Bracing for scoliosis in 2014: state of the art


1 ISICO (Italian Scientific Spine Institute), Milan, Italy; 2 Clinique du Parc, Lyon, France; 3 “Tzanio” General Hospital of Piraeus, Athens, Greece; 4 Children’s Hospital Boston, Harvard Medical School, Boston, MA, USA; 5 Poznan University of Medical Sciences, Poznan, Poland; 6 Tokyo University, Tokyo, Japan; 7 University of Missouri, Kansas City, USA; 8 Istituto Elena Salvà, Barcellona, Spain; 9 Scoliosis Solutions, LLC, Fairfax, VA, USA; 10 Boston Brace, Boston, MA, USA; 11 University of Brescia, Brescia, IRCCS Don Gnocchi, Milan, Italy

Bracing is currently the primary method for treating moderate idiopathic scoliosis (IS) during the developmental phase of growth. Following a lengthy debate, during which researchers and authors questioned the role of bracing in the treatment of IS due to inconsistent evidence, the Bracing in Adolescent Idiopathic Scoliosis Trial study have provided a high level of evidence to the value of bracing and may have convinced most of those who were skeptical. However, although some guidelines have been published, there remains no standard for constructing scoliosis orthoses and no standard treatment protocol. The Scoliosis Research Society criteria were established to provide a framework by which to research bracing and adolescent idiopathic scoliosis, and the Society on Scoliosis Orthopedic and Rehabilitation Treatment criteria were published to guarantee a minimum level of expertise for MDs and CPOs involved in the brace treatment. However, very few contemporary papers follow both sets of criteria, and the extensive variety of braces makes it difficult to determine if one is superior to another. The aim of this paper is to provide an overview of state-of-the-art brace treatment, highlighting commonly used braces and their history,
biomechanical concept, and results, as reported in published literature. Specific focus is placed on European (i.e., Chêneau and derivatives, Dynamic Derotating, Lyon, PASB, Sforzesco, TLI, TriaC) and North American (i.e. Boston, Charleston, Milwaukee, Providence, Rosenberger, SpineCor, Wilmington) designs. Details about different building techniques are also reported, along with recently developed tools that are designed to monitor compliance.