



Supplementary Material

10.1302/2046-3758.99.BJR-2020-0053.R1

Table i. All 64 investigated augmentation configurations of the six proximal humerus internal locking system (PHILOS) plate screws (S1 to S9), ordered according to the mean strain reduction for the 24 subjects and the loading cases. The bold characters with grey shading indicate the best configuration for a given total number of augmented screws. The screw IDs S1 to S9 of the PHILOS plate are illustrated in Figure 1 of the main manuscript.

Rank	Augmentation pattern						Number of augmented screws	Strain reduction vs nonaugmented		Strain reduction per augmented screw
	S1	S2	S3	S4	S8	S9		Mean	SD	Mean
1	X	X	X	X	X	X	6	39%	5%	6%
2	N/A	X	X	X	X	X	5	35%	5%	7%
3	X	X	N/A	X	X	X	5	35%	5%	7%
4	X	N/A	X	X	X	X	5	34%	5%	7%
5	X	X	X	N/A	X	X	5	33%	4%	7%
6	X	X	X	X	N/A	X	5	33%	5%	7%
7	N/A	X	N/A	X	X	X	4	32%	5%	8%
8	X	X	X	X	X	N/A	5	31%	4%	6%
9	N/A	N/A	X	X	X	X	4	31%	4%	8%
10	N/A	X	X	N/A	X	X	4	30%	4%	7%
11	X	N/A	N/A	X	X	X	4	30%	4%	7%
12	N/A	X	X	X	N/A	X	4	29%	4%	7%
13	X	X	N/A	X	N/A	X	4	29%	5%	7%
14	X	X	N/A	N/A	X	X	4	29%	4%	7%
15	X	N/A	X	N/A	X	X	4	28%	4%	7%
16	N/A	X	X	X	X	N/A	4	28%	4%	7%

17	X	N/A	X	X	N/A	X	4	28%	4%	7%
18	X	X	X	N/A	N/A	X	4	27%	4%	7%
19	X	X	N/A	X	X	N/A	4	27%	3%	7%
20	N/A	N/A	N/A	X	X	X	3	26%	4%	9%
21	X	X	X	N/A	X	N/A	4	26%	4%	7%
22	X	N/A	X	X	X	N/A	4	26%	3%	6%
23	N/A	X	N/A	X	N/A	X	3	26%	4%	9%
24	N/A	X	N/A	N/A	X	X	3	26%	4%	9%
25	N/A	N/A	X	N/A	X	X	3	25%	4%	8%
26	X	N/A	N/A	X	N/A	X	3	24%	4%	8%
27	N/A	N/A	X	X	N/A	X	3	24%	3%	8%
28	X	N/A	N/A	N/A	X	X	3	24%	3%	8%
29	X	X	X	X	N/A	N/A	4	24%	3%	6%
30	N/A	X	N/A	X	X	N/A	3	23%	3%	8%
31	N/A	X	X	N/A	N/A	X	3	23%	3%	8%
32	N/A	X	X	N/A	X	N/A	3	23%	4%	8%
33	X	X	N/A	N/A	N/A	X	3	23%	3%	8%
34	N/A	N/A	X	X	X	N/A	3	22%	3%	7%
35	X	N/A	X	N/A	N/A	X	3	22%	3%	7%
36	X	N/A	N/A	X	X	N/A	3	21%	3%	7%
37	X	X	N/A	N/A	X	N/A	3	21%	4%	7%
38	X	N/A	X	N/A	X	N/A	3	21%	4%	7%
39	N/A	X	X	X	N/A	N/A	3	20%	3%	7%
40	N/A	N/A	N/A	N/A	X	X	2	20%	3%	10%
41	N/A	N/A	N/A	X	N/A	X	2	20%	3%	10%
42	X	X	N/A	X	N/A	N/A	3	19%	3%	6%
43	N/A	X	N/A	N/A	N/A	X	2	19%	2%	9%
44	X	N/A	X	X	N/A	N/A	3	18%	2%	6%
45	X	X	X	N/A	N/A	N/A	3	18%	4%	6%
46	N/A	X	N/A	N/A	X	N/A	2	17%	3%	9%
47	N/A	N/A	X	N/A	N/A	X	2	17%	2%	9%
48	N/A	N/A	N/A	X	X	N/A	2	17%	2%	9%
49	X	N/A	N/A	N/A	N/A	X	2	17%	2%	9%
50	N/A	N/A	X	N/A	X	N/A	2	16%	3%	8%
51	X	N/A	N/A	N/A	X	N/A	2	15%	3%	8%
52	N/A	X	N/A	X	N/A	N/A	2	15%	2%	8%
53	N/A	X	X	N/A	N/A	N/A	2	14%	3%	7%
54	N/A	N/A	X	X	N/A	N/A	2	13%	2%	7%
55	X	N/A	N/A	X	N/A	N/A	2	13%	1%	7%
56	X	X	N/A	N/A	N/A	N/A	2	13%	3%	6%
57	N/A	N/A	N/A	N/A	N/A	X	1	12%	2%	12%
58	X	N/A	X	N/A	N/A	N/A	2	12%	2%	6%
59	N/A	N/A	N/A	N/A	X	N/A	1	11%	2%	11%
60	N/A	X	N/A	N/A	N/A	N/A	1	8%	2%	8%
61	N/A	N/A	N/A	X	N/A	N/A	1	8%	1%	8%
62	N/A	N/A	X	N/A	N/A	N/A	1	7%	2%	7%
63	X	N/A	N/A	N/A	N/A	N/A	1	6%	1%	6%

64	N/A	N/A	N/A	N/A	N/A	N/A	0	0%	0%	0%
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N/A, not available.