

Supporting Information

Simulated Performance of a Xenohybrid Bone Graft (SmartBone®) in the Treatment of Acetabular Prosthetic Reconstruction

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Table S1. Compression tests results. The maximum value of force ($F_{\max}$), stress ($\sigma_{\max}$), strain ($\epsilon_{\max}$) and the value of Young's Modulus (E) are reported for each sample. All values are referred to elastic region of stress-strain curve. The Young's Modulus is calculated as linear regression of the punctual values. Dimensions for cylinders are expressed as diameter (d) times height (h).

Lot-Sample	$F_{\max}$ [N]	$\sigma_{\max}$ [MPa]	$\epsilon_{\max}$	E [GPa]	dxh [mmxmm]
271-1	1833.5	24.91	0.026	0.9501	9.81 × 24.64
271-2	1597.9	21.75	0.025	0.9223	9.77 × 24.67
271-3	1530.3	20.90	0.020	0.9216	9.69 × 24.3
271-4	2218.3	30.07	0.023	1.2548	9.8324.54
Medium Value 271	1795	24.41	0.024	1.0122	–
Standard Dev. 271	310.7	4.15	0.003	0.1623	–
272-1	2691.9	36.27	0.029	1.2561	9.77 × 24.49
272-2	1125.8	15.26	0.015	1.1858	9.84 × 24.62
272-3	3172.3	42.48	0.028	1.7306	9.8 × 24.72
272-4	1907.3	25.58	0.020	1.4041	9.82 × 24.45
Medium Value 272	2224.3	29.90	0.023	1.3942	–
Standard Dev. 272	899.0	12.00	0.007	0.2421	–
273-1	1030.3	13.91	0.017	0.9525	9.86 × 24.67
273-2	1692.4	23.04	0.023	1.1652	9.81 × 24.7
273-3	1941.4	26.43	0.028	1.3646	9.76 × 24.67
273-4	1913.0	25.94	0.024	1.0995	9.77 × 24.66
Medium Value 273	1644.3	22.33	0.023	1.1455	–
Standard Dev. 273	424.2	5.81	0.00455	0.1710	–
274-1	841.7	11.33	0.014	0.8036	9.83 × 24.7
274-2	710.0	9.74	0.017	0.5756	9.84 × 24.68
274-3	798.9	10.96	0.018	0.7201	9.69 × 24.72
274-4	927.0	12.36	0.013	1.0712	9.8 × 24.45

Medium Value 274	819.4	11.10	0.016	0.7889	–
Standard Dev. 274	90.3	1.08	0.002	0.2549	–
275-1	1113.9	14.97	0.014	1.1738	9.82×24.71
275-2	1689.9	22.83	0.022	1.1222	9.84×24.48
275-3	2467.2	32.46	0.021	1.6792	9.87×24.67
275-4	2701.2	35.76	0.021	1.7470	9.77×24.63
Medium Value 275	1993.1	26.51	0.020	1.4306	–
Standard Dev. 275	728.3	9.45	0.004	0.3281	–

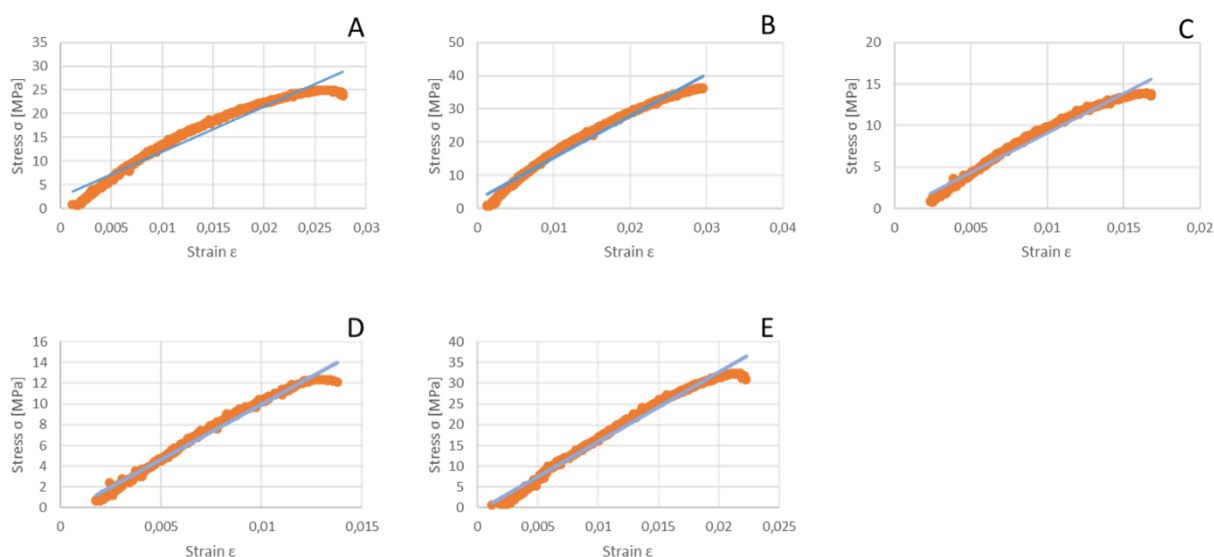


Figure S1. Exemplificative stress-strain data obtained during compression test. Specifically, (A) refers to dataset 271, (B) to 272, (C) to 273, (D) to 274 and (E) to 275.

Table S2. Bending test results. The maximum value of force ($F_{\max}$), stress ($\sigma_{\max}$), strain ($\epsilon_{\max}$) and the value of Young's Modulus (E) are reported for each sample. All values are referred to elastic region of stress-strain curve. The Young's Modulus is calculated as linear regression of the punctual values. Dimensions of the bars (parallelepiped shape) are expressed as first length (a) times second length (b) times third length (c).

Lot-Sample	$F_{\max}$ [N]	$\sigma_{\max}$ [MPa]	$\epsilon_{\max}$	E [GPa]	axbxc [mmxmmxmm]
276-1	116.0	27.88	0.074	0.4156	$7.14 \times 7.14 \times 58.45$
276-2*rott	71.6	17.36	0.067	0.2320	$7.11 \times 7.11 \times 58.32$
276-3	118.3	28.92	0.078	0.3687	$7.10 \times 7.10 \times 58.48$
276-4	105.6	25.01	0.063	0.4112	$7.17 \times 7.17 \times 58.38$
276-5	96.5	22.63	0.065	0.3741	$7.20 \times 7.20 \times 58.34$
276-6	95.3	22.45	0.076	0.3245	$7.18 \times 7.18 \times 58.32$
Medium Value 276	100.6	24.04	0.071	0.3543	–
Standard Dev. 276	17.1	4.21	0.006	0.0685	–
277-1	120.3	28.18	0.090	0.3439	$7.21 \times 7.21 \times 58.62$
277-2	85.3	19.99	0.064	0.3739	$7.21 \times 7.21 \times 58.72$
277-3	122.8	28.78	0.075	0.3992	$7.21 \times 7.21 \times 58.71$
277-4	101.3	23.63	0.087	0.2978	$7.22 \times 7.22 \times 58.64$
277-5	87.2	20.73	0.075	0.3065	$7.18 \times 7.18 \times 58.70$
277-6	83.4	19.66	0.098	0.2400	$7.20 \times 7.20 \times 58.69$
Medium Value 277	100.0	23.50	0.082	0.3269	–
Standard Dev. 277	17.8	4.11	0.012	0.0575	–

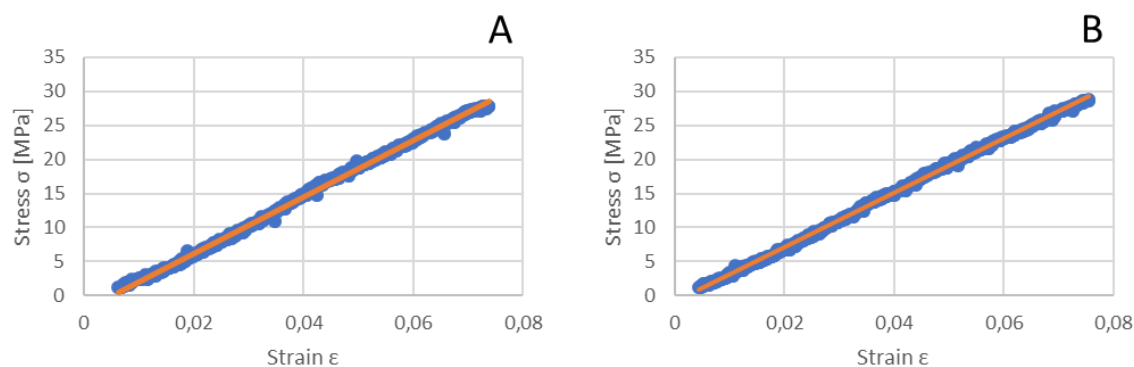


Figure S2. Exemplificative stress-strain data obtained during bending test. Specifically, (A) refers to dataset 276 and (B) to 277.

Table S3. Torsional test results. The maximum value of torque ($T_{\max}$), stress ($\tau_{\max}$), strain ($\gamma_{\max}$) and the value of tangential elastic Modulus (G) are reported for each sample. All values are referred to elastic region of stress-strain curve. The G Modulus is calculated as linear regression of the punctual values. Dimensions for cylinders are expressed as diameter (d) times height (h).

Lot-Sample	Torque _{max} [Nmm]	$\tau_{\max}$ [MPa]	$\gamma_{\max}$	G [GPa]	dxh [mmxmm]
TT-1	997.6	17.60	0.055	0.3555	9.89×24.64
TT-2	1042.4	18.88	0.062	0.3472	9.69×24.68
TT-3	1522.8	25.47	0.058	0.5297	9.83×24.67
TT-4	1696.7	28.63	0.046	0.6179	9.77×24.59
TT-5	1418.1	23.55	0.058	0.4456	9.8×24.27
TT-6	1553.5	26.45	0.082	0.4341	9.81×24.67
TT-7	1675.4	27.60	0.063	0.4782	9.87×24.49
TT-8	1461.2	25.58	0.055	0.4490	9.81×24.72
TT-9	1629.6	27.58	0.053	0.5610	9.75×24.66
TT-10	2057.0	33.48	0.051	0.6880	9.85×24.39
Medium Value TT	1505.4	25.48	0.058	0.4906	–
Standard Dev. TT	294.9	4.40	0.009	0.1037	–

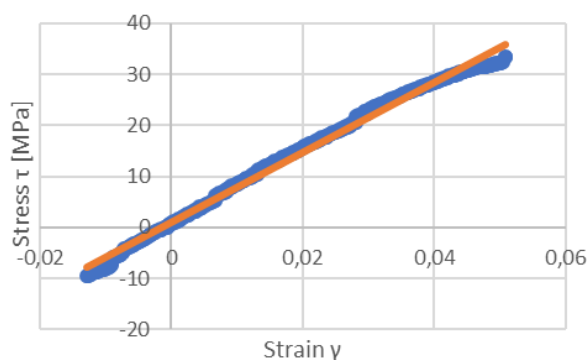


Figure S3. Exemplificative stress-strain data obtained during torsion test.

