Intervertebral Disc Disease and Nursing Care of the “Down Dog”

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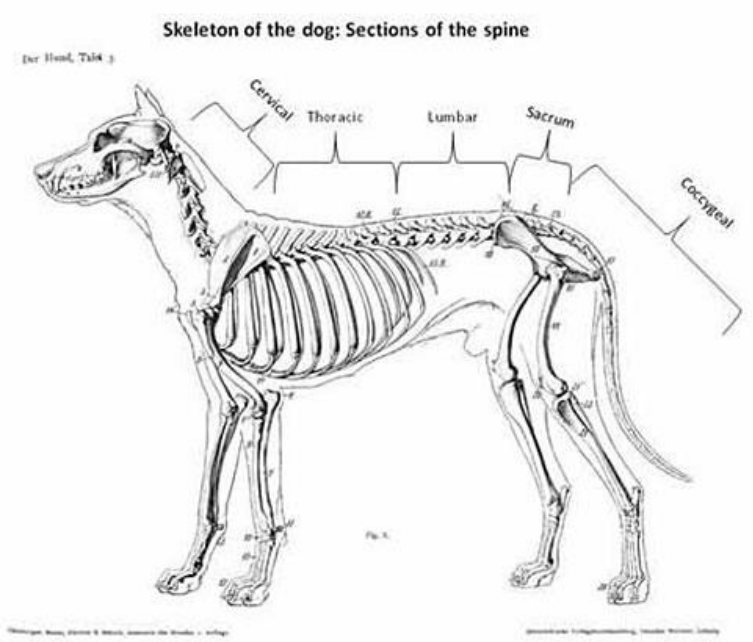
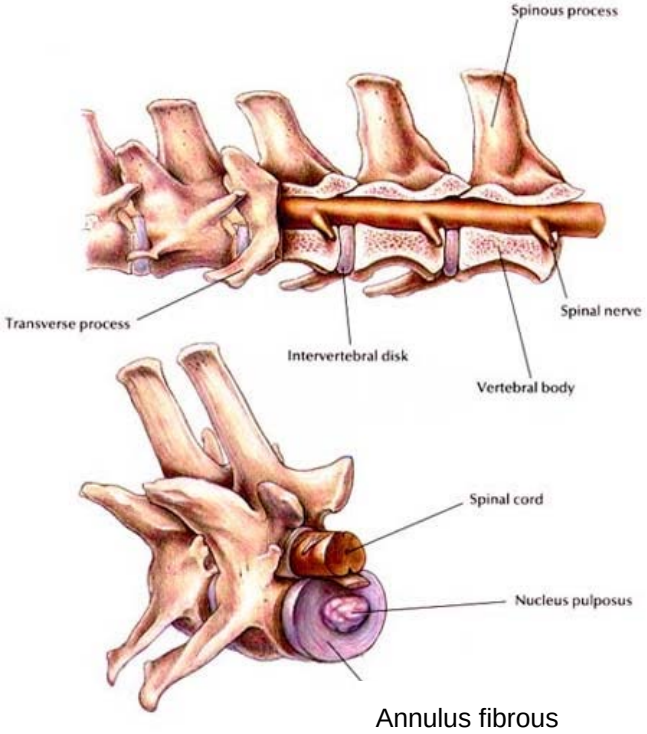
Intervertebral Disc Disease (IVDD)

- Syndrome of pain and neurologic deficits, and sometimes complete paralysis, resulting from displacement of part or all of the nucleus of an intervertebral disc.
- Most common spinal problem in dogs
- Infrequent disorder in cats

The Spinal Column





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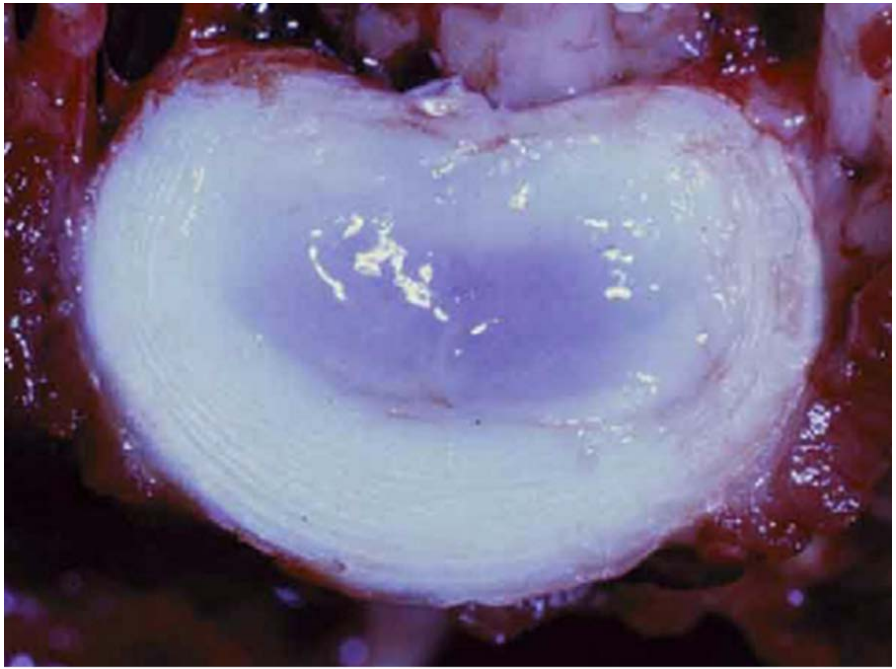
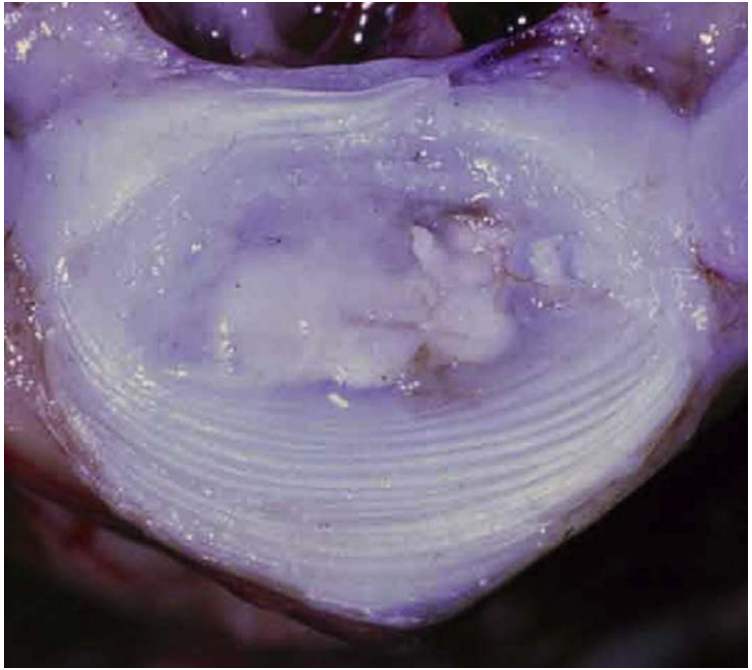
Source: Hill's Atlas of Veterinary Clinical Anatomy

Type I Intervertebral Disc Disease





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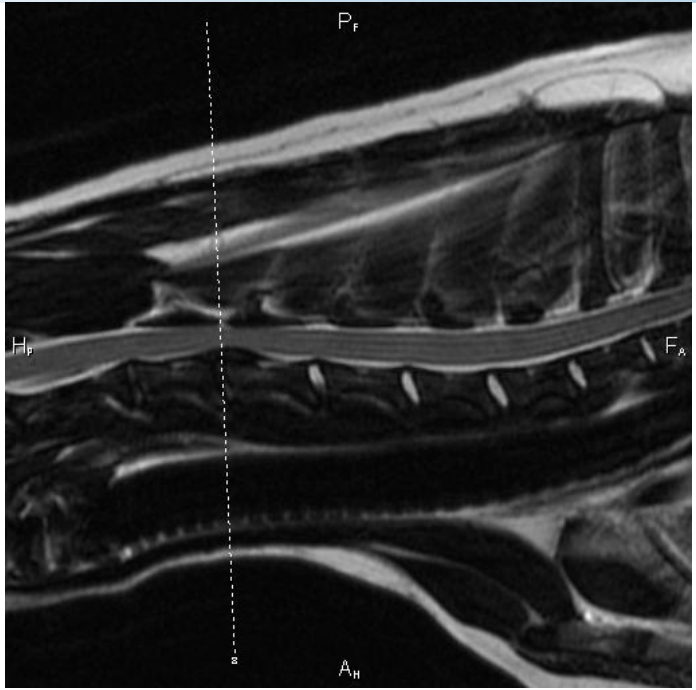
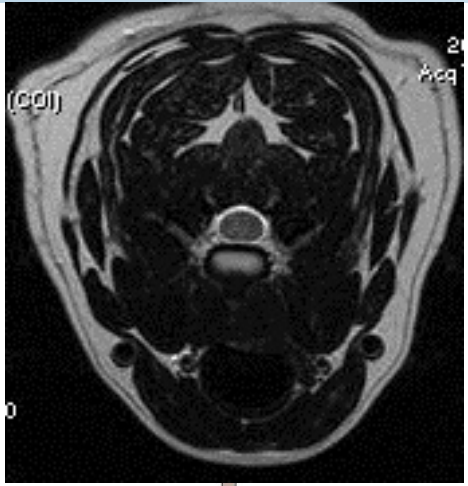
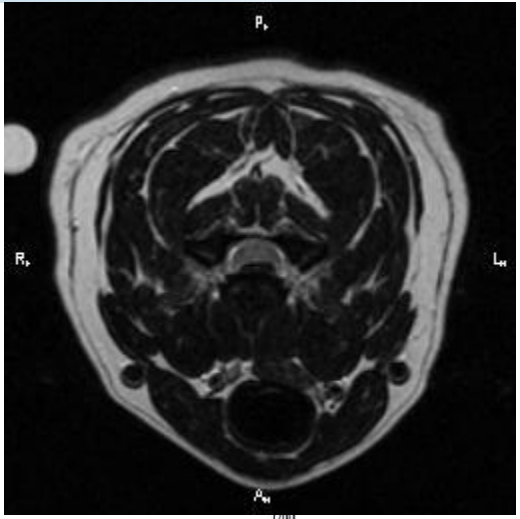
Brisson, 2010

Hansen Type I extrusion







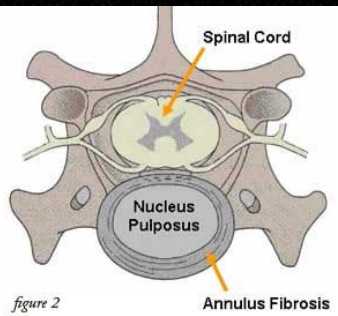
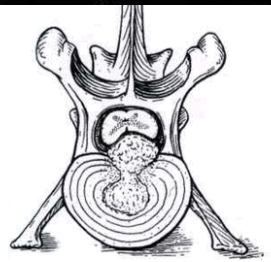


figure 2



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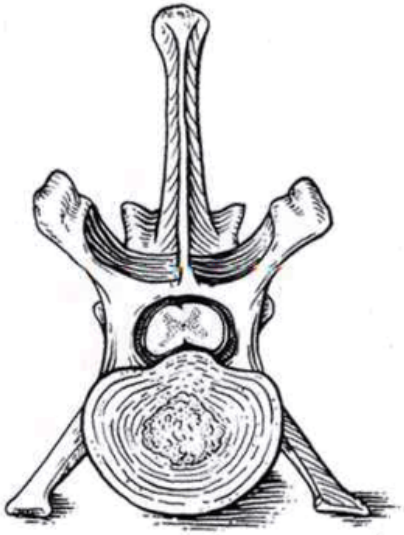
Other Disc-Related Issues

- Type II - progressive
- Type III/ANNPE - peracute
- FCE - peracute



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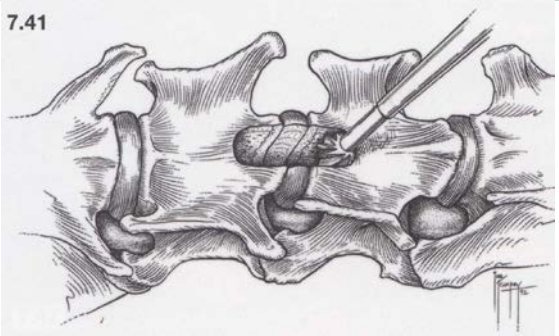
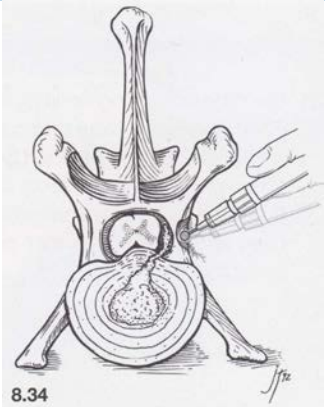
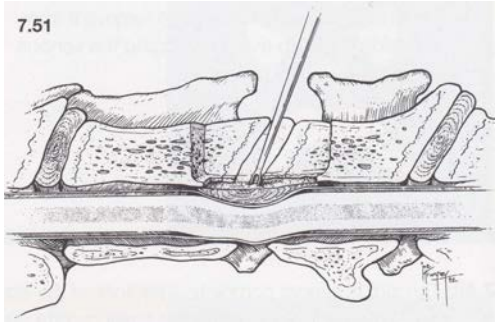
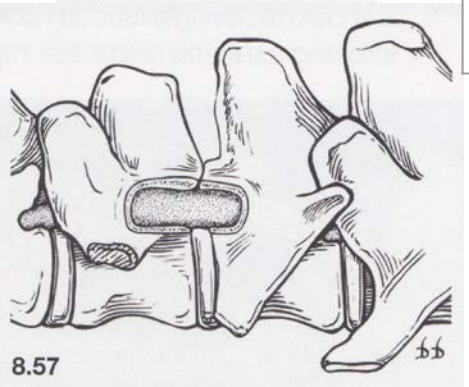
Surgical Management (Type I)









	Success
Cervical (pain and/or weak)	92%
TL weak, not walking	100%
TL paralysis	90%
TL paralysis, deep pain negative	60%

Recurrence rate is approximately 10%

Recovery time is usually about 2 weeks; longer for deep pain negative

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Medical Management

- Recovery from Type I extrusion is longer and less complete (more likely to relapse or recurrence)

	Success
Cervical (pain and/or weak)	60%
TL weak, not walking	90%
TL paralysis	45%
TL paralysis, deep pain negative	5%

Recurrence rate is approximately 40%

Recovery time is about 6-12 weeks

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Complications of the “down dog”

- Pulmonary atelectasis or pneumonia
- Poor gastric motility
- Fecal retention
- Urinary bladder damage/UTI
- Decubital ulcers
- Muscle atrophy
- Joint stiffness
- Pain
- Inadequate nutritional intake
- Patient depression or lethargy

Nursing Care

Regardless of medical or surgical management, nursing care will be very similar.

Crate rest and exercise restrictions

- Strict cage confinement for 3-4 weeks
- Activity restricted to short elimination walks for 5-10 minutes, 3-5 times a day
- Gradual return to normal activity over 4-6 weeks
- Lifelong exercise restrictions

Medications

- NSAID (or steroid)
- Gabapentin
- Tramadol (or trazodone)
- +/- Diazepam
- +/- Prazosin

Respiratory care

- Concern for atelectasis in recumbent patients
- Turn patient q4h or keep sternal
- Monitor respiratory patterns and auscultate frequently
- Risk for aspiration pneumonia, especially brachycephalic patients

Bedding

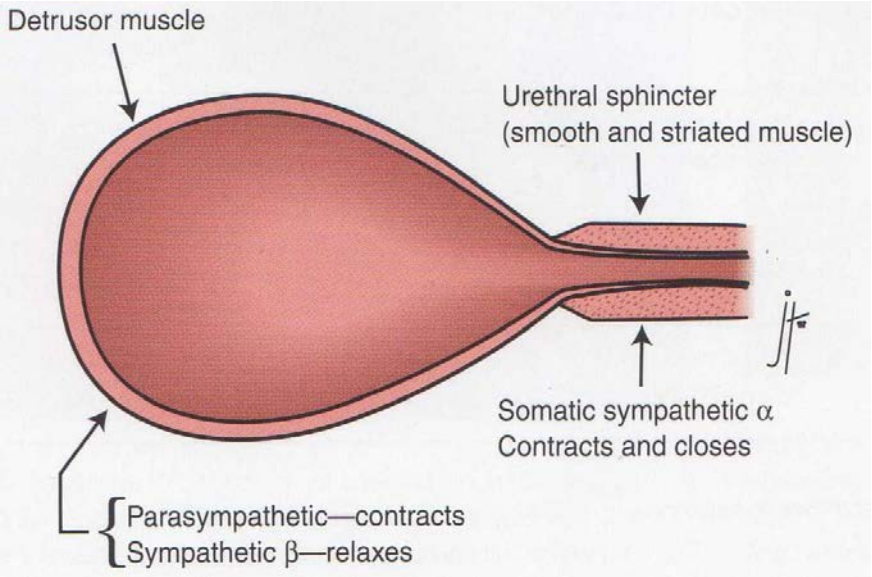
- Thick, soft; top layer should be absorbent or non-retentive (urine scald)
- Sheepskin, foam, air mattress, “trampoline”
- Pillows, rolled-up blankets for keeping sternal or providing support for head

Decubital ulcers

- Make sure bony prominences are well padded
- Turn patient q4h
- Watch for ulcer formation; can use padded “donuts” to relieve pressure

Bladder Management

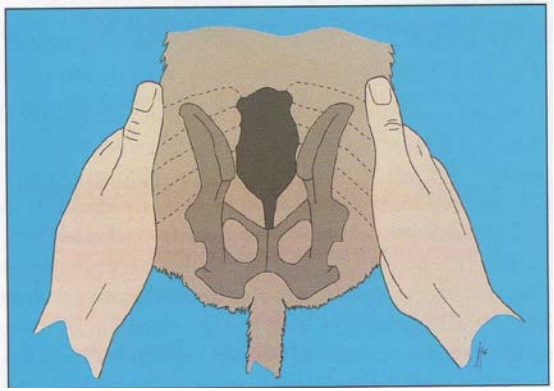
- Overdistension of the bladder and UTI's are typical sequelae of IVDD
- Overdistension can result in permanent loss of muscle tone
- Consider urinary catheter

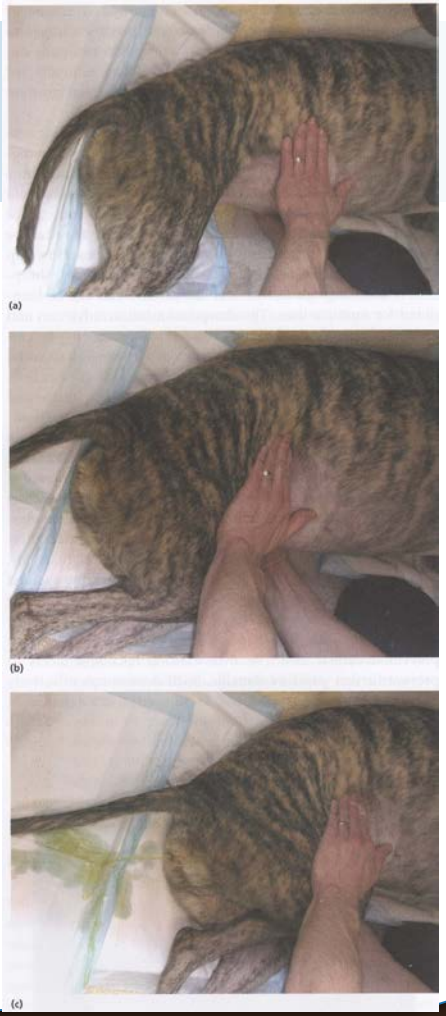


Bladder management

- Palpate bladder q4-6h to estimate its size, even with urine present on the bedding! Express bladder as needed
- Keep bedding (and patient!) clean and dry
- Monitor for signs of UTI

Bladder expression





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Rehabilitation Therapy

- Massage
- Passive range of motion (PROM)
- Assisted standing
- Advanced therapies such as hydrotherapy, laser therapy, ultrasound, acupuncture, sling therapy

Massage

- May be initiated before PROM to facilitate muscle and joint compliance
- Start with slow glide using entire palm of hand in direction of hair growth (cranial to caudal; proximal to distal)
- Continue massage distal to proximal

Passive Range of Motion (PROM)

- Mimics normal muscle pumping action to improve blood flow and increase sensory awareness in the affected limb(s)
- Helps maintain soft tissue and joint integrity
- Minimizes potential for contracture formation

Passive Range of Motion (PROM)

- PROM should never hurt - motion of joint should never be forced
- Keep limb you are working on parallel to the ground to prevent torquing of the joints
- Support each joint above and below

Passive Range of Motion (PROM)

(a)

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Mobility Assistance

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Mobility Assistance

(a)

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Mental status

- Affection
- Putting patient where can observe activity
- Regular trips outside
- Frequent physiotherapy sessions

Things to watch for

- **Myelomalacia** - Profound pain, loss of tone (floppy legs), tetraparesis with abdominal breathing, increased temperature
- Deep pain negative patients - licking or chewing at legs or tail - place e-collar immediately!

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Disease & Conditions

- Atlantoaxial Luxation
- Brain Tumor
- Disk Disease
- Diskospondylitis
- Meningoencephalitis

Procedures

Click on the links below to learn more about the following procedures:

- Bladder Maintenance
- Down Dog Care
- MRI : What to expect
- Neurosurgery: What to Expect
- Passive Range of Motion
- Spinal Tap: What to Expect

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	Type I	Type II	Type III/ANNPE	FCE
Description	Annulus tear, nucleus propulsus in spinal canal	Annulus bulge, microtears	Low volume, high velocity	Spinal cord stroke
Onset, progress	Acute, progressive	Slowly progressive	Very acute, can progress in first 24 hours	Very acute, can progress in first 24 hours
Pain	Painful to episodically very painful, muscle spasms	Mild pain, limits mobility	Moderate pain, improves in 24 hours	No
Treatment	Surgery often required, exercise restrictions, NSAIDs	Exercise restrictions, surgery, NSAIDs	Exercise restrictions, NSAIDs, no surgery	Rehabilitation, no steroids
Prognosis	Good (medical) to excellent (surgical)		~67% return to walking; better chance if pain sensation is intact	~80% successful recovery