

A culture of injury avoidance and under-educated instructors in dance.

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### Abstract

Dance is a physically strenuous activity and overuse injury rates in dancers are high even in comparison to professional sports. This is in part due to the fact that dance instructors tend to have more physical dance experience than they do experience learning about proper teaching techniques and dance anatomy. However, the lack of education on anatomy and kinesiology is not the root of the issue. The general dance community appears to have a collective disinterest in injury prevention and treatment. From the informal content published for studio owners, to actual certifications for dance teachers and even the attitudes presented in injured dancers, the importance of being knowledgeable about safety and injuries is consistently diminished. In order to keep dancers healthy and pain free, there needs to be an overhaul in the way that injuries are viewed by dancers.

### Introduction

Dance is an activity which frequently sees students of any genre injured, often at higher injury rates than professional sports. A study conducted by Ruanne Y. J. Lai indicates that “annual musculoskeletal injury rates in professional dance companies and pre-professional dancers range from 67% to 95%.”<sup>1</sup> Also, it has been shown that 75.3% of injuries in professional ballet dancers are due to overuse.<sup>2</sup> In comparison, the overuse injury rate in professional basketball players in the NBA and WNBA ranges from 22% to 27%.<sup>3</sup> Why is it that overuse injuries in dancers have a much higher rate of occurrence as compared to basketball players? Dancers may use their bodies in different ways than athletes who participate in sports, but how is it that professional athletes are able to push their bodies to extremes without the occurrence of overuse injuries? High injury rates are not a phenomenon exclusively seen in professional dancers; a study on injured dancers aged 8-16 found that 46.2% of the 16-year-olds had had an injury previous to the one that was being studied.<sup>4</sup> Also, as seen in Figure A, there has been a gradual increase in dance-related injuries, particularly in the early 2000s. This is opposite of what should ideally be happening, particularly since exercise science research on safe biomechanics has continued to expand and improve. This increase in injury rate along with the

generally high volume of injuries across the dance community indicates an underlying source of stress on dancers. We feel that this common denominator may be in the education and approach of dance instructors. Dance teachers, particularly in the United States, are not required to have any specific training or certification, and a lack of knowledge on safe dancing practices and anatomy may cause them to push their dancers to unsafe and unnecessary extremes.

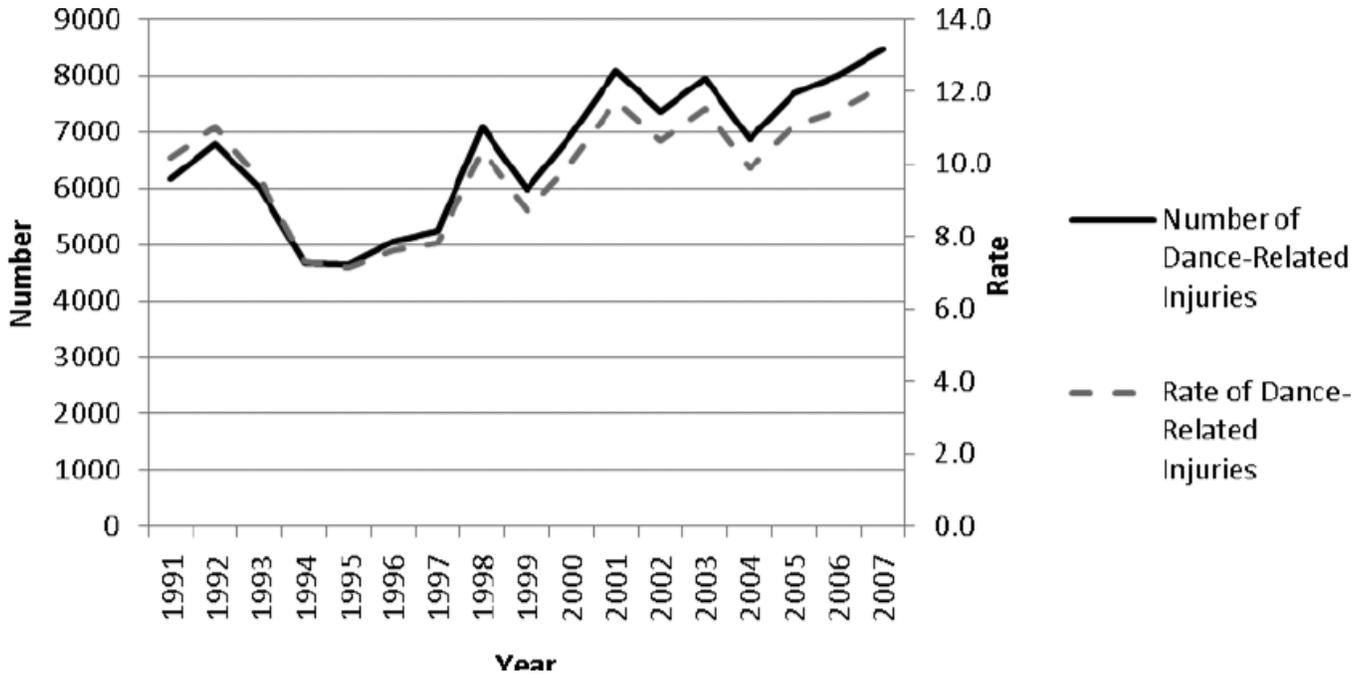


Fig. A<sup>5</sup> shows the number of dance related injuries and the rate of dance related injuries treated in the US Emergency Department from 1991-2007.

### Body

Dance is considered one of the most strenuous activities on the musculoskeletal system.<sup>6</sup> The chart above outlines how dance related injuries have increased over the past years. This study conducted by Roberts, Nelson and McKenzie focused on dance injuries in children and adolescents that were severe enough to be taken to an emergency room. The conclusion of the study found that dance-related injuries have distinct injury patterns and around 55% of dance-related injuries were from Classical dance, which is considered ballet, jazz, modern, and tap. Ballet counted for 11.7% of all dance-related injuries studied.<sup>7</sup> It is also important to note that many of the dance-related injuries occurred in adolescents who had already been studying dance.

A total of 40.4% of dance-related injuries occurred to adolescents who were 15–19 years old. Although existing dance participation data are unavailable, previous research suggests that although younger children are more likely to participate in dance, adolescents are more likely to sustain more severe dance-related injuries. As dancers get older and more advanced in their skills, the intensity and the amount of time spent training often increases along with the incidence of injuries.<sup>8</sup>

These students are advancing their skills but are also putting themselves at risk for more severe injuries. The intensity increases and if they do not have a set foundation of technique or knowledge of their bodily anatomy, the risk of injury increases. These Classical dance forms are taught in high volumes to many different ages of dancers, and yet there is no standard for teaching method or injury prevention. If there is no standard to prevent injury, these rates could keep increasing and students may be more at risk of being sent to the emergency room.

In the US, there is no standard certification that dance teachers are required to acquire, meaning there is a lot of variety in the qualifications of dance teachers. To teach in the public school system, K-12, only thirty-eight states require dance certification for dance educators.<sup>9</sup> Private studios are exempt from these requirements and can bring in whoever they see fit. This may lead to teachers being chosen for sheer performance experience rather than specific training. There is no standard for teachers to follow that covers injury prevention in the United States right now. A universal system that outlines correct dance training could benefit not only students, but many, many teachers. In the UK there is a standard certification model, but its main purpose is to unify the material being taught and update new dance material produced. Michiels outlines this in their work by citing the national UK organization,

The National Dance Teachers Association's (NDTA, [www.ndta.org.uk](http://www.ndta.org.uk)) purpose is to standardize the teaching material, expose members to progressive methods of instruction, keep members informed of new trends in the social and competitive dance fields, add integrity to the profession, and offer qualification examinations for certification in different levels and styles of ballroom dancing, but there are no injury prevention or scientific aspects included in the certification requirements.<sup>10</sup>

We see a common thread with dancers overworking and becoming more concerned with perfecting movement for the aesthetic purpose of dance rather than the proper training. Based on

this, it could be true that injury prevention and anatomic knowledge is not the number one concern among dance educators. In a study conducted by Angelina M. Pellini, private dance studio owners and previous dancers were interviewed about dancer teacher's knowledge on anatomy and injury prevention. "I asked all of the studio directors that I interviewed if they ever inquire about knowledge of kinesiology or injury prevention when hiring new employees, and across the board the answer to this question was an unwavering 'no'."<sup>11</sup> It is interesting that prospective instructors are not asked of their knowledge, something that is crucial in keeping dancers safe. When reaching out to studio owners to gather information on this issue, many of them refused to answer. "The fact that most studio directors were not even willing to speak to me raises an important issue. Refusal by the directors to participate in this study suggests a lack of confidence in speaking about the integrity of their programs."<sup>12</sup> People are able to run successful dance studios without the proper knowledge to do so. The lack of knowledge in studio owners and instructors results in dancers who may be unaware of safe practices and therefore experience high injury rates.

When running a successful dance program, there are many things to consider. As colleges work to standardize their courses, they must go through the accreditation process. The National Association of Schools of Dance (NASD) is an organization that accredits schools for their dance degrees. In order to become certified, a school must pass the Basic Competency Index, which is a resource outlining the specializations required of colleges and universities in order to offer that specific degree. NASD outlines these requirements for a Bachelor of Fine Arts (BFA) in Choreography and Performance, a BFA in Dance Education, Bachelor of Arts (BA) or Bachelor of Science (BS) in Dance, and a BA or BS in Dance education. In these guidelines, there is a one to two sentence mention of anatomy knowledge. In the requirements for any BFA or a BA/BS in dance, anatomy is cited under Dance Studies in the section competencies that reads, "Fundamental knowledge of the body and of kinesiology as applicable to work in dance."<sup>13</sup> The guidelines for the BA or BS in Dance education have slightly different wording. Only one of the four degrees' requirements state that graduates should "have fundamental knowledge of the body, and understand the fundamentals of developmental kinesiology sufficiently to correlate student learning and development with age and physical motor skills."<sup>14</sup> In theory, all accredited schools should follow this guideline to give their students a well-rounded education. Each school is open to set these requirements and guidelines as they see fit, so they do not look the same in

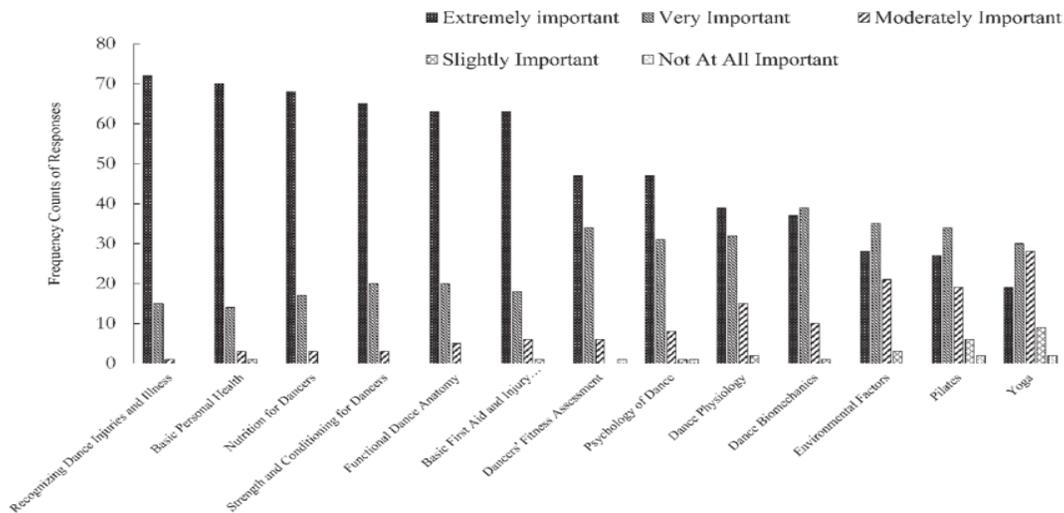
each school. It is of interest to note that the accreditation for the BA or BS for Dance Science is the only guideline that is more comprehensive and illustrative of how it will apply to students after graduation. These guidelines are the standard for higher education institutions, yet they are slightly vague and allow for a decent amount of leniency.

This leniency of anatomy standards has existed for many years among dance educators, allowing the cycle to continue. Uneducated dance teachers lead to young dancers who are unfamiliar with concepts of anatomy, and those dancers then grow up to become dance educators. Even if these dancers do attend college for a dance or dance education degree in the process, there is no guarantee that they're gaining kinesiology knowledge along the way. Dean College offers a dance pedagogy track where students must take anatomy, general psychology, and child development.<sup>15</sup> These courses are the starting point for beginning to break the cycle of dancers who are uneducated on how to keep themselves safe. However, not all colleges have these requirements; the University of Arizona's dance education track mentions no required courses in anatomy or psychology.<sup>16</sup> This leaves graduating dancers entering the professional world without bodily awareness of others or for their own safety. This puts the individual at higher risk of injury as well as any dancer they might teach or come in contact with. Some universities like Oklahoma City University offer coursework in dance pedagogy and choreography, but no specific classes regarding anatomy or psychology courses in their degree's major breakdown.<sup>17</sup> The University of Washington requires students to take a course titled, 'Anatomy of Dance' as one of the first classes students take. It is listed as a degree requirement, and the course description of the class reads "anatomy of the musculoskeletal system and its applications in dance movement."<sup>18</sup> This is a very vague and basic description of the class that is theoretically supposed to teach the student everything they need to be a well-informed mover and performer. It is also important to consider that these anatomy courses are required as entry level classes, meaning students may end up taking them their freshman or sophomore year as a requirement to get out of the way, rather than as an upper-level class that digs deep into anatomy and what helps dancers move in a safe and efficient way. Similarly, when researching BA programs in dance and dance education, Muhlenberg College offers an education concentration track in the dance major. Students are required to take a Biology of Movement course, but then the course titled 'Anatomy and Kinesiology for the Dancer' is optional and takes a backseat to 'Teaching Dance'.<sup>19</sup> The students on the science concentration track however, are required to

take not only those two courses, but two additional anatomy classes and other outside psychology courses. This is only required of the dance science students and none of the other concentrations. It should be expected that dancers who are going through a four-year degree in dance are being taught the proper way to prevent injury and the anatomy behind dance movement, not just the movement itself. Students attend colleges and pay to come out with a well-rounded education, and these institutions are leaving out valuable information.

While this glaring gap in collegiate programs is concerning, as noted earlier, not all dance teachers go through the formal education track and end up with a degree in dance, let alone dance education. These are some of the teachers that are hired based on their performance background or simply availability and not on their educational credentials. Dance performance and dance education are very different areas of study. Although they often go hand in hand, it can be dangerous to think that because one knows how to perform dance, they also know how to teach it. Not all individuals desire or can afford a higher education that comes with access to anatomy courses, meaning that this knowledge needs to be widely taught and reach further than collegiate walls. Spreading this information would benefit the health of dancers in every genre, level, and technique. If anatomy education is more accessible, dance teachers regardless of educational background can have access to the information they need to prevent injuries in their students.

Even once this information is more accessible, dancers need to value it enough to take the initiative and seek it out. A study conducted about health literacy among college dancers investigated the perceived importance of health-related education in collegiate dance programs. Kozai and Ambegaonkar surveyed one hundred and four individuals, 14% administrators, 44% educators, 39% students and 6% other, regarding topics including, Functional Dance Anatomy, Dance Physiology, and Dance Biomechanics. Based on the findings, a table was created to highlight what participants thought were the most important.



The Figure above (Fig. B) lays out the survey results on perceived importance of the topics.<sup>20</sup> It is evident that Recognizing Dance Injuries and Illness is extremely important to most participants. Functional Dance Anatomy is fifth in this chart, Dance Physiology is ninth and Dance Biomechanics is tenth. While recognizing dance injury is the most important, the methods to prevent the injuries were not considered as valuable.

Without knowledge on injury prevention and safe practices, dancers get injured and have a tendency of not taking injuries seriously and dancing through them<sup>21</sup>. In fact, many dancers simply consider injuries to be “an inevitable part of the vocation.”<sup>22</sup> A study conducted by Ruanne Lai, interviewed medical practitioners, dancers, and instructors about injury prevention. They discovered that although injured dancers showed some interest in learning basic anatomy and seemed willing to alter dance practices during time of injury, there was little to no interest in learning safer practice for the future.<sup>23</sup> “This lack of compliance is likely the result of financial, psychological, social, or aesthetic concerns that overshadow health issues.”<sup>24</sup> This being said, the pressure put on students to return to rehearsal quickly by their teachers has a psychological effect, forcing students to push through injury instead of waiting to be properly healed. The study also showed that because of these pressures, many dancers ignore the first sign of injury and continue dancing so they do not miss training or performance.<sup>25</sup> We believe that proper education on safe practices, along with knowledge of basic anatomy, can prevent these cultures and norms from being pushed in studio settings.

A study focused on dancer's perceived and actual anatomical knowledge surveyed roughly 500 dancers on their level of dance training, previous injuries, and provided a basic anatomy quiz. Researchers found that "increased actual knowledge of anatomy was associated with professional dancers and injured dancers who felt they had learned about anatomy through their injury."<sup>26</sup> Although previous injuries helped educate dancers on safer practices and anatomy, having this knowledge would be more beneficial for prevention instead of learning it as a result of injury. It was also found that high injury rates in dance lead to more interactions with medical personnel, and that "both dancers and clinicians feel that it would be beneficial for dancers to have an understanding of basic human anatomy."<sup>27</sup> In some settings, increased education on these topics has already been implemented and seen a positive effect. Garth Fagan Dance introduced a curriculum focusing on anatomy and injury prevention, leading to a significant increase in knowledge. After completing the curriculum dancers were eager to learn more. This heightened anatomical awareness may even "empower a dancer to take more responsibility for improving his or her own general health, fitness, and conditioning and developing injury prevention strategies."<sup>28</sup> If information like this was presented in other dance companies, it is possible that injury rates will begin to drop as safer practices are implemented.

Adult, professional dancers may be empowered and eager to learn about anatomy when given access to the information, however the world of private, youth dance studios is not given this access and therefore still lacks discussions on injury prevention. Most research and information that actually addresses safe practices in dance are scientific papers that are not written with dance teachers in mind as their ideal audience. The journals this research is published in also often require subscriptions that most dance teachers don't pay for. Instead, the content being published for dance teachers and studio owners has little to no mention of safe dance practices and frequently undermines its importance. Even the dance teaching certificates offered in the U.S. are marketed as a "leg up" on other dance teachers. An article relating to dance studio growth discusses the lack of formal degree and certification required to open and run a private dance studio, with the caveat that "a teaching certificate will make you seem more trustworthy."<sup>29</sup> This verbiage is interesting in that it is not saying a teaching certificate will make you a better equipped instructor or that you will have more knowledge on how to keep your dancers safe. Instead, the word 'seem' deemphasizes all of the benefits of education and certification and places the focus on how potential customers will perceive the credibility of the

dance teacher. The cultural indifference that these articles amplify then gets carried over into the dancers. In cases where dancers are already injured, “it had been expected that dancers would be more willing to comply with treatment protocols if they better understood the nature of their injuries and the treatment process.”<sup>30</sup> However, because of the cultural norms discussed earlier, most dancers did not want to take time away from rehearsals to heal. With the importance of injury prevention being minimized in the dance community as a whole, it isn’t surprising that individual dancers don't feel that injury management is worth their time and effort.

### Discussion

Originally, we had thought that uneducated dance teachers spreading old information and dance techniques was a root of overuse dance injuries. It now appears to be a broader issue within the dance community. While dance teachers absolutely do need knowledge and training on how to keep their dancers physically safe, there also needs to be a cultural overhaul on how dancers think about and approach the topic of injuries. The next question is how to achieve that.

A start may be to have readily available, if not required, certification for dance instructors to complete that actually have a component on injury prevention and safe practices. The dance community could also benefit from reevaluating its ideal aesthetics. If dancers are no longer being pushed for perfect turnout or being encouraged to perform tricks that put excessive strain on their backs, injury rates may fall significantly, especially since many of these aesthetics were established before there was research on what was actually anatomically safe and achievable. If the dance community is not striving for too skinny, overextended bodies that put excess strain on themselves, they could open up to many new possibilities. This also beneficially shies away from Eurocentric ideals and values and creates space for new dances of other cultures to learn and uplift in the community.

Another aspect to consider when comparing the cultures of injury in dance as opposed to professional sports is the concept of an off season and training periodization. In most sports, there is an annual cycle of pre-season training, the competitive season, and then there is off-season. Athletes aren’t expected to just do nothing during the off-season, it simply “allows time to dedicate resources to learning to move properly, build muscle, and work on mobility and power training ... This is the groundwork for improving performance and excelling at a sport once competition season returns.”<sup>31</sup> Athletes are doing different training than in their typical

season so those motions and muscles that are usually pushed to extremes then get a rest, which has been shown to greatly reduce athlete's risk of overuse injuries.<sup>32</sup> In comparison, dancers are pushed to train all year round. In the sector of private studios and competition dance the cycle usually starts in September with training and learning choreography. Then in January competition season starts and this runs all the way through the beginning of summer. The most natural place for dance off-season to fall would be the summer, yet instead young dancers are encouraged to attend summer intensives and train even more. For dancers themselves, there is also a fear and stigma about taking time off. Athletic Trainer Kevin Semans states that "The hard part about growing up in the dance world is that dancers are taught that ... any time off is actually deteriorating or taking away from their dance, and that's just not the case."<sup>33</sup> These fears are not backed up by research and are instead being perpetuated by dance teachers who push their students too hard. A big start to reducing overuse injuries in dance, shifting cultural attitudes about injuries, and taking care of dancing bodies would be to normalize an off season. Matthew Wyon describes how research on periodization in sports and athletics have revealed that overall "the quality of a training session is more important than its length or quantity and that rest is a vital training component."<sup>34</sup> Wyon then goes on to imagine how these concepts can be applied to vocational dance training by describing 6-to-8-week training blocks split up by 1-to-2-week breaks. Each block would have a different focus. This could mean that in one block the dancers are training in ballet and modern while in the next block they are training in tap and hip hop. It could also mean that one block focuses on auditioning or performance preparation, while another focuses on technique development. Each block's focus would then accumulate to a more yearly or final goal of well-rounded training.<sup>35</sup> This structure may appeal more to studio owners as it keeps dancers in the studio year-round, but still allows for their bodies to experience variety and not be as overloaded.

### Conclusion

Overall, it is clear the dance community needs a stronger unifying teaching certification with clear anatomy and kinesiology standards that introduces injury prevention into all curriculums regardless of age and genre of dance. Institutions of higher education should be clearly requiring their dance and dance education majors to take anatomy and psychology classes to fully understand their students' bodies and minds. Starting with the educators allows for the

trickle-down effect in hopes that a curriculum with adequate injury prevention will become the new norm in teaching. As the dance community broadens and expands, providing a clear foundation that comes from educators breaks the cycle of overuse injuries and teachers expecting specific aesthetics that are not accessible to all body types. As overuse injuries in dance are gaining more awareness, it is important to note that we must treat overuse injuries and not continue to work and dance. Rest is just as important as gaining technique when it comes to dancers' bodies. Without proper rest, muscles cannot recuperate and gain the strength that they need to propel dancers' bodies. If dancers never have time off, it cannot be expected of them to be at the top of their game constantly. This creates opportunities for more injuries. With the knowledge of anatomy however, the hope is dancers will be able to identify the problem before it becomes a bigger concern. Injury avoidance creates more problems. If dance educators and students work together to gain more anatomy knowledge that can be passed down, it will create a dance culture that relies on dancers listening to their bodies rather than pushing the extreme for aesthetic purposes. Dancers can only go as far as their bodies permit them to do. By gaining understanding, both teachers and students will have access to better dance and better forms of teaching dance techniques.

This study focuses on how the knowledge of anatomy and physiology in dance teachers can help shy away from a culture of injury avoidance. There are many opportunities to expand this research including exploring what colleges are required to teach in terms of anatomy and kinesiology for their dancers who will go on to become the next generation of dance teachers. It may also be interesting to examine the financial pressures contributing to the current structure of studio dance, and how these situations could be amended to actually allow rest. If there was research done on anatomy knowledge and how dancers can apply it in the studio, this may also encourage dancers to learn more about their bodies

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