The project “Pedicle Screw Placement with Intraoperative EMG Monitoring” is a retrospective study that hopes to narrow the findings of previous studies done to find EMG threshold readings in milliamps that correlate to correctly placed pedicle screws. The current literature states that a threshold greater than 8.0 mA, 11.0 mA, or 15 mA correlates with an intact pedicle screw. Our study hopes to take data from patients who have had pedicle screws placed at The University of Missouri Hospital and find a more precise EMG threshold that correlates with a correctly placed pedicle screw.

The secondary aim of the study is to determine what changes in the EMG recordings are most predictive of neuronal injury and hence postoperative deficit. It is proposed that breach of the cortex by a pedicle screw leads to a low threshold stimulation of the nerve root when current is applied to the screw head. A retrospective chart review was performed of 97 patients looking at pertinent patient demographic and surgical data which was compiled into a spreadsheet format. This data will be coupled with analysis of post-operative CTs and EMG recordings to determine the most precise current that correlates to a correctly placed pedicle screw without neuronal injury.