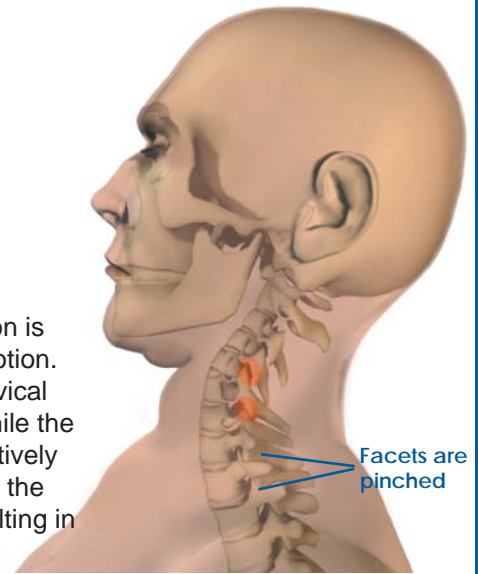


# LOW SPEED REAR-END COLLISIONS: MECHANISM OF INJURY

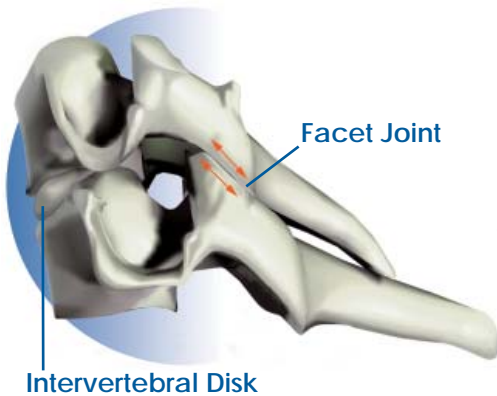


Normal movement of the cervical spine is a smooth motion in which every vertebral segment contributes evenly.



Neck motion during a rear-end collision is completely different from everyday motion. Very early in a collision, the lower cervical spine experiences a rapid bending while the rest of the cervical spine remains relatively straight. This rapid bending can strain the joints of the lower cervical spine, resulting in tears and inflammation of the joints.

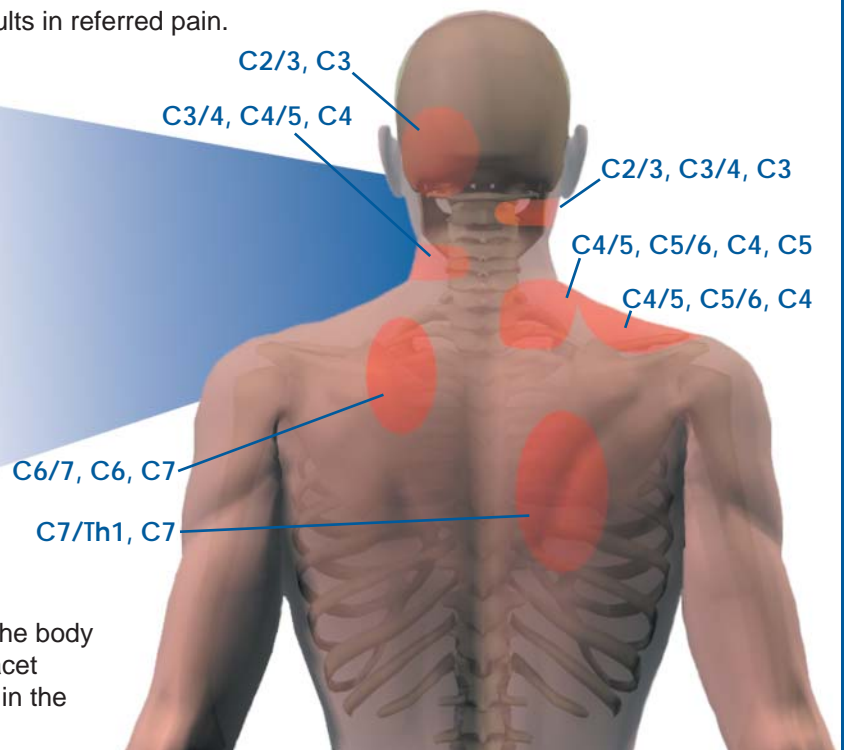
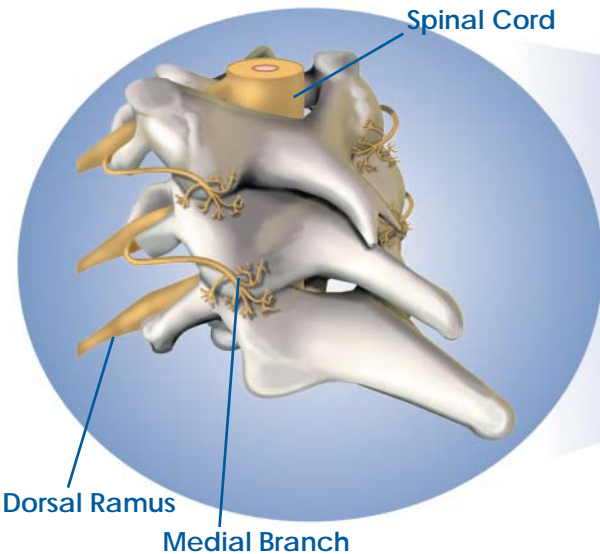
The facet joints are the key to normal, healthy spinal motion. The facets are on the rear portion of the vertebrae, and are angled backward. During normal spinal motion, the joints glide over one another smoothly and evenly.



The rapid motion of the neck during a crash can result in a number of injuries—many of which are impossible to see on x-rays or MRI. Here are some of the injuries that have been shown after rear-end

- 1 Rim Lesions
- 2 Endplate Avulsions
- 3 Tears of the Anterior Longitudinal Ligament
- 4 Longitudinal Ligament Tear

The pain from inflamed facet joints is transmitted by the medial branch of the dorsal ramus. Stimulation of the facet nerves often results in referred pain.



Referred pain is when pain is felt in a different area of the body from where the injury actually lies. Injury to the lower facet joints can create pain in the lower neck, shoulders and in the mid-back, as the illustration on the right shows.