



EDITORIAL

NEW PERSPECTIVES IN SCOLIOSIS AND SPINAL DEFORMITIES: AN UPDATE FROM THE 2023 ANNUAL SOSORT MEETING

Scoliosis and spinal deformities: twenty years of innovations

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During the past twenty years, new energy and interest have transformed the field of non-operative treatment of scoliosis and spinal deformities. Before this period, tradition was the primary guide for clinicians, who based their treatments on the practical experience and lessons learned from previous medical masters. Then, evidence-based medicine (EBM) gradually became the standard way of approaching treatments, leading clinicians to seek more solid research in every field of medicine. For scoliosis, this meant a rise in doubts regarding the efficacy of bracing and exercise. Experts never stopped working with these tools but, embracing the philosophy of EBM in order to advance the level of evidence¹ founded of the International Society on Scoliosis Orthopedic and Rehabilitation Treatment (SOSORT).

They started with basic questions and defined the goals of scoliosis treatment;² they defined the biomechanical principles of bracing,³ guidelines on bracing management⁴ and comprehensive clinical guidelines for scoliosis conservative treatment.⁵ Subsequently, research demonstrated that bracing works to stop the progression of scoliosis during growth with long-lasting results.⁶⁻⁸

From that point, research has changed its target. While research in bracing remains fundamental, with authors exploring its limits and benefits in curves approaching surgical range, a growing interest has focused on patient centric needs and issues, on technological tools and on moving from scoliosis to other spinal deformities. The following special issue of the *European Journal of Physical and Rehabilitation Medicine* provides a select sample of high-quality research in the field of scoliosis and spinal deformities presented at the recent 2023 SOSORT and Spineweek conference in Melbourne, Australia.

There is growing attention to the psychological impact of scoliosis and its treatment, with new tools developed to measure its burden during adolescence and adulthood.⁹ Spinal deformities can have a negative impact on physical impairment due to the structural imbalance of the spine as well as psychological burden. This is not surprising; all chronic pathologies have a similar pattern and must be addressed globally through a multidisciplinary approach.¹⁰ Physicians and caregivers need to be aware of these aspects, possess knowledge about psychologically informed clinical practice, and ultimately undergo

specific training. The paper by Castille *et al.* focused on assessing the reported frequency and effect clinician-led mental health discussions on individuals diagnosed with scoliosis in childhood and adolescence.¹¹ This perspective is an original one on the problem and will open the field for a new care approach.

One of the concerns regarding the diagnosis of scoliosis is its impact on social life and, eventually, on pregnancy. Traditionally, experts reported an increased risk of progression of the deformity and more pain for pregnant scoliosis patients. Also, gynecologists have concerns about delivery and the possibility of performing spinal anesthesia. Thereaux *et al.* conducted a scoping review of the available literature to synthesize, summarize and update the understanding and ramifications of scoliosis on pregnancy and birth.¹² The findings of this paper will be beneficial to clinicians for discussion with patients regarding potential issues related to pregnancy and scoliosis.

Technology is increasingly permeating our lives, and electronic tools are replacing many activities requiring highly repetitive manual work. In scoliosis treatment, the assessment is primarily based on radiographs which are taken with high-quality tools but still measured by hand by human operators who must interpret the vertebrae's shape correctly. An automatic tool would be beneficial, and Wong *et al.* have developed a promising tool.¹³ Manual measurement with electronic tools on the screen is fast for an expert rater and provides good repeatability, but an automated one would provide significant advantages.

Scoliosis is the most well-known spinal deformity affecting young patients, and researchers and clinicians pay much attention to its evaluation and treatment, but other spine deformities are, at least, as frequent. Among these, Scheuermann's hyperkyphosis is probably the most relevant. Unfortunately, the amount of research on this pathology is about 10% of scoliosis, so many approaches are based on tradition more than evidence. Bracing for Scheuermann's hyperkyphosis is quite common, but published data are scant and focused mainly on old braces in smaller curves, which today are almost abandoned. For these reasons, the contribution of Aulisa *et al.* reporting the long-term follow-up after brace treatment for Scheuermann's kyphosis becomes particularly valuable.¹⁴

In conclusion, while the quality of evidence on the most common conservative treatment approaches is growing, the experts focus on new challenges. The growing interest in Quality of Life (QoL) and the consequences of sco-

liosis, the seek for patient-centered outcome measures, and the application of technology to improve both treatments and research, together with greater attention on underinvestigated spinal deformities, are the hot topics at the moment. We feel the readers of the *European Journal of Physical and Rehabilitation Medicine* will enjoy reading this special issue and take advantage of the clinically relevant information presented.

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Conflicts of interest

The authors certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

Authors' contributions

All authors read and approved the final version of the manuscript.

History

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