through running and religious/spiritual experience, this is neither the entirety of what makes running a spiritual experience nor the whole of what constitutes spiritual experience. These physical and psychological changes solely offer one perspective from which to analyze the connection between the two types of experience.

²³⁷ Beauregard, 186.

²³⁸ Lorenz, 1079.

Conclusion

Through the use of personal testimonial, theoretical analysis, and scientific study, I have demonstrated one possible way of understanding running for contemporary Westerners—as an emerging transformation of a secular practice into a form of spirituality. Running may serve only as a type of physical exercise for some people, yet others have found this practice to have spiritual elements, as it can be a way to find meaning and purpose. Rhythmic, repetitive movement can be a means of achieving a meditative-like state, allowing for a sense of deeper connection and awareness. As demonstrated through various studies, running also has the ability to promote euphoria and a sense of well-being, similar to that experienced by religious practitioners. It is this last aspect of running, the fact that physical activity has the ability to change a person’s mental state, which I find most fascinating. Moreover, it is this effect of running which grounds many of my arguments connecting it with other types of religious and spiritual practice.

Throughout the last couple of years, I have found myself looking outside of traditional means in search of greater meaning and purpose. While I am by no means an avid runner, if there is something consistent in my life that gives me space to breathe, time for self-reflection, and an arena in which to tackle “life’s big questions,” it would be running. Moreover, living in Boulder, a city that is often described as having an ultra athletic and highly spiritual atmosphere, has stimulated my interest in nontraditional means of religious and spiritual experience.

My personal engagement with this topic led me to find Linda Ceriello’s discussion of metamodernism to be especially compelling in terms of providing context for the ideas proposed in this thesis. Ceriello discusses the metamodern as a reaction against the “postmodern culture of removal, disaffection, and irony and the resultant taboo against expressing any earnest sense of

an uncomplicated truth or sentimentality” which has become intolerable among Millennials.²³⁹ She analyzes the Millennial emphasis of the sacred in secular contexts and refers to the “nones” and the “spiritual but not religious” as “secular spiritualities” or “spiritual secularities,” arguing that these new forms of expression highlight this new sense of being both secular and spiritual.²⁴⁰ In contrast to New Age experimentation with religion and spirituality, which insisted that the spiritual could be found anywhere and in everything, Ceriello argues that Millennials have transformed this idea with an added “secular-informed type of immanence.”²⁴¹ By this she means that the metamodern religious and spiritual experiences gravitate toward and elevate “that which is emotionally conflicted, earnestly felt, complicatedly human, with the darker, rougher, flawed aspects of humanity increasingly highlighted and revered.”²⁴² Furthermore, she found that spiritual transformation seems to no longer be about transcendence, but about this-worldly existence.²⁴³

Ceriello’s metamodern framework offers an important perspective from which to view this investigation of running as spiritual experience. Running as spiritual practice fits within Ceriello’s discussion of the metamodern. As visible in the sources above, running entails a testing of physical limits, requiring that adherents ignore perceptions of pain and exhaustion that urge one to stop. Meanwhile, amidst pushing one’s body to these limits, many have found that there is space to consider things outside of oneself, to consider meaning, and to consider purpose in this world.

²³⁹ Ceriello, 5.

²⁴⁰ Ibid., 1.

²⁴¹ Ibid., 4.

²⁴² Ibid.

²⁴³ Ibid., 8.

More importantly, the metamodern framework roots this study within the context of many other studies analyzing different nontraditional practices and communities that may function in spiritual or religious ways. The CrossFit article discussed in chapter three provides one other example of these studies. This analysis of CrossFit was part of a larger study that examined the ways in which Millennials gather. This cohort of studies analyzed the more “religious” functions of various groups within Millennial communities, whereas this thesis focused more on the “spiritual” functions of secular activities, engaging with individual experience. However, both of these investigations see expressions of religion and spirituality as potentially emerging in new forms. This investigation is situated within the context of religion and spirituality in the 21st century, a study dominated by thoughts of those who are finding new ways to experience the spiritual, including running as one form of spiritual experience.

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