

GROUP MEMBERS: \_\_\_\_\_

## This image shows a single page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page, leaving small margins at the top and bottom. There are no vertical margin lines, text, or other markings on the page.

1. To study the mechanisms underlying the normal and abnormal reflex responses examined in this experiment.
2. To be able to differentiate somatic reflexes from autonomic reflexes
3. To understand the effect of mental distraction and fatigue to reflex response

**Cranial Nerve Examination** – perform the tasks indicated below on your animals and note your observations.

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I Olfactory

- Owner's observation

A thing was placed near the dog and it smelled it even if we only changed the location of the thing. When it was allowed to sniff the hand where a food was hidden, it tends to follow the smell.

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II Optic

- Menace reflex is examined by dropping a cotton ball on the eye which normally elicits blinking response

Observations:

The dog blinked before the cotton ball reached its eye and it followed with as the cotton ball was picked up.

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- Pupillary reflex

Observations:

The pupil constricts when the light gets near its eyes and it dilates as the light gets far from the eyes.

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III Oculomotor

- pupillary reflex

- Oculocephalic reflex is done by moving the head sideways causing the eyes to look at the same direction

Observations:

the oculocephalic reflex of the dog is good because as its head was moved, its eyes also look at the same direction though it moves against after a while.

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- Strabismus is a defect that causes downward and outward deviation of the eye with the inability to converge

- ptosis is due to innervation to levator palpebrae

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IV	Trochlear	- strabismus results to upward and outward deviation of the eye
V	Trigeminal	
	Ophthalmic	<ul style="list-style-type: none"> <li>- Corneal reflex, touching the cornea results to blinking</li> <li>- Palpebral reflex of the upper lid reflex</li> <li>- Vibrissae-palpebral</li> <li>- Touch of pin-prick over the skin muzzle exclusive of the mandible will lead to avoidance</li> </ul> <p>Observations:</p> <p><u>the dog at first avoided the touch given to its muzzle but after a few more tries, it didn't avoid the touch any more like it used to.</u></p>
	Mandibular	<ul style="list-style-type: none"> <li>- Touch or pin-prick over the lateral side of the cranium skin of the mandible and oral mucosa</li> <li>- Ear tickle reflex leads to avoidance</li> </ul> <p>Observations:</p> <p><u>the dog was lying down and i tried to touch its ear but everytime my fingers touch the fur in its ear, it moves its ear away from my touch.</u></p>
	Maxillary	<ul style="list-style-type: none"> <li>- Upper lip pinch reflex results to avoidance</li> </ul> <p>Observations:</p> <p><u>the upper lip pinch reflex is good because it results to avoidance and the head moves to the same side to be able to avoid the touch.</u></p>
VI	Abducens	<ul style="list-style-type: none"> <li>- Dropped jaw is an abnormality of this nerve</li> <li>- Strabismus there is medial deviation of the eye with inability to gaze laterally</li> <li>- Corneal Reflex</li> </ul> <p>Observations:</p> <p><u>the dog has no strabismus and its corneal reflex is normal.</u></p>

	<ul style="list-style-type: none"> <li>- Immobilized lids result from abnormality</li> </ul>
<p>VII Facial</p>	<ul style="list-style-type: none"> <li>- Palpebral reflex</li> <li>- Vibrissae reflex, by pulling the whiskers result to avoidance</li> <li>- Menace reflex</li> <li>- Corneal reflex</li> <li>- Handclap reflex</li> </ul>
	<p>Observations:</p>
	<p>the facial reflex of the dog is normal. it turns to find where the handclap was from.</p>
	<ul style="list-style-type: none"> <li>- Signs of defect may show dropped ear with no response to stimulation, lip retracted toward the sound side or dropped ear and lower eyelid</li> </ul>
<p>VIII Auditory</p>	
<p>Cochlear</p>	<ul style="list-style-type: none"> <li>- Handclap reflex or owner's observation</li> </ul>
	<p>Observations:</p>
	<p>the dog turns around and follows where the sound or handclap comes from.</p>
<p>Vestibular</p>	<ul style="list-style-type: none"> <li>- Signs of defect includes head tilting, rolling movements or abnormal nystagmus</li> </ul>
<p>IX Glossopharyngeal</p>	<ul style="list-style-type: none"> <li>- Gag reflex</li> </ul>
<p>X Vagus</p>	<ul style="list-style-type: none"> <li>- Gag reflex</li> </ul>
	<ul style="list-style-type: none"> <li>- Oculocardiac reflex is done by pressing the eyeball of the animal causing increased heart rate</li> </ul>
	<p>Observations:</p>
	<p>when the eyeball was pressed, there was an increase in heartrate.</p>
	<ul style="list-style-type: none"> <li>- Effects of stimulation are dysphagia, tachycardia, altered</li> </ul>

		depth of respiration and digestive disturbances
XI	Spinal Accessory	- Signs of defects include roaring, voice change, trapezius muscle degeneration
XII	Hypoglossal	- Signs of defect includes tongue protruding out of the mouth toward the side of the lesion, or atrophy of the tongue - Pulling the tongue causes retraction Observations:  when the tongue was being touched, the dog automatically retracts it tongue.       

### Attitudinal and Postural Reactions

These require intact peripheral nerves, local segments of the spinal cord, ascending and descending pathways, brain stem, cerebellum and cerebrum. These occur in all normal animals.

#### 1. Tonic Neck and eye retraction

Description: When the nose is elevated, the forelimbs extend and the hindlimb flex. Deviating the head to one side results in increased extensor tonus on that side. As the nose is elevated, the eyes should conjugately adjust to remain in the middle of the palpebral fissure. Normal nystagmus should be observed on lateral deviation of the head (quick phase toward the side of the deviation). Abnormalities of eye movements indicate lesions of the vestibulocochlear system.

#### Observations

##### a. Elevation of the nose

as the nose was being elevated, so does the direction of the eyes move. and when the nose was lowered, the eyes looked down before it looked back at the owner.

##### b. Head deviation to the left

when the head was deviated to the left, the direction of the eye looked to the left too but it tried to look to the other side (right).

c. Head deviation to the right

when the head was deviated to the right, the dog tried to go against the direction but it still looked to the right where it was deviated.

2. *Proprioceptor positioning*

Description: A normal animal returns the limb to normal position when the following test are done: (1) abduction of one limb from its normal position; (2) crossing of one limb in front of the other; (3) flexion of the carpus or tarsus and the rest of the limb on the dorsum of the paw.

*Observations*

a. Abduction of the limb

when the limb was abducted, the dog retracted its limb and placed it back before the limb was abducted.

b. Crossing the limb together

when the limbs where crossed together, the dog removed the limb from being crossed back to where it is placed before it was crossed.

c. Flexion of the limb

when the limb was flexed, the dog didn't immediately moved but it looked at me and it was asking something like "what are you doing to my limbs?"

3. *Blindfolding*

This will accentuate the locomotor ataxia if there is lesions in the dorsal white column of the spinal cord of their cranial extensions to the cortex. However, if the lesion is present in the cerebellum, no response may occur.

*Observations*

when i blindfolded the dog. its immediate response was to remove the blindfold from its head.

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### Placing Reactions

#### 1. *Optic*

Activity: Carry the animal toward the table top. On approaching the surface, the animal will reach out to support itself on the table. This reaction requires intact visual pathways in addition to the central and peripheral areas mentioned.

#### *Observations*

the dog has a poor visual pathway because it didn't try to reach out on the table... i guess it trusts me fully. only its left paw tried to touch the table top.

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#### 2. *Tactile*

Activity: carry a blindfolded animal toward a table. Allow the dorsum of each forepaw to strike the edge of the table. The normal animal will immediately place both forefeet on the table to support its weight.

#### *Observations*

the dog's tactile ability was good because as soon as it felt the table top, it tried to jump out of my arms into the table top.

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#### 3. *Extensor postural thrust*

Activity: Hold the animal up by the thorax and lower its hindlimbs towards the ground. The animal will extend its limbs to support its weight, if the animal is blindfolded, the tactile pathways will be tested instead of the visual.

*Observations*

the dogs extensor postural thrust was normal because it was extending its hindlimbs to feel the ground.

4. *Hopping*

Activity: Hold the animal with three limbs off the ground. Shift its center of gravity over the fourth limb which is supporting the animal. The normal animal will hop to keep the supporting limb under its body.

*Observations*

the dog didn't hop.. i think it is comfortable in that position.i tried thrice but i just had the same response.

5. *Righting*

Activity: Turn the animal to its lateral recumbency and then release it. Or drop the animal (this applies best for cats) upside down from a height over a padded surface. The normal animal will land on its feet.

Another approach is to suspend the animal by its hip and pelvis and turn its body from side to side. The normal animal will carry and hold its head in the normal position.

*Observations*

the dog has a normal righting ability for it tried to hold its head in the normal position parallel to the ground.

6. *Walking Reaction/Wheelbarrowing*

Activity: Supporting the animal under the abdomen so that the hindlimbs are off the ground surface and then force the animal to walk on its forelimbs. Normally, the animal should walk with symmetry characterized by alternate forelimb movements with head extended in the normal position.

*Observations*

the dog tried to walk as normal as possible with its hind part moving as if its hindlimb was on the floor too.

7. *Hemistanding and Hemiwalking*

Activity: Hold the opposite hind or forelimbs off the ground and force the animal to walk forward or sideward. Thus, allow the animal to stand or walk with the hind or forelimb of one side only.

*Observations*

the dog didn't walk or made any attempts to walk but it made an attempt to sit down.

**Discussion questions:**

1. Which of the above-mentioned cranial nerves have a sensory, motor or both components?

all of the above mentioned cranial nerves have a sensory and motor components because if it didn't sense stimulation, there will be no reaction elicited or there will be no response from the animal.

2. Briefly discuss the role of learning in altering the activity of the reflexes above.

the role of learning affects the reflexes because sometimes, when we get desensitized or when we get used to something, we can already fight our reflexes.

## VPHY 50: General Physiology Laboratory Exercises

for example, in gag reflex, sometimes we can tolerate or prolong things before we gag. especially if we practice doing something that used to be a reflex like blinking.

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