



# Spinal Complications of Car Crashes: The Good, The Bad, The Ugly and The Confusing

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## My experience with car crashes:

- Board Certified in **Physical Medicine & Rehabilitation** and **Spinal Cord Injury Medicine**
- 30 years **trauma rehabilitation** (Level 1-5 trauma facilities, 17 hospital network)
- 28 years **outpatient physiatry** (amputee, brain injury, spinal cord injury, pediatric, orthopedic, spine, musculoskeletal, and chronic pain management)
- Academic (UT/Austin medicine school Chair, UW associate professor)
- Research in **neurorecovery** (locomotor programs, stem cells)
- Chief Clinical Officer, US Physiatry (**post-acute systems of care**)
- **Life care planner**

# “The Crash”

## Common Types of Accidents

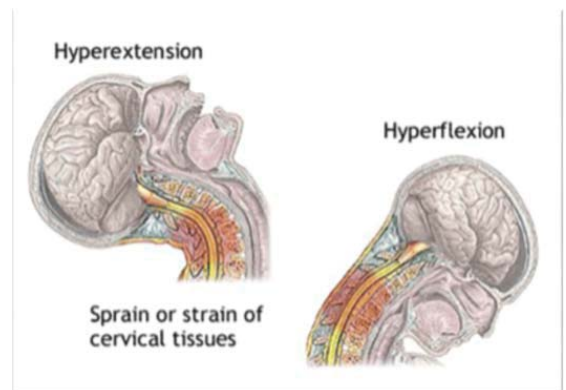
1. Rear-end collision (whiplash)
2. Side-impact collision (T-bone)
3. Side-swipe collision (lateral flexion)
4. Vehicular rollover (multiple injuries)
5. Head-on collision (Often fatalities)
6. Multiple vehicle collision (Pile-ups)



# Mechanisms

## Common Mechanisms of Injury:

1. Axial Compression
2. Flexion/Hyperflexion
3. Extension/Hyperextension
4. Rotation
5. Lateral flexion/hyperflexion
6. Distraction
7. Penetration



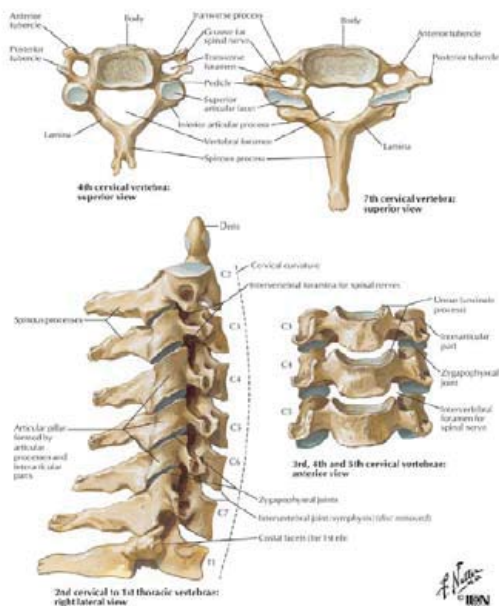
# Overview of Spinal Anatomy



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The Car Crash Seminar

## Cervical Spine



- Small vertebral bodies
- Extensive joint surfaces

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