

## Swimming and Spinal Deformities: A Cross-Sectional Study

Fabio Zaina, MD<sup>1</sup>, Sabrina Donzelli, MD<sup>1</sup>, Monia Lusini, MD<sup>1</sup>, Salvatore Minnella, MD<sup>1</sup>, and Stefano Negrini, Prof, MD<sup>2</sup>

- Cross-sectional, 112 adolescent competitive swimmers (ACS) compared with 217 students of the same age
- ACS trained at least 4 (up to 7) times a week for an average of 2-2.5 hours per session
- Questionnaire on LBP, Scoliometer to screen for scoliosis and plumbline distances for kyphosis and lordosis.
- Swimming was associated with an increased risk of trunk asymmetries (OR, 1.86; P < .05)
- Females in the ACS group had a 2.5-fold higher risk than those in the control group.



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- Competitive swimmers (particularly females) have **more** spinal asymmetries (positive screening for scoliosis) and increased kyphosis compared to the normal population of the same age during adolescents
- Swimming also increased the risk of LBP, but only in females (OR, 2.10)
- This study suggests that those adolescents that swim regularly (2 hours at least 4 times per week) are more likely to have a scoliosis.



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## SWIMMING AND AIS

- The results from Zaina et. al. confirm those of Becker TJ (Clin Sports Med 1986)
- Becker evaluated a group of adolescent swimmers competing at the Junior Olympics in 1983.
- 336 athletes (193 women and 173 men).
- They reported a structural idiopathic scoliosis prevalence of 6.9%
- Signs of a mild functional scoliosis in 16%



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## SWIMMING AND AIS

- Becker concluded;

*"The high-repetition nature of competitive swimming causes imbalances of musculature in the adolescent athlete. Scoliosis as a musculoskeletal condition of the adolescent can be detected in high incidence among swimmers owing to the training phenomenon."*



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## SWIMMING AND AIS

## FREQUENCY OF THE SPINAL COLUMN POSTURAL DISORDERS AMONG ELITE SERBIAN SWIMMERS\*

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Saša Milenković<sup>1</sup>, Dobrica Živković<sup>1</sup>, Saša Bubanj<sup>1</sup>, Zoran Bogdanović<sup>2</sup>, Mladen Živković<sup>1</sup>, Dejan Stošić<sup>1</sup><sup>1</sup>University of Niš, Faculty Sport and Physical Education, Serbia<sup>2</sup>University of Novi Pazar, Department of Sport and Rehabilitation, Novi Pazar, Serbia

- 30 Male and female swimmers
- "we were able to determine the existence of postural disorders of the spinal column in a greater percentage than expected"



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## SWIMMING AND AIS

- Swimming used to be thought of as a treatment for scoliosis!
- However the evidence is not in favour of this
- Swimming may mobilise the spine in an environment that we are not evolved for
- The specific biomechanical forces of swimming may have a negative impact on the growing spine
- Can increase the deformity (scoliosis) with a thoracic hump of 10 mm or more (Gayer et. al.)



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