



When Injury Reveals Pedagogical Gaps: Rethinking Aesthetic Awareness and Teaching Strategies in Chinese Dance Education

Junjun Liu, Leng Poh Gee*

Sultan Idris Education University, Tanjung Malim 35900, Perak State, Malaysia.

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***Corresponding author:** Leng Poh Gee, Sultan Idris Education University, Tanjung Malim 35900, Perak State, Malaysia.

Abstract

This study explores the phenomenon of spinal cord injuries caused by back bends and other movements in Chinese children's dance training through a literature review, and uses this as a starting point to reveal deeper issues of teaching strategies and aesthetic concepts in dance education. The study found that Chinese dance emphasizes extreme flexibility, a traditional aesthetic orientation that has been biased and further amplified in market-driven after-school training institutions, resulting in child dancers being exposed to an increasing risk of physical injury. Inadequate training methods, under-qualified teachers, and a lack of safety standards are important factors that increase the risk. However, such injuries are not just a matter of technique, but also reflect an over-reliance on technique and a neglect of bodily perception and aesthetic experience in the logic of teaching. This study appeals for a reflection and reorganization of current dance teaching strategies. This includes the development of progressive training methods that are consistent with children's physical and mental development. Shifting from technique-oriented teaching to experience and aesthetics-oriented teaching concepts, and introducing dance science knowledge into teacher training. Only in this way can dance education return to its aesthetic nature and promote the long-term healthy development of the field while safeguarding children's health.

Keywords

Spinal Cord Injury; Back-bend Training; Chinese Dance; Child Dance Safety

1. Introduction

In recent years, reports of spinal cord injuries among children in Chinese dance training have drawn growing public and academic concern. While such injuries—especially those linked to extreme back-bend movements—are often discussed in clinical terms, they also reveal deeper issues within the educational practices of Chinese dance instruction. Specifically, Chinese experts have named it back-bend paralysis. The repeated occurrence of these injuries raises urgent questions about pedagogical priorities, institutional culture, and the values underpinning dance education in China.

Chinese dance, with its roots in traditional opera, martial arts, and folk traditions, places strong emphasis on flexibility and technical virtuosity, often prioritizing physically demanding movements from a young age. In the context of a booming after-school dance training industry, many institutions promote difficult physical techniques, such as back-bending, as a symbol of artistic excellence. However, this approach often comes at the cost of children's physical development, emotional engagement, and aesthetic understanding. The result is not only a heightened risk of

injury, but also an education model that sidelines aesthetic cultivation in favor of visible technical mastery.

This literature review explores how spinal injuries in children's dance training serve as indicators of broader pedagogical gaps in Chinese dance education. Rather than viewing injury solely as a medical issue, this paper redefines it as a consequence of aesthetic neglect, developmental inappropriateness, and flawed teaching strategies. By examining the cultural, institutional, and methodological foundations of dance training in China, this review calls for a rethinking of dance pedagogy—one that centers on aesthetic awareness, embodied experience, and age-appropriate progression.

2. Literature Review

2.1 Injury Phenomena in Children's Dance Training: A Signal for Pedagogical Reflection

Spinal cord injury without radiologic abnormality (SCIWORA) is an injury that presents clinically as a spinal cord injury but shows no signs of fracture or dislocation on X-ray and CT. The concept was first proposed by Pang and Wilberger in 1982 (Pang & Wilberger, 1982). Such injuries are more common in children. Early studies have shown that such injuries are usually associated with sports, falls, or motor vehicle injuries (Carroll et al., 2015). In 2020, a review paper from the China Rehabilitation Research Center showed that all of the 88 patients admitted with spinal cord injuries reported hyperextension of the spine at the time of injury, followed by paralysis and other manifestations of spinal cord injuries. The average age of these patients was 5.97 years, and most were girls (Tong et al., 2020). Although the cause of this particular spinal cord injury in young children and adolescents is usually the result of violence, such as traffic accidents and falls, in China, injuries similar to SCIWORA are mainly caused by back-bending in dance. The percentage of children with spinal cord injuries due to dance back-bend reached 33.9 % between 2015 and 2019, a nearly eight-fold increase from the previous year. Which is why Prof. Guo's team named it back-bend paralysis (Tian et al., 2023).

Although it was initially categorized as a medical problem, what is reflected behind it is not only the irrationality of the training intensity and protection measures, but also a series of structural problems in the dance education system, such as the lack of teaching strategies, insufficient professional training of teachers, and the deviation of aesthetic awareness. Therefore, this injury phenomenon is not only worthy of medical research, but also requires in-depth reflection by dance educators and curriculum designers: Is the current dance teaching for the extremity of the physical presentation, or is it for the gradual perception of aesthetics and the inner expression of art? When the aesthetic sense in dance education violates the basic rules of children's physical and mental development, the injury is not only a risk, but also a warning of educational imbalance.

2.2 From Physical Risk to Pedagogical Priorities: Teaching Gaps in Dance Training

In order to adapt to national situations, China has been gradually implementing a two-child policy since 2013 (The State Council of the People's Republic of China, n.d.). With the gradual adjustment of the population structure, families' investment in their children's education has continued to increase, and the market for after-school training has expanded rapidly as a result. Promoted by the concept of comprehensive development and quality education, more and more parents are sending their children to various types of after-school training programs. Dance, especially Chinese dance, has become a popular choice for girls' families. This is not only due to the physical beauty and aesthetic function embodied in dance, but also deeply influenced by society's long-standing cultural preference for shaping women's aesthetic qualities. This cultural preference has led to the rapid growth of dance training institutions, with an increasing number of girls involved in dance training at an early age. The emergence of the specific term back-bend paralysis reflects the fact that some common movements in Chinese dance training have become major risk factors for spinal cord injury in children. Most of these injuries are concentrated in girls at the preschool and elementary school levels. This indicates that the intensity and content of current dance training have significantly deviated from the safe boundaries of children's physical development.

In China, dance training for young children relies mainly on private, non-degree dance education institutions. This is a form of dance education provided by private or civic organizations that will not receive official academic certification, aiming to provide diversified educational services such as professional skills training, amateur interest cultivation, and artistic literacy enhancement. These institutions mainly offer courses in Chinese dance, ballet, street

dance, and so on, and Chinese dance is the most popular and is offered in the widest range. The training for this dance is based on traditional Chinese culture and Chinese opera elements, emphasizing physical technique, body control, and expression. Dance education in China has always continued the “academy tradition” of cultivating highly sophisticated talents. Influenced by this system, after-school training institutions often copy the movement patterns and training standards of dance teaching in professional dance colleges and universities, but ignore the physical and mental characteristics of children and the need for aesthetic education. Based on the unique tradition of Chinese dance and the technical standardization of movements, dance training institutions usually require teachers to emphasize professional points in their teaching, such as body flexibility, so as to highlight the professionalism of the institution and the quality of teaching (Yang, 2024).

Moreover, most dance training institutions employ teachers who have not received professional dance education. They have only received short-term dance teacher qualification training, and their training methods for body flexibility and technical skills lack systematicity and professionalism, causing teaching risks in the classes (Xu, 2020). As commercially operated institutions, they pay more attention to students’ body flexibility and mastery of technical skills in order to achieve their profit goals, but less attention to students’ understanding of dance knowledge and dance culture. This overemphasis on physical skills and lack of scientific teaching methods has led to frequent teaching accidents. Most essentially, the curriculum generally ignores the aesthetic function of dance education and simplifies art education into skill training. Students’ bodies are regarded as tools to realize aesthetics rather than aesthetic perceivers of subjectivity. This singular emphasis on physical skills not only raises the risk of training but also reflects a structural bias in teaching concepts. That is, dance teaching priorities are dominated by technical goals rather than the progressive construction of children’s aesthetic experience and artistic understanding.

2.3 Beyond Flexibility: Cultural Values and Implicit Aesthetic Orientation in Dance Education

Chinese dance mainly originates from Chinese opera and martial arts, and absorbs the movements and body techniques from them. The core point of Chinese Dance in training is the waist as the axis and the circle as the basic movement trajectory. For example, Chinese dance emphasizes the flexibility of the thoracic and lumbar vertebrae, requiring forward flexion and backward extension, and a twisting posture of the body throughout the dance. In addition to the emphasis on flexibility, strength training is usually accomplished on the basis of flexibility (Ma, 2024).

In dance teaching, Chinese dance training places special emphasis on the basic skills, which are the combination of flexibility and strength. Flexibility, especially lower back flexibility, is the core of the training. Therefore, when children enter an after-school dance training institution, they are usually first required to undergo flexibility training in order to solidify the physical conditions required for dance. In order to achieve a visually extreme presentation, many waist flexibility training exercises require the student to work in an active or passive manner to accomplish hyperextension. At the educational level, this hides curricular issues that are worth considering.

In this mode of training, the body is no longer regarded as a carrier of individual experience and perception, but is gradually transformed into a tool for obeying movement standards and executing technique commands. This aesthetic logic of technique not only warps the essence of dance learning but also reconstructs students’ understanding of the body, of aesthetics, and of dance. This construction of aesthetic value is subconsciously embedded in the teaching practice. Difficult waist movements have not only become a symbol of competence, but also a visual criterion of the institution’s teaching results, reinforcing the evaluation system of teaching and learning that is oriented towards performance and competition. Dance education has increasingly become a training-oriented education focusing on the reproduction of technique, rather than an aesthetic practice focusing on aesthetic experience. The current Comprehensive Implementation of Aesthetic Education Immersion Initiative in Schools in China (Ministry of Education of the People’s Republic of China, 2023) emphasizes that art education should highlight aesthetic experience and student subjectivity, but in actual dance teaching, this concept is often weakened by a utilitarian orientation. This hidden aesthetic orientation is against the proper aesthetic education function of dance, and makes the classroom scene gradually evolve into a manufacturing factory of body techniques. This policy was a notification issued by the Ministry of Education in 2023, marking the systematic implementation of aesthetic education in the national education system. From the policy concept of educating people through aesthetics to the teaching practice of prioritizing skills, this aesthetic disconnect is one of the key gaps in the current dance education system.

2.4 Security and Development: Physical Injury as a Symptom of Pedagogical Bias

Evident in Figure 1 (Guo et al., 2023), the dancers are performing large hyperextensions in both the thoracic and lumbar spine areas in order to demonstrate the extreme flexibility of the waist movements. This movement is a common basic skill movement. In order to achieve these looks, children need to first undergo flexibility training, which involves repeated backward bending of the waist on their own, or with external assistance. However, these difficult movements place a high physiological load on the developing spine and spinal cord, which significantly increases the risk of injury. Research has shown that during back-bending movements, the total length of the dancer's spine increases, with the thoracic region exhibiting the most significant changes. Simultaneously, the spinal cord also elongates. However, the flexibility of the spinal cord in children is generally inferior to that of the spine (Guo et al., 2023). If children do not have adequate muscle control and support, the spine is prone to go beyond its normal physiologic curvature, which can lead to injury. The training methods that overemphasize flexibility and ignore body support and age developmental characteristics are essentially a pedagogical level of inappropriate development and are a significant risk factor for injuries.

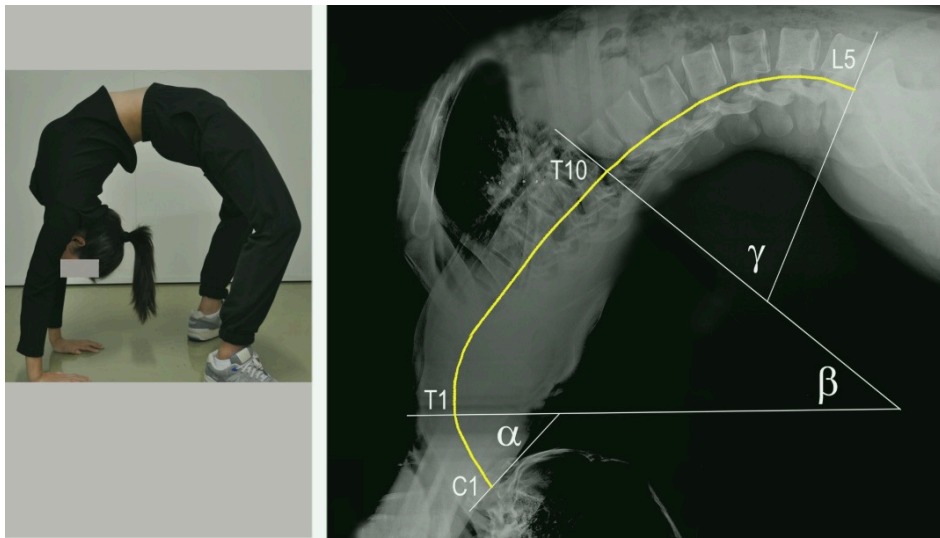


Figure 1. Bending the spine backward from standing until the hands touch the ground, maintaining the body arch.

Some researchers refer to this specific type of SCIWORA as pediatric acute hyperextension spinal cord injury (PAHSCI). They note that, unlike typical SCIWORA, PAHSCI is more commonly associated with backbend training in traditional Chinese dance. Epidemiologic data show that SCIWORA is much more prevalent in the cervical spine than in the thoracic and lumbar spine and is more prevalent in boys than in girls. In contrast, PAHSCI occurred almost exclusively in the thoracic and lumbar spine regions, with nerve injury planes more frequently distributed above and below the 10th thoracic vertebrae, and was significantly more prevalent in girls than in boys. Therefore, the waist flexibility training, which is heavily practiced in Chinese dance, is highly consistent with the mechanism of PAHSCI. According to the existing literature, there are more than 200 cases of PAHSCI in children due to dance back-bend, and it has become the leading cause of SCI in children (Zeng et al., 2023).

In the book *Dance Science*, the authors pointed out anatomically that the thoracic spine has a much smaller range of motion during hyperextension than the lumbar spine due to the structural limitations of the ribs and spinous processes (Grossman, 2015). This structural difference helps explain why PAHSCI is more likely to occur in the thoracic and lumbar areas. If training is not distinguished, it is highly prone to bring the risk of injury to the area. The lack of scientific analysis of the activity characteristics of different spine segments in dance teaching is a reflection of the imbalance between safety and development. The injuries are not just physical cases, but are the structural consequences of the deviation from the aesthetic orientation of dance teaching. This bias towards prioritizing skills has deviated from the core concept of “to overcome formalism, avoid the unbalanced pursuit of skills and results, and to highlight students’ aesthetic feelings and artistic expression,” emphasized in the Comprehensive Implementation of the Aesthetic Education Immersion Initiative in Schools.

2.5 Teaching Strategies and the Return of the Aesthetic Education Concept

Although waist flexibility training is an important part of Chinese dance training, the physical conditions of students of different ages should be fully considered when designing the content and intensity of training. Research has shown that 9.4% of children between the ages of 3 and 12 years experience SCIWORA, while the prevalence drops to 5% of patients between the ages of 12 and 20 years (Ren et al., 2017). This indicates that early high-intensity flexibility training may pose a direct risk of injury. Therefore, setting training goals in scientific stages is a fundamental condition for realizing the student-oriented concept of dance education. At the same time, it also responds to the policy guidance of “respecting the students’ physical and mental development” in the Aesthetic Education policy.

To minimize risk, teaching strategies should prioritize ensuring alignment between movement adaptability and muscle support. The main function of human muscles is to hold, support, or lift the weight of a body part, and building muscle strength helps protect the body from injury (Ngo et al., 2024). In addition to flexibility training, muscle strength training is equally vital in dance class. For example, posterior hyperextension exercises should be performed with an upper limit of natural flexibility. Teachers should guide students to understand the process from perception to control to expression rather than exceeding physiological limits (Tone, 2024). To improve the efficiency of training, many after-school institutions compress the time of strength training, resulting in an imbalance in the development of muscle coordination, which affects the stability of the body and increases the risk of injury. From the perspective of aesthetic education, teaching with an emphasis on the results of technique contradicts the concept of process-oriented education and takes away the opportunity for students to develop aesthetic perception and understanding in dance. More seriously, this imbalance in training often encourages students to pursue physical limits, ignore the science of movement and physical tolerance, and even mistake injuries caused by training as symbols of effort and achievement.

The goal of dance teaching should not be that every student is trained to be a technical performer, but rather, through physical participation, students can gradually build up their ability to perceive aesthetics. Effective teaching strategies should pay attention to the rhythm of students’ physical development, help them understand their own bodies through progressive training, and learn to feel the pace, rhythm, and emotion in the movements, so as to gain a deeper aesthetic experience (Guo, 2022). Single imitation and mechanical repetition should be minimized in teaching, and students should be encouraged to understand the meaning behind the movements and to establish an emotional connection with the dance through expression. True dance education is not whether the posture is standardized, but whether students feel themselves and their aesthetics in the movements. This is the direction that aesthetic education should take.

Nowadays, it is urgent to establish an industry standard for children’s dance training. Specific guidelines for children’s dance safety training are recommended, with a scientific ratio of flexibility training to strength training, especially for younger children. Dance training institutions should implement stricter safety measures, such as equipping qualified professional teachers, introducing scientific teaching methods, and setting limits on difficult exercises. Teachers and institutions should acquire basic knowledge of dance science and integrate it with traditional dance training. Dance science not only helps teachers assess the physical abilities of their students but also optimizes training methods, reduces dance-related injuries, and promotes the health and progress of the dance field (Krasnow & Chatfield, 1996). In addition, the government, society, and educational institutions can collaborate to formulate safety standards and policies for children’s dance training to ensure that the quality and safety of training in the industry are up to standard. Through the monitoring mechanism, the risk of injury due to improper training can be reduced, bringing the concept of aesthetic education back to the class.

2.6 From Injury to Insight: Limits and Possibilities in Research

Based on the existing literature and data, it is clear that the following result can be drawn. Children’s risk of spinal cord injury in dance training is closely related to the teaching content, teaching methods, and teacher qualifications. In particular, the traditional teaching methods in Chinese dance focusing on waist flexibility training may significantly increase the risk of injury by overloading the spine and spinal cord of children when their bodies are not yet fully developed. This risk is further amplified by the cultural preference and market demand for Chinese dance training, which has led to a notable increase in specific spinal cord injuries such as backbend paralysis. Nevertheless, there are still many gaps in research in this area. For example, there is limited exploration of the biomechanical mechanisms of dance movements. Many studies have only been conducted at the level of phenomenon description,

and there is a lack of quantitative analysis of the specific mechanical loads that children's spinal structures undergo during difficult dance movements. In addition, there is a lack of research on how to scientifically set curriculum content and optimize teaching methods to reduce the risk of spinal cord injury in after-school dance training institutions. There remains a significant gap in research on the scientific management of dance training, particularly in areas such as injury prevention, early diagnosis, and evidence-based intervention strategies (Yin et al., 2016).

Therefore, future research should advance the field in multiple dimensions. First, the design of individualized teaching should be strengthened in the after-school dance training industry. Based on the physical developmental characteristics of children of different ages, scientifically age-appropriate dance teaching curricula should be developed, especially progressive training methods for high-risk movements to ensure the balance between safety and developmental aspects of training. Secondly, cross-disciplinary fields such as dance science and dance pedagogy should be combined to conduct in-depth research on the distribution of mechanical loads on children's spines in dance movements, so as to provide data support and theoretical basis for the development of more scientific safety training standards. In addition, the after-school dance training industry needs to formulate a standardized industry guideline to strictly regulate the qualifications of teachers, the scientific quality of the teaching content, and the safety of the courses (Alshorman et al., 2024). Relevant knowledge of dance science should be introduced into teacher training to enhance teachers' understanding of scientific training methods and minimize the risk of children being injured due to improper training.

These efforts not only help to reduce the physical injuries caused by improper training, but also provide a practical path for the reconstruction of Chinese dance education at the level of aesthetic concepts. By turning from technical training to aesthetic perception and body understanding, future dance education can better realize the unity of safety and artistry. This will not only provide a direction for the reform of dance aesthetic education in China, but also a valuable reference and space for global researchers who are concerned about the balance between children's art education and health.

3. Discussion

Using spinal cord injuries in children's dance training as an entry point, this study reveals the deeper issues of aesthetic orientation and teaching strategies in dance instruction behind the injuries. Studies have shown that difficult movements such as back-bending are closely associated with spinal cord injuries in young children, and this risk is further increased, especially in teaching strategies centered on waist flexibility. Although this type of training stems from the traditional aesthetic values of Chinese dance, in market-oriented after-school training institutions, it is utilitarianly reinforced as a marker of technical skill level, ignoring the appropriateness and individual differences in children's physical development. This tendency of technique as an aesthetic has caused dance teaching to deviate from the educational goals of physical perception and aesthetic experience. At the same time, the lack of scientific teaching standards, professional teachers, and safety mechanisms also makes it difficult to avoid the risk of injury. Existing research focuses on the description of injury phenomena, but lacks empirical evidence on the biomechanical loads of training movements, as well as a systematic pedagogical framework on the relationship between safety, art, and aesthetics. Therefore, there is an urgent need for dance education to change from technical education to aesthetic education in order to respond more comprehensively to the needs of children's development and the fundamental mission of aesthetic education.

4. Conclusion

This study reveals a core problem in current Chinese children's dance education: the traditional aesthetic concept is biased in practice to be understood as the extreme presentation of technique, which in turn promotes the excessive pursuit of difficult movements, especially waist flexibility training. This orientation, in the context of neglecting children's physical developmental patterns, has become a profound risk factor for injuries such as spinal cord injuries. To respond to this problem, the future shall start from the following three aspects. First, to develop a safer and more gradual teaching program based on the physiological characteristics of children at different ages. Secondly, the teaching concept should be restructured to emphasize body perception, emotional expression, and aesthetic experience in dance, and reduce the tendency of technique-only teaching. Thirdly, to improve the qualification and teaching content standards of teachers in training institutions, and to introduce knowledge of dance science and child development in teacher training. Through this series of reforms, children's dance education is expected to step out of the

misunderstanding of technical education, return to the original intention of cultivating people through aesthetic education, and provide a healthier path to support students' physical and mental development and enhancement of their artistic literacy.

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