

Appendix 7: WOMAC and OHS outcomes (studies at high risk of bias excluded)

| Study Key paper (all study references) | Group Bearing combination Head size Fixation | Outcome measures relevant to review Follow up times (months) |
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| Ayers et al. 2009 (4) | 1. MoP Titanium: UHMWPE 28mm Uncemented 2. MoP Titanium: HXLPE 28mm Uncemented | No significant differences in WOMAC between randomized groups at 6 months, 1 and 2 years (no p values reported) |
| Beaupre et al. 2013 (9, 10) | 1. CoC Alumina: Alumina 32mm Uncemented 2. CoP Alumina: HXLPE 28mm Uncemented | No differences at 5 years between groups for WOMAC pain (p=0.74), function (p=0.97) or stiffness (p=0.44) |
| Engh et al. 2009 (38, 39) | 1. MoP Co-Cr: HXLPE 28mm Uncemented 2. MoM Co-Cr: Co-Cr 28mm Uncemented 3. MoM Co-Cr: Co-Cr 36mm Uncemented | At 2 years, small head MoM had marginally poorer WOMAC score than MoP group (p=0.052) |
| Gauthier et al. 2013 (47) | 1. MoM Co-Cr-Mo: Co-Cr-Mo 36-54 Uncemented 2. MoP Co-Cr: HXLPE 28-32mm Uncemented | No difference in WOMAC domains between groups at 2 years (no p value reported) |
| Girard et al. 2006 (50-58) | 1. Resurfacing Co-Cr-Mo: Co-Cr-Mo 40mm Hybrid 2. MoM Co-Cr-Mo: Co-Cr-Mo 28mm Uncemented | No difference between groups for WOMAC score at mean 27 months (p=0.409) |
| Glyn-Jones et al. 2008 (59-62) | 1. MoP Co-Cr: UHMWPE 28mm Hybrid 2. MoP Co-Cr: HXLPE 28mm Hybrid | No significant difference in OHS between the groups at 10 years (p=0.42) |
| Hanna et al. 2012 (68) | 1. MoP Co-Cr: UHMWPE 28-32mm | No difference in OHS between groups at 12 or 36 months (p>0.05) |

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| | <p>Cemented</p> <hr/> <p>2. MoM Co-Cr: Co-Cr 44-54mm Hybrid</p> | |
| Jassim et al. 2015 (72-74) | <p>1. MoP Co-Cr: HXLPE 32mm Uncemented</p> <hr/> <p>2. CoP Zirconia: HXLPE 32mm Uncemented</p> <hr/> <p>3. CoP Zirconia: UHMWPE 32mm Uncemented</p> | No difference between groups in WOMAC score at 5 years (p=0.847) |
| Jensen et al. 2011* (75-78) | <p>1. Resurfacing Co-Cr-Mo: Co-Cr-Mo 47-57mm Hybrid</p> <hr/> <p>2. CoP Alumina: Unspecified PE 28mm Uncemented</p> | No significant difference between groups in WOMAC at 2 years (mean difference 1, 95%CI -8, 10) |
| Lavigne et al. 2010* (85) | <p>1. Resurfacing Unspecified metal: Unspecified metal 40mm Hybrid</p> <hr/> <p>2. MoM Unspecified metal: Unspecified metal 40mm Uncemented</p> | WOMAC scores similar between groups at 1 year (p>0.05) |
| Lewis et al. 2008 (86) | <p>1. CoP Zirconium: Standard PE or HXLPE Not stated Uncemented</p> <hr/> <p>2. MoP Co-Cr: Standard PE or HXLPE Not stated Uncemented</p> | No difference between groups in WOMAC score at 1 or 2 years (p>0.159) |
| Lindalen et al. 2015 (87) | <p>1. CoP Zirconia/ alumina: HXLPE (vitamin E) 32mm Uncemented</p> <hr/> <p>2. CoP Zirconia/ alumina: HXLPE (vitamin E) 36mm Uncemented</p> | OHS similar in groups at 2 years (p=0.72) |
| MacDonald et al. 2003* (91) | <p>1. MoM Co-Cr-Mo: Co-Cr-Mo 28mm Uncemented</p> <hr/> <p>2. MoP Co-Cr-Mo: UHMWPE 28mm</p> | No significant difference in WOMAC score between groups (p>0.05) |

| | Uncemented | |
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| Malviya et al. 2011 (92) | <p>1. MoM Co-Cr: Unspecified metal 38-54mm Hybrid</p> <hr/> <p>2. MoP Unspecified metal: Unspecified PE 28mm Hybrid</p> | No significant difference between groups for WOMAC pain (p=0.296), function (p=0.303) and stiffness (p=0.093) at 2 years |
| McCalden et al. 2009* (96) | <p>1. MoP Co-Cr: HXLPE 28mm Hybrid</p> <hr/> <p>2. MoP Co-Cr: Conventional PE 28mm Hybrid</p> | At mean 6.8 years no differences between groups for WOMAC score (no p value reported) |
| Morison et al. 2014 (97) | <p>1. MoP Co-Cr: UHMWPE 28mm Uncemented</p> <hr/> <p>2. MoP Co-Cr: HXLPE 28mm Uncemented</p> <hr/> <p>3. CoP Zirconium: UHMWPE 28mm Uncemented</p> <hr/> <p>4. CoP Zirconium: HXLPE 28mm Uncemented</p> | No differences between groups for WOMAC scores at 5 years (p>0.423) |
| Nikolaou et al. 2012 (100) | <p>1. MoP Co-Cr: UHMWPE 28mm Uncemented</p> <hr/> <p>2. MoP Co-Cr: HXLPE 28mm Uncemented</p> <hr/> <p>3. CoC Unspecified ceramic: Unspecified ceramic 28mm Uncemented</p> | No difference at 5 years in WOMAC pain (p=0.543), function (p=0.102) and stiffness (p=0.99) |
| Penny et al. 2013* (75-77, 103) | <p>1. MoP Co-Cr: UHMWPE or HXLPE 28mm Uncemented</p> <hr/> <p>2. MoM Co-Cr: Co-Cr 47-56mm Uncemented</p> | No difference in WOMAC between groups at 2 years (mean difference -5, 95% CI -11, 2) |
| Schouten et al. 2012 (110) | <p>1. CoM Zirconia/ alumina: Co-Cr- Mo 28-36mm Uncemented</p> <hr/> <p>2. MoM Co-Cr-Mo: Co-Cr-Mo</p> | Comparable improvement in WOMAC (p=0.64) and OHS (p=0.57) between groups at 12 months |

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| | 28-36mm Uncemented | |
| Smolders et al. 2011 (112-114) | 1. Resurfacing Co-Cr: Co-Cr 49mm Hybrid | Better OHS at 24 months in resurfacing group (p=0.04) |
| | 2. MoM Co-Cr: Co-Cr 28mm Uncemented | |
| Tiusanen et al. 2013 (115) | 1. MoP Co-Cr-Mo: Unspecified PE 30mm Uncemented | No statistical analysis but OHS similar between groups |
| | 2. MoM Co-Cr-Mo: Co-Cr-Mo 30mm Uncemented | |
| Venditoli et al. 2007 (117-119) | 1. CoC Alumina: Alumina 32mm Hybrid | No significant difference in WOMAC scores between groups at mean 79 months (p=0.435) |
| | 2. MoP Stainless steel: UHMWPE 28mm Hybrid | |
| Zhou et al. 2006 (129) | 1. CoC Alumina: Alumina 28mm Hybrid | No difference in WOMAC between groups at 2 years (no p value reported) |
| | 2. MoP Co-Cr: HXLPE 28mm Hybrid | |
| Zijlstra et al. 2011 (132, 133) | 1. MoM Co-Cr: Co-Cr 42-56 Uncemented | No difference between groups in OHS at 1 year (p=0.752) |
| | 2. MoP Co-Cr: UHMWPE 28mm Uncemented | |