To the Editor:

We appreciate the time taken by the reviewers to make suggestions that will improve the quality and usefulness of our manuscript. Each requested revision is summarized, and a detailed response to each suggestion by each reviewer is provided below.

Reviewer #1

Revision #1. "throughout the paper the presumption is that manipulation was the most important part of the results obtained." ‘Cautious and change phrasing, maintaining a correct scientific doubtful approach.’

OUR RESPONSE: We appreciate this feedback because there is no intent to convey the impression that any particular activity over the 13-year period of monitoring was the basis for the changes, but only to convey that these were the changes seen and these were the activities that occurred. Because there have, to date, been no long-term followup studies showing improvement in an aging adult, the primary goal of the study is to document this change. It would be inappropriate, of course, to draw specific cause-and-effect conclusions on the basis of a single case report, let alone a case in which multiple interventions occurred over time, and we do not attempt to do so. This is especially true because older studies have shown that even in response to definitive treatment of the underlying cause (i.e. surgery to remove bone tumors in pain-provoked scoliosis) resolution of the curvature may not be manifest for months after the treatment (e.g. Mehta 1978). Our language throughout has been checked to make sure we avoid any such claims or inferences.

Revision #2. Provide details on exercises--categories (mobilization, strengthening etc), and also examples.

OUR RESPONSE: Additional details have been provided on all activities and treatments before and after diagnosis, as requested, and outlined in a table summarizing protocols used from the time of diagnosis in 1964.

Revision #3. 'first subjective improvement was related to a psychological intervention.' ..'consider that a psychological change can for sure be correlated to a postural improvement, and posture is part of scoliosis. Moreover, an important psychological change can drive to change in everyday activities that in turn can cause muscular changes that could be more important than the treatment proposed. What were sport/physical activities before 1992 and after, and how performed.'

OUR RESPONSE: Information about activities before and after 1992 have been added in a table. We agree that psychology can influence posture, and vice versa. Given the body of published literature (from Blount et al and Nachemson in the 1970s through Payne et al 1997, and others, more recently) that links psychological distress as both a cause and effect of scoliosis, we certainly agree that this is an area warranting additional research. Again, in a case report we feel it would be distracting from the main point ('change happened, in an adult, over a 15-year period') to speculate on cause and effect in this situation but have expanded the discussion to include this aspect.

rEVISION #4. CMM--What is it? Develop a 'treatment applied section where you should explain carefully CMM, exercises, activities of daily life, giving examples as well as detailed on the number of sessions performed, with which frequency in the brief and long term. 'what you write on CMM is so technical that non-osteopaths have big difficulties in understanding--give examples.'

OUR RESPONSE: Changes in wording and content have been made, as suggested,, and a publication now available to describe CMM, has been cited. Again, CMM was not carried out for several years after the improvements began to be obvious, and like the other interventions and exercises we are not claiming any cause-and-effect relationships.

Revision #5. Citing names of treating clinicians.

Drs. Bickel and Stiles have been deceased for years; we omitted the pediatrician's name but feel it is important to document the name of the treating orthopedic surgeon, especially in a case where a patient is a coauthor. The PT was not cited because, regrettably, her name was not included in the patient hospital record and recent efforts to obtain it were unsuccessful. Permission from Corrinne Kotch (massage therapist) and William Quirk (radiology technician) was obtained before citing, and can be provided in writing if necessary.
Revision #6. abstract--better describe treatment options

OUR RESPONSE: Done, as requested.

Revision #7. re-write chest excursion vs Cobb angle.

OUR RESPONSE: Done, as requested.

Revision #8. Discussion--discuss treatment applied vs other proposals.

OUR RESPONSE: Again, there is a concern that a comparative discussion of treatments suggests a presumption that we can draw conclusions about cause and effect. A change can be shown to have occurred, during a period when treatments and exercises focused on mobilization (rather than strengthening and aerobics which had been done daily for 20 years previously). This observation supports the results and conclusions of others (cited herein) indicating that further research will be needed to make judgements about what will constitute effective approaches for individual patients. The discussion has been modified to reflect this view.

Revision #9. Separate title from text (p. 6, first line).

OUR RESPONSE: Done, as requested.

Review #2.

Revision #1. divide Figure 2 into two separate parts and enlarge the X-rays.

OUR RESPONSE: Done, as requested.

Revision #2. Add values of the angle of the axial rotation of the apical vertebra.

OUR RESPONSE: Done, as requested.

Revision #3. 'This approach to the use of manipulative (mobilizing) techniques..." This sentence is not clear. I don't understand what techniques were used (manipulations and/or mobilizations).

OUR RESPONSE: Revised, as requested.

Reviewer #3.

Revision 1. Abstract: change terminology in abstract.
OUR RESPONSE: Done, as requested.

Revision #2. Background: discuss whether breathing function is impaired in moderate scoliosis

OUR RESPONSE: In response to the concerns, we have summarized the controversy as we understand it; included additional references documenting the range of pulmonary function impairment in mild, moderate, and severe idiopathic scoliosis and its variable relationship with Cobb angle and other factors thought to play a role; and integrated this background information into the findings of the current case report. With permission of the editor, we accordingly have changed the title to 'Case report and literature review.'

Revision #3. Conclusion should be discussion, conclusion should be shorter.

OUR RESPONSE: Done, as requested.

Revision #4. Cobb angle readings

OUR RESPONSE: Done, as requested. The Chief Medical Photographer at the University of Arizona Medical Center re-scanned the x-rays and rendered them as a separate figure. As a part of the anonymous measurement, readers were asked to use erasable markers only on the radiographs, but have highlighted markings from the last reader left in place.

Revision #5. smoker or not, other respiratory problems

OUR RESPONSE: Done, as requested.

Revision #6. sagittal--describe conditions

OUR RESPONSE: Done, as requested.