### Supplementary data

#### Table 4. Femoral head penetration rate (SD) (mm/year) per head size during the 1–2-year follow-up

| Head size | Vitamin E HXLPE a | UHMWPE b |
|-----------|-------------------|-----------|
| 28 mm     | 0.033 (0.02)      | 0.067 (0.05) |
| 32 mm     | 0.053 (0.03)      | 0.054 (0.04) |
| 36 mm     | 0.043 (0.03)      |           |

a Vitamin E diffused highly cross-linked polyethylene.
b UHMWPE: ultra-high molecular weight polyethylene.
No significant differences in wear between head sizes of same cup type.

#### Table 6. Numeric Rating Scale (NRS) and Harris Hip Score (HHS) preoperatively. Values are mean (SD)

| Score                  | Total | Vitamin E HXLPE a | UHMWPE b |
|------------------------|-------|-------------------|----------|
| NRS rest pain          | 3.8 (2) | 3.9 (3)          | 3.7 (3)  |
| NRS load pain          | 6.4 (2) | 6.3 (2)          | 6.4 (2)  |
| NRS satisfaction       | 3.6 (2) | 3.5 (2)          | 3.7 (1)  |
| HHS                    | 62 (17) | 63 (19)         | 60 (15)  |

a, b See Table 4.

#### Table 7. Numeric Rating Scale (NRS) and Harris Hip Score (HHS) at 3 months’ follow-up. Values are mean (SD)

| Score                  | Total | Vitamin E HXLPE a | UHMWPE b |
|------------------------|-------|-------------------|----------|
| NRS rest pain          | 0.4 (1) | 0.3 (1)          | 0.6 (1)  |
| NRS load pain          | 1.0 (2) | 0.8 (2)          | 1.2 (2)  |
| NRS satisfaction       | 8.5 (2) | 8.6 (2)          | 8.4 (1)  |
| HHS                    | 91 (10) | 92 (9)          | 91 (11)  |

a, b See Table 4.

#### Table 8. Numeric Rating Scale (NRS) and Harris Hip Score (HHS) at the 1-year follow-up. Values are mean (SD)

| Score                  | Total | Vitamin E HXLPE a | UHMWPE b |
|------------------------|-------|-------------------|----------|
| NRS rest pain          | 0.4 (1) | 0.4 (1)          | 0.3 (1)  |
| NRS load pain          | 0.6 (2) | 0.7 (2)          | 0.5 (2)  |
| NRS satisfaction       | 8.7 (1) | 8.8 (1)          | 8.6 (1)  |
| HHS                    | 94 (9) | 94 (9)           | 94 (10)  |

a, b See Table 4.

#### Table 9. Postoperative complications during the 2-year follow-up

| Complication              | Total n = 199 | Vitamin E HXLPE a n = 102 | UHMWPE b n = 97 |
|---------------------------|---------------|--------------------------|----------------|
| Cup malpositioning        | 1             | 1                        |                |
| Pulmonary embolism        | 1             | 1                        |                |
| Deep venous thrombosis    | 1             | 1                        |                |
| Neurological damage       | 2             | 2                        |                |
| Superficial wound infection | 2           | 1                        | 1              |
| Deep infection            | 1             | 1                        |                |
| Leg length discrepancy    | 1             | 1                        |                |
| Dislocation               | 4             | 1                        | 3              |
| Total                     | 13 (7%)       | 7 (7%)                   | 6 (6%)         |

a, b See Table 4.