



## Supplementary Material

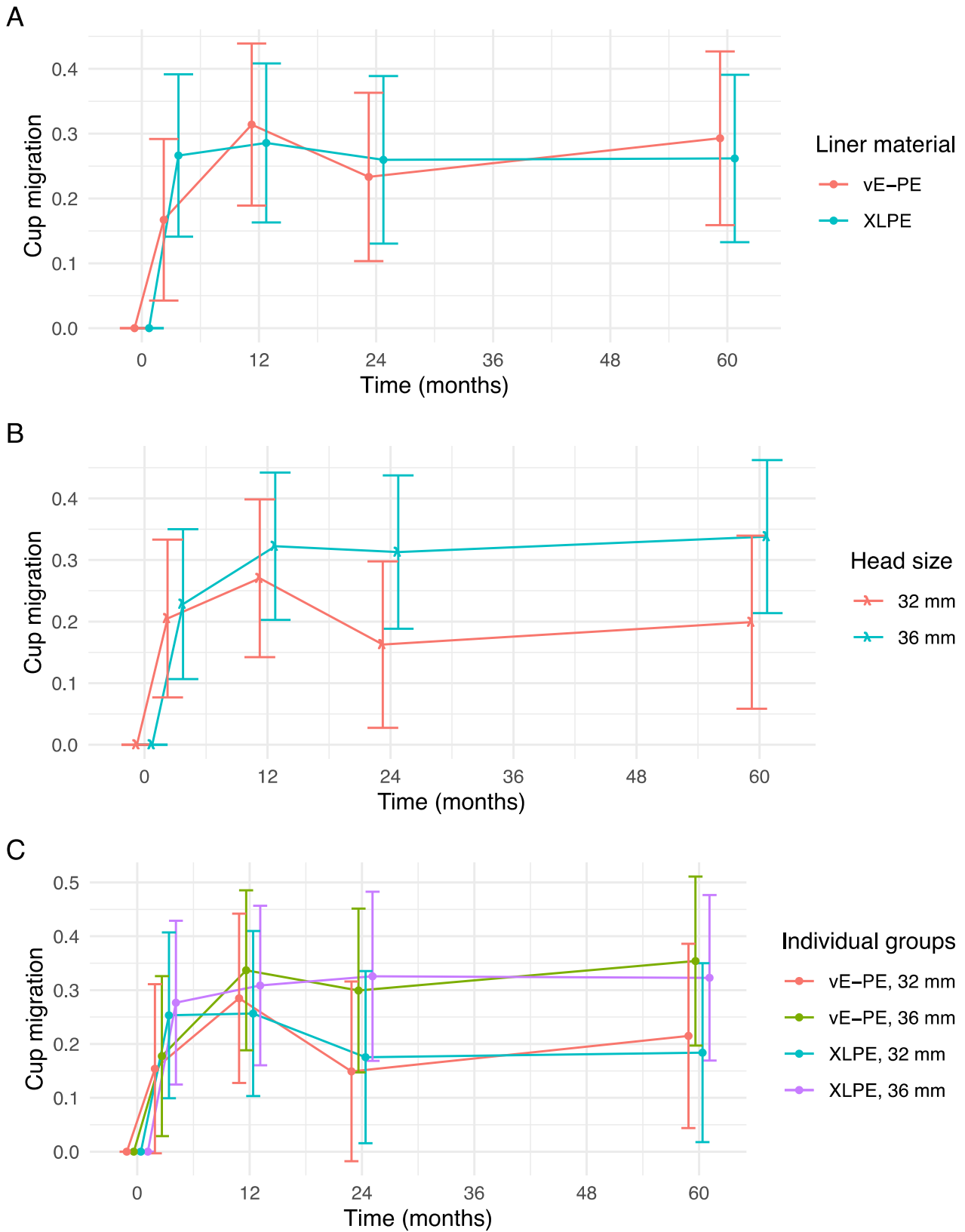
10.1302/0301-620X.102B10.BJJ-2020-0138.R1

**Table i.** Per-protocol results. No interaction was found between the two randomization factors for head penetration ( $p = 0.513$ ), steady-state wear ( $p = 0.691$ ), or cup migration ( $p = 0.152$ ) using mixed-effect analysis of variance.

Outcome	vE-PE	XLPE	vE-PE vs XLPE	p-value*
<b>Comparison between vE-PE and XLPE</b>				
Head penetration (mm)	0.014 (-0.065 to 0.092)	0.130 (0.046 to 0.214)	-0.117 (-0.231 to -0.002)	0.046
<b>Head penetration rate</b>				
0 to 3 months (mm/year)	0.139 (-0.153 to 0.431)	0.186 (-0.141 to 0.514)	-0.047 (-0.486 to 0.392)	0.835
3 months to 1 year (mm/year)	-0.041 (-0.157 to 0.074)	-0.013 (-0.140 to 0.115)	-0.029 (-0.201 to 0.144)	0.744
1 to 2 years (mm/year)	0.038 (-0.050 to 0.126)	0.080 (-0.020 to 0.180)	-0.042 (-0.176 to 0.092)	0.547
2 to 5 years (mm/year)	-0.009 (-0.040 to 0.021)	0.004 (-0.030 to 0.038)	-0.014 (-0.059 to 0.032)	0.555
Total cup migration (mm)	0.285 (0.142 to 0.428)	0.271 (0.117 to 0.426)	0.014 (-0.197 to 0.224)	0.899
<b>Comparison between 32 mm and 36 mm</b>	<b>32 mm</b>	<b>36 mm</b>	<b>32 mm vs 36 mm</b>	
Head penetration (mm)	0.072 (-0.017 to 0.161)	0.062 (-0.013 to 0.136)	0.010 (-0.106 to 0.127)	0.861
<b>Head penetration rate</b>				
0 to 3 months (mm/year)	0.068 (-0.260 to 0.395)	0.225 (-0.066 to 0.517)	-0.157 (-0.597 to 0.282)	0.483
3 months to 1 year (mm/year)	-0.012 (-0.142 to 0.118)	-0.040 (-0.153 to 0.074)	0.028 (-0.146 to 0.201)	0.754
1 to 2 years (mm/year)	0.040 (-0.066 to 0.146)	0.069 (-0.016 to 0.154)	-0.029 (-0.165 to 0.107)	0.675
2 to 5 years (mm/year)	0.008 (-0.029 to 0.045)	-0.011 (-0.040 to 0.018)	0.019 (-0.027 to 0.066)	0.416
Total cup migration (mm)	0.224 (0.062 to 0.386)	0.318 (0.180 to 0.455)	-0.094 (-0.306 to 0.119)	0.389
Harris Hip Score	23 (11 to 34)	29 (17 to 40)	-6 (-18 to 6)	0.313
UCLA Activity Score	0.6 (0.8 to 2.9)	1.8 (0.8 to 2.9)	-1.2 (-2.3 to -0.2)	0.025
EQ-5D Health State	0.20 (0.12 to 0.28)	0.19 (0.10 to 0.27)	0.02 (-0.07 to 0.10)	0.719
EQ-5D VAS	17 (8 to 26)	20 (11 to 29)	-3 (-12 to 7)	0.555
SF-36 PCS	4.2 (2.0 to 6.3)	2.3 (0.1 to 4.4)	1.9 (-0.2 to 4.1)	0.079
SF-36 MCS	-1.9 (-3.8 to 0.1)	-0.7 (-2.6 to 1.2)	-1.1 (-3.0 to 0.7)	0.223

\*Wald test.

EQ-5D, EuroQol five-dimension questionnaire; MCS, mental component score; PCS, physical component score; SF-36, 36-Item Short-Form Health Survey questionnaire; UCLA, University of California, Los Angeles; VAS, visual analogue scale; vE-PE, vitamin E doped cross-linked polyethylene liners; XLPE, cross-linked polyethylene liners.



**Fig. a**

Intention-to-treat proximal cup migration at each follow-up for a) liner type, b) head size, and c) individual intervention group.

**Table ii.** Adverse events.

<b>Adverse event</b>	<b>vE-PE, 32 mm</b>	<b>vE-PE, 36 mm</b>	<b>XLPE, 32 mm</b>	<b>XLPE, 36 mm</b>
Dislocation	0	0	0	1
Deep infection	0	0	0	0
Periprosthetic fracture	0	0	0	0
Loosening	0	0	0	0
Other revisions	0	0	0	0
Total	0	0	0	1

vE-PE, vitamin E-doped cross-linked polyethylene liners; XLPE, cross-linked polyethylene liners.

**Fig 1. xxxxxxx**

**Table aupp . xxxxxxx**