

Increased Incidence of Scoliosis in Adolescent Dancers, Gymnasts, and Swimmers: A Call for Early Screening and Conservative Management

By Dr. Chris Gubbels, DC – Specialist in Scoliosis Correction and Non-Surgical Spine Rehabilitation

Introduction

Adolescent idiopathic scoliosis (AIS) remains a significant concern in pediatric and adolescent health, particularly due to its often silent progression and long-term musculoskeletal implications. As healthcare professionals, and especially chiropractors focused on structural correction, we must maintain vigilance in identifying early signs of scoliosis in high-risk populations. Among the most affected groups are adolescents involved in dance, gymnastics, and competitive swimming. Increasingly, peer-reviewed research is demonstrating a correlation between participation in these sports and a higher prevalence of scoliosis—underscoring the critical need for early detection and targeted intervention.

Elevated Risk in Dance, Gymnastics, and Swimming

1. Dance: Structural Stress and Aesthetic Demands

A comprehensive study by Tanchev et al. (2000) evaluated 140 rhythmic gymnasts and found a scoliosis incidence rate of **12%**, significantly higher than the general population. Dancers, particularly in ballet and rhythmic gymnastics, are subjected to asymmetric loading, repetitive spinal hyperextension, and extreme ranges of motion. These biomechanical stressors can induce or exacerbate spinal curvature during key growth phases.

Reference: Tanchev, P. I., Dzherov, A. D., Parushev, A. D., Dikov, D. M., & Todorov, M. B. (2000). Scoliosis in rhythmic gymnasts. Spine, 25(11), 1367-1372.

PubMed ID: 10828918

2. Gymnastics: High-Impact Rotational Forces

The sport of gymnastics is characterized by axial loading, repeated spinal twisting, and intense training volumes at young ages—factors known to influence spinal development. A 2014 study published in the *Asian Spine Journal* by Sato et al. found that **12%** of gymnasts had scoliosis, and many of these cases were previously undiagnosed. The authors found that the incidence of scoliosis in gymnast was 10x higher compared to non-gymnast.

Reference: Sato, K., Konoeda, F., Ito, T., et al. (2014). Prevalence of scoliosis among junior high school students. Asian Spine Journal, 8(5), 599-604. PubMed ID: 25444007

3. Swimming: Asymmetry Despite Bilateral Motion

Contrary to popular belief, swimming—often recommended for back health—has also been linked to an increased prevalence of scoliosis. A study from 2014 published in the *Journal of Pediatric Orthopedics* revealed an increased prevalence of trunk asymmetries and hyperkyphosis among competitive swimmers, higher than the general adolescent average. Repetitive spinal extension, unilateral breathing patterns, and training intensity may contribute to spinal imbalances over time.

Reference: Zaina, F., Donzelli, S., Lusini, M., et al. (2014). Swimming and spinal deformities: A cross-sectional study. Journal of Pediatric Orthopaedics, 34(3), 302-305.

PubMed ID: 24662812

The Importance of Early Screening

The earlier scoliosis is detected, the more effectively it can be managed using conservative, non-surgical strategies. Given that AIS often progresses during periods of rapid growth, adolescent athletes participating in these high-risk sports should undergo regular spinal screenings, especially during peak growth years. Girls should be screened at 10 and 12 years old and boys between the ages of 13-14. A scoliosis proper screening evaluates for visual asymmetries and trunk rotation using a scolimeter is recommended. Spinal x-rays remain the gold standards for accurate diagnosis and curve monitoring, all positive screenings should be followed up with full-

spine x-rays PA (ideally) and lateral views. Video with more information on <u>Scoliosis</u> <u>Screenings</u>.

Chiropractors and healthcare providers must work collaboratively with coaches, trainers, and parents to establish baseline assessments and promote periodic evaluations for these young athletes.

Conservative, Scoliosis-Specific Treatment

When detected early, scoliosis can often be successfully managed with conservative, scoliosis-specific interventions. These include:

- 3D Scoliosis-Specific Exercises tailored to curve type (e.g., ScoliBalance)
- Custom corrective bracing (e.g., ScoliBrace®)

As a specialist in scoliosis correction, I have seen firsthand the transformative potential of early conservative care. By reducing abnormal curvature, improving postural symmetry, and minimizing the risk of progression, these treatments help preserve long-term spinal health and performance outcomes in young athletes.

A Call to Action for Healthcare Professionals

Healthcare professionals play a pivotal role in early scoliosis identification and intervention. If you treat adolescent athletes, particularly those engaged in dance, gymnastics, or swimming, we encourage you to **refer for or perform spinal screenings routinely**—even in the absence of symptoms.

To support your clinical decision-making, we are offering a **complimentary x-ray review service for healthcare providers**. This ensures that any suspected spinal abnormality can be accurately assessed and appropriately referred for conservative scoliosis-specific care when needed.

Conclusion

The evidence is clear: adolescents involved in dance, gymnastics, and swimming face a heightened risk of developing scoliosis. As the prevalence continues to rise in these populations, proactive screening and conservative, curve-specific management must become the standard of care. Together, we can reduce the burden of scoliosis—one spine at a time.

Schedule Your Free X-Ray Review Today

If you're a healthcare professional working with adolescent athletes, contact us for a complimentary scoliosis x-ray review. Early detection can change the trajectory of a young life. Dener.co@scolicare.com https://scolicare.com/denver-colorado/

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