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**Loading of Cervical Spine when Head is Rotated** SAAMI J. SHAIBANI, Independent Modeling, Algorithms & Analytical Studies (IMAAS), Lynchburg, VA — The neck is more susceptible to injury during an insult in the forward direction if the head is not initially facing straight ahead. (A typical example of this is when a vehicle occupant is checking traffic to the right or left at an intersection before proceeding.) However, the ability to characterize this behavior has not progressed much beyond the qualitative because practical constraints limit testing with conventional physical surrogates. This shortfall is tackled in this study by employing a model validated elsewhere to represent a range of real-world events with the power of great specificity for parameters of importance. Of primary concern is the variation in head angle, which can now be investigated across a wide spectrum of values that was not possible with previous approaches. The quantitative results computed here provide an extraordinarily high level of detail and they show how the potential for injury can change from low to significant within a matter of degrees. This explains why a seemingly harmless impact can cause trauma in some cases when none would otherwise be expected.

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