DEGREE OF HEAD AND TRUNK ROTATION HOLDS THE KEYS TO GETTING BACK BEHIND THE WHEEL AFTER A SPINE INJURY OR SURGERY

ORLANDO, FL—Drivers must be able to turn their head approximately 75° and their trunk about 9° to accurately survey traffic and check blind spots, according to new research reported at the 32nd Annual Meeting of the North American Spine Society (NASS).

“Being able to drive after a spine injury or surgery is a huge goal for most patients, however, rushing to drive too soon can be unsafe for the patient and all other drivers on the road,” said lead author Themistocles S. Protopsaltis, MD, of the Hospital for Joint Diseases at NYU. “If we are able to quantify the range of motion required to safely operate a vehicle, spine specialists can work with their patients to work toward tangible goals while keeping our roads safe.”

The study, “Cervical and Gross Trunk Range of Motion Required During Safe Operation of a Vehicle: A Study of Healthy Adults,” is the first investigation to report on axial rotation of the spine associated with driving. Researchers used a driving simulator with an overhead camera set up to test participants in a driving scenario requiring 10 lane changes (five left and five right). To simulate left and right blind spots, remote-controlled, colored LED lights were placed in two constant locations relative to the subject based on blind spot position data published by the U.S. Department of Transportation National Highway Traffic Safety Administration. All patients were required to survey blind spots prior to making a lane change. Video analysis of driving simulations was then used to measure cervical and gross trunk range of motion.

Participants demonstrated minimal axial rotation while driving on a straight path and approaching intersections. While assessing blind spots, participants averaged 75.22° (95% CI 73.05-77.38) of cervical and 9.38° (95% CI 7.14-11.63) of gross trunk rotation for left lane changes, and 68.69° (95% CI 65.75-71.63) of cervical and 8.18° (95% CI 6.22-10.15) of gross trunk rotation for right lane changes. Safely performing a lane change required approximately 95.06% (95% CI 90.41-99.72) of maximal available cervical rotation and 18.49% (95% CI 10.36-26.62) of maximal available gross trunk rotation.

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“It’s a little surprising that such a significant degree of cervical rotation is required to adequately survey traffic and initiate lane changes,” said Dr. Protopsaltis. “It is our hope that this information will be helpful in the evaluation and guidance of return to driving for patients after cervical spine surgery or neck-related injuries.”

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More than 3,000 spine professionals will meet at the NASS 32nd Annual Meeting in Orlando, October 25-28, 2017 at the Orange County Convention Center to share the latest information, innovative techniques and procedures, best practices and new technologies in the spine field. NASS is a multidisciplinary medical organization dedicated to fostering the highest quality, evidenced-based and ethical spine care by promoting education, research and advocacy. NASS is comprised of more than 8,000 members from several disciplines, including orthopedic surgery, neurosurgery, physiatry, neurology, radiology, anesthesiology, research and physical therapy. For more information, visit www.spine.org, NASS Facebook and NASS Twitter.

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