Author’s response to reviews

Title: When and How to Discontinue Bracing Treatment in Adolescent Idiopathic Scoliosis. Results of a Survey.

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Reviewer reports:

Reviewer #1:

It seems important to clarify in the discussion that for homo sapiens, there is dissociation between growth and bone mass. At the end of stature growth, bone mass is half of what it is at 21 - 23 years old.

It’s true in deed. There is no straight age correlation about stature growth and bone mass density in published literature. Good point. Added in manuscript.

The greater the angulation, the greater the load on the concavity of the apical vertebra, which explains the changes at the end of growth.

Another good point too. And may be that’s why Bridwell et al wrote down, some five years ago in Spine, that there is a published literature demonstrated progression of curve magnitude after the end of growth from 0.8 to 1.2 grades a year, and that is linked with what you have recently stated. We appreciate that comment.

By cons I do not see the interest of the sagittal plane, can the authors clarify this point?

Its true in deed that brace treatment in thoracic lordo-scoliosis is not recommended. But as it is a well known exclusion criteria we did not point it out in M&M.
The persistence of pain is a good sign of low bone mass and I think this is one of the clinical decision-making issues.

It's been published that brace treatment reduces bone mass density, I dare say that we are not 100% sure nor found any consistent literature that promote the osteoporosis/osteopenia condition as a generator of back pain.

It would also be interesting to specify the practice of sports activity. The axial impact of jogging and running creates a piezoelectric current that promotes the fixation of calcium in the vertebral body.

There are many theories about impact sport and promoting calcium bone fixation, no doubt about it, we persistently promote and encourage our patients to perform any kind of activities during the brace treatment. Aerobic or anaerobic activities at least three times a week. Added in the manuscript.

Reviewer #2:

This is a paper with limited interest due to the current State of the Art. The objective of the study is of interest indeed, however the study design, looking for consensus among specialists is not a proper one for the current knowledge on this issue. In fact, it is at least surprising that the authors submit their paper to a publication, Scoliosis and Spinal Disorders, which has recently published the 2016 SOSORT Guidelines, where this issue is addressed (Recommendations on bracing. Table 10. Recommendations 12 and 13). It is true that when the authors of the paper decided to start the study, the SOSORT guidelines were not published yet in Scoliosis and Spinal Disorders, but these same recommendations about when and how to stop bracing were already made in the SOSORT Guidelines 2011, published in 2012 (recommendations 9 and 10).

Thus, authors should be aware about the current knowledge and throughout this study they could ask whether the SOSORT recommendations, based on multinational consensus, are in accordance with the current practice in their own country, and then, considering the big effort in realizing this type of study, submit the paper in a National or in a Continental publication, but not in Scoliosis and Spinal Disorders.

Thank you for your response. It is true about the 2 recommendations of 2011 and the other 2 recommendations of the SOSORT 2016. Notice has been taken into account and manuscript was adjusted.


Recommendation 9/12...

“It is recommended that braces are worn until the end of vertebral growth and then the wearing time is gradually reduced…”
Recommendation 10/13…

“It is recommended that the wearing time of the brace is gradually reduced while performing exercises…”

As you may be aware in 2011 SOSORT guideline conclusion says… “These Guidelines have been a big effort of SOSORT to paint the actual situation of CTIS… filling all the gray areas using a scientific method… it is possible to understand the lack of research in general on CTIS. SOSORT invites researchers to join, and clinicians to develop good research strategies to allow in the future to support or refute these recommendations according to new and stronger evidence”.

The aims of our study were and it is still to be open minded in this difficult grey area, with new ideas, new researchers, new clinicians… supporting and contributing largely what the prestigious SOSORT Committee developed in 2011 and 2016… the conclusion invite us, we believe, to produce and share some data that you and us may conclude to be elementary but honest and interesting data worldwide if your allow us. We do strongly appreciate your fair critic and special point of view.

“The multiple gray areas, important for the everyday clinical practice, in which is not possible to give an evidence-based recommendation”… p2.ColumnA. SOSORT GL 2011. And as SOSORT GL 2011 says…”The document in itself should serve as the basis for theses national documents”… p.3. Column B. it served in deed as a basis to start further studies.

“The heterogeneity of the study protocol limits generalizability of the recommendations”, p36, column B, SOSORT 2016. We totally agree with this statement.

We intended in this effort to paint the actual local situation and to elaborate and go way further in the study of how and when to discontinue the brace treatment in AIS. This paper actually did not put an unwavering nor incandescent light in brace weaning and no strong type A recommendation can come up from this local/national spine surgeons society, even though it represents a tremendous effort in approaching a still poorly described issue in literature. We are aware that there is not right or wrong on this specific matter. It is still a gray area, just a local/national point of view of an intriguing situation at the discontinuation of the state of art in AIS brace treatment.

The SOSORT guidelines offered an overview of a specific field and gave us insights for a new study. We did not try to applied international applicability throughout our research.

Both last two SOSORT Guidelines were added in manuscript as well as in references.

Thank you very much.

Reviewer #3:
This study provides some interesting data on clinical practice of a group of orthopedic surgeons coming from one country. Even with relatively low response rate (22%) the study is of value because the problem addressed - schedule for brace weaning after idiopathic scoliosis treatment - is relatively poorly described in the literature.

The weaknesses of the study are correctly listed.

The SOSORT Consensus (2011 and 2016) about Indication for AIS treatment published in Scoliosis should be cited in the Background section to support the need for undertaking this survey.

No major revision to be made.

Thank you very much. Proper corrections have been made. 2016 SOSORT consensus have been added. Thank you for the time invested in this manuscript. We truly appreciate you found this paper interesting.