Supplementary Figures

Supplementary information for: Fabrication and Mechanical Evaluation of Co–28Cr–6Mo–0.11N Alloy Spinal Correction Rods with a Prescribed Spinal Contour by Electron Beam Powder Bed Fusion

Supplementary Figure S1 — Boundary conditions

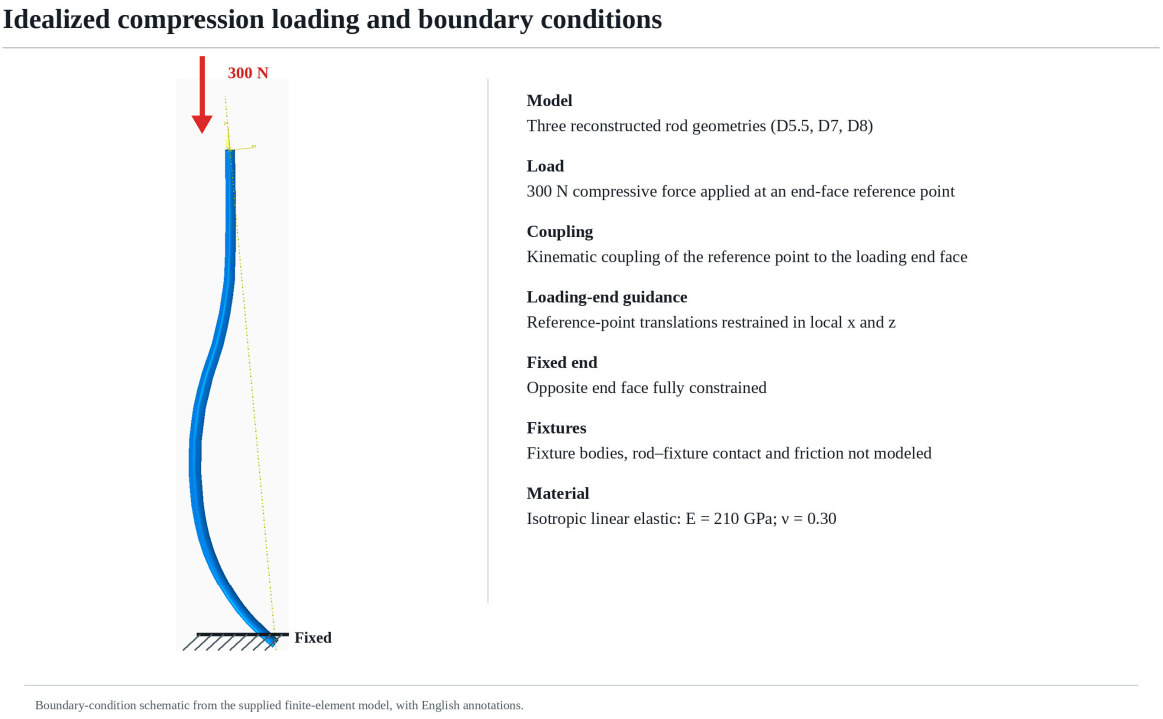

Figure S1. Idealized boundary conditions used in Abaqus/Standard for the D5.5, D7, and D8 rod models. A 300 N compressive load was applied at a reference point kinematically coupled to one end face, with transverse translations restrained; the opposite end face was fully fixed. Fixture solids, rod–fixture contact, and friction were not explicitly modeled.

Supplementary Figure S2 — Mesh sensitivity

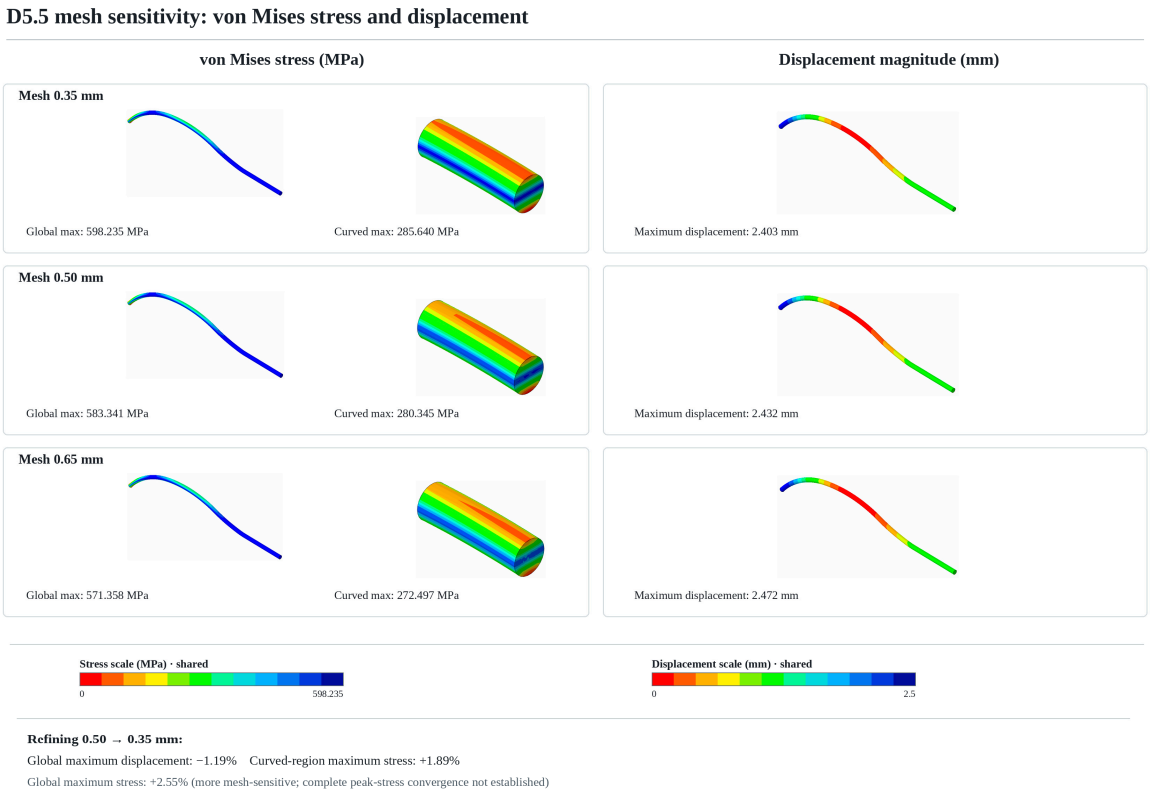

Figure S2. Mesh-sensitivity study for the uniform-diameter D5.5 model under 300 N, with nominal hexahedral element sizes of 0.35, 0.50, and 0.65 mm. Each row displays the full-rod von Mises stress field, a middle-curved-region detail, and the displacement magnitude. The three meshes have consistent field patterns; the global peak stress remains more mesh-sensitive than the displacement and designated curved-region stress. These calculations represent a mesh-sensitivity series evaluated separately from the three-geometry comparison in Figure 14.