4. Wu H-Y, Rubinstein M, Shih E, Guttag J, Durand F, Freeman W. Eulerian Video Magnification for Revealing Subtle Changes in the World. ACM Trans Graph. 2012;31(4)doi:10.1145/2185520.2185561

**TRACK: HAND AND UPPER EXTREMITY**

**Ulnar Wrist Denervation: Articular Branching Pattern and Selective Blockade of Fibers from the Dorsal Branch of the Ulnar Nerve**

**Presenter:** Andrew Regent-Smith, MD  
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**PURPOSE:** Ulnocarpal joint denervation has been a successful treatment for several patients with ulnar-sided wrist pain. The purpose of this study was to characterize the articular branches of the dorsal branch of the ulnar nerve (DBUN), and to validate a technique for selective peripheral nerve blockade.

**METHOD:** We performed simulated local anesthetic injection using 0.5 mL of 0.5% methylene into the subcutaneous tissue at a point midway between the palpable borders of the pisiform and ulnar styloid. We then dissected the DBUN, characterized its articular branching pattern, and measured staining intensity of the DBUN and ulnar nerve proper relative to a standard.

**RESULTS:** Among 11 specimens, the DBUN provided an average of 1 (range 0-2) ulnocarpal branches and 1 (range 0-2) carpometacarpal articular branches. A carpal articular branch from the DBUN was universally present. Simulated local anesthetic injection successfully stained 100% of the DBUN carpal articular branches at or proximal to their takeoff and did not stain any proper ulnar nerves. In all specimens, the DBUN supplied at least one carpal articular branch.

**CONCLUSION:** A point midway between the palpable border the pisiform and ulnar styloid may be an effective location for selectively blocking the DBUN articular afferents. The DBUN is a universal ulnar carpal innervator and should be considered for selective denervation in patients with ulnar-sided wrist pain.

**TRACK: RESEARCH/TECHNOLOGY PAPER**

**Intraoperative Loss of a Microsurgical Needle: Assessing Potential Injury and Risks Through a Rat Model**

**Presenter:** Jagmeet Arora  
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**PURPOSE:** The intraoperative loss of microsurgical needles is not uncommon due to their size (< 8mm) and delicacy. Attempts to recover the needle may subject patients to additional postoperative imaging and care. Current literature regarding the effect of retained needles is ambiguous and limited. Some studies claim procedures to remove needles introduce unnecessary risks. In other cases, needles caused chronic pain, inflicted vessel injury, and presented possible risk during magnetic resonance imaging. We sought to determine the risk of neurovascular injury from a retained microsurgical needle.

**MATERIALS AND METHODS:** Microsurgical needles were implanted adjacent to the right femoral artery (diameter: 0.45-0.65 mm) in Sprague Dawley rats. The needlepoint faced the vessel to simulate the situation with the greatest potential for harm. The left femoral artery served as a within-subjects control and was untouched. Two experimental groups were used. One group (n=8) was implanted with a 9-0 taper point needle (6 mm long), and the second (n=8) with an 8-0 taper point needle (6.5 mm long). The control group (n=8) underwent an identical surgery with no needle implanted. Postoperatively, rats were separately assessed by two individuals weekly using a standardized pain scoring system that quantified weight change, body condition score, physical appearance, and behavior (i.e. mobility, limping). Infrared (IR) thermography was used to assess limb perfusion. After 90 days, animals were sacrificed, imaged via x-ray, and needles were explanted to determine damage to neurovascular structures.

**RESULTS:** Overall, there was little difference between the control and experimental groups. Analysis revealed no difference in pain scores over 90 days between the control and experimental groups (mean score: 0). There was