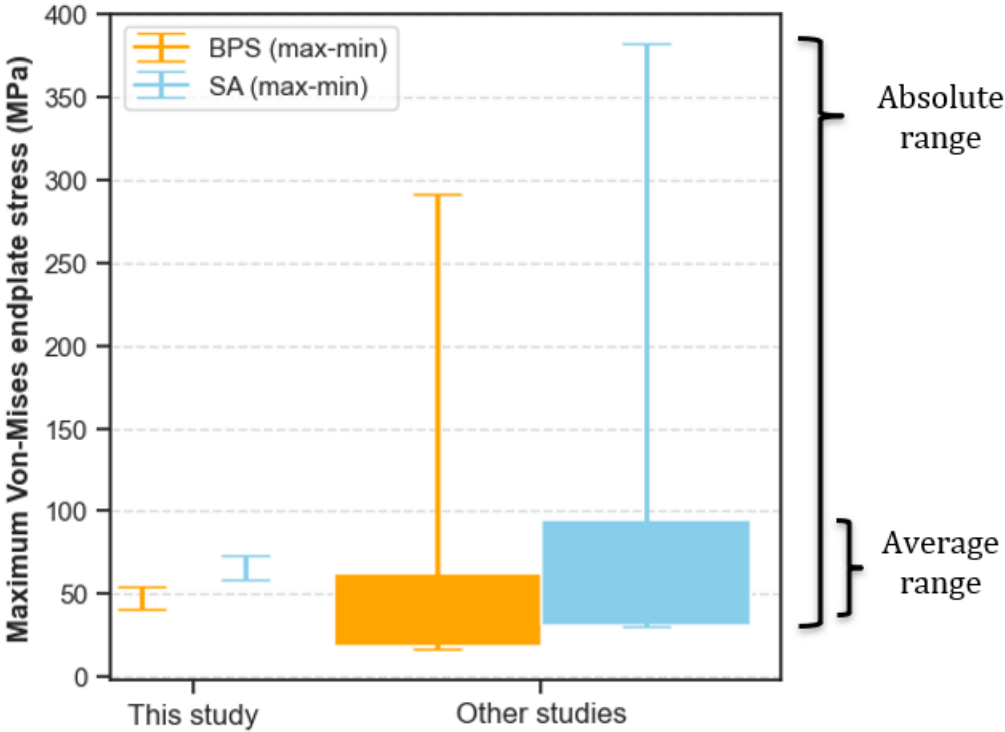


**Table S1** Comparison of the maximum stresses measured on the superior and inferior vertebral endplates in loading for SA and BPS constructs with the reported values from other FEM studies.

Study	Constructs	Reported range for Maximal vertebral endplate stress (MPa)	Loading conditions
<b>This study</b>	OLIF SA OLIF BPS	52-66 34-48	400N & 10Nm on L4
Cai et al. (2022)	OLIF SA OLIF BPS	5-15 5-7.5	500N & 7.5Nm on L3
Fang et al. (2020)	OLIF SA OLIF BPS	20-50 10-35	500N & 7.5Nm on L4
Hao et al. (2023)	OLIF SA OLIF BPS	20-70* 10-30*	200N & 5Nm on L4
Yang et al. (2022)	OLIF SA OLIF BPS	10-80 10-60	4-8 Nm on L3
Liu et al. (2022)	OLIF SA OLIF BPS	30* 10*	500N & 7.5Nm on L3
Qin et al. (2022)	OLIF SA OLIF BPS	35-75 20-60	400N & 10Nm on L3
Zhang et al. (2022)	OLIF SA OLIF BPS	80-200* 15-45*	150N & 10Nm on L3
Fan et al. (2023)	OLIF SA OLIF BPS	60-140* 15-45*	400N & 10Nm on L1
Ouyang et al. (2023)	OLIF SA OLIF UPS	75-350 76-270	400N & 10Nm on L4
Xue et Wu (2023)	OLIF SA	1-10	500N & 10Nm on L3
Zhong et al. (2023)	OLIF SA	10-30	500N & 7.5Nm on L1

\*No value was reported for the maximum stress on endplates; the maximum stress on the cage was considered instead.



**Figure S1** Comparison of the range of maximum stresses measured on vertebral endplates in this study with those reported in the OLIF numerical studies referenced in Table 5.