

# CHIROPRACTIC & FUNCTIONAL NEUROLOGY

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- Certified in  
acupuncture IVAS**
- Certified in  
chiropractic IVCA and  
-a master in functional  
neurology**



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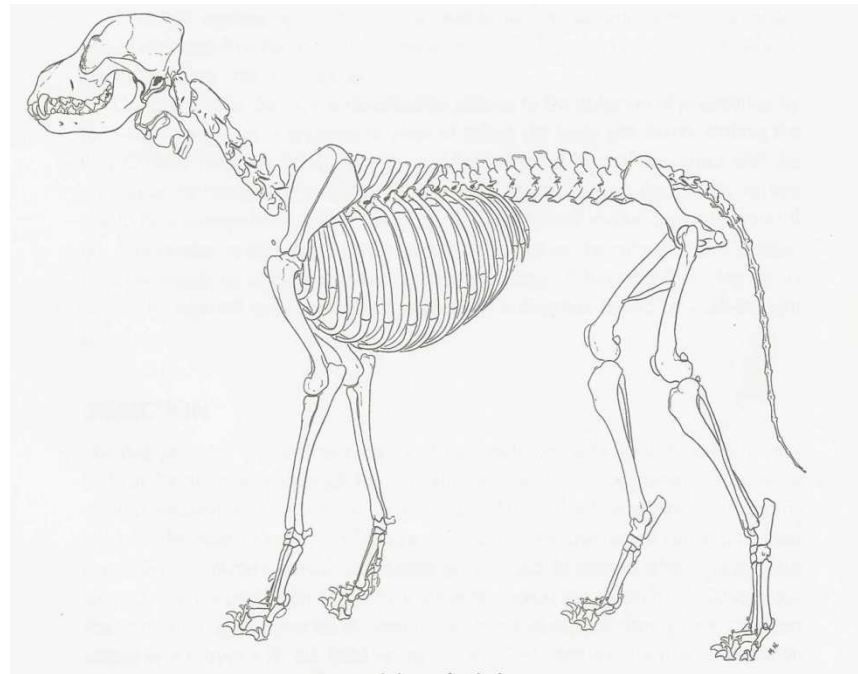
# CHIROPRACTIC

- **What** is chiropractic???
  - **When** can we as veterinarians treat the dog with chiropractic as a supplement or
  - when is it **the** only treatment
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# ANATOMY & BIOMECHANIC

- **Cervical, (7)**
- **Thoracal,(13)**
- **Lumbal, (7)**
- **Os sacrum (3)**
- **Pelvis(ossification)**
- **Coccygeal, (15-20)**
- **Movements**





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# ROM FOLLOWS THE ANATOMY





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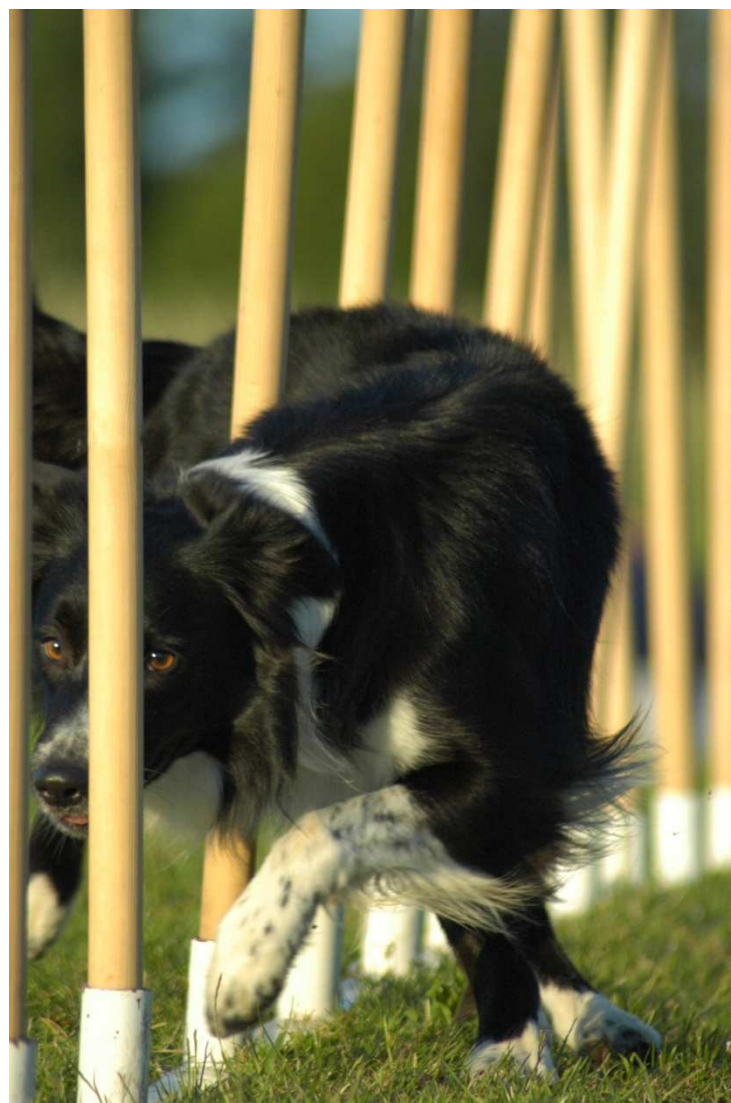
# NECK



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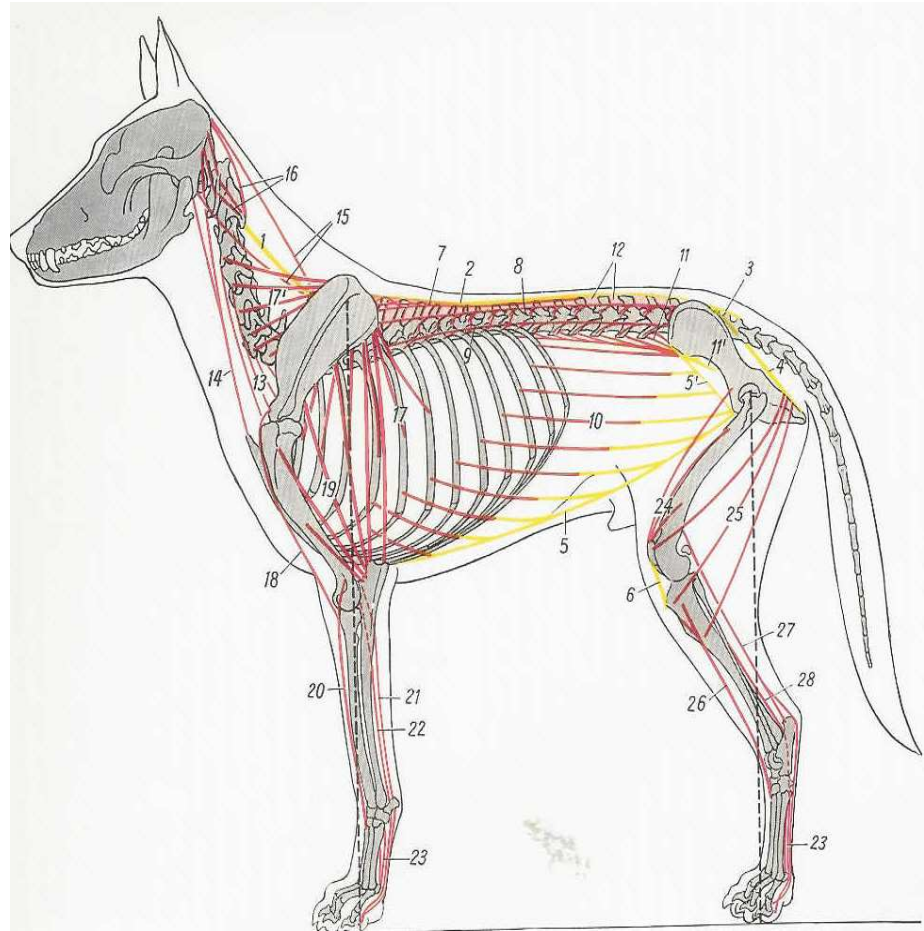
# ROM FOLLOWS THE ANATOMY



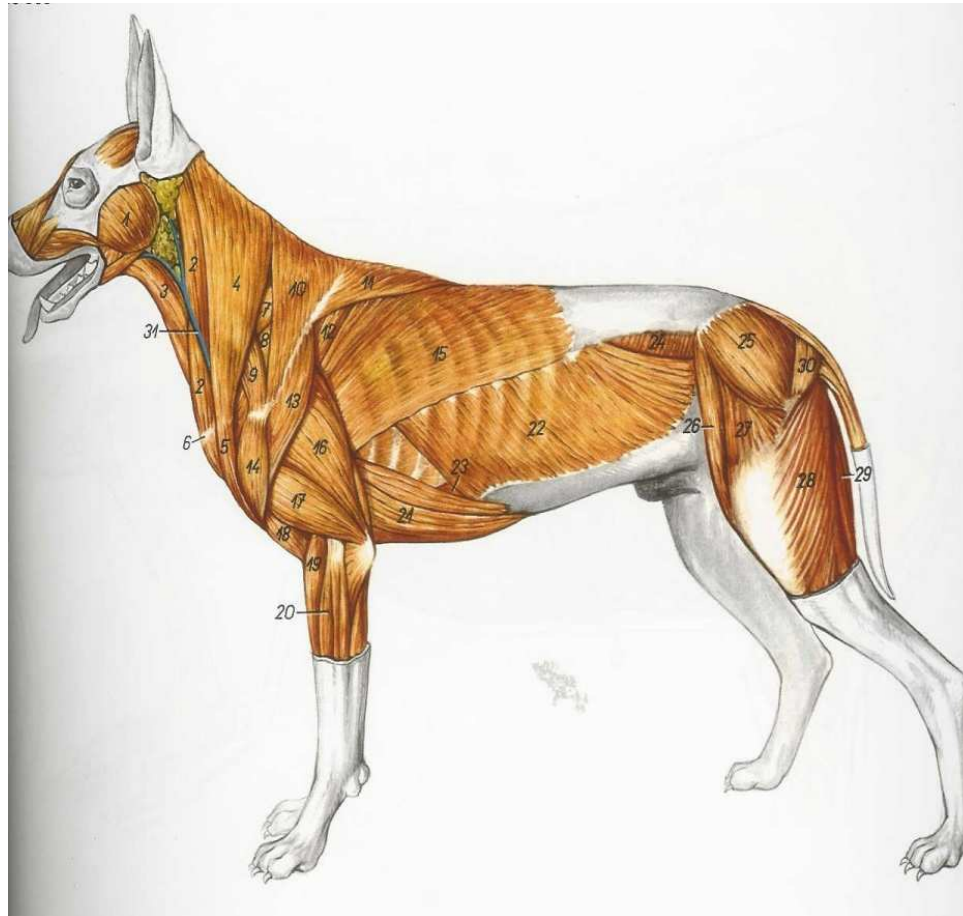




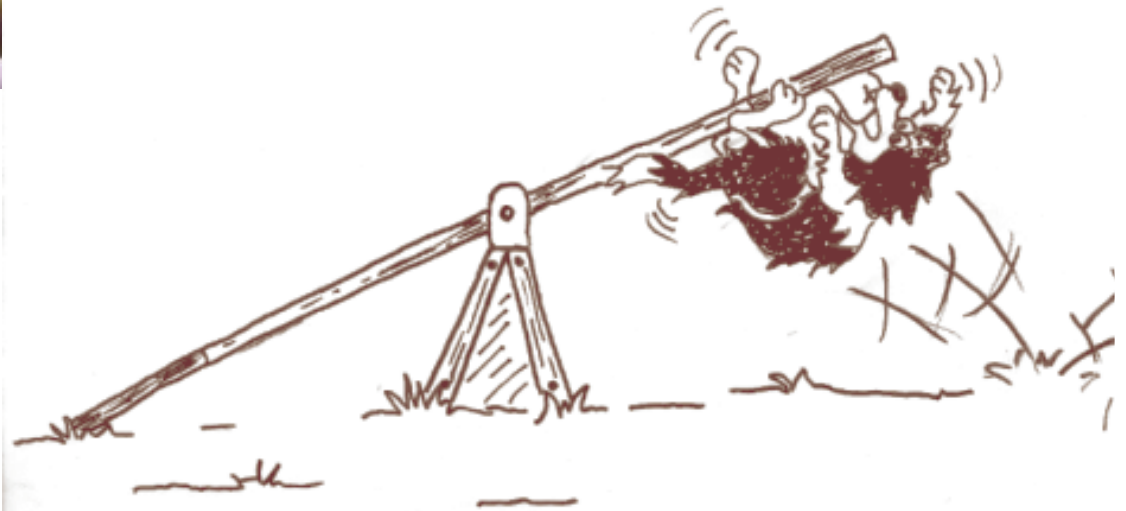
# STATIC BIOMEKANIK



# MUSCLES



# DYNAMIC BIOMEKANIC



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**SAME ANATOMY..... YET NOT SIMILAR 😊**



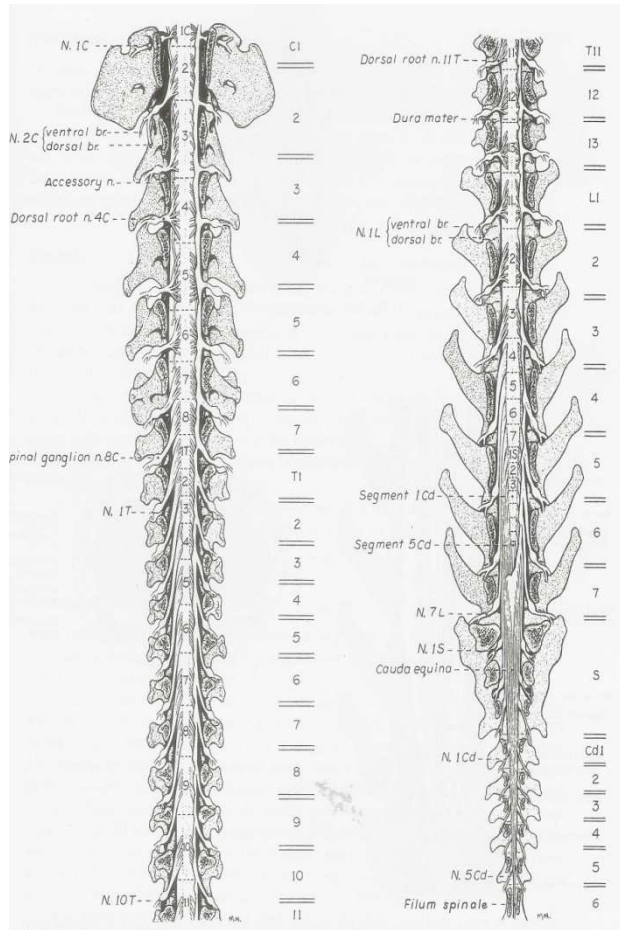
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# HOW DOES IT WORK

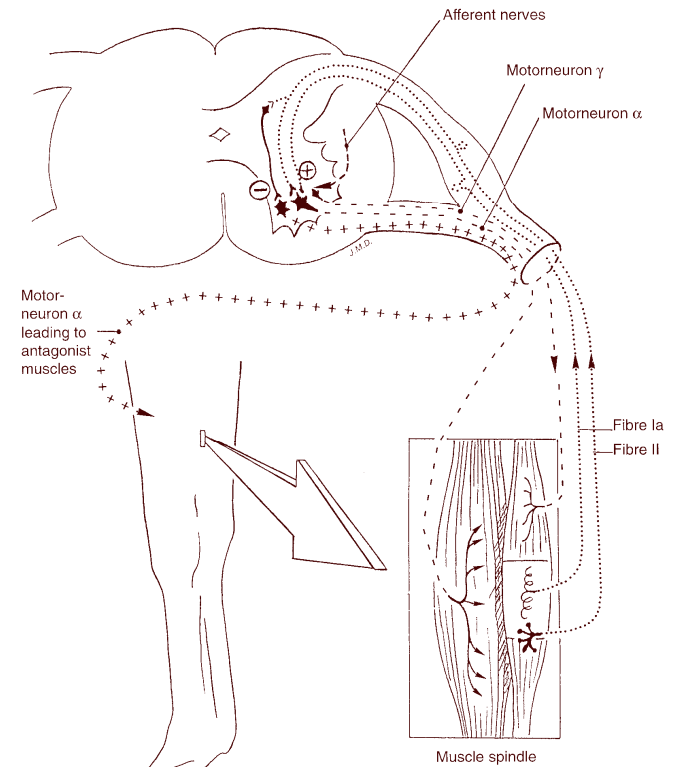
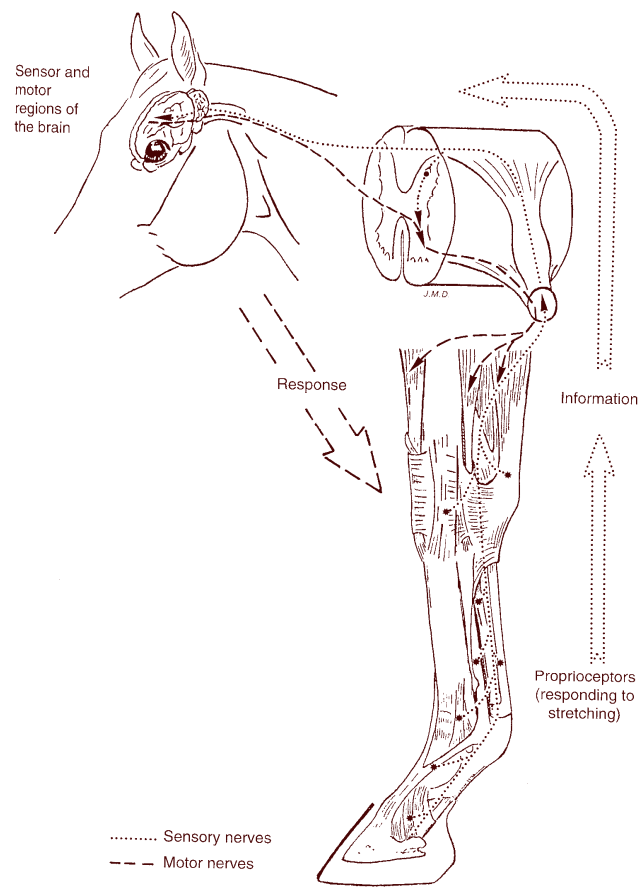
- not "bone out of place" 😊
  - **DIRECTLY stimulation of the nervesystem**
  - DRG, spinalnerver
  - Nocioceptorer
  - **Propioreceptorer**
    - **MSC**
    - GTO
    - **JCR**(joint capsel receptor)
-



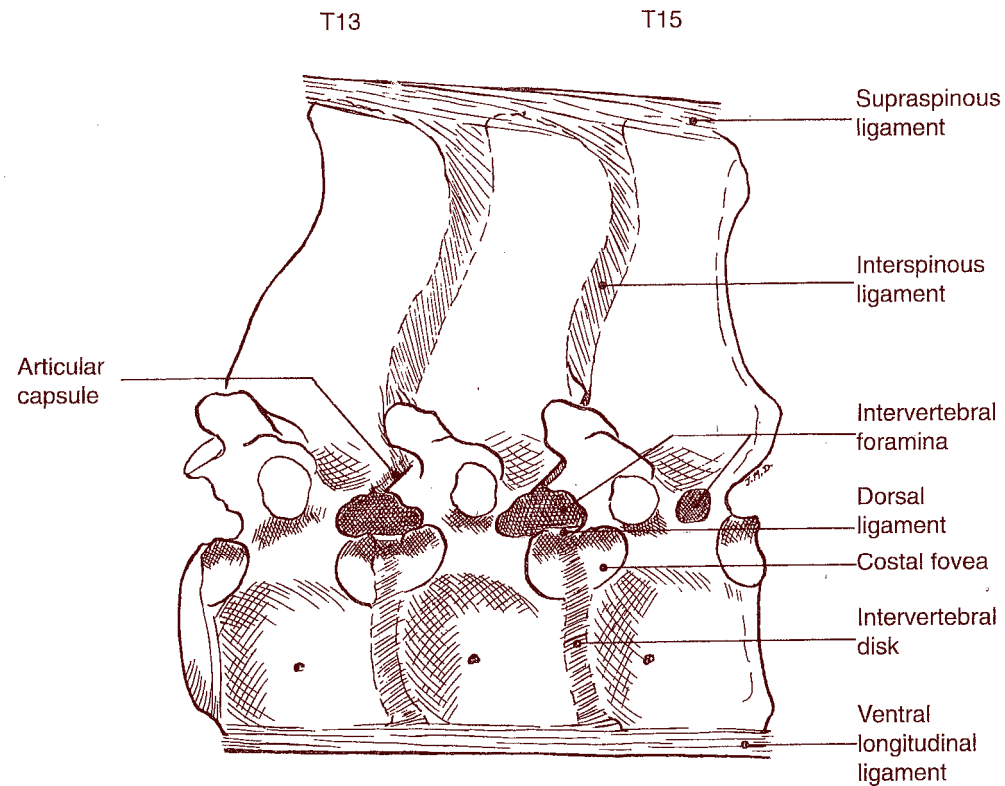
# SPINAL CORD



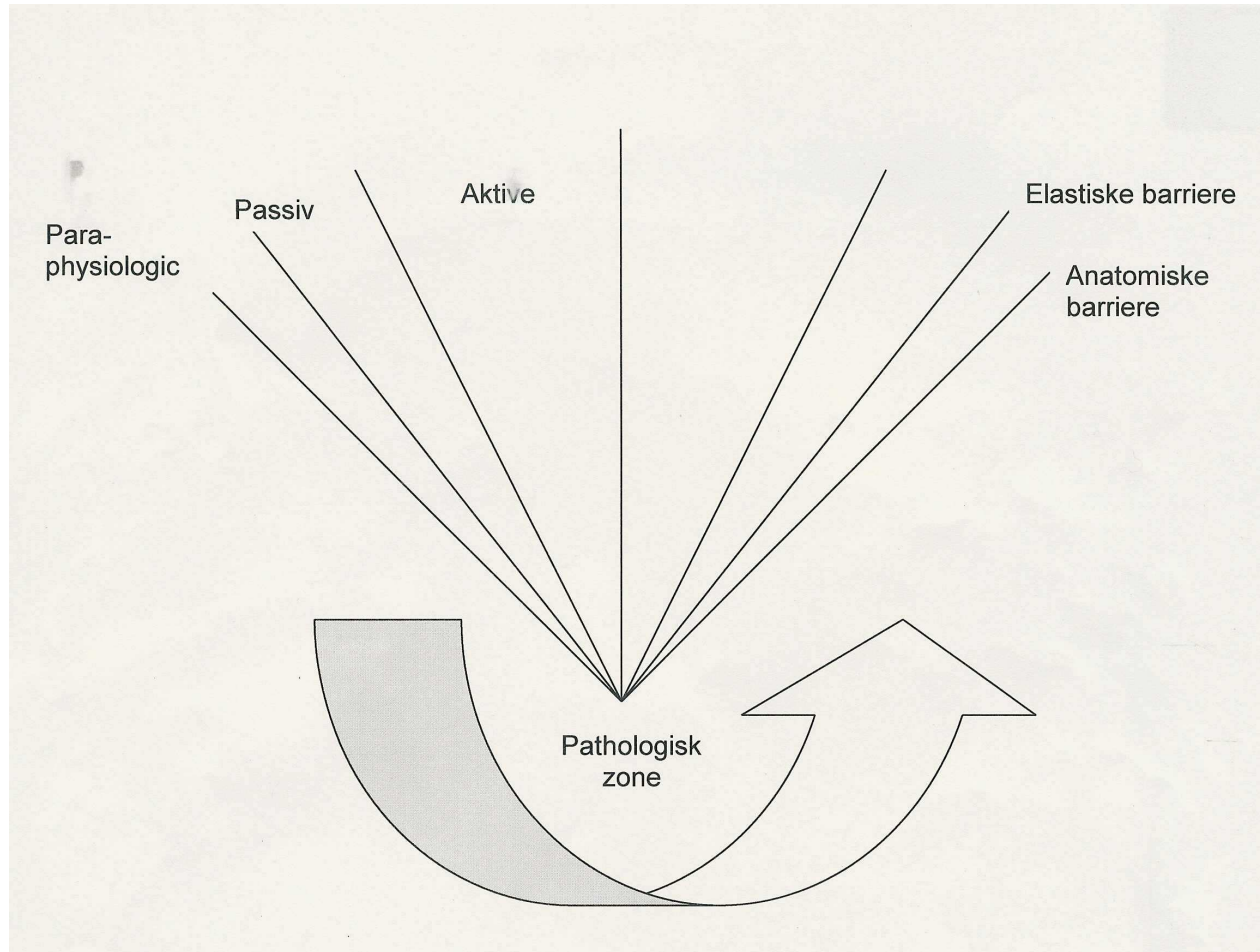
# NEUROMUSCULAR REFLEXES



# MOTION SEGMENT



# RANGE OF MOTION



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# WHAT IS THE DIAGNOSIS

- **VSC** (VERTEBRAL SUBLUXATION COMPLEXES) = decreased ROM
  - **Segmental Dysfunction (SDF)**
    - Change in structure and function of a motion segment
  - **Regional Dysfunction (RDF)**
    - Change in structure and function of a region of segments
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# PHYSIOLOGIC MODEL FOR VSC

- **Decreased ROM** (stiffness)
  - **Change in nerveimpuls** (pain)
  - **Change in muscle function** (atrophy)
  - **Change in bloodvessels** (edema)
  - **Change in connective tissue** (decreased flexibility)
  - Final product = **pain and artroses**
-

# CHIROPRACTIC

- **Adjustment**
  - little "thrust" in the direction of the joints movement => neurogenic reflex respons
  - Short lever
  - High velocity
  - Low amplitude
- **LOC** ( $F = M \times A$ )



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# EX. IF THE BIOMECHANIC FAILS

- **spondylose**
  - **Discus prolabs**
  - **Asymmetric "HD"**
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# SPONDYLOSE SENTA



Patient, Senta.wmv



Senta 1.wmv

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Patient, Senta

Senta 1

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# FUNCTIONEL DISKUSPROLABS

- **Smutti , 2½ years old dashhound.**
  - **Oskar , 3½ years old**
  - **Wiktor , 2 years old dashhound**
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# FUNCTIONALLY/HERIDITED

HD??



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# HISTORY

- **Change in movement pattern**
- **Lameness**
- **Change in posture**
- **Acute/chronic pain**
- **Change in behavior**



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# CHIROPRACTIC EXAMINATION



- **History**
- **Inspection**
- **Gait analysis**
- **Palpation**
- **Neurologic examination**
- **MOTIONPALPATION**



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# STATIONARY TOPLINE

## ■ Overall evaluation:

- **conformation** (evt. kyphose/lordose)
- **development of muscles**
- **symmetry/asymmetry front / behind.**
- **position of head and neck**

## **Palpation of "informative" muscles**

(Masseter, brachiocephalicus, triceps,  
trapezius, lattissimus/longissimus dorsi, semimembranosus,  
semitendinosus )

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# DYNAMIC TOPLINE

- Walking on line: lameness, rhythm, swing, tail (Tea), stridlength.
  - ”use of the back”
    - trott/galop, cross canter?, walking on 2 lines?, pacing? base wide / narrow ?
    - Carrying head and neck
    - Swing / engagement / shock absorption?
    - Freely movement (Balance & strength ?)
    - MOTIONPALPATION
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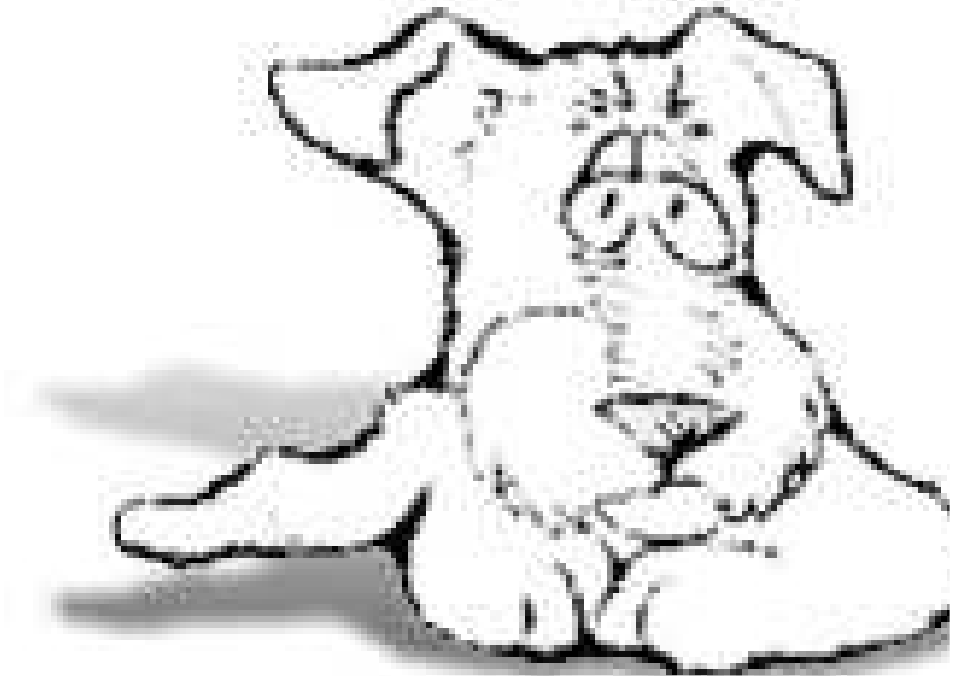
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# WHAT ABOUT PALPATION

- We do palpate ... 😊

**BUT**

- Traditionally we palpate to localize **PAIN** 😞



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# PATIENTS

- **Poor performance**
  - **Neck / back** (acute/chronic)
  - **Change in behaviour**
  - **Asymmetry** / Different "posture"
  - **TMJ** (Jaw/Teeth)
  - **Change in pattern of movements**
  - **Lameness**
  - **Puppies/adults/older dogs**
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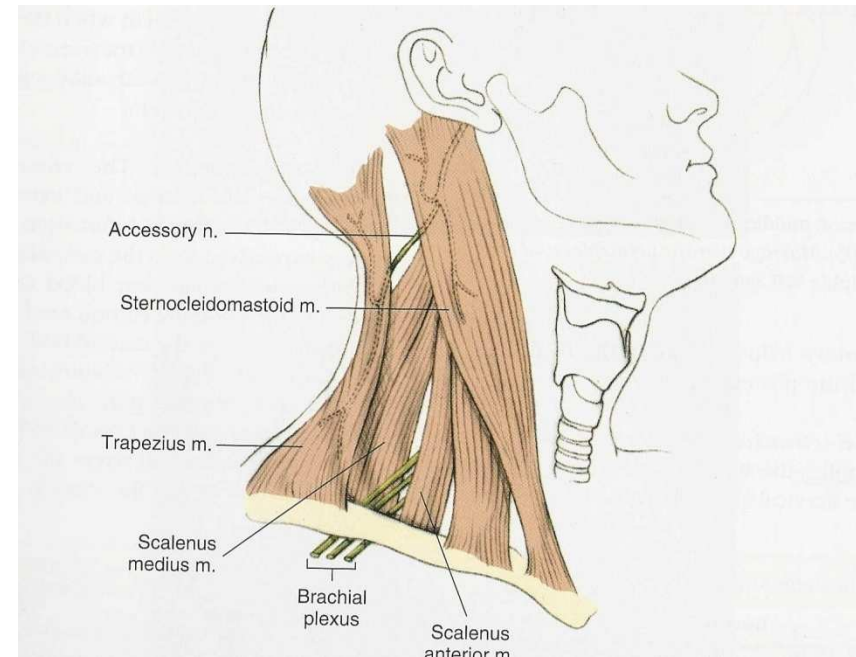
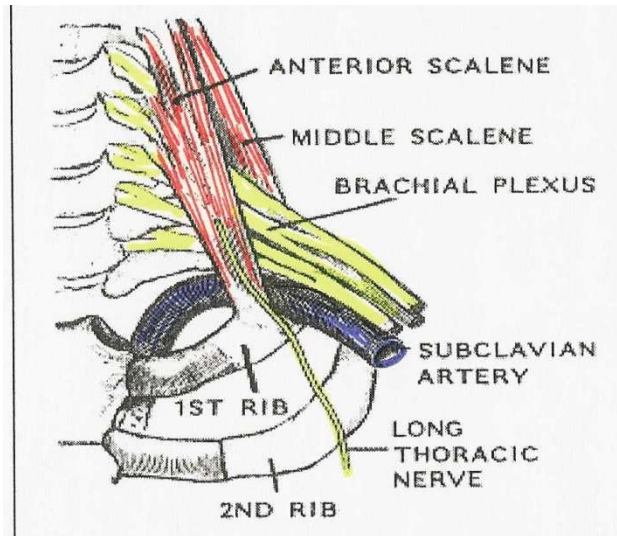


# DINA

- Lame RF for 9 month
- X-ray
- MRI
- NSAID
- Steroids
  
- Plexus Brachialis



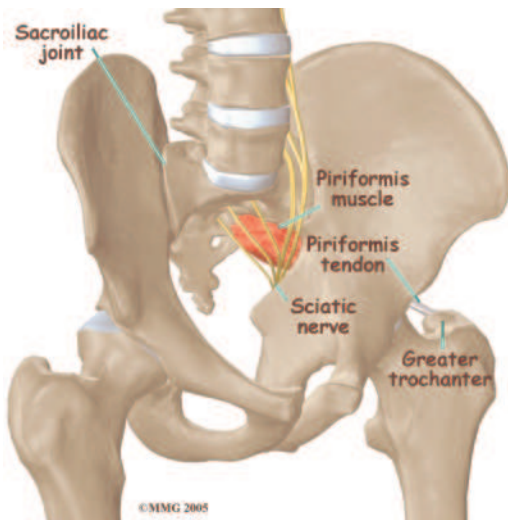
# PL. BRACHIALIS IN RELATION TO M. SCALENEUS



# CASE IRIS



# ANATOMIC RELATIONS



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# PIRIFORMIS STRETCH EXERCISES



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# PIRIFORMIS SYNDROME

## CLINICAL DIAGNOSIS ☹️

- Pain flexing the hock,
  - Atrophy
  - Hypersensitivity in lumbosacral area
  - Pain inbetween  
m.semimembranosus/semitendinosus,
  - Non responsive lameness
  - Respond if threated with chiropractic and stretch
  - **Ischias-pain** caused by **PIRIFORMIS SYNDROME**
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## PROFYLATIC TREATMENT?

- **Optimize the neurologic function** 😊
  - **Puppies / youngies**
  - **Performance dogs**
  - **Elderly dogs**
  - **Predisposed individuals**  
(Dash hounds, german shepard,  
wolf hounds)
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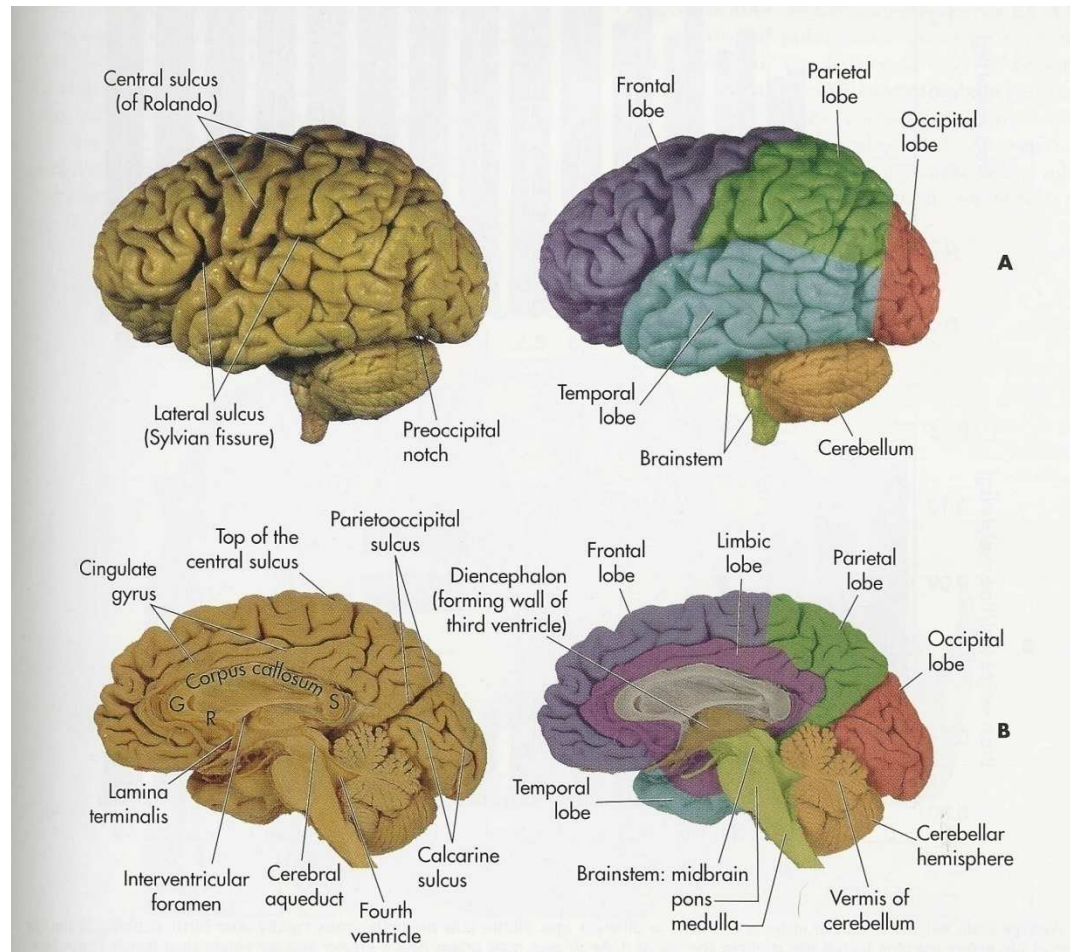
# ELDERLY DOGS

**It is so important to stimulate the brain to keep the dog alert and functional.**

**Even though they might have chronic and not-treatable issues, the goal is to keep as much function as possible and to loosen up the tight overworked muscles.**



# FUNCTIONAL NEUROLOGY



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# **FUNCTION><PATHOLOGY**

- **Muscles control the joints**
  - **The brain control the muscles**
  - **The receptors control the brain!!!**
  - **We stimulate the receptors!!!!!!**
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# ASCENDING TRACTS

## Sensory (proprio- / noci-ception)

### Small diameter fiber:

- **A d** fiber
- **C** fiber

### Large diameter fiber:

- **MSC + GTO** (gr: Ia og Ib) -> dorsal spinocerebellar + cuneocerebellar + ventral spinocerebellar
  - **JMR(II)** -> DCML
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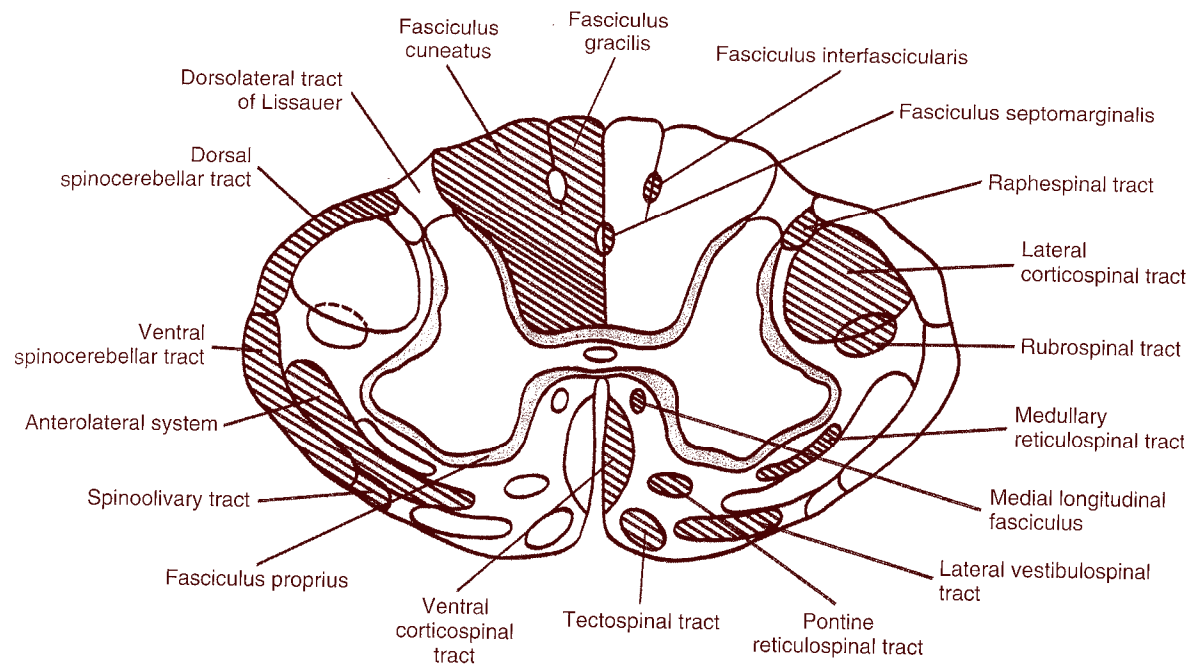
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# DESCENDING TRACTS

## MOTORIC

- Corticospinal : flexortract
  - Rubrospinal : flexortract
  
  - Reticulospinal : extensortract
  - Vestibulospinal : extensortract
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# TRACTS IN CROSSSECTION



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# SO

- **Movement => increase FOF to the brain**
  - **vital to healthy neurons.**
  - **Ex. If there is a damage to a leg**
  - **When the door is closed, we have to open a window 😊**
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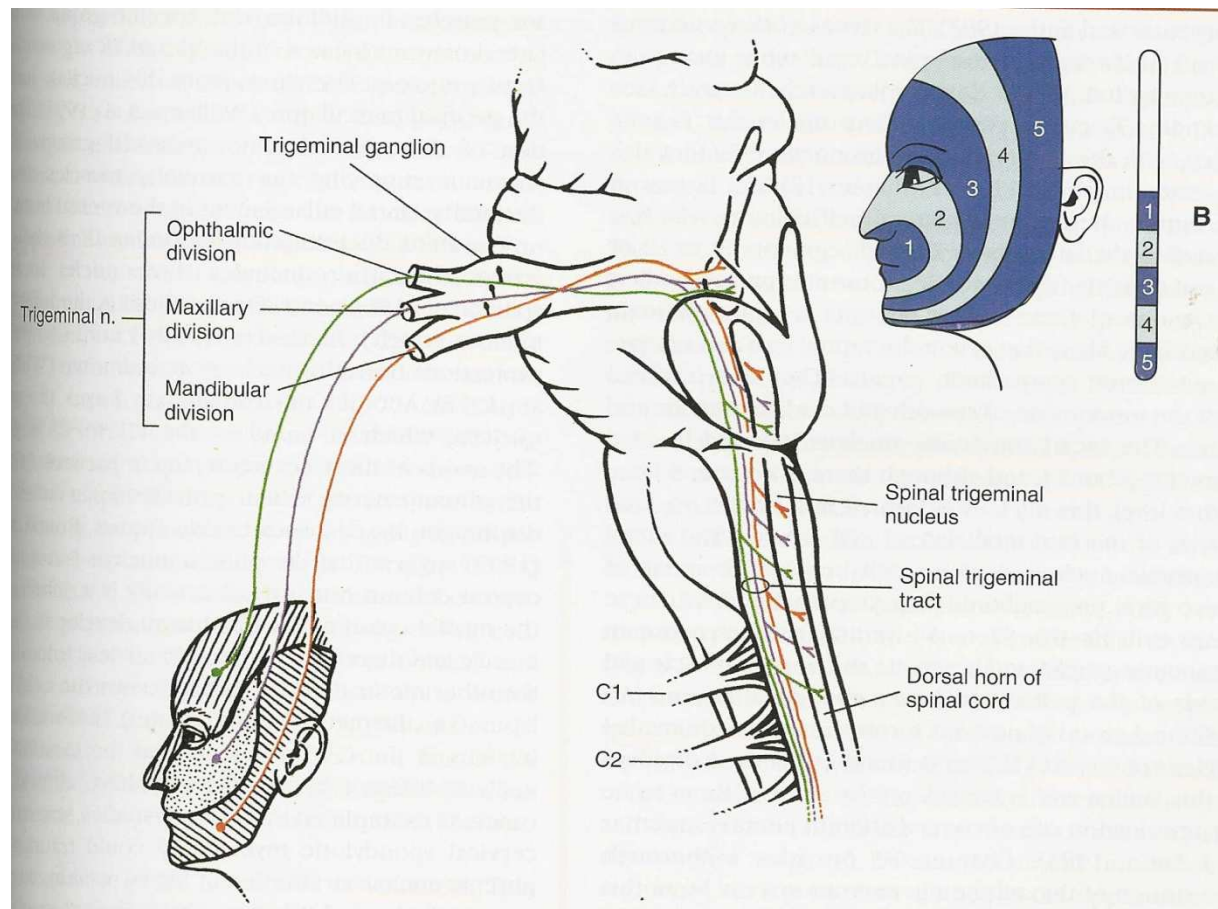


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# EKSACT DIAGNOSIS

- **Big knowlegde anatomy & nervesystem**
  - **Joins**
  - **Muscles (function, innervation, synergist/antagonist.**
  - **By a neurologic examination find the longitudinal level of the lesion !!!!!!!!!!!!!!!**
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# TRIGEMINAL SYSTEM



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# MUSCLE

## FUNCTION/INNERVATION

- **If the dog is walking base wide behind=> which muscles are adductores and from where are they innervated??**
- **L1-4 :  
N.obturator og N. femoralis**



carlos.wmv

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# NEUROLOGIC EXPLANATION FOR SWIMMERPUPPIES ??



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# TREATMENT

- **Chiropractic**
- **Exercises:**
  - Feeding on the floor
  - Guffy on nose
  - Tap med. Canthus
  - Physiotherapy



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# TRADITIONEL THERAPY

- **Rest**
- **Painkilling drugs**
  - NSAID
  - STEROID

Evt.surgery.

Evt.waterwalking or swimming.

Evt. chondroprotective

**We only threat the symptoms!!!!!!!!!!!!!!!!!!!!!!**

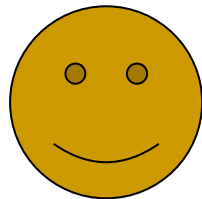
**We are automechanics.**

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# THREATMENT

- **THE GOAL IS TO INCREASE THE AFFERENT INPUT**
- **IF THE DOOR IS LOCKED WE HAVE TO OPEN A WINDOW**



- **Chiropractic or**
  - **osteopathy**
  - **Acupunctur**
  - **Evt. massage, Evt. laser**
  - **Evt. chondroprotection**
  - **adjustet motion**
  - **Rehabillitate the function of the back and the communication between brain and body**
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# CAVALETTIS



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Thanks for now 😊



funny.wmv

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