prosthesis

**Supplementary Materials**

Table S1: Number of elements, total volume, average volume per element and reference length (a) of the callus FE models based on CT images simulated in this work. The reference length of the elements is calculated as the edge length of a regular tetrahedron with volume equal to the average volume per element.

| Model | Number of elements | Volume ($mm^3$) | Volume per element ($mm^3$) | a (mm) |
|---|---|---|---|---|
| 17 days callus | 184893 | 3857.81 | 0.020865095 | 0.562 |
| 22 days callus | 209448 | 7101.22 | 0.033904454 | 0.660 |
| 29 days callus | 159022 | 3751.07 | 0.023588371 | 0.585 |
| 35 days callus | 155281 | 5313.65 | 0.034219576 | 0.662 |
| 37 days callus | 204790 | 5986.81 | 0.029233898 | 0.628 |
| 50 days callus | 370313 | 12255.02 | 0.03309368 | 0.655 |
| 79 days callus | 202354 | 9812.33 | 0.048490912 | 0.744 |
| 98 days callus | 532118 | 6915.01 | 0.012995257 | 0.480 |
| 137 days callus | 576474 | 13116.6 | 0.022753151 | 0.578 |
| 161 days callus | 294883 | 11339.28 | 0.038453488 | 0.688 |
| 205 days callus | 521580 | 11510.32 | 0.022068177 | 0.572 |
| 277 days callus | 196371 | 7417.04 | 0.037770547 | 0.684 |
| 311 days callus | 316649 | 10776.32 | 0.034032383 | 0.661 |
| 379 days callus | 267168 | 6882.02 | 0.025759148 | 0.602 |
| 471 days callus | 162065 | 6961.96 | 0.042957826 | 0.714 |

Table S2: Number of elements, total volume, average volume per element and reference length (a) of the scaffold FE models simulated in this work. The reference length of the elements is calculated as the edge length of a regular tetrahedron with volume equal to the average volume per element.

| Model | Number of elements | Volume ($mm^3$) | Volume per element ($mm^3$) | a (mm) |
|---|---|---|---|---|
| Scaffold SG 6080 | 3714320 | 62.29085 | 1.67705E-05 | 0.052 |
| Scaffold SG 6585 | 6603614 | 51.88499 | 7.85706E-06 | 0.041 |
| Scaffold SG 7090 | 17252558 | 41.58436 | 2.41033E-06 | 0.027 |
| Scaffold SG 70, 77.5, 85, 65, 62.5 | 22205904 | 58.20989 | 2.62137E-06 | 0.028 |
| Scaffold SG 70, 75, 85, 67.5, 62.5 | 22191303 | 58.22917 | 2.62396E-06 | 0.028 |