

Postoperative Mobility following Posterior Spinal Fusion for Adolescent Idiopathic Scoliosis

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INTRODUCTION: While we counsel our patients on expected return to activity timelines, patients' true mobility after posterior spinal fusion (PSF) for adolescent idiopathic scoliosis (AIS) is not well understood. Therefore, we sought to utilize a wearable activity tracker to quantitatively describe ambulatory status in the first three months following posterior spinal fusion.

METHODS:

Patients aged 10-18 with AIS undergoing PSF underwent pre and postoperative physical activity monitoring via Fitbits. These were worn for several weeks preoperatively to obtain patient specific mobility baseline and for 3 months postoperatively. Baseline mobility was defined as the MEAN number of steps per day over the preoperative period. Maximal daily step count was defined as the day with the highest number of steps in a single day.

Fitbits were worn on the wrist throughout the study period and step counts were reported descriptively. A Cox proportional-hazards model was used to analyze the relationship between the time a participant took to return to baseline preoperative step count and the number of levels their surgery included.

RESULTS: A total of 17 patients completed the entire monitoring cycle. Of these patients, 15/17 (**88%**) patients returned to their baseline mobility within 3 months. For those that returned to baseline mobility, the mean number of days to return was **28 days** (range 14-32 days). The mean number of days to return to maximum daily step count was 48 days (range 33-66 days). The number of spinal levels fused was not found to significantly alter postoperative mobility.

DISCUSSION AND CONCLUSION: The vast majority of patients undergoing PSF for AIS were able to return to their preoperative mobility level early in their postoperative period. In fact, most patients returned to their average mobility within one month. These patients were also able to return to their maximal level of mobility within 6 weeks. With this data, our patients and their families can have a better expectation for postoperative mobility after PSF to set appropriate expectations.

