

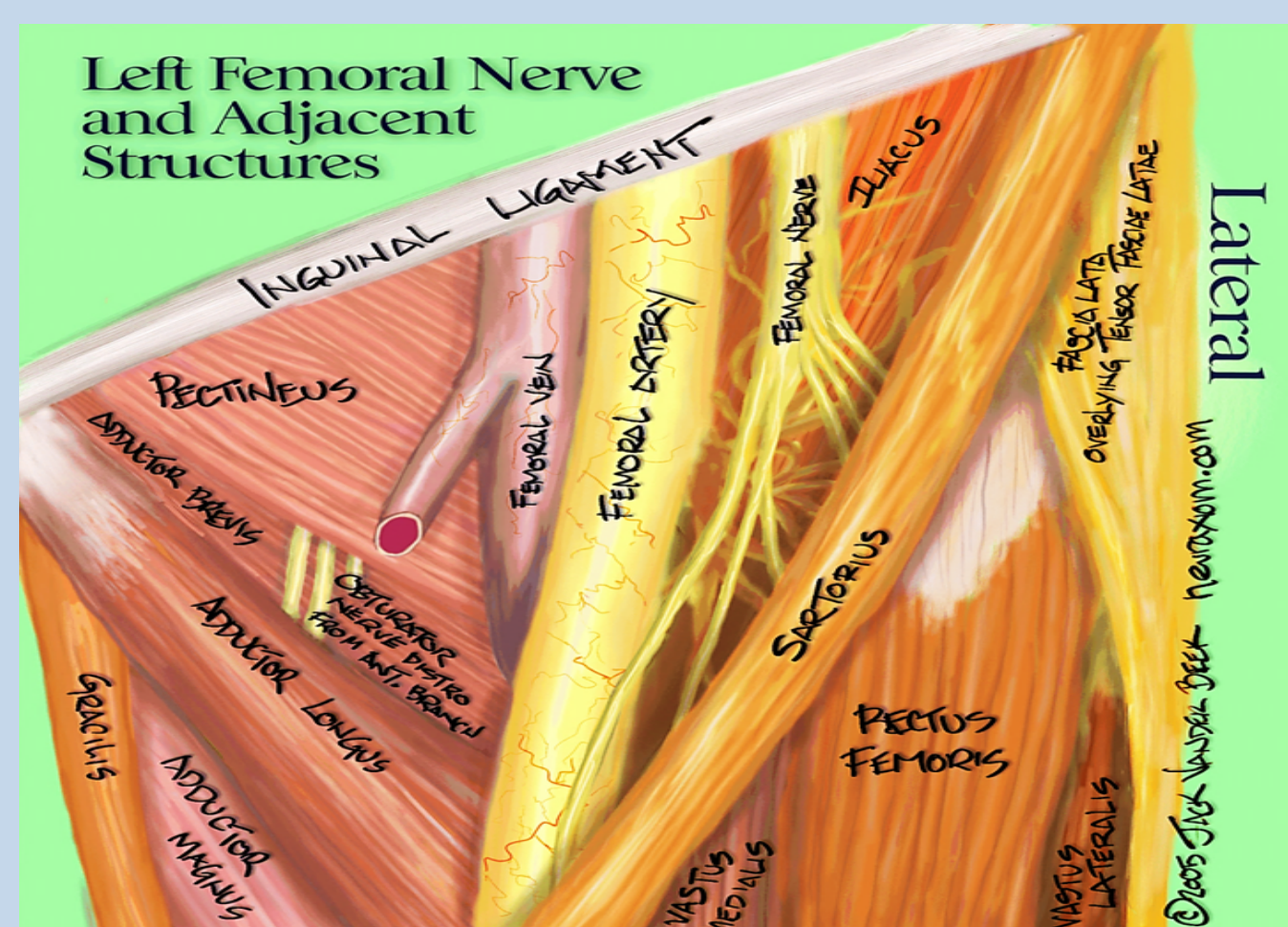
Problem Statement

Increased demand for lower extremity PNBs and anesthesia professionals desire to meet the preferences of their patients makes knowledge and skills on lower extremity PNBs invaluable. Classroom time, simulation, and hands-on experience are all essential in mastering this knowledge.

Project Description

In efforts to aid SRNA education, the following were proposed:

- A PowerPoint presentation with descriptions on anatomy, technique, complications, & clinical importance of lower extremity PNBs
- A handout with links to relevant websites & procedural videos
- A pre-test, post-test 1, and post-test 2 to evaluate the effectiveness of this project



Introduction

A decrease in patient complications, a decrease in cost, and a decline in the time spent in the hospital have all increased the demand for lower extremity peripheral nerve blocks (Hogan, Grant, & Lee, 2009).

Literature Review

Why has the number of PNBs increased dramatically in the anesthesia field?

- Decreased post-op pain & narcotic use (Yauger et al., 2010 & Foster et al., 2013)
- Decreased PACU stay (Yauger et al., 2010)
- Decreased hospital costs (Foster et al., 2013)
- Decreased post-operative nausea and vomiting (Hogan, Grant, & Lee, 2009)
- Decreased Blood Loss (Hogan et al., 2009)
- Overall improved patient satisfaction (Hogan et al., 2009)

What complications are seen with PNBs?

- Peripheral Nerve Injuries (Jeng, Torrillo, & Rosenblatt, 2010)
- Vascular Injections with CNS toxicity & overdose (Jeng et al., 2010)
- Hematomas (Jeng et al., 2010)
- Local Anesthetics Overdose (Jeng et al., 2010)
- Delayed surgical procedures due to technique (Foster et al., 2013)
- Unreliable nerve blocks (Foster et al., 2013)

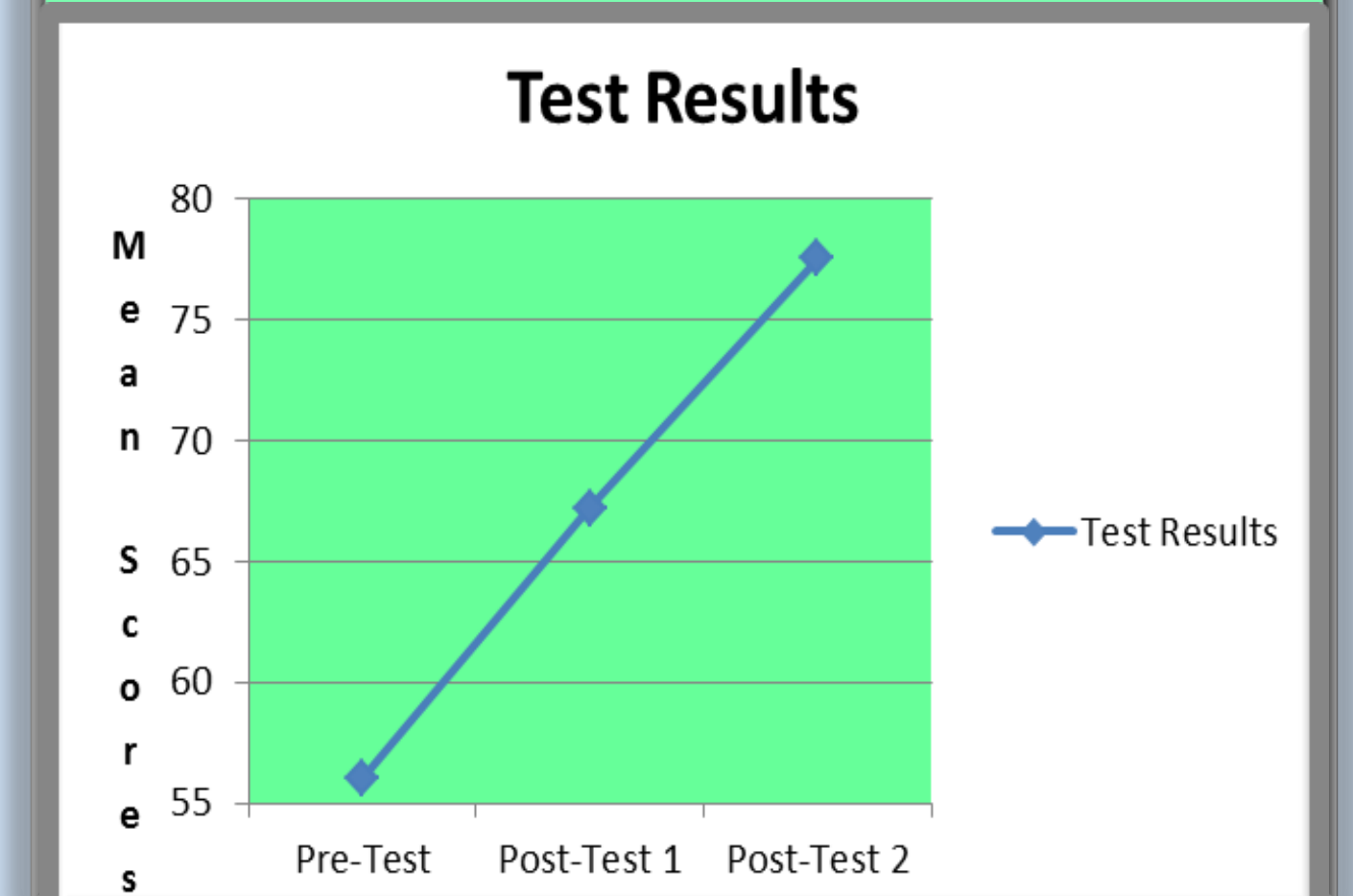
Is there adequate training for anesthesia providers in PNBs?

- 41% of Anesthesia Residency Programs do not have a structured approach to teach PNB technique (Chelly, Gregor, Hagberg, & Khan, 2003)
- Training is often one-sided instead of combining video techniques, simulations, hands-on, and didactics (Chelly et al., 2003)
- Lack of confidence from little training (Fanelli, Casati, Garancine, & Torri, 1999)

Anesthesia providers should “return to the classroom” to obtain better knowledge on anatomy before implementing these techniques. (Horlacker, 1998)

Results

- **78% of students strongly agree this capstone project was valuable to their education and should be presented to future SRNAs at ADU**
- **Class of 2015 knowledge improved from pre-test, post-test 1, & post-test 2. As evidenced by, an ANOVA statistically significant p value 0.009.**
- **Post hoc comparison statistically significant between pre-test and post-test 2: p value 002**



Conclusion

The goal of this capstone project was to aid in the classroom portion of SRNAs' education on lower extremity PNBs. As the statistical analysis and completed survey indicated, this goal was met.