

Teaching Anatomy to Yoga Teacher Trainees

Ali Place
XD:MFA
Dec. 14, 2016

Abstract

Most yoga teachers complete little more than the minimum 200 hours of training required to receive certification by the governing body of yoga teachers, Yoga Alliance. This project sought to understand how teachers with basic 200-hour certifications accommodate students with injuries and disabilities in their classes and whether they feel confident in their abilities to serve those students. Research into the yoga community in Cincinnati, Ohio revealed findings that teachers exit trainings ill-prepared to deal with injuries and that anatomy taught in trainings is overwhelming, not applied and therefore quickly forgotten. A need was identified for a method to teach anatomy to yoga teacher trainees in a way that makes the knowledge retainable and applicable. A tool is proposed that uses augmented reality to combine anatomical theory with real-time body movements in yoga poses. This report details the process of this research, the themes identified and the proposed design solutions.

Contents

Introduction	4
Researchers	5
Literature Review	6
Concept Map	8
Methodology	9
Results & Conclusions	13
Design Outcome	17
References	19

Introduction

There is no legal requirement of training, certification or experience for an instructor to lead a yoga class in the United States. Certification is issued by the governing body of yoga teachers, Yoga Alliance, but it is not required by many studios. Most yoga teachers complete little more than the minimum 200 hours of training required to earn the most basic level of certification.

Yoga Alliance also oversees teacher trainings, relying on studios to self-report that their curriculum meets the requirements for a standard training. To meet the Yoga Alliance standards of a basic 200-hour training, trainees are required to spend a minimum of 20 hours learning anatomy and physiology, with as little as 10 of those being contact hours. There is also a minimum of 10 practicum hours, not all of which are required to be spent practice teaching (some of those hours can also be observation, assisting and getting feedback).

Yoga is an ancient practice that dates back thousands of years across the globe, but it has witnessed a tremendous increase in popularity in the United States in recent years. A survey conducted by Yoga Alliance and Yoga Journal reports that the number of Americans doing yoga has grown by more than 50% in the last four years to 36 million as of 2016. The number of Yoga Alliance registered yoga teachers has also increased 850% from 9,700 in 2004 to 72,700 in 2016. Nearly half (45%) of teachers have been teaching for 5 years or fewer.

A growing body of clinical research has documented yoga's proven benefits for a range of health conditions, and yoga therapy is now recognized as a clinically viable treatment, with established programs at major health care centers across the country. According to Yoga Journal, 17% of practitioners started doing yoga because of a recommendation from a doctor or other health care provider.

Given the sharply increasing popularity of yoga in Western society, and the frequency with which it is prescribed as an alternative treatment method for illness and injury, it is imperative that yoga teachers exit their basic training with a strong understanding of anatomy and physiology and the ability to safely apply that knowledge in a yoga class. With this in mind, my research sought to answer the following question:

How do yoga teachers in Cincinnati, Ohio accommodate students with injuries and disabilities in their classes?

Researchers

This research was conducted in fall semester of 2016 by Ali Place, a graduate student at Miami University in Oxford, Ohio pursuing an MFA in Experience Design, and a certified yoga teacher at Move Your Hyde Power Yoga in Cincinnati, Ohio.

Literature Review & Concept Map

A Review of the Literature

While there is ample published literature reporting the findings of research focused on the practice of yoga for individuals with injuries or disabilities, there is little in respect to teaching yoga to these groups or how teachers are trained to accommodate them.

Research on the subject of yoga and injuries or disabilities can be divided into three categories: the practice of yoga by individuals with injuries or disabilities, teaching yoga to individuals with injuries or disabilities and training yoga teachers to deal with injuries or disabilities.

Yoga Practice: Specific Conditions

The vast majority of research published on the subject of yoga and injuries or disabilities deals with the effect of the practice on those individuals and their conditions. Treatment for countless ailments has been investigated through the lens of yoga, from osteoporosis (Quilter, 2007) to visual impairment (Jeter, 2012). This research is based largely on medical evidence, and findings relate very specifically to the individuals with that condition only.

Yoga has been found to be an effective treatment for many conditions, due in part to its physical postures and movements, but mostly due to its mental and emotional aspects such as mindfulness, breath awareness and compassion. Medical outpatients suffering from a wide variety of conditions have been found to benefit from a gentle yoga practice, to the effect of decreasing fatigue, decreasing pain, increasing social functioning and increasing emotional well-being (Gabriel, 2006).

Teaching Yoga

Some research has been published regarding a teacher's role in accommodating students with certain conditions, but again, most of it has to do with very specific conditions, such as wrist pain (Quilter, 2007) or visual impairment (Mohanty, 2016). Findings from this research culminated with detailed recommendations for teachers who encounter students with these conditions, such as pose modifications, sequencing and visualization.

Research into more general aspects of teaching yoga to individuals with health conditions includes teaching yoga to seniors (Krucoff, 2010) and using touch therapy in yoga classes (Parker, 2013).

Seniors are the fastest growing demographic in America and have followed the national trend of other demographics when it comes to the increased popularity of yoga. However, seniors fit the profile of most American adults in that 80% of them have at least one chronic health condition, and 50% of them have at least two. As such, their participation in yoga classes poses a higher risk than the typical younger and fitter yoga practitioner.

Findings from this research indicate that there is a considerable knowledge gap between yoga teachers and teaching specifically to seniors, and there are a number of important considerations and modifications of which teachers should be made aware.

Touch therapy has been found to be an effective practice in increasing the physical experience and psychological awareness of a student in a yoga class, and findings point to specific methods and techniques for doing so. Although this research takes into account the unique situations for injured individuals or survivors of trauma, it does not make recommendations for these groups specifically.

Yoga Teacher Training

The least amount of research found relates specifically the training of yoga teachers to accommodate injuries or disabilities. One published article was found to address the issue of how anatomy is taught in yoga teacher trainings (Gardiner-Shires, 2015). Research found the way anatomy is traditionally taught in yoga teacher trainings is systematic but ineffective due to a number of reasons, such as assumptions about a teacher's baseline knowledge and overload of information taught per session. Recommendations included a new format for teaching basic principles, as well as a temporal shift to splitting the content up into two sections taught over a period of 6 months.

Conclusion

There is a significant gap in the research in regards to the teaching and teacher training aspects of yoga. It is concerning that so many researchers point to yoga as an effective method of healing for innumerable conditions and injuries, yet this research shows little consideration for the effectiveness of the teacher who could be potentially leading such individuals in a yoga class and how they were trained. Research on both of these subjects is limited in breadth and depth, with considerable knowledge to be gained.

Methodology

This research was conducted using the following methods:

- Observation of yoga classes
- Survey of yoga teachers
- Focus group of yoga teachers
- Interviews with yoga teachers and students

These methods were chosen in order to gain a wide perspective and general consensus of the issue (through surveys and focus groups) as well as in-depth, anecdotal perspectives based on teachers' and students' unique experiences (through observation and interviews). Throughout this process I also relied heavily on my own experience as a yoga practitioner and teacher, as well as anecdotes of both teachers and students that I have heard over the past 8 years.

Observation

I observed two yoga classes, one taught by a studio owner with over 1,500 hours of training and 13 years of teaching experience, and one taught by a new teacher with 200 hours of training and 2 years of teaching experience. Though I have taken classes with both of these teachers previously, it was important for me to step outside of the situation and observe in the moment how each teacher interacted with students, and specifically how they reacted to students who presented with injuries or alignment issues.

Survey

I conducted an online survey of 34 yoga teachers, some of whom teach at my home studio, and several of whom teach at other studios in Cincinnati. I used the survey to obtain general information such as demographics and training hours earned, as well as anecdotal information such as emotions and personal experiences. My main objective in doing the survey was to find the correlation between teachers' training hours (or years of experience) and their feelings about having students with injuries or disabilities in their classes.

The survey consisted of the following questions:

How long have you been teaching yoga?

How many teacher training hours do you have?

Please list all yoga teacher trainings you have completed, including workshops and intensives.

At how many yoga studios do you teach?

How many classes do you teach per week?

What type of yoga do you teach? Check all that apply: Baptiste Power Yoga, Vinyasa, Ashtanga, Anusara, Bikram, Iyengar, Jivamukti, Forrest Yoga, Hatha, Yin, Restorative, Prenatal, Yoga Therapy, Yoga for Trauma Recovery, Yoga for Seniors, Other

How often do you encounter a student in your class who has a pre-existing injury?

How often do you encounter a student in your class who has a physical disability?

How well do you feel your yoga teacher training(s) prepared you to safely accommodate students with injuries and disabilities in your classes?

Did one or more of your trainings prepare you particularly well to accommodate students with injuries or disabilities? If so, please list them.

Recall an instance where you encountered a student in your class with an injury or disability and you were successful in safely accommodating the student. Describe the situation, how you reacted, what you did to accommodate the student, and the outcome.

Recall an instance where you encountered a student in your class with an injury or disability and you were NOT successful in safely accommodating the student. Describe the situation, how you reacted, what you did to accommodate the student, and the outcome.

Rate your confidence overall in accommodating students in your class with injuries or disabilities.

Please share anything you would like to add regarding this subject matter. Your insight is greatly appreciated.

What is your gender?

How old are you?

Your name (optional):

Focus Group

My focus group consisted of four teachers whose teaching experience ranged from two to eight years. My aim in this conversation was to understand what the general consensus among teachers is about teacher trainings and the preparedness of new teachers, and to hold an open-ended discussion about how to address the issue.

The focus group addressed the following questions:

How long have you guys been teaching yoga?

What trainings have you completed?

How many studios do you teach at?

How many classes are you teaching a week?

How often do you encounter students with pre-existing injuries or physical disabilities?

What do you do to accommodate common injuries?

Do you think some students are there because of their injury?

When you have a student who self identifies with an injury, what's your tactic for addressing it?

Do you feel like your training prepared you to deal with injuries? Why?

If something is missing to help teachers to feel prepared in those situations, what is it? something in training? something in the classroom?

What should be done to address this issue? Who should address it?

Interviews

In-depth interviews were by far the most important and revealing part of my research. I interviewed one teacher, one studio owner, and two students who have injuries or unique physical conditions. All interviews lasted approximately one hour. Throughout the course of the teachers' interviews, it was apparent that they both became increasingly concerned about this issue the longer they discussed it, as if they hadn't really given it this much thought before. As they realized how significant the issue was to them, they offered more in-depth feedback about how it should be addressed. The studio owner even decided that she should start leading new trainings for her teachers on the subject of anatomy and common injuries, and scheduled the first of them within a week of our conversation.

My interviews addressed the following questions:

Teachers:

How many years have you been teaching? practicing?

As a teacher, what has informed you most about bodies and anatomy?

For teachers who have not had any injuries themselves, how do you recommend they learn anatomy?

What about teachers who get their 200 hours and they don't know a lot, they're not used to working with bodies?

What's an appropriate level of knowledge for a yoga teacher? basic anatomy and basic modifications?

What about a younger teacher and they have an initial understanding of anatomy but they don't have the experience yet?

How long did it take you learn things like that, before you felt really confident about it?

Do you think that's the problem? people come to these classes with no body awareness and they look to the teacher to find that awareness. and if a teacher is inexperienced they sort of have this unruly power they can wield in classroom and people can get hurt?

If you have students come in with this expectation that yoga will heal them in some capacity, and you have a new teacher who one, doesn't have that capacity, but also does not have the experience or the confidence to accommodate that expectation, how do you resolve that disconnect?

What about teacher trainings? is there something missing there?

Is there a way that the student's part of it can be changed? their perceptions? can we inform them?

Is there a way to thread more of that experience factor into the training?

Students:

How long have you been practicing yoga?

How often do you practice? What styles?

At how many studios have you practiced in Cincinnati?

Why do you practice yoga?

If you suffer from injuries and/or chronic conditions, how does practicing yoga affect them?

Do you inform yoga teachers of your injuries/conditions when you take their classes?

Do you feel yoga teachers are equipped with the knowledge and experience to understand and accommodate your injuries/conditions? Why or why not?

In general, how have yoga teachers reacted to and/or accommodated your condition(s)? (offer modifications, physically adjusted you, etc.)

Describe an instance in which a teacher was particularly successful/helpful in safely accommodating your injury/condition in a yoga class. What did they do? How did it make you feel?

Describe an instance in which a teacher was NOT successful/helpful in safely accommodating your injury/condition in a yoga class. What did they do? How did it make you feel?

Results & Conclusions

The main takeaways from the results of this research are:

- *Teachers encounter students with injuries in their classes very frequently (nearly every class) but they very infrequently encounter students with physical disabilities;*
- *Most teachers lack confidence in their ability to safely accommodate those students, and tend to offer very generic modifications or none at all for fear of giving incorrect instructions; and*
- *Many students report negative experiences in yoga classes where they received unsafe adjustments or ineffective pose modifications.*

The results of this research also reveal several systemic issues in the yoga community, including lack of oversight in teacher trainings, ineffective training methods, miscommunication between students and teachers, and a general dissatisfaction with basic training formats. These results will be presented in three categories: yoga teacher trainings, teaching yoga and the student-teacher relationship.

Yoga Teacher Trainings

Survey results showed a strong correlation between the number of years a teacher has been teaching, the number of training hours they have earned and the amount of confidence they have in their ability to accommodate students with injuries and disabilities. This is not surprising in and of itself, but what is particularly noteworthy is that the teachers who have only earned the minimum 200 hours of training report having very low confidence in their ability to accommodate students with injuries, even if they have been teaching for several years since their training. Most of them state that their basic training “did not prepare them at all” for those situations. Equally worth noting is that these teachers teach as many classes per week as other more experienced teachers and they report encountering students with injuries as frequently as other teachers too.

Through further investigation in focus groups and interviews, two reasons were found to explain this: 200 hours is not enough time to prepare trainees to be effective teachers, and trainees do not exit the training with a strong understanding of anatomy and physiology. Many teachers said they “forgot most of” what they learned and likened their basic training to being fed through a fire hose—too much information too fast. If trainings spend only the minimum required 20 hours on anatomy, there is little time for accommodating different learning styles or applying the knowledge they gain. Trainees who have no background in science or medicine, or who have learning preferences that don’t involve quick memorization, are at a severe disadvantage. Most teachers agree that the structure of the training inherently underestimates how hard it is to learn anatomy and how long it takes to absorb the vast amount of information.

Another theme that came up frequently is the issue of teaching experience. Most teachers believe that training can only do so much for a trainee—experience is the ultimate teacher.

Teachers who rate themselves as “confident” or “very confident” in accommodating students with injuries consistently credit experience for their confidence. Though several credit advanced trainings for their knowledge, all of them credit years of teaching experience for their confidence in applying it in their classes. Trainees in 200-hour basic trainings receive a minimum of 10 practicum hours, only some of which are required to be actual teaching hours (some can also be observation, assisting and getting feedback). This means a new teacher can exit a training with fewer than 10 hours of teaching experience and be certified to teach a class at any studio, of any size, to any group of students. Interviews and focus groups revealed a general consensus that this is poor oversight on the part of the yoga community and its governing body, Yoga Alliance. Many believe the required hours of practice teaching should be much higher in order to better prepare trainees to be effective teachers.

Teaching Yoga

Survey results and interviews revealed rich qualitative data about how teachers accommodate students with injuries and physical disabilities when they are teaching. Through anecdotes, it was found that experienced teachers offer specific pose modifications and recommendations tailored to a student’s unique needs, while inexperienced teachers offer generic instruction to “listen to your own body” and make the student responsible for modifying their practice as they see fit. The latter in particular expressed overall dissatisfaction with their ability to serve students in those situations.

A significant theme that showed up across the board in the research is empathy. Teachers of all experience levels agree that without empathy and compassion, a teacher cannot effectively serve an injured student. Teachers who rate themselves as being the most confident in serving injured students also report having experienced many injuries or physical setbacks in their own bodies, and credit much of their knowledge about anatomy and physiology to those experiences. Conversely, teachers with low confidence report having little to no personal experience with injuries. Several of them expressed concern over their inability to fully understand an injury or condition that they have never personally experienced in their own bodies. Though the intention for empathy is there, they see a barrier where they cannot feel in their own bodies what an injured student is experiencing and therefore never fully understand.

In exploring the contradiction of inexperienced teachers who must teach in order to be less inexperienced, a theme emerged around the concept of “being okay with not knowing.” Several experienced teachers argued that keeping students safe in a classroom with an inexperienced teacher is possible if the teacher is willing to be honest about



Physical adjustments are common in yoga classes, but can be unsafe for inexperienced teachers and students with injuries.

what knowledge they lack and be comfortable telling their students, “I don’t know.” While expectations may be high for a yoga teacher to understand anatomy and injuries, the safety of the student is not at high risk until the teacher wrongfully claims to have knowledge they don’t have. Fighting the stigma of being a teacher who doesn’t know everything is the key to allowing new teachers to gain the experience they need in order to serve students safely and effectively.

Student-Teacher Relationship

Several themes emerged regarding the relationship between the student and the teacher. It is important to note that all students interviewed who have injuries or chronic physical conditions report that they practice yoga specifically for the purpose of treating or dealing with their condition. Additionally, all of them report having more than one negative experience with a yoga teacher in regards to their condition, whether by receiving incorrect information or a bad physical adjustment. They felt misled by the qualifications of the teacher, believing them to be certified and therefore trustworthy, and said it should be the responsibility of the teacher to be upfront about their lack of experience. These students now seek out teachers whom they trust and attend only their classes.



Communication between student and teacher is key to keeping students safe.

Conversely, many teachers also report incidents in which a negative encounter with an injured student occurred because they were not informed ahead of time of the student’s condition. All teachers interviewed agree that it is the responsibility of the student to present the necessary information to the teacher before class begins. They believe a communication barrier exists between the teacher and student, and breaking this barrier is the key to keeping students safe in yoga classes.

Conclusion

This research has had a profound impact on my experience as a yoga teacher, and prompted an important discussion amongst my peers in the yoga community. Several teachers I spoke with have since taken steps to educate themselves better about anatomy and injuries, and the owner of my studio scheduled a mandatory teacher workshop about common injuries for her teachers.

For years, I have seen and heard hints about the issue of injuries in yoga classes, which is why I chose this subject for my research. My own personal experience with 200-hour teaching trainings aligns with the feedback I received from other teachers—the information covered is too vast and the time spent on it is too little. I also experience moments of

lacking the confidence to safely accommodate students in my classes. Conducting this research opened my eyes to the similar experiences shared by many other teachers, even those with as much as or even more experience than me. It also opened my eyes to the perspective of the student, and what their perceptions are of teachers. Understanding the two points of view and where they disconnect will significantly inform my teaching and I hope it will inform others' as well.

The main limitation of this research was the size of the groups sampled, especially students. In the future, I would survey a large number of students to get a better understanding of their perspective overall and how common their experiences are. I would also add the voice of the governing body of yoga teacher certifications, Yoga Alliance, by interviewing an employee or representative for an alternative perspective.

Overall, I am pleased with the outcome of this research. It confirmed my suspicions of a potential issue and provided rich data to reveal its many deep and surprising facets. I look forward to continuing my exploration into this subject, both as a design researcher and a yoga teacher.

Design Outcome

Theme: *Anatomy is hard to learn. Many yoga teacher trainees don't learn by memorizing body parts, and after training are unable to apply what they learn.*

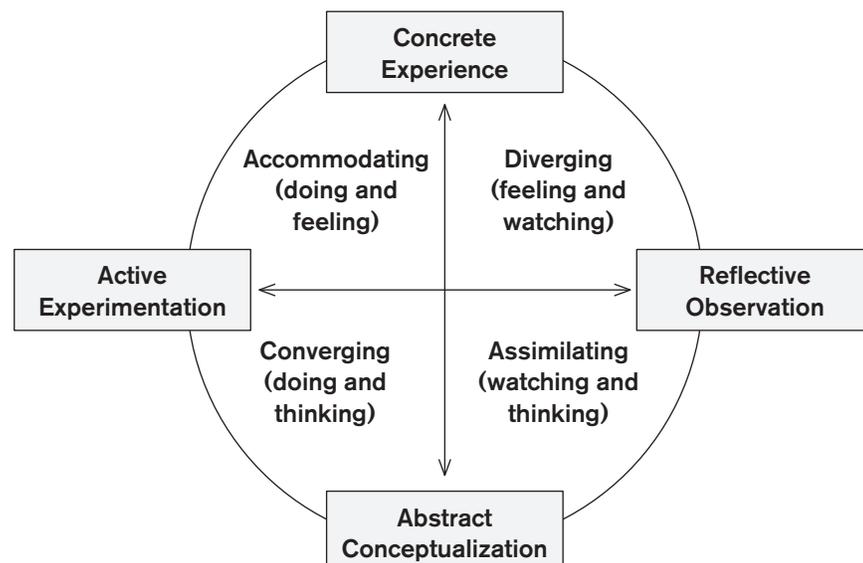
Intervening question: *How can anatomy be taught in basic 200-hour teacher trainings so that trainees can retain and apply what they learn?*

Actionable statement: *I will develop a tool for teaching anatomy to yoga teacher trainees that effectively accommodates different learning styles.*

In order for yoga teachers to safely accommodate students with injuries in their classes, they must have a solid foundational understanding of anatomy and how to apply it to the alignment of yoga postures. Given the short amount of time spent on anatomy in teacher trainings, the teaching methods must be highly effective, incorporate application of knowledge learned and consider multiple learning styles.

Using Kolb's learning styles (2012) as a model, I aimed to identify teaching methods and tools that would accommodate each of the four stages of the learning cycle: watching (reflective observation), feeling (concrete experience), thinking (abstract conceptualization) and doing (active experimentation). My process also involved exploring other theories of learning, as well as a wide variety of interactive teaching platforms, including videos, apps, digital textbooks and live workshops.

Kolb's Learning Cycle



My research lead me to conceptualize an app that uses augmented reality to enable real-time visualization and learning of anatomy. On a tablet device, trainees would use the app to augment their perception of the body of a person (such as another trainee) in front of them in real life. The app would use the camera function of the tablet to read the person's body and create a 3D model of the form. It would then overlay information and key concepts on top of the form. Trainees could tap any area of the overlay to view the name of the body part or to read more about its purpose and function. The overlays would move with the body in view, allowing the trainee to see anatomy in motion.

The main advantages of this tool are that it would use real bodies, not sketches on a page, as models, and that trainees could interact with theory by watching parts of the body move in and out of a yoga posture in real time. This would significantly improve teacher trainings by bringing anatomy off the page of a book and make it applicable to real bodies of all shapes and sizes. Trainees would be able to observe and engage with abstract concepts, like alignment, in tangible ways and in real time, giving them an entirely new way of reading and understanding bodies in yoga postures, both in their training and in their classes.



YOGANATOMY is an augmented reality tool for learning anatomy vocabulary and applications in real time using real bodies as models in a yoga teacher training or yoga class.

References

Enfield, Susan. "Why More Western Doctors Are Now Prescribing Yoga Therapy." *Yoga Journal* (2016). <http://www.yogajournal.com/article/health/western-doctors-prescribing-yoga-therapy/>

Gardiner-Shires, A. "Beyond the traditional approach to teaching anatomy for yoga." *International Journal of Yoga* 8 (2015).

Gabriel, K., MA, RYT; Edwards, K.; Salstrom, S., MS; Spears, M., RYT; Panico, R., MD. "Teaching therapeutic yoga to medical outpatients: practice descriptions, process reflections, and preliminary outcomes." *International Journal of Yoga Therapy* 16 (2006).

Krucoff, C., E-RYT; Carson, K., MPH, E-RYT; Peterson, M., PhD; Shipp, K., PT, MHS, PhD; Krucoff, M., MD, FACC, FAHA. "Teaching yoga to seniors: essential considerations to enhance safety and reduce risk in a uniquely vulnerable age group." *The Journal of Alternative and Complementary Medicine* 16 (2010).

Jeter, P., Dagnelie, G., Khalsa, S., Haaz, S., Bittner, A. "Yoga for persons with severe visual impairment: a feasibility study." *Alternative Medicine Studies* 2 (2012).

Kolb, David A., and Kolb, Alice. "Kolb's Learning Styles." *Encyclopedia of the Sciences of Learning* (Springer US, 2012) 1698-1703.

McCall, T., M.D. "Working with students who have yoga injuries." *Yoga Journal* (2008). [yogajournal.com/article/teach/working-with-students-who-have-yoga-injuries-part-1](http://www.yogajournal.com/article/teach/working-with-students-who-have-yoga-injuries-part-1)

Mohanty, S., Hankey, A., Pradhan, B., Ranjita, R. "Yoga-teaching protocol adapted for children with visual impairment." *International Journal of Yoga* 9 (2016).

Parker, S., PsyD, LP, E-RYT 500; Sharma, A. "The use of touch in yoga teaching and therapy: principles and guidelines for effective practice." *International Journal of Yoga Therapy* 23 (2013).

Quilter, D., RYT. "Yoga for people with repetitive strain injury (RSI)." *International Journal of Yoga Therapy* 17 (2007).

Wei, Marlynn, MD, JD. "New survey reveals the rapid rise of yoga – and why some people still haven't tried it." *Harvard Health Publications* (2016). <http://www.health.harvard.edu/blog/new-survey-reveals-the-rapid-rise-of-yoga-and-why-some-people-still-havent-tried-it-201603079179>

Zotos, D. "5 Approaches yoga teachers can take in addressing student injuries." *Yoga International* (2015). <https://yogainternational.com/article/view/5-approaches-yoga-teachers-can-take-in-addressing-student-injuries>

Yoga Journal. "The 2016 Yoga in America Study Conducted by Yoga Journal and Yoga Alliance." <http://media.yogajournal.com/wp-content/uploads/2016-Yoga-in-America-Study-Comprehensive-RESULTS.pdf>