

# Atlanto-Axial Instability

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## What is atlanto-axial instability?

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The disease is most common in small and toy breed dogs such as Chihuahuas and Yorkshire Terriers, however it has been reported in larger breed dogs.

## What are the signs seen in dogs with atlanto-axial instability?

Clinical signs are typically seen in young dogs and may occur after play with inadvertent trauma to the neck. The most common sign is pain in the neck and reluctance to turn the head. Other signs include collapsing episodes, decreased ability to walk in all four limbs, and, in severe cases, inability to stand. With severe pressure on the spinal cord, animals can have difficulty breathing.

## What is the treatment for atlanto-axial instability?

There are two broad categories of treatment – medical and surgical. Medical treatment involves placing the dog in a splint/cast that covers from just behind the eyes to the middle of the back for several weeks to months. This keeps the dog from being able to move the neck. Over time, some dogs develop scar tissue around the atlanto-axial joint, which stabilizes it. Some dogs do not need surgery after the cast is removed. Other dogs have recurrence of their neurologic signs after the cast is

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removed and require surgery. Medical management is often preferred in puppies who are still growing and have very small and soft bones.

Surgical management is often recommend for full grown dogs (>8-12 months) or in dogs who have severe enough signs that they are at risk of permanent damage if surgical stabilization is not done (i.e. severe pain, difficulty walking, collapsing episodes). Surgery involves placing pins through the bottom of the atlas and axis to reconnect them.

### **What is the prognosis for medical and surgical management?**

Medical management may be successful in puppies who have had neurologic signs for a short period of time (<30 days). Some dogs fail medical management and get worse while others improve initially but have recurrence of signs, especially with any future trauma to the spinal cord in the neck. Complications associated with the splint/cast include difficulty eating/drinking, skin infection and ulcers, ear infection, and corneal ulcers.

Surgical treatment is successful in most dogs. Young adults (<2 years) with clinical signs present for a short period of time (<10 months) have a better overall outcome than older dogs who have had chronic spinal cord compression and potentially permanent spinal cord damage. Dogs with less severe neurologic signs (i.e. pain only) have a better immediate post-operative outcome than dogs with severe neurologic signs (i.e. inability to walk or move the limbs). Complications which can occur in surgery include inability to place the pins due to small malformed bones, fracture of the bones during surgery, trauma to the spinal cord, or bleeding. Some dogs will have difficulty swallowing initially, which usually improves after 1-2 weeks. Rarely dogs may have weakness of the laryngeal muscles if there was any nerve damage during surgery. Long-term complications may include infection of the pins, migration of the pins, or fracture of the pins/bones.



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