

# EVIDENCE-BASED APPROACH BY PRM SPECIALISTS TO ADOLESCENTS WITH IDIOPATHIC SCOLIOSIS

EDITORIAL

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## Physical and rehabilitation medicine specialists in the medical approach to idiopathic scoliosis

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The world of scoliosis is gradually changing. After many years in which the so-called conservative treatment lost prestige because considered somehow outdated, the pendulum is now swinging back in the opposite direction. This Special Section of the Journal presents the current clinical situation and physical and rehabilitation medicine (PRM) instruments in the treatment of patients with idiopathic scoliosis (IS), specifically adolescents with idiopathic scoliosis (AIS).

Two questions arise: why speak about AIS today and why specifically about AIS in a PRM perspective. A legendary tale among some specialists is that "scoliosis prevalence is diminishing". This is not true: its prevalence remains unchanged,<sup>1</sup> as it is for all disorders with a strong genetic basis.<sup>2</sup> In a PRM perspective, the situation of AIS today is particularly relevant for the following reasons.

First, there is the need to briefly address a terminological issue. In the past, rehabilitation treatments of orthopedic disabilities that were "not-surgical" were termed by convention "conservative". And it was also very common to simply classify patients (and pathologies) into two mutually exclusive broad categories: surgical and not-surgical. Over time and in many settings, the proponents of the "conservative" or "not-surgical" treatments became "orthopaedic physicians" (practicing "orthopaedic medicine"), and then PRM doctors. This has not (yet?) happened in AIS, however. Within one of the two leading sci-

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entific societies (the Scoliosis Research Society [SRS]) is a Committee that recently changed its name from "Conservative" to "Non-operative" Committee. This choice was based on surgical reasons, since the development of the "conservative" surgical approaches, those minimally damaging the spine, made the word "conservative" misleading (in any respect, we should say...). In our view, instead of using negative definers (*i.e.*, conservative or non-operative or not-surgical), the correct terminology should affirm what this treatment actually entails. Therefore, we propose and use in this Special Section the definition "medical approach". We believe it represents a good compromise between different specialists, mainly orthopedic surgeons (and physicians), and PRM physicians.

Second, several papers have reported that research in the medical approach to AIS is continuously decreasing (Figure 1):<sup>3, 4</sup> possible causes to be considered for the decline could be the diminishing interest from patients, lack of evidence, and slackening attention of professionals. According to published reports, the first<sup>5</sup> and second<sup>6-9</sup> causes are not probable, whereas the predominance by one single specialty (orthopedic surgeons) in this field is proven. In 2004, the international Society on Scoliosis Orthopedic and Rehabilitation Treatment (SOSORT), a multidisciplinary group of

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TABLE I.—*Aims of the International Society on Scoliosis Orthopaedic and Rehabilitation Treatment (SOSORT).*

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SOSORT was called in Barcelona (Spain 2004), started in Milan (Italy 2005), and constituted in Poznan (Poland 2006)

The general aims of the Society are:

- to foster the best conservative management through early detection, prevention, care, education and information about scoliosis and other spinal deformities
- to encourage multidisciplinary teamwork among scientists, medical and healthcare professionals, patients and their families

The specific aims of the Society are:

- to provide an open forum for the exchange of knowledge and ideas in the conservative management of spinal deformities and scoliosis in particular
- to stimulate research and clinical studies that focus on the concept that prevention and conservative treatment are effective, efficient and valuable tools for the management of the signs and symptoms of scoliosis and other spinal deformities
- to stimulate consensus on the various different conservative actions for the early detection, observation, prevention, management and orthopaedic treatment, and rehabilitation of scoliosis and other spinal deformities
- to raise awareness in the scientific community and the general population, patients and their families for the idea that prevention based on education and early conservative management, while avoiding under- and overtreatment, following generally accepted guidelines is the best approach in this field
- to promote education and training among professionals, with a view to have a body of specialists in this particular area able to care efficiently for scoliosis patients

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researchers including PRM specialists, orthopedic surgeons, physical therapists, orthotists, and other scientists and clinicians, was formed to answer the need for research in the medical approach to idiopathic scoliosis (Table I). Since then, research has resumed,<sup>4</sup> and the situation has apparently begun to change (Figure 1). Recently, also the SRS has begun to change its attitude toward the medical approach, following a major study financed by the U.S. National Institutes of Health (NIH) and originally designed as a randomized clinical trial.<sup>10</sup> Though it failed as such and was later transformed into a prospective controlled trial,<sup>11-13</sup> it confirmed (and strengthened) the already existing evidence.

Third, in a period of time in which orthopedic surgeons live professionally in their operating room, and the possibility to practice orthopedic medicine is continuously decreasing, PRM specialists should be those that could take the lead in the

future of medical approach to IS. In this respect, the few data about the neurophysiology of IS and its treatment<sup>14</sup> open up wide possibilities for the future.

In this Special Section, the best experts of SOSORT present current evidence and practical knowledge about the medical approach to AIS, according to the educational courses that the Society has developed. The first paper<sup>15</sup> will deal with current evidence. The first Cochrane review of studies on bracing for AIS,<sup>6,7</sup> published in 2009, included only two papers<sup>16,17</sup> that met the Institute's criteria for research quality. In the ensuing four years, the number of papers greatly increased and the new edition, currently in publication, includes five more studies.<sup>11, 18-21</sup> There is growing evidence in favor of bracing. A recent Cochrane review examines the use of exercises.<sup>8,9</sup> Though only two papers were included,<sup>22,23</sup> we expect more to appear in the next future. Obviously, evidence does not mean clinical reality. Bracing is not practiced widely outside of the northern European countries and the United States,<sup>24,25</sup> and exercises have been largely abandoned except in some countries (Spain, Italy, Germany, France).<sup>8,9,26</sup> Nevertheless, the publication of the latest U.S. study on bracing<sup>11</sup> is already driving change in the use of bracing, while exercise treatments seem to remain a matter of approach and competences (where PRM doctors play an important role). In this respect, one of the open problems remain the wide application of techniques without any prove of efficacy by many professionals in the PRM field: an example can be the use of manual treatment for scoliosis correction,<sup>27</sup> but also some specific exercises techniques.

The other two papers in this Special Section deal with practical issues about bracing<sup>28</sup> and exercises.<sup>29</sup> Though seemingly counterintuitive, overviews of currently available therapeutic tools for AIS are not only rare but almost nowhere to be found. About bracing, there is no consensus about the type and biomechanics of this treatment,<sup>30</sup> even if there is agreement about how to manage the patient.<sup>31</sup> Typically, specialists use braces of their own design, each of which with a specific history and biomechanical knowledge behind it. The paper by the SOSORT experts depicts this situation, presenting the types of braces used today internationally and the outcomes published

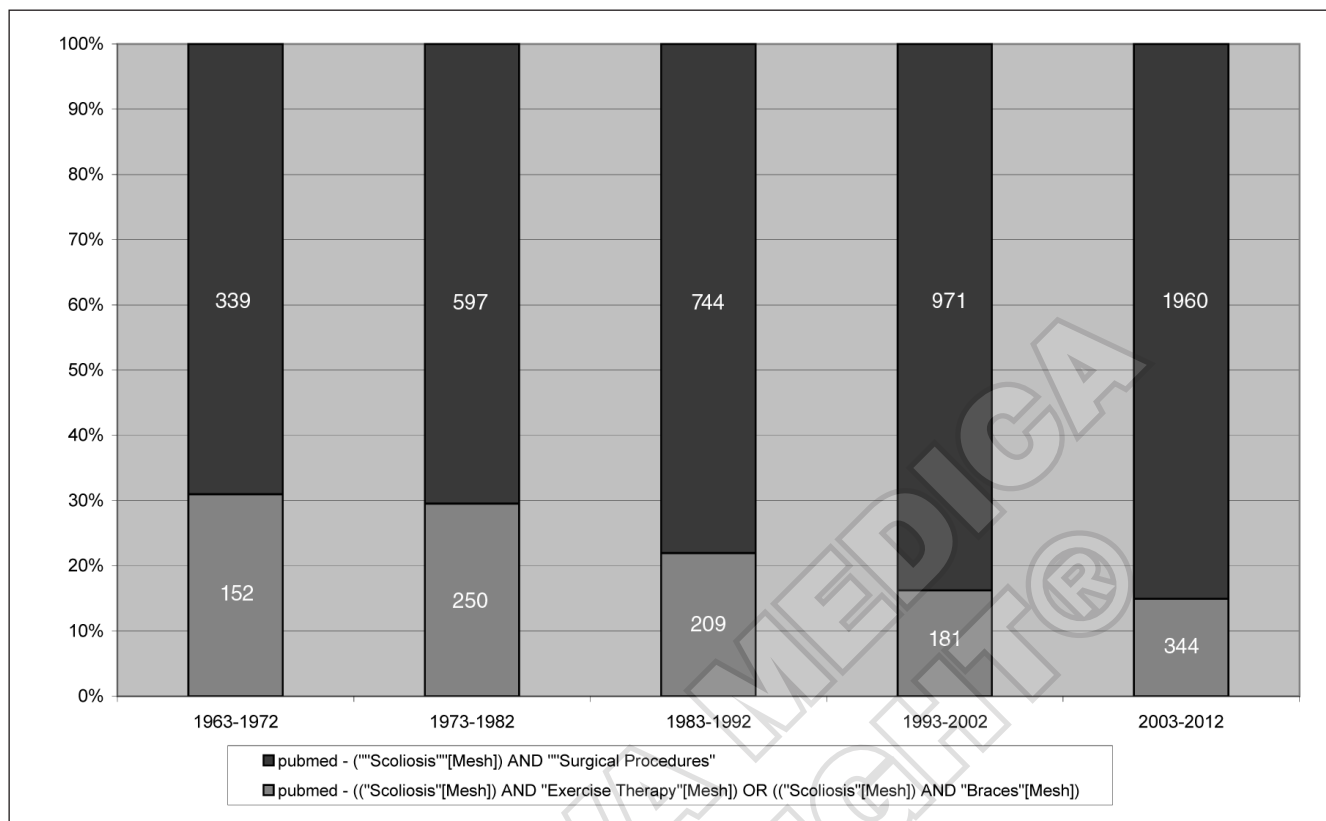


Figure 1.—Papers reporting that research in the medical approach to AIS is continuously decreasing.

in the literature. Similarly, exercise schools with published results are presented in the last paper.<sup>29</sup> Here consensus has been reached on the specific tools and aims of treatment,<sup>32</sup> but the practical approaches differ.

Over the past decade, the SOSORT has helped to increase the evidence on the medical approach to AIS and general knowledge in the field, to foster cross-pollination of ideas and concepts of bracing and exercises, and to provide a forum where medical approaches can be openly and scientifically discussed. After years of declining research and clinical application of medical approaches, the pendulum now seems to be swinging back, and PRM physicians need to know about this change. SOSORT is providing guidance for researchers and clinicians in the treatment of adolescents with idiopathic scoliosis but also patients with juvenile, infantile, and adult forms of idiopathic scoliosis, as well as secondary scoliosis.

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