# Idiopathic scoliosis

Known since the time of Hyppocrates, scoliosis is a three-dimensional deformity of the spine consisting of lateral curvature and rotation of the vertebrae. However, there is no single treatment recipe available for all patients.

Although scoliosis is mostly diagnosed in adolescents and pre-adolescents, it can also be found in young and very young children, and its management can be extremely complex. Treatment of scoliosis is essentially based on age (remaining growth), curve pattern, severity of the deformity, risk of progression and presence of comorbidities. In particular, remaining growth plays a central role for the worsening of the spinal curvature as the younger is the child, the higher is the risk of progression; in addition, the pubertal growth spurt increases the risk of deformity progression with a significant number of cases worsening substantially (1).

Initial diagnosis is extremely important in orientating the patient and correlating available therapeutic means to the expected results. In particular, since the introduction of the Harrington rod during the early 60', the surgical approach to scoliosis has changed as thoughts and possibilities have evolved.

Nowadays, progressive spinal deformities can be managed with specific orthopedic devices or vertebral arthrodesis surgery, depending on the age of the patient. Arthrodesis is not considered the ideal treatment for young and very young children (infantile and juvenile scoliosis) as it can interfere with both spine and thoracic cage growth; however, it becomes almost inevitable to correct severe deformities of the spine in older patients (adolescent scoliosis), although the spine is rendered more rigid. For this reason, during the past two decades, growth sparing techniques have been developed to treat progressive infantile and juvenile scoliosis. However, it is accepted that even if growth sparing techniques are used, surgery should be postponed as much as possible in order to decrease morbidity. Serial elongation derotation flexion (EDF) casting is a valuable option—in selected cases—for this purpose. In particular, during the past decade serial EDF casting has reinforced its role as a "buying time" strategy, alternatively to surgery. In the meantime, vertebral body tethering has been introduced for progressive correction of moderate juvenile deformities while preserving spinal motion (1-4).

This Special Issue aims to provide a comprehensive review of how spinal deformities can affect normal spine and thoracic cage growth, what are the current treatment options for patients with scoliosis, as well as what surgical options are still available in adulthood, if treatment has not been performed during childhood; special attention is also given to complications of scoliosis surgery, in particular deep postoperative infections.

The information contained in this Special Issue are derived from the valuable experience of more than 20 experts—dedicated to the care of patients with scoliosis—from all over the world. All the participants provided their own analysis, and their therapeutic choices and contributions have served this project well. This Special Issue would not exist without their efforts, diligence and commitment.

Although there are many points that are still debatable, and different approaches may exist, this Special Issue is an opportunity for every orthopedic surgeon dealing with children and adolescents with scoliosis to obtain updates concerning actual trends and knowledge in this field of study.

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## Footnote

*Conflicts of Interest:* The author has no conflicts of interest to declare.

*Ethical Statement:* The author is accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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