

# Precision and Accuracy of Identification of Anatomical Surface Landmarks by 30 Expert Hip Arthroscopists.

[Christoforetti JJ<sup>1</sup>](#), [DeLong J](#), [Hanypsiak BT](#), [Suri M](#), [Domb BG](#), [Snibbe JC](#), [Gerhardt MB](#).

## Author information

1

Center for Athletic Hip Injury, Allegheny Health Network, Pittsburgh, PA; Drexel University College of Medicine, Philadelphia, PA; and Rangos School of Health Sciences, Department of Physical Therapy, Duquesne University, Pittsburgh, PA. john.christoforetti@gmail.com.

## **Abstract**

We conducted a study to assess 30 expert hip arthroscopists' ability to identify common surface landmarks used during hip arthroscopy. Thirty hip arthroscopists independently performed a blinded examination of an awake supine human volunteer for identification of 5 surface landmarks: anterior superior iliac spine (ASIS), tip of greater trochanter (GT), rectus origin (RO), superficial inguinal ring (SIR), and psoas tendon (PT). The examiners applied the labels ASIS, GT, RO, SIR, and PT to the landmarks. An ultrasonographer performed a musculoskeletal ultrasound examination and applied labels as well, and a photographer documented the examiner labels after obtaining overhead and lateral digital images with use of fixed camera mounts. Digital overlay composite images of arthroscopist and ultrasonographer labels were analyzed. Direction and distance of inaccurately placed labels were compared with known values for neurovascular structures previously reported for common arthroscopic portals. Average distance from examiner-applied labels to ultrasonographer-applied labels was 31 mm for ASIS, 24 mm for GT, 26 mm for RO, 19 mm for SIR, and 35 mm for PT. Interobserver variability of examiner-applied labels was recorded as areas of 95% predictive interval: 65 cm<sup>2</sup> for ASIS, 16 cm<sup>2</sup> for GT, 221 cm<sup>2</sup> for RO, 38 cm<sup>2</sup> for SIR, and 29 cm<sup>2</sup> for PT. Examiner labels demonstrated the highest potential for injury because of anterior portal inaccuracy. Expert hip arthroscopists varied in their ability to accurately and precisely identify common surface landmarks about the hip, using only manual palpation.

PMID:

28235126