Prosthetics and Orthotics International

INTERNATIONAL SOCIETY FOR PROSTHETICS AND ORTHOTICS

The active self-correction component of scoliosis-specific exercises has results in the long term, while the stabilization component is sufficient in the short term

Prosthetics and Orthotics International
1–2

DOI: 10.1177/0309364620916346
journals.sagepub.com/home/poi
SAGE

We would like to thank Yagci and Yakut[1] for their interesting paper, published in a field requiring extensive research.[2] We would like to propose some comments about the intrinsic significance of this study. According to the Society on Scoliosis Orthopaedic and Rehabilitation Treatment (SOSORT)/ Scoliosis Research Society (SRS) criteria,[2] these results should be classified as a very short-term assessment (less than 12 months of treatment).Our questions are as follows:

What can we expect from exercises as an add-on to bracing in the very short term?

Which component of the exercise program could lead to possible improvements in results?

The two groups compared by Yagci and Yakult[1] included Scientific Exercises Approach to Scoliosis (SEAS) and core stabilization. According to the SOSORT expert consensus,[2] scoliosis-specific exercise schools like SEAS include two main components: active self-correction (ASC) and stabilization. Consequently, a common intervention was provided to the two groups (stabilization) in this study, while the SEAS group also received ASC. Experts agree that stabilization exercises are more important during the first treatment phase (when the brace maintains for many hours every day the alignment of the spine and exercises are aimed to counteract muscle impairment). Exercises in ASC are more important in maintaining the obtained results during the brace weaning phase, when the patients should live sustaining in correction their spine without the brace support.[3] The paper by Yagci and Yakut provides support to our assumption that stabilization is sufficient for the very short-term results of brace treatment.

The paper also raises some methodological questions. The patients were more adherent to the brace than to the exercise therapy. Unfortunately, the authors did not mention the prescribed number of bracing hours and if there was a difference in the adherence to bracing between the groups: this variable is expected to impact the results more than the type of exercises. A compliance monitor is nowadays almost mandatory in bracing studies.[2] In addition, a comparison between the two groups is critical. For example, were the braces used for same number of hours in the two groups? It is not possible to analyze the obtained results without this data. Finally, in the methods section the authors indicate

> Assessments were undertaken at baseline and after the 4-month treatment period for each patient by the second investigator, who was blind to the allocation of the participants throughout the study. Final measurements were taken after the brace has been removed for 6 h.[1]

whereas in the results "Initial mean in-brace correction for the primary curve."[1] Were the x-rays for the comparison measured in the brace or out of the brace? This methodology could significantly change the reported results.

In conclusion, provided that the methodological questions are addressed, we thank Yagci and Yakut to have confirmed an assumption diffused, but not proven among experts in the field: stabilization is the most important component of scoliosis-specific exercises in the first phase of bracing treatment. In light of the results demonstrating that ASC and stabilization help during brace weaning,[3] it is important for the future to determine when to start ASC: immediately (even if it could add nothing to stabilization) or when weaning starts (when it could be too late)?

Author contributions

All authors contributed equally in the preparation of this manuscript.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

ORCID iDs

Alessandra Negrini https://orcid.org/0000-0002-9195-9019
Fabio Zaina https://orcid.org/0000-0002-1256-5362

References

1. Yagci G and Yakut Y. Core stabilization exercises versus scoliosis-specific exercises in moderate idiopathic scoliosis treatment. *Prosthet Orthot Int* 2019; 43(3): 301–308.
2. Negrini S, Donzelli S, Aulisa AG, et al. 2016 SOSORT guidelines: orthopaedic and rehabilitation treatment of idiopathic scoliosis during growth. *Scoliosis Spinal Disord* 2018; 13: 3.

3. Zaina F, Negrini S, Atanasio S, et al. Specific exercises performed in the period of brace weaning can avoid loss of correction in adolescent idiopathic scoliosis (AIS) patients: winner of SOSORT's 2008 award for best clinical paper. *Scoliosis* 2009; 4: 8.

Alessandra Negrini[1], Sabrina Donzelli[1], Michele Romano[1], Fabio Zaina[1] and Stefano Negrini[2,3]

[1]ISICO – Italian Scientific Spine Institute, Milan, Italy
[2]Department of Biomedical, Surgical and Dental Sciences, University of Milan "La Statale," Milan, Italy
[3]IRCCS Istituto Ortopedico Galeazzi, Milan, Italy

Corresponding author:
Alessandra Negrini, ISICO – Italian Scientific Spine Institute, Via Roberto Bellarmino 13/1, Milan 20141, Italy
Email: alessandra.negrini@isico.it