



# “Measuring Acute Stress In Orthopedic Residents During Arthroscopy Electives: Does Pre-education Lead To Lower Anxiety Levels?”

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## ABSTRACT

Postgraduate medical education leads to increased levels of stress for trainees. Recently, there has been increased emphasis placed on safety and quality of life factors during residency by the ACGME. To date, no studies have evaluated perceived stress by orthopaedic residents while learning new surgical techniques. The author believes that a dedicated educational module for teaching arthroscopic shoulder surgery will lower residents' perceived stress during their shoulder surgical elective. The experimental design includes using a survey to test stress levels prior to and during the shoulder elective. The residents will be randomized into two groups. The first will train on a pre-elective education module emphasizing basic shoulder arthroscopy skills and anatomy. The second will have no exposure to the module. Both groups should have decreased stress as they become comfortable with shoulder arthroscopy, but the trained group will see a more profound effect.

## INTRODUCTION

The ACGME has recently enacted rules governing work hours and educational competencies that a residency program must maintain. The restriction in work hours stems from the need to deliver safe and effective health care for patients. A second goal of the restriction is that residents have enough time for individual education and stress relief so that their judgment and psychomotor skills are not adversely affected while delivering patient care. Although there has been growing emphasis on safety and quality of life issues during postgraduate medical education, no study has specifically evaluated orthopedic residents or the impact that various educational techniques have on perceived stress levels in this group. Similarly, the ACGME has stated a need for developing a core curriculum by each residency program that will help standardize the educational process. Ultimately, the goal is to improve patient care by decreasing the variability of resident education. The aims of this study support the ACGME desire to normalize the educational process. The shoulder arthroscopy module and checklist will be used as a pilot, which will help in the creation of other orthopedic modules, used for training the other subspecialties of orthopedic surgery. The hypothesis of this study is that exposure to a dedicated educational module for teaching arthroscopic shoulder surgery will lower resident's perceived stress during their shoulder surgical elective.

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### University of Florida Shoulder Arthroscopy Learning Module

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#### Basic Operative Set Up

**Positioning:** Following administration of general anesthesia and intubation, the patient is placed in the lateral decubitus position on a beanbag. The beanbag is inflated and an axillary roll is placed. Note that the axillary roll is not placed in the axilla, but slightly below it to unload the shoulder girdle. Next blue foam is placed over the patient's hip and two pieces of tape secure the patient to the beanbag. A third piece of tape is then secured across the patient to the bed. Ensure that the bony prominences are well padded, particularly the peroneal nerve of the down leg (Pillows are placed under and between the patient's legs). The shoulder traction boom is placed on the rail at the foot of the bed, contra-lateral to the operative extremity (bottom left for a right shoulder). A nonsterile U-drape is then placed (U at the neck), care is taken to drape widely. A 10-10 drape is then used to cross the axilla and complete the above noted U-drape. The entire upper extremity is then prepped with a chlorhexidine based solution.

**Draping:** Begin draping with a large drape sheet placed over the patient's body. A down U-drape (light blue) is then placed in the patient's axilla, with tails cephalad. A second U-drape (light blue) is placed at the patient's head with tails caudad. Next, a top U-drape (dark blue) is placed in the patient's axilla with tails cephalad. Finally, the shoulder U-drape is placed beginning at the patient's head, and secured distally. The forearm is then placed into the arm holder and wrapped with ace wrap. The arm is suspended from the shoulder boom. The patient's arm should hang in approximately 50 degrees of abduction and 10 degrees of flexion. A 10 pound weight is placed on the traction rope. All arthroscopic equipment cords and tubing are passed toward the foot of the patient, where the arthroscopic boom and equipment are located.

## METHODS

This study will randomize eight junior level orthopedic residents into two groups. Group one will use the education module prior to exposure to the shoulder arthroscopy elective. Group two will proceed through residency per current protocol. Both groups will complete a validated acute stress assessment (Perceived Stress Scale) prior to and one month after the start of the shoulder elective. They will also be asked to complete a generalized survey that assesses their perception of the educational value of the education module. The educational module will combine a combination of shoulder diagrams/schematics, arthroscopic pictures and videos, and education materials. Measurable outcomes include anxiety levels from all residents during the study. We postulate that the use of the module will decrease stress levels in the Group One. Potential biases include small sample size, individual extramural stressors on the residents, resident's perceived importance of shoulder surgery during their future careers, and innate psychomotor ability that allows some residents to acquire these skills easier. Stress assessment data will be collected by an independent research assistant (CK) in the resident's lounge at the Orthopedic and Sports Medicine Institute (OSMI). The educational module will be hosted on the College of Medicine's intranet which is secured via password.

## RESULTS

To date, five residents have completed the Perceived Stress Scale. Due to the educational structure and small size of orthopedic surgery residencies, we anticipate that it will take at least two years for a comparison of approximately five subjects in each group. The educational module is complete for basic surgical shoulder arthroscopy cases, but will be added to on a continual basis as a method for asynchronous education. Of the five subjects enrolled, the average score was 7 on the PSS. This indicates a less than average amount of stress in this group as compared to a normative group of subjects with an average score of 12. The maximum score on the PSS is 40.

## CONCLUSIONS

While this study has shown only preliminary results, there have been several interesting findings to date. First, the author now realizes that the development of an online educational module can be challenging. The greatest difficulty arises with the digital media used to create case studies. Many of the surgical pictures and videos are large and in various formats, making them difficult to manipulate for insertion into an online format. Textbooks are now readily available with excerpts of high quality digital media on DVD. The advantage of online educational tools is that they are easily portable and integrate nicely into the fast pace, multi-tasking learners that presently fill residency programs. The second interesting finding is the low score on the PSS for this group. Residencies are typically known as large stressors for individuals. Interesting, this group had less perceived stress than would be seen on average for individuals in a similar age group. However, with this small group of individuals, it is difficult to make any meaningful conclusions.

## REFERENCES

- Zark, SM et al. Psychological well-being of surgery residents before the 80-hour work week: a multi institutional study. J Am Coll Surg 2004; Apr; 198(4): 633-40.
- LeBlanc, VR et al. The effects of examination stress on the performance of emergency medicine residents. Medical Education 2007; Jun; 41(6): 556-64.
- Sargent, MC et al. Stress and coping among orthopaedic surgery residents and faculty. J Bone Joint Surg Am 2004; 86: 1579-1586.