**S2 Table. GRADE evidence profile.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Quality assessment** | | | | | | | **No of patients** | | **Effect** | | **Quality\*** | **Importance** |
|
| **No of studies** | **Design** | **Risk of bias** | **Inconsistency** | **Indirectness** | **Imprecision** | **Other considerations** | **DCDA** | **ACDF** | **Relative (95% CI)** | **Absolute** |
| **Operation time (follow-up 24-32.4 months)** | | | | | | | | | | | | |
| 3 | randomised trials | serious1 | no serious inconsistency | no serious indirectness | no serious imprecision | none | 150 | 151 | - | SMD 0.71 lower (1.07 to 0.36 lower) |  MODERATE | IMPORTANT |
| **Blood loss (follow-up 24-32.4 months)** | | | | | | | | | | | | |
| 3 | randomised trials | serious1 | no serious inconsistency | no serious indirectness | no serious imprecision | none | 150 | 151 | - | SMD 0.02 lower (0.24 lower to 0.21 higher) |  MODERATE | IMPORTANT |
| **NDI scores (follow-up 24-48 months)** | | | | | | | | | | | | |
| 6 | randomised trials | serious1 | serious2 | no serious indirectness | no serious imprecision | none | 251 | 254 | - | SMD 0.33 lower (0.86 lower to 0.2 higher) |  LOW | CRITICAL |
| **Neck pain scores (follow-up 24-48 months)** | | | | | | | | | | | | |
| 3 | randomised trials | serious1 | serious3 | no serious indirectness | no serious imprecision | none | 161 | 154 | - | SMD 0.37 lower (1.45 lower to 0.7 higher) |  LOW | CRITICAL |
| **Arm pain scores (follow-up 24-48 months)** | | | | | | | | | | | | |
| 3 | randomised trials | serious1 | serious4 | no serious indirectness | no serious imprecision | none | 161 | 154 | - | SMD 0.47 lower (1.12 lower to 0.18 higher) |  LOW | CRITICAL |
| **ROM (follow-up 24-48 months)** | | | | | | | | | | | | |
| 2 | randomised trials | serious5 | no serious inconsistency | no serious indirectness | no serious imprecision | none | 94 | 105 | - | SMD 5.28 higher (4.69 to 5.88 higher) |  MODERATE | CRITICAL |
| **JOA scores (follow-up 24-48 months)** | | | | | | | | | | | | |
| 4 | randomised trials | serious5 | no serious inconsistency | no serious indirectness | no serious imprecision | none | 124 | 137 | - | SMD 0.18 higher (0.07 lower to 0.42 higher) |  MODERATE | CRITICAL |
| **Secondary surgical procedures (follow-up 24-48 months)** | | | | | | | | | | | | |
| 3 | randomised trials | serious1 | serious6 | no serious indirectness | no serious imprecision | none | 11/166  (6.6%) | 13/157  (8.3%) | RR 0.69 (0.11 to 4.14) | 26 fewer per 1000 (from 74 fewer to 260 more) |  LOW | CRITICAL |
|  | 4.3% | 13 fewer per 1000 (from 38 fewer to 135 more) |
| **Adverse events (follow-up 24-48 months)** | | | | | | | | | | | | |
| 5 | randomised trials | serious1 | no serious inconsistency | no serious indirectness | no serious imprecision | none | 42/240  (17.5%) | 53/241  (22%) | RR 0.8 (0.48 to 1.34) | 44 fewer per 1000 (from 114 fewer to 75 more) |  MODERATE | CRITICAL |
|  | 24.3% | 49 fewer per 1000 (from 126 fewer to 83 more) |

DCDA: Discover cervical disc arthroplasty; ACDF: anterior cervical discectomy and fusion; NDI: neck disability index; ROM: range of motion; JOA: Japanese orthopaedic association.

1 Almost all the trials were judged to be at unclear risk of bias.  
2 Significant heterogeneity (I2 = 87%) was found.  
3 Significant heterogeneity (I2 = 95%) was found.  
4 Significant heterogeneity (I2 = 87%) was found.

5 All the trials were judged to be at unclear risk of bias.  
6 Significant heterogeneity (I2 = 68%) was found.

\*GRADE Working Group grades of evidence: high quality = further research is very unlikely to change our confidence in the estimate of effect; moderate quality = further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate; low quality = further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate; very low quality = we are very uncertain about the estimate.