

Does Direct Anterior Approach Training During Residency and Fellowship Influence Clinical and Surgical Outcomes in Primary Total Hip Arthroplasty?

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Background and Hypothesis: Total hip arthroplasty (THA) can be performed using various surgical approaches. The direct anterior approach (DAA) has been popularized due to fewer immediate postoperative functional restrictions. However, when transitioning from a posterior based approach, the DAA has a steep learning curve associated with higher early complication rates. The influence of formal residency and fellowship training on the DAA learning curve remains unknown. We hypothesized that formal training would reduce the learning curve associated with DAA THA resulting in better outcomes than previously reported.

Project Methods: Prospectively documented data on 726 unilateral primary THAs were retrospectively reviewed. Intraoperative, perioperative, and 90-day postoperative outcomes were compared for the index surgeon with formal DAA training and four surgeons without formal DAA training. A Bonferroni-adjusted p-value of 0.004 denoted statistical significance. Fourteen additional covariates were examined in relationship to outcomes.

Results: Intraoperative fracture and nerve damage, calculated blood loss and blood transfusions, and 90-day emergency department visits, inpatient readmissions, reoperations, and wound complications did not differ between the two groups ($p = .054$ to $.999$). Mean procedure (140 versus 103) and anesthesia (192 versus 144) durations in minutes were significantly longer for index surgeon cases ($p < .001$). In multivariable analysis, statistically significant covariates of procedure and anesthesia durations were unreliable due to wide 95% confidence intervals.

Potential Impact: Excluding procedure and anesthesia durations, there were no significant differences in outcomes comparing a surgeon with formal DAA training to surgeons without formal training. Surgery durations may have been influenced by a difference in years of practice (first two years for the index surgeon and a mean of 16.5 years for comparison surgeons). Formal surgical training on the DAA may facilitate similar outcomes earlier in a surgeon's practice, reducing the learning curve associated with the DAA.