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Effect of sitting posture and seat on biodynamic responses of internal human body simulated by finite element modeling of body-seat system

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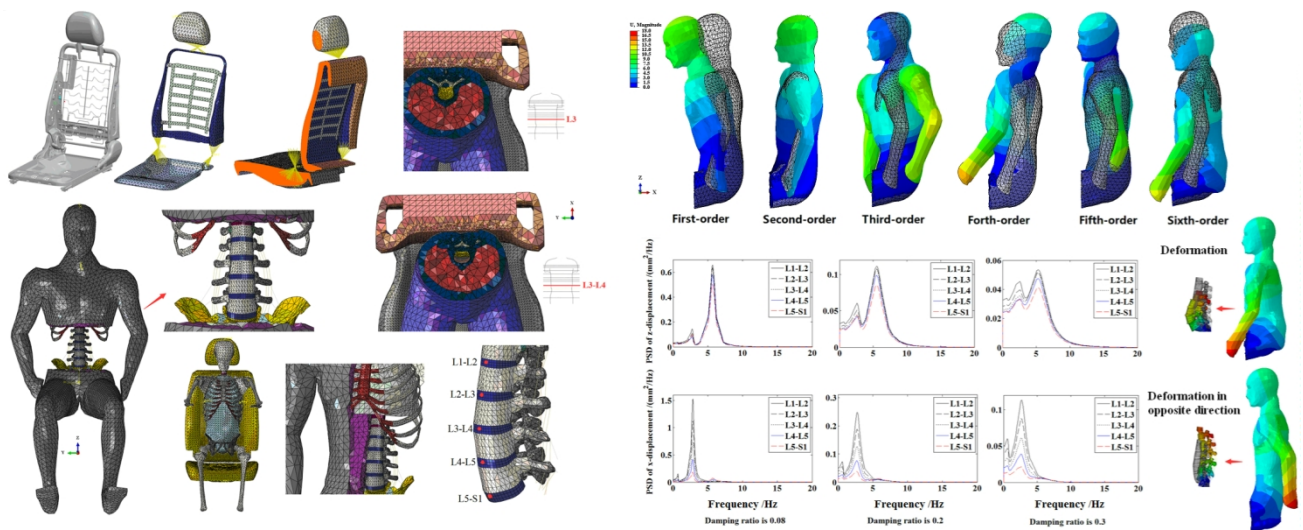
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This study created the detailed three-dimension finite element model of **body-seat system** to investigate effect of sitting posture and seat on the biodynamic responses of lumbar spine under vertical white noise excitation. The conclusions were that sitting posture and seat could change the peak response frequencies of lumbar spine, and designing proper seat or changing posture could avoid or reduce the effect of certain frequency excitation on lumbar spine for protect human body health under whole body vibration. The proposed FE model of biodynamic random response analysis is a new **fundamental method for gaining insights on the responses** of internal human body to vibrations and can be used to research on the responses of human body-seat system instead of **conducting** experiment to evaluate dynamic characteristics of newly designed seats and guide the design of seats for reducing injury risk of lumbar spine under whole body vibration.



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