SUPPLEMENTARY MATERIAL

[Authors blinded for review] et al.
"The *[Blinded for peer review]*: Face, content, and construct validity of a 3D-printed spine model for freehand and minimally invasive pedicle screw insertion." *Global Spine Journal.*

Supplement A: Survey for Participants of the Freehand Insertion Study

Face validity:
1. How do you think the model replicates freehand pedicle screw insertion?
2. How difficult was the task compared to real surgery?
3. How closely did the model mimic intraoperative conditions?

Content Validity:
4. Do you think practice on this model could help to improve overall freehand insertion technique?
5. Do you think practice on this model could help to improve skills in properly using a pedicle finder?
6. Do you think practice on this model could help to improve skills in properly using a ball-tip probe?
7. Do you think practice on this model could help to improve skills in choosing a correct entry point?
8. Do you think practice on this model could help to improve skills in choosing a correct trajectory?
9. Do you think practice on this model could help to improve skills in identifying a breach of the pedicle using the ball-tip probe?

Construct Validity
10. Do you think that practicing on this model will improve surgical technique when free-handing pedicle screws in live patients?
11. How well do you think this model tests an individual's ability to place pedicle screws with a freehand technique?
12. Do you think this model is testing anything other than freehand insertion technique? If yes, what is it testing?

All questions except 12 used a 20-point Likert scale, where 1 = very negative, 20 = very positive. Question 12 was yes or no, and then a free-form response.

Supplement B: Survey for Participants of the MIS Insertion Study

Face validity:
1. How do you think the model replicates percutaneous pedicle screw insertion?
2. How difficult was the task compared to real surgery?
3. How closely did the model mimic intraoperative conditions?

Content Validity:
4. Do you think practice on this model could help to improve overall percutaneous screw insertion technique?
5. Do you think practice on this model could help to improve skills in properly using a Jamshidi needle (Becton Dickenson and Co.) to cannulate a pedicle?
6. Do you think practice on this model could help to improve skills in properly aligning the C-arm with the vertebral level being instrumented?
7. Do you think practice on this model could help to improve skills in choosing a correct entry point?
8. Do you think practice on this model could help to improve skills in choosing a correct trajectory?
9. Do you think practice on this model could help to improve skills in identifying a breach of the pedicle on fluoroscopy?

Construct Validity
10. Do you think that practicing on this model will improve surgical technique when placing pedicle screws percutaneously in live patients?
11. How well do you think this model tests an individual's ability to place percutaneous pedicle screws?
12. How similarly does this model perform under fluoroscopy to intraoperative conditions?
13. Do you think this model is testing anything other than MIS screw insertion technique? If yes, what is it testing?

All questions except 13 used a 20-point Likert scale, where 1 = very negative, 20 = very positive. Question 13 was yes or no, and then a free-form response.