**Supplementary Table 4.** Outcome of studies using the Steinberg Classification

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| **Study** | **Nr.** | **Avg. Follow-up** | **Preoperative Staging** | **Clinical assessment tool** | **Postoperative Clinical improvement** | **Time to clinical deterioration (Avg, months)** | **Radiographic success (no progression)** | **Time to THA, months (% of total hips)** |
| Classen 2015[33] | 72 | 31 | Stage I+II+III:100% | HHSVAS | HHS -YESVAS-YES | n/a | (% out of Steinberg Pre-Op Sub-groups):Stage 1: 89%Stage 2: 67%Stage 3: 53% | 10.5 (33%) |
| Etemadifar 2014[35] | 22 | 12 | Stage I: 36.4%Stage IIA: 63.6% | VASROM | VAS-YES (100%)ROM – YES (100%) | no clinical deterioration | (% out of Steinberg Pre-Op Sub-groups):Stage I: 87.5%Stage IIA: 78.5Stage IIB:13.6% % | n/a |
| Hernigou 2018[40] | 125 | 300 | Stage I: 55.2% Stage II: 44.8% | HHSWOMACVAS | HHS -YESWOMAC-YESVAS-YES | 60 months | 28% | n/a (76%) |
| Israelite 2005[42] | 316 | 68 | Stage I: 22.5%Stage II: 39%Stage III: 4.5%Stage IV: 33%Stage V: 1% | HHS | HHS -YES | 29 | n/a | 29 (38%) |
| Ito 2003[43] | 90 | 108 | Stage IA: 10%Stage IB: 14.4%Stage IC:18.8%Stage IIA: 6.6%Stage IIB: 13.3%Stage IIC: 24.4%Stage IIIA: 0%Stage IIIB: 3.3%Stage IIIC: 8.8% | HHS | HHS -YES | 108 months (62.2%) |  33.3% | 108 (38.8%) |
| Markel 1996[12] | 54 | 27 | Stage 0: 7.4%Stage I: 12.9%Stage IIA: 33.3%Stage IIB: 22.2%Stage IIC: 3.7%Stage IIIA: 3.7%Stage IVA: 9.2%Stage IVB: 3.7%Stage IVC: 1.8%Stage VA: 1.8% | HHS | NO | 11 months | (% out of Steinberg Pre-Op Sub-groups)Stage 0: 50%Stage I: 42.8%Stage IIA: 27.7%Stage IIB: 50%Stage IIC: 50%Stage III: 50%Stage IV: 12.5%Stage V: 0 % | 11 (48.1%) |
| Miao 2015[53] | 34 | 26 | Stage I – 41.1%Stage II – 58.9% | HHS | YES | n/a | 76.4%- no progression | n/a (23.5%) |
| Simank 1999[64] | 94 | 72 | Steinberg 0/ I/ II: 50%Steinberg III/ IV/ V:50% | Merle d'Aubigné-Postel | n/a | n/a | (% out of Steinberg Pre-Op Sub-groups):Steinberg 0/ I/ II: 57%Steinberg III/ IV/ V: 39%Overall 52%- deterioration | n/a (31.9%) |
| Simank 2001[13] | 55 | 72 | Steinberg stages 0/I/II:58.2% Steinberg stages III/IV/ V: 41.8% | n/a | n/a | n/a | Overall survival rate – 56% | n/a (44%) |
| Nr – number of hips; Avg – average; THA – total hip replacement; n/a – not available; HHS – Harris Hip Score; VAS – visual analogue scale. |