

A Matched Case-Control Study of the Free Pelvis vs the classical Very-Rigid Sforzesco Brace in 436 High Degree AIS not previously braced

*Negrini S (1,2), Tessadri F (3), Negrini F (2,4), Tavernaro
M (4), Zaina F (4), Zonta A (4), Donzelli S (4)*

1. Department of Biomedical, Surgical and Dental Sciences,
University "La Statale", Milan, Italy
2. IRCCS Istituto Ortopedico Galeazzi, Milan, Italy
3. Orthotecnica, Trento, Italy
4. ISICO (Italian Scientific Spine Institute), Milan, Italy

Background

Very-rigid braces, like the **Sforzesco** brace (VRB), have shown promising results also in high-degree surgical curves of Adolescents with Idiopathic Scoliosis (AIS).

We recently introduced the “**Free Pelvis**” (FP) innovation, semi-rigid material to improve

comfort, sagittal balance and **brace adaptability**. Nevertheless, these changes could also harm the corrective forces on the trunk.

Objective: verify if the FP innovation impacts on the efficacy of the Sforzesco VRB for high-degree AIS.

Methods

Case-Control Study.

We extracted from our prospective database **all FPB and VRB at first consultation** in our Institute.

Inclusion criteria: AIS, age 10-16, VRB 23
hours/day, x-rays available, 36-65° Cobb, 7-23°
Bunnell.

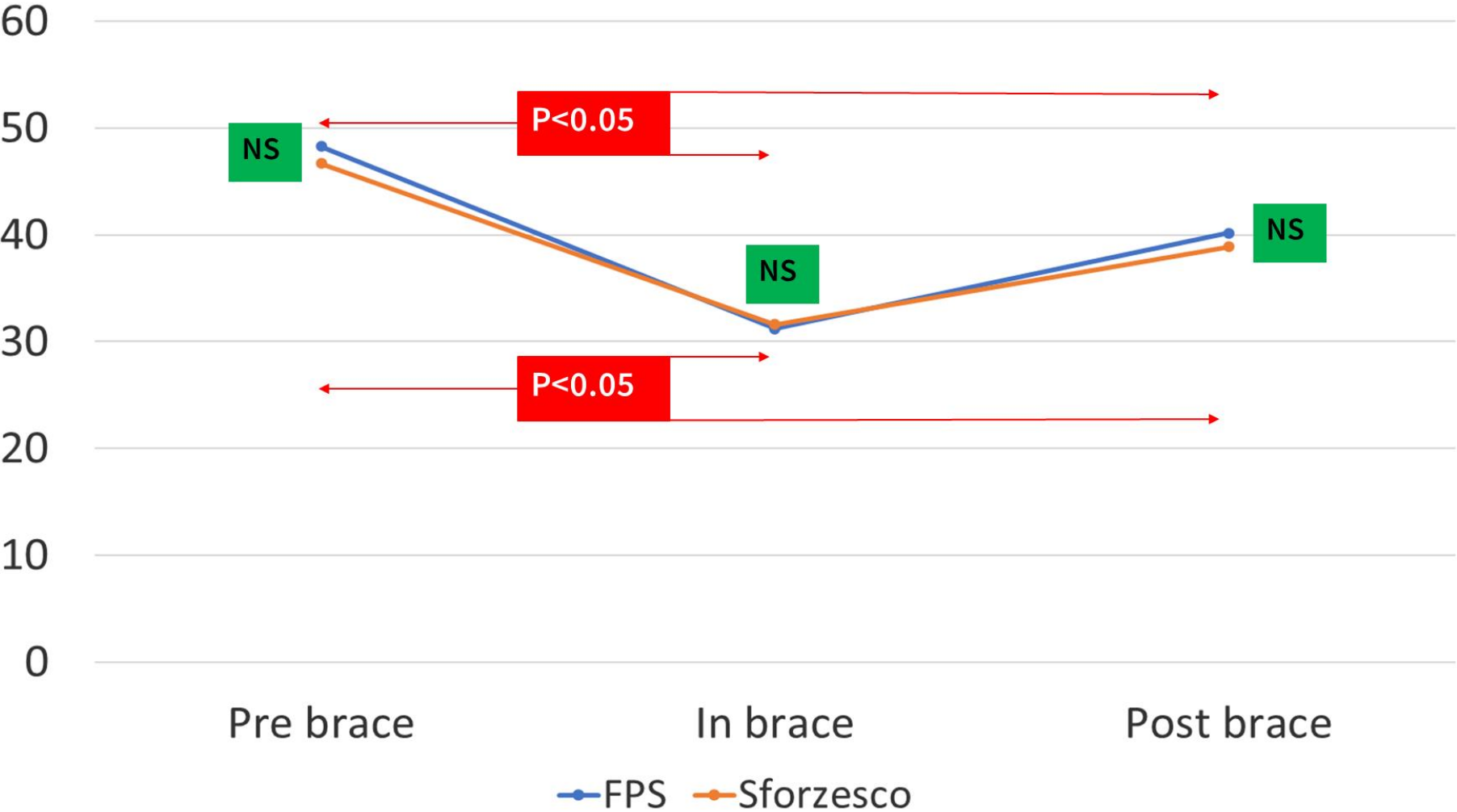
We **matched** for Risser, menarche, weight, height,
BMI, aesthetics (TRACE), plumbline distances,
brace use.

Post-hoc we also excluded previously braced patients.

We checked **in-brace (one month), and short-term out-of-brace results.**

We used descriptive statistics and unpaired/paired t-test according to variables and distribution.

Cobb degrees results



Results

We included **416 VRB** (12% males, age 13 ± 1 , $46\pm 7^\circ$) and **20 FP** (10%, 13 ± 1 , $49\pm 10^\circ$).

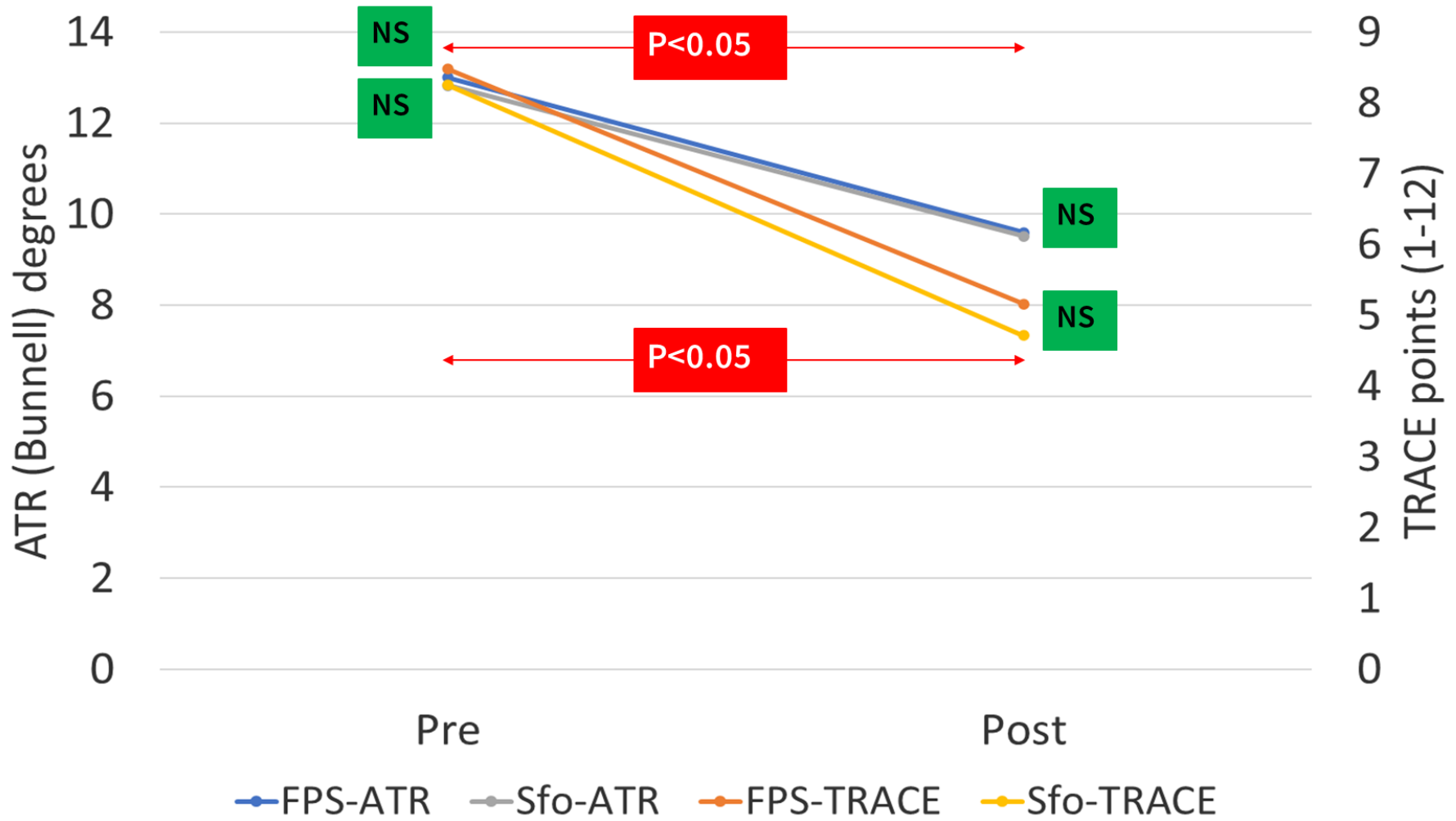
At baseline brace use ($+12'$ /day FP) and compliance ($+1\%$ FP) were different. **All**

parameters improved statistically ($p < 0.001$)

and clinically, **without differences** among groups

in-brace (FP $-17 \pm 8^\circ$ vs VRB $-15 \pm 6^\circ$ Cobb) and at short-term (5 \pm 2 months) for scoliosis ($-8 \pm 6^\circ$ vs $-8 \pm 5^\circ$ Cobb), ATR ($-3 \pm 2^\circ$ vs $-4 \pm 4^\circ$ Bunnell), aesthetics (-3 ± 2 vs -3 ± 2 points), S1 (-6 ± 11 vs -4 ± 15 mm) and C7+L3 (-8 ± 17 vs -4 ± 19).

Surface results: hump and aesthetics



Conclusion

FPB results were not different from those of the classical VRB in-brace and in the short-term.

The FP innovation does not impair the mechanical correction of VRB.

References

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Disclosure

SN has a stock of ISICO (Italian Scientific Spine Institute)

Nothing to disclose from the other authors