Comments for the authors on “Assessment of angle velocity in girls with adolescent idiopathic scoliosis”

The authors of this retrospective study calculated the height and Cobb angle velocities in AIS girls, aiming to investigate the relationship between height growth velocity and curve progression. The results of this report may add important information to the pubertal growth as well as the curve progression of AIS girls.

I have several questions:

1) In the “METHODS”, 132 girls with AIS were included. These patients were treated with observations only, bracing treatment or surgery. However, the standardized criteria for treatment such as observation, bracing treatment and surgery was not well documented. And, how many patients were there included in each group?

2) In the “METHODS”, height growth velocity was calculated based on height measurement, standing height in this study, at every visit. But as is known, the standing height can not represent the real height of the patient, especially for patients of larger curve magnitude. So, why not use the corrected height which is much closer to the real height?

3) In the “METHODS”, 31 patients had a double curve pattern. I’m wondering which Cobb angle was used to evaluate the curve progression.

4) We have noticed that the number of patients in Fig 2 plus the number of patients in Fig 3 isn’t always equal to the number of patients in Fig 1 at every time point around menarche. Please explain it.

5) From Fig 1, we know that the data obtained from less than 33 patients were used to evaluate the timing of PHV and PAV. The proportion of these patients to the total sample (25%) is not high enough. Thus, the viewpoint on the occurrence of PHV and PAV with regards to menarche was concluded while somewhat lacking sufficient sound evidence.

6) In the “RESULTS”, what’s the relationship between height and angle velocities in the peri-menarche period (from 6 months before to 6 months after menarche)? And in Fig 3, during the peri-menarche period, mean angle velocity was shown in negative value while height increased in the deceleration period. What’s the explanation to this? Is it the effect of bracing?

7) Fig 2 and Fig 3 show the relationships between height and angle velocities in
the patients received observations and bracing treatment, respectively. In Fig2, at the time-point of PHV, there is not a PAV observed. Please explain this finding. And, the effect of bracing to the curve magnitude should not be ignored. So, I’m afraid that the angle velocity curve in Fig 3 could not represent the natural behavior of Cobb angle over the peri-pubertal period.

8) Also, there were several misspelled words, i.e. “spite” in “…there is still a risk of progression in this group of girls spite bracing…” and “…there is still a risk of progression in girls with moderate-severe curves spite bracing…” should be “despite”, “it” in “arising questions such as it the timing of peak angle velocity” should be “if” and “were” in “The method used was a Restricted Maximum Likelihood were angle velocity was the dependent variable” should be “where”. Are these right?

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests