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## Why this Tony Romo injury is more serious than past issues

By Stephania Bell

Not all spine fractures are created equal. [Dallas Cowboys](#) quarterback [Tony Romo](#) knows this firsthand.

The Cowboys announced on Saturday that [Romo suffered a broken bone in his back](#) during Thursday's preseason game against the [Seattle Seahawks](#), on a hit that initially generated [nothing more than a "scare."](#) Sources told ESPN reporter Todd Archer that Romo sustained a compression fracture to the L1 vertebra and could miss six to 10 weeks. The Cowboys have not issued a timetable and coach Jason Garrett has [not yet ruled out Romo for the season opener](#). "We live in the world day by day," he said."

During the play on which he was injured, Romo was in the process of initiating a slide. At virtually the same moment Romo began his motion toward the ground, Seahawks defensive end [Cliff Avril](#) arrived to tackle him, wrapping his left arm across Romo's shoulder while applying a downward force with his right arm in an attempt to strip the ball from Romo's right hand. Romo landed in a seated position with his back rounded and feet outstretched.

The two primary forces in play through his back were compression -- the combination of the downward-directed forces through the spine from both Avril and gravity, in addition to the upward force through his spine from the ground as he landed -- and flexion, or forward bending, as Avril's momentum coming from behind brought Romo's torso forward on impact. The spine can tolerate a fair amount of each, but it's problematic when the two are combined.

The central portion of a spinal vertebra is called the body, and it is architecturally constructed to absorb load, especially in the lower back area. When viewed under a microscope, the bony infrastructure of the vertebral body reveals scaffold-like elements, similar to rebar frames used in construction. The anatomical design reinforces the ability of the vertebra to bear weight, along with any additional load incurred deliberately (when carrying or lifting) or accidentally (while falling).

If the physics of a load or collision, however, exceed what the structure is designed to accommodate, the structure will fail. That excess loading happened to Romo's spine, resulting in a compression fracture of L1, the first lumbar vertebra. There are five lumbar or low back vertebrae; the L1 is the topmost.

How common is this injury?  
According to Dr. Robert Watkins Jr., orthopedic spine surgeon and co-director of the Marina Spine

Center in Marina del Rey, California, it is relatively infrequent among professional athletes.

"Compression fractures are common in the elderly with weak bones but are pretty rare in young athletes," said Watkins, who treats numerous athletes of all levels.



Since Tony Romo became the Cowboys' starter in 2006, Dallas is 78-49 when he starts and 10-23 when he doesn't.

So what's next for Romo? The primary focus for the early phase of recovery is minimizing discomfort.

Fractures are painful, and any movement can further aggravate that pain. While broken bones in the extremities can be casted to prevent movement while they heal, it's not possible to externally immobilize a specific vertebral segment. Sometimes a back brace or corset is issued, [as is the case with Romo](#), to help control spinal motion that might provoke pain. It cannot entirely restrict movement.

Ultimately, pain is the guide when it comes to an athlete progressing his activity; as the pain decreases, the athlete is encouraged to do more in the way of natural movement and physical exertion. Flexion and compression -- the loading forces that contributed to the original injury -- are minimized in the early stages to avoid aggravating the condition. As the athlete's pain resolves and his conditioning improves, he can gradually return. The final phase is being cleared for contact, which depends on the healing progression and minimal risk of further injury.

Romo's latest injury is unlike the back injury the quarterback sustained in 2014, when he [fractured two transverse processes](#). Transverse processes are small projections on the vertebrae where soft tissue attaches, but they have no real role in load-bearing. In football, fractures to transverse processes are not uncommon when there is a direct hit, and the result is bruising and pain at the fracture site. Players can typically return to play as the pain allows, even as the bone continues to heal, because of the low risk involved. Romo returned to play two weeks after sustaining the injury.

With a compression fracture, the recovery time and determination of return to play is dependent on the nuances of the injury. If the fracture is small and the spinal segment is stable, the recovery can be much quicker than if there is significant bone deformity and associated instability. Stable compression fractures are typically managed non-surgically, as will be the case with Romo.

Once the pain has resolved and satisfactory healing has occurred, the athlete can be cleared to return. This could range from a few weeks to a few months. As Garrett noted, the Cowboys have gotten "a lot of different

timetables for when [Romo] can return."

Despite the relatively low occurrence of compression fractures in athletes, Watkins said there is good news about the recovery.

"After the bone has healed, most people have no residual pain and they return to full function," he said.

The usual caveats of lacking specific details about the injury -- such as whether there is any ligament damage or other associated soft tissue injury -- and the fact that everyone heals at different rates still apply in Romo's case, making it difficult to accurately project a timetable.



Romo missed most of last season after breaking -- and re-breaking -- his collarbone. Now his 2016 season is up in the air.

Beyond the pain resolution and the bone healing, there is also the matter of him being football-ready in his conditioning before he takes the field again. There is also his injury history. While it is true that this latest injury was an isolated incident, Romo's history of prior disk surgery, two transverse process fractures and a procedure to remove a cyst from his spine can't be ignored.

The cumulative trauma of successive injuries regionally (after all, the spine is a single structure in that all vertebral segments are interconnected) can have subtle but real biomechanical consequences that potentially impact Romo's overall mobility and strength. Only time will tell if that history poses any challenges to his immediate recovery or to his ability to be functionally effective going forward.

This latest injury should not necessarily signal the end of Romo's career. Based on the available information, there is no reason to think he won't recover from this particular injury. Ultimately, the question for Romo is the same as for any other NFL player returning from consecutive injuries: How much does he want to continue to expose himself to injury risk, simply by stepping on the football field each week?

Although Romo's back injury is different this time, the mantra when it comes to Romo is familiar. Wait -- however long it takes -- and see.