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FitLab: An Interdisciplinary, Team-Taught Approach to Wellbeing

Neal Utterback and Becky Weldon | Juniata College

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Neal Utterback, PhD, CFL1, Associate Professor of Theatre
Becky Weldon, PhD, Assistant Professor of Psychology
Juniata College
1700 Moore Street
Huntingdon, PA 16652

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Today's students are under assault from a pressure cooker of a world that is increasingly focused on immediate gratification. Today's students are under a barrage of social and commercial media that depicts a world that often feels toxic and hostile. Today's students express that they feel ill-equipped to deal with these stressors.

It is not enough, we would argue, that our students survive. We want them to *thrive*.

To aid our students in this quest for resiliency, we created an interdisciplinary course focusing on the science and philosophy of wellbeing: FitLab. With daily CrossFit-style workouts, meditations, and scholarly discussions, this exciting comprehensive course will challenge the student's body, mind, and spirit.

One of the learning outcomes for FitLab is that students gain an understanding of how athletic and academic success is garnered through the accumulation of incremental gains. A second learning outcome is that students increase their awareness of how physical fitness can lead to an overall improvement of self-efficacy and self-control. By supplementing the physical work with classroom seminar-style discussion, the course is designed to assist students in creating systems, habits, and routines that they can implement for a healthier and happier future. The course will have a focus on inclusivity, and all physical activity can be modified to accommodate everyone's fitness level and ability.

This paper will explore the preparatory research for this course. We will cover key principles, theories, and evidence from different perspectives, including cognitive science, neuroscience, exercise science, and sports psychology. Topics will include exercise, food choices, sleep, social support, emotion, memory, and motivation as well as finding purpose and meaning in one's life. Furthermore, an "It's On Us" mini-grant will help us develop the course. "It's On Us" is geared toward implementing modules on safe and healthy interpersonal relationships, sexual health and consent, drug and alcohol consumption, and the effects of technology.

This paper will also include the results of a pre-course assessment designed to examine students' self-reports on their own sense of wellbeing. We will follow up prior to the conference with a mid-term assessment examining what, if any, improvements have been made.

INTRODUCTION

Today's college students face different stressors and challenges as society becomes increasingly fast-paced with a growing reliance on technology. This spring semester (Spring 2019), we have begun teaching a new Interdisciplinary Colloquium course at Juniata College on well-being. We bring perspectives from theatre and movement (Dr. Neal Utterback) and psychology and neuroscience (Dr. Rebecca Weldon). We want students to be equipped with the knowledge and experience that will allow them to thrive in this modern-day, fast-paced world. Each class involves a 20-minute breathing / meditation / mindfulness component, a 20-minute exercise/movement session, a 20-minute discussion of readings, and a 20-minute journaling / self-reflection. In addition, students complete exercises throughout the course of the semester that involve an intentionality about who the student wants to be. For example, students are required to write down their core values one week, and the following week, they are required to come up with mission statements that correspond to the kind of lives they want to (ideally) lead. Along with developing a mission statement ("I will become…"), students must describe three product goals (specific, achievable goals that correspond to their mission statement) and three daily commitments that outline the kinds of things that they can do each and every day to move closer to the person they want to become. In this paper, we review the five key areas of the course: mindset, sleep, nutrition, exercise/movement, and community. We discuss these themes in the context of today's college students and the obstacles they encounter. We believe that these five domains are critical to achieving – and maintaining – a higher level of well-being.

FITLAB: MINDSET

College students are reporting increasing levels of perceived stress and anxiety. Some of this stress can be attributed to the financial burden of college, some of this stress can be attributed to social aspects of college (e.g., "where do I fit in?"), and some can be due to internal or external pressures of attaining academic achievement.

One fundamental question for educators is what can be done to give students of lower socioeconomic status the best possible chance of succeeding. Academic achievement has been positively associated with socioeconomic status; the higher one's socioeconomic status, the higher the academic achievement (Claro, Paunesku, & Dweck, 2016). Lower socioeconomic

status students are at a disadvantage for a multitude of reasons, such as limited access to educational resources, limited access to quality health care, and fewer opportunities to adhere to a healthy diet. Recent research suggests that growth mindset can be a protective factor when it comes to the negative effects of poverty on academic achievement. Claro et al. (2016) found that 10th grade students who are more likely to agree or strongly agree with "fixed-mindset" statements like ("Intelligence is something that cannot be changed very much" and "You can learn new things, but you can't change a person's intelligence") were more likely to score lower on standardized tests than students who disagreed with these statements (i.e., students who took on more of a growth mindset that intellectual abilities can change and can be developed). This finding extended across the socioeconomic continuum, and the authors found that growth mindset can reduce the negative effects of socioeconomic background on academic achievement.

There has also been a wealth of research on grit, which is characterized by passion for and perseverance of for long-term goals, that has shown that adolescents who score higher on measures of grit outperform their peers (Duckworth & Gross, 2014). Adolescents higher in grit have higher GPAs and watch fewer hours of television. A study conducted with U.S. Military Academy cadets showed that cadets who scored higher in grit were more likely to complete their first summer of training at West Point (i.e., less likely to drop out), and grit was a better predictor of retention than IQ or conscientiousness (Duckworth, Peterson, Matthews, & Kelly, 2007).

Self-control is also a key predictor of success, and refers to the ability to resist a short-term alluring option that would bring immediate gratification (e.g., watching a television show) in order to follow through with a long-term goal (e.g., studying for an exam). Recent research suggests that grit and self-control are separate constructs that both predict success, but typically self-control is on a shorter timescale (i.e., humans have to resist alluring temptations every day), whereas grit is a measure of the ability to follow through with long-term goals despite setbacks, even over a period of years or decades (Duckworth & Gross, 2014).

Related to enhancing well-being, what mindsets are most effective? Some of the early psychology research focused on life satisfaction (Diener, Emmons, Larsen, & Griffin, 1985). Pilcher (1998) examined life satisfaction in college students and found that lower depression, lower frequency of illness, and lower levels of negative affect were all associated with higher levels of life satisfaction. Recent research suggests that gratitude contemplation can have positive effects on well-being, with participants in a 4-week gratitude contemplation intervention

reporting higher life satisfaction and higher self-esteem than participants in a memorable events control group (Rash, Matsuba, & Prkachin, 2011).

We have collected some preliminary self-report data on life satisfaction (The Satisfaction with Life Scale; Diener et al., 1985), positive and negative affect (PANAS-X; Watson & Clark, 1994), and psychological well-being (Henriques, Kleinman, & Asselin, 2014; Ryff & Keyes, 1995). We had students complete these survey measures prior to the start of the semester, and we will have the same students complete these measures after the class concludes. We aim to understand whether a course that focuses on well-being through review of the literature, exercise, and mindfulness practices will enhance students' well-being and life satisfaction. This research can lend insight into the development of future interventions and educational curricula.

FITLAB: SLEEP

What is sleep? Attempting to answer that question may reveal just what a wonder and mystery it still is to us.

On NPR's *Hidden Brain*, neuroscientist Matthew Walker makes a startling observation; the Guinness Book of World Records eliminated the category for sleep deprivation citing its significant health risks, but meanwhile, the Guinness Book has no trouble allowing Phillip Bumgardender to freefall from a space capsule and break the sound barrier with his body. This comparison highlights the all-too important need to sleep. Walker argues that even the slightest sleep deprivation can cause significant health risks, pointing to the effects of Daylight Savings. Studies show that there is a 24% increase in heart attacks when we lose a single hour of sleep. As Walker puts it, "The human brain is not capable of getting back the sleep that is lost."

Walker describes sleep as "the Swiss Army knife of health." And yet, for many students, sleep is that thing one has to do—but in actuality, does as little as possible. In "Enhancing bedtime performance" Michael McNeil (2016) notes that for many U.S. students, irregular sleep habits affecting both quality and quantity are often due to poor time management and our new favorite, FOMO (Fear of Missing Out). But it is not merely the fault of the student. McNeil points to the institutions themselves as culprits. He writes, "In fact, campuses are likely working against sleep supportive environments in a number of ways. A growing number of campuses are catering to the on-demand word of students by making more spaces available 24/7." What might

a campus look like and how might it behave if it prioritized sleep quantity and quality and nurtured a community of wellbeing? In doing so, we would likely not only benefit students' classroom performance, but their overall and long-term health as well.

In their startling paper, "Sleep restriction increases free fatty acids in healthy men," Broussard et al. (2015) took 19 healthy, lean men between the ages of 18 and 30 and restricted their sleep to 4.5 hours a night. They found that even restricting sleep for a *single night* elevated non-esterified fatty acid (NEFA), which plays a central role in the pathogenesis of insulin resistance. That, of course, is a precursor to metabolic diseases such as Type 2 Diabetes. The authors write, "From a clinical perspective, our findings support the importance of sleep in the regulation of metabolism and provide further evidence that insufficient sleep, a highly prevalent condition in our modern society, may adversely affect fatty acid metabolism." Prevalent in modern society, yes. Ubiquitous in college society, absolutely.

In his comprehensive book on the matter, *Why We Sleep*, Michael Walker, the aforementioned expert on sleep and director of UC Berkeley's Center for Human Sleep Science, suggests that our renewed attention on sleep reveals that "…sleep is the single most effective thing we can do to reset our brain and body health each day—Mother Nature's best effort yet at contra-death." As educators in the highly competitive college and university space—a space populated by young and yet-developing human minds—perhaps reinforcing the critical importance of this "reset" is the best thing we can do for our students (and, we would argue, for ourselves). While this culture shift will not be easy for most, McNeil echoes this need: "The time has come to stop glorifying nonsleeping as a badge of honor, a rite of passage, or an expectation of college years." Instead, we hope to see sleep reestablished as one of the single most important priorities in our day. In FitLab, we place sleep second only to Mindset—and part of that Mindset is recognizing the profound importance of sleep.

FITLAB: EXERCISE

Fitness as a functional measure

As a methodology and a movement, one of the profound contributions of CrossFit is that it provides a clear and measurable definition of fitness. Without belaboring the definition, one of the key features is what is referred to as "The Hopper" (Glassman, 2002). Under this rubric, one

should be able to write down on a card any given activity (e.g., run a 5k, deadlift 300 pounds 50 times, climb Mount Everest), and then throw all of the cards into a hopper. Pull out some given number of cards and the fittest person is the one who can do those activities the fastest. This means that we are striving for functional fitness. *Functional* is a buzzword as of late, so we need to define it. A movement is functional in that it is a multi-joint activity that can be found in every day activity. Therefore, a squat—multiple joints that is basically sitting and standing—is functional, but a bicep curl is not—unless you are a drunk frat boy curling beer cans, but I digress. Moreover, one is functionally fit when one can do any range of these activities well. Why is this important?

Many of our students, anecdotally, claim that they don't feel like they can manage the stressors in their lives. They feel overwhelmed and unfocused. Daily exercise offers an embodied training for individuals to come face-to-face with an obstacle and overcome it. Exercise comes with elevated heart rates, strained muscles, and a nagging voice in the head that says, "wouldn't it be easier to quit?" We tell students that this will happen, and importantly, we give them the tools to navigate it.

By training in a functional way, we create a mental model and embodied metaphor upon which the student can build experiences. It is this very embodied experience that nurtures real and lasting confidence, which is merely the repeated successful execution of an activity. That confidence can be mapped over to other activities in life. So you just did 50 Wall Balls, 40 Push Ups, and 30 Box Jumps for time as fast as you could. Your heart rate jacked way up, you thought you were going to quit—but you stayed calm, stayed focused, and kept breathing. Now apply that to your midterm exam.

Fitness and the brain

Many of our students coming to us today are largely sedentary and often have negative encounters with exercise. Although exercise communities like CrossFit are working to change misplaced cultural assumptions about exercise and promote more positive, functional approaches to whole person wellness and wellbeing, there are still assumptions among some that exercise is solely about weight loss or muscle building. Furthermore, faculty may feel uncomfortable with some form of curricular fitness programming. However, we must ask ourselves if we are, in fact, serious about "whole person health," then physical preventive measures must be part of the

equation. How, then, do we mitigate cultural assumptions about exercise? How do we both prescribe the benefits of exercise while also allowing individual interests to be explored and different body types and skill levels to be empowered?

In 2014, a Purdue University study found that students who visited the recreational sports center 15 or more times during the semester maintained GPAs nearly 9% higher than those who did not attend at all. What students do not often realize is that the benefits of exercise are primarily about neurochemical regulation in the brain, which allows for improved learning and memory—body composition is a byproduct. Developing and nurturing a healthy relationship to exercise can actually aid our students in their coursework.

In *Spark,* Dr. John Ratey (2008) outlines the pervasive benefits of exercise on a spectrum of cognitive and behavioral issues including stress and anxiety, depression, ADHD, learning and memory, addiction, and hormonal changes. As a pilot for his research, Ratey points to Naperville High School. In the late 1990s, Naperville experimented with exercise for students in remedial literacy course. Before the regular class day began, students would engage in fitness-based (as opposed to sport-based) exercise during zero hour. The goal of zero hour was to prepare the brain for learning. The project was so successful that they began including additional learning readiness PE classes throughout the day. In 1999, Naperville competed in the Trends in International Mathematics and Science Study (TIMSS), a global exam ranking the world's best and brightest. Usually the prestigious award goes to Singapore and other Asian nations. But that year, Naperville scored first in science and sixth in math in the world. In the world!

Our students often express being "stressed out." Certainly we place terrific demands on them curricularly. But there are added pressures of a residential campus such as ours where our students learn, eat, and sleep with each other. Exercise provides a nearly free way of stress management. This is, in part, because exercise regulates the stress hormone cortisol. The problem we face is that we still have the evolutionary chemical reactions to stress—increased cortisol levels—but not the actual fight-flight-freeze response. There is no outlet for the stress. So it feels like the stress builds up. We get stressed out. We have to make conscious efforts to make rigorous physical activity happen for ourselves. Our hunter-gatherer ancestors in the Paleolithic era ran circles around us. Literally. According to a 2002 Journal of Applied Physiology study, our average energy expenditure per body mass is less than 38% of our *Homo sapien* relatives.

The fact is that our students are at school for both curricular and co-curricular purposes. They need to learn and remember material from their courses but in order to do that they need to be physically prepared to do so. In other words, their bodies need to be in a balanced neurochemical state that allows for new neural connections to be made, previous connections to be strengthened, and the better part of learned material to be remembered and recalled for later use. Therefore the first question is, what is learning and memory? From a neurological perspective it is external encounters that create enough excitation in synapses in the brain that they form connections. Those connections are either strengthened or weakened over time. This is what is meant by neuroplasticity. Exercise is shown to facilitate the growth of brain areas related to memory, even in older age, thus benefitting learning and memory (Erickson et al., 2010).

In their article, "Hey, Millennial, It's Time to Get Physical," Knight and colleagues (2016) write, "With college students being pulled in many different directions, taking time to focus on the present moment through practices such as meditation can benefit mental health." Mindfulness—also part of a proactive mental health practice—can help calm the mind, mitigate stress, and also aid in developing a personal identity and purpose. Where do our students develop the skills for deep self-reflection? How might we integrate mindfulness practices in and out of the classroom for our students as well as faculty and staff?

FITLAB: NUTRITION

The CrossFit prescription for nutrition is pretty hard to argue with: "Eat meat and vegetables, nuts and seeds, some fruit, little starch, and no sugar." Born out of a movement now often referred to as "ancestral health," it is simply a return to basic common sense in a world where food is more of a chemistry experiment. Food's transition from alive-and-well to plate tends to do so through multiple layers of processing. Furthermore, what typically gets labeled (a label being the first of many red flags) as "healthy" plays more on our psychology than physiology.

In their essay, "Nutrition: Eating to Survive or Thrive," Annann Hong points out that while our nutrition science (and other industrial machinations) have progressed wildly since WWII, our basic physiology has remained relatively unchanged since our primitive hunter-gatherer ancestors. Still, nutrition is dicey because it can so easily become rooted in emotions,

culture, and habit. Moreover, because some students have experienced unfortunate negative associations with eating (e.g., resulting in disorders), it is challenging for a college course to cover all of the myriad nuances of food and nutrition.

Therefore, it is crucial that we clarify our goals for our students and for ourselves. At the outset, we must reset our perspective of food not merely as a salve for our feelings but as fuel for our activity. When gassing up my Honda, I do not consider how the gas makes me feel but instead consider whether or not it optimizes the mobility of the machine in which I rely on to get me from point A to B. So, too, is the prime reason for eating highly nutritious, whole foods. From the CrossFit prescription, this means eliminating all of the processed junk that tries to masquerade as food. Therefore, a basic understanding of the biochemistry of nutrition is necessary, i.e. a basic understanding of macro- and micro-nutrients and what they are responsible for. Students also need a foundational understanding of the calorie as a unit of measurement of energy and how that translates to activity. But students also need to understand how aspects of their college experience involve consumption of food stuff that is more socially-oriented than nutritional, for example, alcohol.

In their paper, "Peer effects and alcohol use among college students," authors Kremer and Levy (2008) report that approximately 40% of the college students surveyed self-reported binge drinking within the last two weeks of the survey—and that drinking was primarily the result of peer pressure. In a rural, residential campus such as Juniata's, peer pressure on a number of variables can be a strong factor. As the authors report, having a roommate that drinks can actually adversely affect a student's GPA. The cause could be correlative rather than causal, but it is interesting that proximity and availability clearly do factor into a young student's choices—out of sight, out of mind versus in my own room and readily available. The authors also point out that the effects may be indirect. For example, a roommate that drinks may also stay out later or engage in more large group activities that can be distracting. They write, "This evidence raises the possibility that interventions aimed at directly reducing problem drinking may generate multiplier effects. A policy that directly reduces drinking by some students may indirectly reduce drinking by others, leading to a greater cumulative effect over time than would be identified simply by looking at the impact on the individuals exposed to the program."

But more than any other feature of the CrossFit model of nutrition—and the one *most* necessary to educate our students on—is "no sugar." The average American—and certainly the

average American college student—probably has no idea how much sugar they are eating. As Hong writes, "…it should be noted that an average 12-ounce soda can have as many as 11 teaspoons (46 grams) of sugar alone, close to twice the recommended intake for an adult!" (exclamation in the original). And while we certainly have our own agendas and hopes in regard to the nutritional standards for our students, the main goal is to get them thinking about their own food choices.

To understand the impact of refined sugar and other ultra-processed, highly palatable foods, New York Times reporter Anahad O'Connor looked to indigenous hunter-gatherer tribes such as the Tsimane people of Bolivia. Drawing on anthropological research, O'Connor shows that there is a wide variety of diets between populations but often little variety within a given population. Unlike contemporary Westernized diets, which have a tremendous amount of variety not to mention availability, the evidence seems to suggest that maintaining a simple plate and familiar plate of whole foods derived as close to its original sources as possible—and one that looks suspiciously like the CrossFit prescription, we might add—is ideal. When left to their traditional ways, indigenous hunter-gatherer tribes experience a profound lack of obesity, hypertension, cancer, and heart disease. However, as soon as they move to more Westernized cities, things take a drastic and dire turn. As anthropologist Michael Gurven says: "They changed from their traditional diet to eating in town where everything is fried…They started eating fried chicken and rice and drinking Coca-Cola. Some of these folks can see a pretty rapid change in health" (O'Connor, 2018).

All of this evidence is particularly alarming if you journey through the typical college dining facility. In an effort to accommodate a variety of student tastes, it is nothing short of sensory overload. While there are healthy (or, perhaps, healthier) choices to select, navigating those choices is an obstacle course of willpower for the best of us. At the very least, we hope to arm our FitLab students with information so that they can more mindfully make smart nutritional choices and rely not merely on the whim of one's appetite but on one's reason.

FITLAB: COMMUNITY

Before we began teaching this course, we had a few students participate in a mock class, to get a sense of how each class would run, and to gather feedback on things students liked about the class and things that they thought could be done differently. When we were running course

topics by the students, we told them that we were planning on focusing on topics like sleep, nutrition, exercise, and community. The students unanimously said that community was the most important topic to cover, since college students are surrounded by their peers starting on Day 1. Therefore, from the very start of the college experience, students are forming their communities, and those peers have a substantial amount of influence on their lives.

Our course efforts have been partially funded by a small grant called "It's On Us" that focuses on topics related to community, such as safe and healthy relationships, sexual health and consent, drug and alcohol consumption, and the effects of technology. One of the focuses in our class on well-being is the importance of forming healthy relationships. We are not solely referring to romantic relationships, but rather, relationships with the people who surround us: friends, neighbors, teammates, classmates, co-workers, partners.

It is the hope that college students surround themselves with people who lift them up. That is truly the ideal. However, students may form unhealthy relationships, in which peers or romantic partners have negative effects on one's health or well-being. There is evidence to suggest that adolescents may take more risks (e.g., substance use, unprotected sex, risky driving) when they are with a peer. The negative connotations associated with "peer pressure" are not entirely unfounded – the data supports that adolescents are more susceptible to peer pressure than other age groups, perhaps because peers are simply more rewarding at this age. Neuroscience studies show that the reward center in the brain shows more activation in adolescents than adults when participants are merely in the presence of peers (Chein, Albert, O'Brien, Uckert, & Steinberg, 2010). Kremer and Levy (2008) examined alcohol use and peer influence in college students. They found that students at a large state university who were randomly assigned to a roommate had lower GPAs if their roommate drank alcohol prior to college. The authors conclude that peers may affect a person's preferences, which can be detrimental to student health and levels of stress if in fact the preferences have to do with substance use or abuse.

Students may also be forming unhealthy connections as they navigate the complicated world of sexual relationships in college. One recent study suggests that college students perceive a sexual double standard in heterosexual relationships, in which women feel a need to put men's needs before their own, endorsing values like "good girls do not have sex," and women are judged for having too many sexual partners (Jozkowski, Marcantonio, & Hunt, 2017). Furthermore, men reported perceiving having sex as a conquest. The implications of this

research are far-reaching, in terms of consent communication. If gender norms are different for males versus females, and perceptions of what is appropriate is different for males versus females, it is rather troubling to think about the effects on consent (voluntary agreement to engage in sexual activity with another individual).

When discussing the concept of college students' communities in today's world, it goes without saying that technology plays a critical role. Students today are faced with rapid changes in technology, and these changes include a rise in social media usage. In 2013, 79% of 18-24 year-olds in the U.S. owned a smartphone. As of 2016, polls showed that 93% own cell phones and 89% use social networking sites (Orzech, Grandner, Roane, & Carskadon, 2016). It is also the case that friendships can be more "flexible," with technologies like text messaging and video chat allowing for instantaneous communication with friends who might live across the country or across the globe (Ruppel, Burke, & Cherney, 2017). Given that students often interact with peers over social media sites multiple times per day (Pew, Social Media Use in 2018), it is quite apparent that technology has affected college students' notion of what their "community" is. However, is a growth of social media usage correlated with increased meaningful friendships? Higher levels of well-being? Manago and Vaughn (2015) caution that the ability to accumulate hundreds of Facebook friends does not necessarily correlate with increased happiness.

Thus, despite the positive aspects of a growing technological world, technology has negative effects as well. One study investigated college students' use of mobile phones while talking with a close friend in person. The researchers found that an increased amount of mobile phone use (during the conversation) was associated with lower-quality interactions with the friend (Brown, Manago, & Trimble, 2016). The increased use of electronic devices at night (likely due to a shifting concept of community) also has a negative effect on students' sleep schedules (Rosen, Carrier, Miller, Rokkum, & Ruiz, 2016). These changes in technology use result in a remarkably different concept of community in today's college students.

CONCLUSION

This paper has examined well-being in the context of five key domains: mindset, sleep, nutrition, exercise/movement, and community. We believe that by focusing on each one of these five areas, college students can better mitigate stress. We also argue that these five areas are *not*

disparate, but rather, are interrelated components of life. For example, if a person is not sleeping well at night, they are more likely to make poor food choices, and less likely to exercise. We hope that as students recognize the degree to which these areas of life affect one another, they will be more likely to engage in self-reflection in relation to each one of these domains. We also weave in exercises like coming up with one's core values and developing a mission statement so that students are continuously thinking about how they can thrive in today's changing world. We think that this course content has tremendous relevance to today's college students and important implications for educational curriculum reform.

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