Letter to the Editor regarding “Scheuermann’s kyphosis: surgical management” (V. Arlet, D. Schlenzka)

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Dear Editor,

With great interest I have read the article “*Scheuermann’s kyphosis: surgical management*” by Vincent Arlet and Dietrich Schlenzka [1]. Their review and surgical tips and tricks should be appreciated when managing Scheuermann kyphosis. Indeed a proper surgical job can only be done if your planning is thorough. Your *mis en place* must be detailed when managing a hyperkyphosis, just like writing a review article.

When writing a review article on Scheuermann kyphosis, one of the first questions is: Should we do a Pub Med search for *Scheuermann’s* or *Scheuermann* or both? If not, a significant article as the one of Arlet and Schlenzka can be overlooked, and let not forget the discrepancy between *Hosmans* or *Hosman*. Dear editor, just imagine what a difference a simple “s” can make! Still, *vanitas vanitatum omnia vanitas*.

Arlet and Schlenzka quoted that during clinical examination, hamstring tightness should be assessed as well as a popliteal angle, since tight hamstrings have recently been emphasized as an important possible cause of sagittal decompensation [1, 2]. However, as they state, no study has focused on any possible relationship between pelvic positioning and

Scheuermann kyphosis and also state that the surgical management of Scheuermann kyphosis is not well codified [1].

Considering a literature review and clinical data, a paradigm for the preoperative planning of Scheuermann kyphosis was proposed by us in order to predict the surgical outcome of Scheuermann kyphosis [2, 3]. This paradigm illustrated that the correction of a kyphosis will shift the sagittal balance posteriorly. Compensation from that balance shift can be provided by: (1) reducing the lordosis of the lumbar spine; (2) increasing the sacral slope; or (3) a combined adjustment of both the lumbar spine and pelvis.

Group 1 “The Lumbar Compensators” appeared to be tight hamstring patients. The nontight hamstring group can be classified as group 3 “The Lumbar–Pelvic Compensators” because they are able to adjust both their lumbar curve and pelvic position after surgery. Group 2 “The Pelvic Compensators”, i.e., patients who restored their balance by only adjusting their pelvic position, were not seen in our cohort.

Based on our study, we codified our surgical plan; we still adhere to limiting the kyphosis correction as advised by Lowe and Kasten, but have added the rules of preoperative clinical assessment of the lumbar–pelvic ROM and judgment of tight hamstrings to our surgical guidelines [4]. The lumbar–pelvic ROM should be assessed clinically with an inclinometer because flexion and extension radiographs are static and provide inadequate information on the pelvic ROM. Furthermore; our results suggest that fusion of the lumbar spine should be limited when managing a thoracic Scheuermann kyphosis. Extensive fusion of the lumbar segments will compromise the lumbar

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compensation mechanism and induce further risk of imbalance and junctional kyphosis, especially in the tight hamstring patients who have a fixed pelvis. When applying these concepts, limitations in the lumbar–pelvic ROM may generate a restriction in the kyphosis correction and perhaps even form a contraindication for an anterior release or in fact *any* surgical correction in certain cases. We agree with Stagnara et al. [5] who admonish: “avoid the ‘Procustus bed’ and do not stretch those who are too short to the ‘right’ length.”

In conclusion, in our opinion *The Lumbar Compensators versus Lumbar–Pelvic Compensators paradigm* should be considered a helpful codifier in the surgical management of Scheuermann kyphosis.

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