Chapter

Let Them See You Sweat: Integrating Yoga and Well-Being

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Abstract

Using the nested model of well-being, yoga, breath, and group classes are discussed to elucidate the physiological and psychological benefits that increase well-being in terms of health and social/environmental impact. Recent theoretical advances that detail the mechanisms at work in group yoga practice are explicated. Creating heat and release in the body are discussed regarding physical health and improved self-regulation and functioning. Recent yoga research across cultures is examined. Based on theoretical and applied research, group vinyasa yoga supports increased health and better relationships with others through increased self-regulation. Overall, practitioners across the developmental spectrum report benefits that span intra and interpersonal functioning. Additional research is needed to quantify students' change, and to delineate body type and physiology that best respond to the sweat response in order to inform dosage, acclimatization and increased well-being.

Keywords: well-being, sweat, physiology, yoga

1. Introduction

This chapter will explicate the physiological and psychological benefits of sweating, the ways in which group yoga beyond exercise and organized team sports creates bonding and community, and how, theoretically and practically, aspects of overall well-being are enhanced through group experiences of intense physical activity. The admonishment to hide our physiological discomfort when posed with adversity originates from a highly successful ad campaign by the Gillette Company to promote its antiperspirant *Dry Idea* in 1984 [2]. "Never let them see you sweat" became synonymous with success in a variety of fields as portrayed by the well-known celebrities who promoted the brand. Sweating publicly implied weakness, and has not been widely encouraged, until now. With the rise in popularity of group yoga and fitness classes, sweating in public is not only common, it is reported as pleasurable and leads to many physical benefits [4, 23]. Likewise, group experiences, specifically yoga, where demanding physical exertion is the primary activity create a sense of community and belonging that aligns with both health psychology and a biopsychosocial approach to well-being [15, 17]. How this happens is the purpose of this chapter.

2. Integrating well-being domains

A basic principle underlying the physical activity of yoga as a pathway to health promotion [7, 16, 22] is the notion that what happens in the body (physically)

effects the mind, psychological processes, and overall well-being [24, 34]. Extant research is beginning to establish that there is no separation between the body, the mind, and effective functioning in all domains: physical, personal, social, and societal [31, 34]. A biopsychosocial approach is a holistic and comprehensive way to view well-being which only recently takes into account all aspects of one's life including the historical and political realities in which one lives [19]. The nested model of well-being [19] depicts four domains, or areas of a unified map conceptualized to comprehensively delineate all areas of life. Specifically, the subjective, first person domain is located at the center of four concentric circles, and is, historically, the area that has been the focus of subjective well-being research [29]. Limited in scope to an individual's reported feelings, the subjective domain (Domain 1) includes phenomenological positive or negative experiences of life.

This chapter addresses the relationship between health and functioning (Domain 2) and the environmental domains (Domain 3). The health and functioning domain includes two broad dimensions of human functioning: the biological and the psychological, whereby within the unified approach, the biological dimension functions to process genetic information, whereas the psychological dimension addresses mental behavior [19]. The psychological is understood in terms of three broad aspects of personality: temperament and traits, characteristic adaptations and identity, and adaptive potentials [19]. Whereas, the biological dimension includes the physiological functioning of the whole person. The biological context, functioning, and processes of the entire biological system are important elements of well-being that coalesce consciousness and personality [19]. The importance of the biological aspects of well-being has roots in genetic processing [19]; thus, an overview of related biological processes and physiological changes that yoga produces is addressed forthwith.

Within the nested model, the larger environmental domain (Domain 3) incorporates the social systems that people dwell and work within. Individuals are imbedded in a social environment that is comprised of networks of social relationships and social institutions [19]. The environmental domain includes the financial environment, individual's access to key resources (i.e., money, employment), and the basic state of the economy. Notably, when queried, yoga teachers in dire need of a living wage report that the social benefits of teaching and practicing are far more important to them then the financial means teaching provides [22]. Taken together, social and economic circumstances are given their appropriate weight in the unified nested model, and provide a comprehensive scope of everyday realities that impact well-being. In accordance with this model, the other domains (i.e., subjective, 1 and values and ideology, 4) are not separate as they function within and around each other. Thus, the model is nested in that preceding domains occur spatially and temporally within the domains encompassing them [19]. Integration of the health and functioning and environmental domains is achieved through group yoga in an environment of collective focus and support (**Figure 1**).

2.1 Vinyasa/flow yoga

Yoga as it is referenced here is a highly physical and challenging sequence of physical activity that involve movements (i.e., poses, asana in Sanskrit) linked with breath practiced with flow (i.e., vinyasa) connecting breath to movement, pose to pose, while maintaining deep, rhythmic breathing [4, 16, 22]. For example, one would inhale while standing and reaching both arms over head, and exhale while folding forward at the waist allowing the head and torso to lengthen over the legs. Matching the breath to the movements is the essence of vinyasa/flow yoga. Another element is drishti, meaning gaze and internal focus, which works

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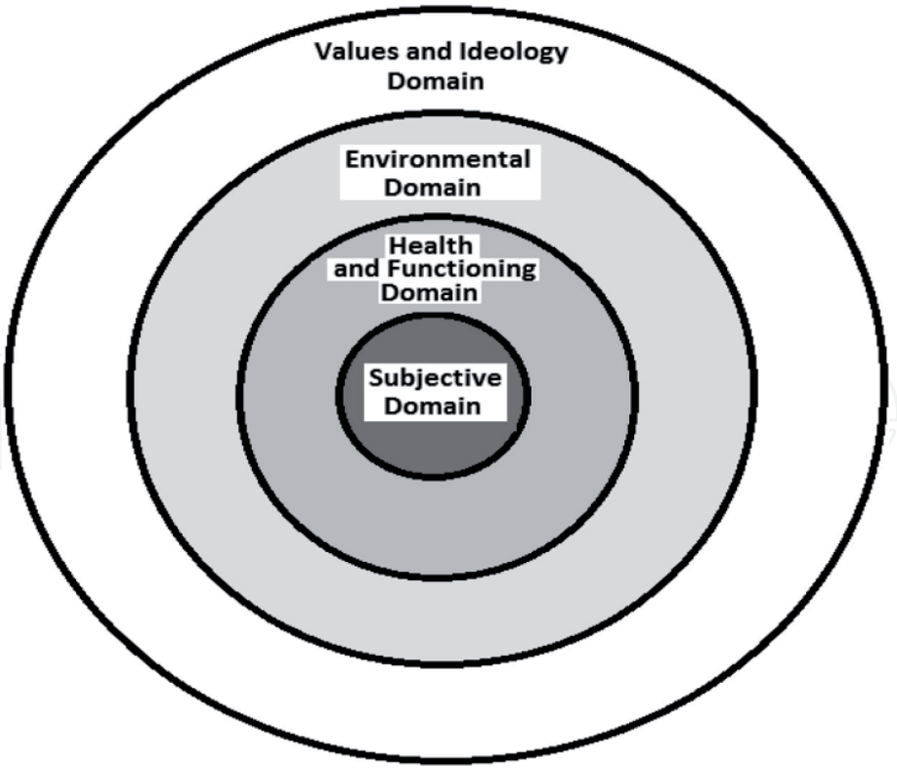

Figure 1.
Nested model of well-being [19].

to create serenity in the body by activating the parasympathetic nervous system which aids down-regulation of the sympathetic nervous system creating slower heart rate, vagal nerve activation, and lower blood pressure [15]. The potential self-regulatory mechanisms of yoga are becoming well defined in recent theoretical models [7, 15] that emphasis improvements in system-wide functioning including emotional stability through detailed self-regulatory gains [15].

Traditionally, yoga was not practiced in a physical way, but designed as an eight-limbed system of life tools for spiritual awakening [33] that include breathing practices, meditation, as well as behavioral advice on what to do (yamas) and what not to do (niyamas) in one's life. There are many informative and ever-evolving translations available that detail traditional yoga practice with origins in the Yoga Sutras of Patanjali [26, 27]. The differences between group power vinyasa/flow yoga, and group exercise classes must be emphasized. While group exercise classes are efficacious and promote health across the developmental life span, [13, 17, 21, 35] there are quantitative and qualitative differences between exercise and yoga. Foremost, exercise classes in the U.S. are typically calisthenics-based movements where individual muscle groups are activated and interval spikes in heart rate serve to improve cardiac health [32]. Conversely, yoga is a full body workout that uses every muscle group [24], and when paired with deep breathing, works to balance physiological functioning [32, 34] and assist psychological health [15]. Yoga derives from the word "yuj," which means to yoke, to unite. While exercise positively impacts the health and functioning domain of the nested well-being model, group yoga practice increases well-being by encompassing both the health and functioning and the environmental domains. Through consistent practice, with an experienced and embodied yoga teacher [20], the class as a whole may reach a feeling of common purpose by breathing together and creating a shared flow and rhythm [4, 16]. Thus, group yoga is an activity that serves to connect its practitioners to each other, and provides a sense of being part of something bigger than simply one's self [16, 22].

Physiologically and psychologically, maintaining rhythmic, deep breathing while moving deliberately and placing the body in physically demanding shapes is not easy. It requires regular practice to feel one has a sense of bodymind [31] control to stay in sync with one's breath and daily fluctuating physical condition. We all have these inconstancies, and yoga practice readily illuminates the changes day to day. How we sleep, what we eat and when, difficulties and stressors in our lives show up on the yoga mat as they are represented through how our body moves and manages the practice on any given day. This challenge can be stressful, the kind of stress that reaps benefits by persisting and overcoming, much like acclimating to heat [15], as described below. The breath is the fuel, the body the vehicle. One does not function well without the other [27].

Psychologically, one must persevere in the yoga practice rather than either leave the room literally or, more common, by checking out emotionally—daydreaming of other things. When one stays grounded and present to the moment to moment sensations yoga activates, a deeper connection and understanding of one's body-mind develops. The bodymind [31] is a term that refers to the oneness of body and mind, and an ever-present knowledge of the body, interoceptively recognized and understood holistically, not just by the mind. Through yogic movement and within the bodymind, consciousness coalesces; its activation is how perspective shifts and insights are gained [16, 34]. Through it, connection to one's self, to others, and to the wider community becomes possible [16, 22].

2.2 The purpose of heat and sweat

Sweating during yoga is both a physical response to increased and intense breathing as well as a heated space, common to power vinyasa style practice. It is also a metaphor for working hard, learning something new, and the willingness to publicly persist though challenge. Physically active over passive pursuits have been established as a predictor of increased well-being across the life-span [5, 11, 17], for practitioners and teachers alike [22]. As noted, heat can be created through focused breath work (i.e., pranayama) paired with asana (i.e., yoga poses) in conjunction with a heated practice room. However, a heated room is not necessary and should be seen as an adjunct to aid the process of sweating and muscle pliability, and at times may be contra-indicated and/or intolerable to those with certain conditions or body types [18]. There will also be practitioners who so enjoy a heated space that they come to rely on it for the kind of benefits described here. They are likely yogis who have acclimatized to the heat and achieved a level of fitness by which they can maintain their breathing rhythmically thereby experiencing a sense of ease through regulation of allostatic load [18, 30]. There is much research needed to explicate which body types fare best from a heated space, and for whom the heat remains a barrier to effective practice. Nonetheless, ujjayi pranayama, victory breath as it is known widely in vinyasa/power/flow yoga, taken through the nose serves to create an internal, cleansing heat as the exhale is slighter longer than the inhale [4, 7, 15, 24]. Moving consistently with the breath, and tolerating the increased warmth emanating through the body are necessary to feel the effects of a solid yoga practice. Thus, the essential and primary element to access sweat is heat, created and released through breath and movement (i.e., yoga poses).

Sweating serves a range of physiological purposes as it cleanses the largest organ of the body: the skin—that serves as environmental protection and helps regulate body temperature and blood pressure [8]. While rates and bodily locations of sweating vary by age and gender [18], increased internal body heat and adapting to it (i.e., heat acclimatization) can be achieved through deep breathing while moving, and enhanced through increased ambient temperature (i.e., a hot room). The

regulation of body temperature (i.e., increased sweat rate, earlier onset of sweat production) during movement/exercise/yoga is critical because of the potential for lethal hyperthermia [3]. Thermoregulatory adaptations vary based on the type of heat (e.g., humid or dry heat) along with cardiovascular adjustments which result in necessary decreased central body temperature. The rate of sweating influences thermoregulation whereby if the hourly sweat rate is small, adaptation of whole body sweat rate may not occur [3]. This is significant as peripheral adaptation is a necessary component to the physiological down-regulation associated with breathing deeply (ujjayi pranayama), and moving intently (vinyasa) [3].

Tolerating heat in terms of being able to maintain a consistent breathing pattern as well as fluidity of movement pose to pose is essential in order to experience its cleansing effects. Once sufficient heat (i.e., tapas) and its release (i.e., sweating) are established, practitioners can begin to enjoy the benefits and changes that occur physiologically including increased self-regulation and improved affect [14, 15, 16]. Down regulation and sympathetic nervous system activation are often described across biopsychosocial domains as feelings of connection to others, of peace and resilience, and produces observable changes including increased flexibility and the ability to communicate more clearly without defensiveness [10, 16, 22].

2.3 Psychosocial benefits of group yoga

Implicit in the title of this chapter is the notion of being seen by others. To sweat publicly, to expose one's vulnerability in a group of potential strangers, requires courage. Recent research indicates that the ability to be vulnerable, to allow one's weaknesses and foibles to be known, is an essential aspect of living happily and whole-heartedly [6]. Why is this significant? One can feel like a fish out of water when beginning yoga—everything is different and can be slightly uncomfortable to start—the clothes are fitted, one's feet are exposed, you will need: a hair tie, a good, non-slip yoga mat, some water, a towel (for the sweat), and a flexible notion of personal space as between you and the next sweaty breather there may be just a few small inches. Group yoga classes create bonding & community [10, 16, 22] based on the human need to affiliate, to be part of a group, and to participate in enjoyable activity regardless of the inconvenience of necessary travel [1]. Similar to exercise, solo practice may support certain increased physical benefits [9], yet neither on-line nor private yoga compares to being in-person and present with others. Courage and effort are required simply to show up and be seen, and because of that investment, and risk, benefits accrue in addition to the physical and physiological effects of the yoga practice itself [6, 16].

A primary result of group-based yoga interventions is reduced stress [21] regardless of its source. Decreased stress creates an environment conducive to a sense of connection and community [5], and aligns with the environmental domain of the nested model of well-being. It is widely accepted that a positive, supportive environment increases social competence and group purpose across generations—necessary ingredients for healthy communities including the workplace [5, 12]. Improved ability to be a functional and valuable member of society is reported by yogis of all ages: school-age, to adult, to teacher participants [11, 16, 22] via increased interpersonal skills that contribute to practical and positive social consequences. For example, yoga practitioners report being more outgoing and having more respect for others due to their consistent yoga practice [16, 28]. Prosocial and community minded attitudes and behaviors are increased with yogis reflecting better judgment and caring more for others [16, 22]. Social competencies include being more easy-going, being a better communicator, and enjoying being at yoga with others. Recent yoga-based intervention research documents the positive effects of physically embodied

practice to promote health and well-being [7, 10, 15, 25]. These results refer to the embodied aspect of self [10, 20], experienced through participating collectively, and the many social benefits created through movement and consistent group yoga practice [5, 7, 16].

3. Conclusions

Vigorous, breath focused, group yoga practice offers a structured, community-based way to cultivate physiological change and healing through a sense of bonding and common purpose. The group setting, the yoga practice, and especially breathing together provide the necessary tools to allow connection, personally and collectively. Being in community in this way, without added substances or dysregulated behavior, allows a purity of emotion and presence to connect each to the other, and an authentic caring for self and others to develop [10, 16]. The integration of health, functioning, and environmental aspects of the nested model provides a greater sense of well-being. For those of you who would like to have this type of experience, I recommend attending a class by an experienced Baptiste [4] certified yoga teacher who uses a hot room (between 85 and 90 degrees), and who has a healthy, active yoga practice her/himself in order to effectively provide guidance with breathing, aligned yoga movement, and pacing to acclimate to the heat.

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