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Dari: Ms Niki Dunienville (nikidunienville@dovepress.com)

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Tanggal: Rabu, 31 Mei 2023 pukul 16.34 GMT+7

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Manuscript title: Ankylosing spondylitis protrusion deformity after digital preoperative design, clinical application and the finite element analysis

Article type: Original Research

Author: Dr Xiuwen Liang

Journal: Journal of Inflammation Research (Journal impact factor: 4.631)

<https://www.dovepress.com/journal-of-inflammation-research-journal>

**Abstract:** Objective: By establishing a case of ankylosing spondylitis (AS) after thoracic lumbar protrusion deformity of the digital model, and verify its effectiveness after surgery for orthopaedic surgery process simulation, finite element model has been established for biomechanical experiments.

**Method:** A 56-year-old patient with AS was selected and subjected to preoperative thoracic lumbar spine CT scans. The data was reconstructed in Mimics16.0 software and modelled to design and measure parameters nailing. The 3D model was established in ANSYS14.0 software, and their actual surgery procedure was simulated under biomechanical experiments. The model was verified by comparing X-ray films taken of the patient during preoperative forward bends, stretch, and lateral flexion. The model was further tested with the Hueter-Volkman principle.

**Result:** By comparing measured in three different load cases (forward bends, after stretching, lateral flexion) in patients with ankylosing spondylitis after thoracic lumbar protrusion deformity and the original X ray film, verify the model of deformation and real patient movement displacement between vertebral body is the same. By simulating the stress distribution, measured T10 - L4 vertebral body stress value at every point in the injured vertebra place, on the whole are directed at both ends are decreasing trend, the stress distribution basic also presents the injured vertebral centered to decline at both ends.

**Conclusion:** This research model accuracy is higher, the geometric similarity is good, can undertake relevant applied anatomy on the model parameter measurement.

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I thank you for considering our invitation.

If you have any questions do not hesitate to contact me.

Yours sincerely

Ms Niki Dunienville  
On behalf of Professor Ning Quan  
Journal of Inflammation Research  
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## Thank you for accepting to peer review

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Dari: Ms Dunienville (nikidunienville@dovepress.com)

Kepada: desdiani@ymail.com

Tanggal: Kamis, 1 Juni 2023 pukul 05.00 GMT+7

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Dear Dr Desdiani

Thank you for agreeing to review the manuscript:

Manuscript title: Ankylosing spondylitis protrusion deformity after digital preoperative design, clinical application and the finite element analysis

Article type: Original Research

Author: Dr Liang

Journal: Journal of Inflammation Research (Journal Impact Factor: 4.631)

We would appreciate receiving your comments by 11 Jun 2023.

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Many thanks for your assistance with this paper and I look forward to hearing from you.

Kind regards  
Ms Dunienville  
On behalf of Professor Quan  
(ID: \_\_submission\_id\_\_)

## Peer Review for Journal of Inflammation Research [ID: 420693]

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Dari: Ms Dunienville (nikidunienville@dovepress.com)

Kepada: desdiani@ymail.com

Tanggal: Minggu, 11 Juni 2023 pukul 15.41 GMT+7

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Dear Dr Desdiani

This is to confirm we have received your peer review comments for:

Title: Ankylosing spondylitis protrusion deformity after digital preoperative design, clinical application and the finite element analysis

The time and effort that you have put into this review is most appreciated. You will be sent a peer review acknowledgement certificate once the editorial team have processed your review.

If I can be of further assistance, please do not hesitate to contact me.

Kind regards  
Ms Dunienville  
[ID: 420693]

## To whom it may concern

Dr Desdiani Desdiani has reviewed 1 submission in the journal *Journal of Inflammation Research* during 2023.

Thank you for your contribution to the journal. The dedication of our reviewers is invaluable in safeguarding the quality and high standard of academic integrity in the research we publish.

Regards

Angela Jones

General Manager, Dove Medical Press Ltd

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# 2023

**Dr Desdiani Desdiani**

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**Journal of Inflammation Research**

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