

All of the following are descending motor tracts, EXCEPT:

- Rubrospinal tract
- Reticulospinal tract
- Spinotectal tract
- Vestibulospinal
- Corticobulbar tract

The adult spinal cord:

- Contains a central canal till level of T12
- Is composed entirely of grey matter
- Is covered only by dura
- Extends to the sacrum
- Has a spinal ganglion in each dorsal nerve root

A 21-year-old male college student complains of **difficulty falling asleep at night**. He asks if there is anything "mild" he can take to help him get to sleep. Which of the following hypnotics mimics an endogenous hormone?

- Diazepam
- Phenobarbital
- Lorazepam
- Zolpidem
- Ramelteon

The gyrus located medial to the orbital gyri is the...

- Rectus gyrus
- Parahippocampal gyrus
- Cingulate gyrus
- Inferior frontal gyrus
- Rostral gyrus

Outcome of local brain infarction depends on

- Size of the infarct
- Site of the infarct
- State of collateral circulation
- Rapidity of onset
- All of the mentioned factors affect the outcome

Which structure is encircled by the circle of Willis?

- Medulla
- Aqueduct of the midbrain
- Cavernous sinus
- Pineal gland
- Pituitary stalk

Thetogether are referred to as the striatum.

- Caudate and globus pallidus
- Putamen and globus pallidus
- Subthalamic nucleus and Substantia nigra
- Caudate and putamen
- None of the above

Folate deficiency during the initial weeks of gestation causes:

- No known abnormalities caused by folate deficiency
- Forebrain malformations
- Neural tube defects
- Arnold-chiari malformations
- Posterior fossa abnormalities

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Which of the following is an example of mechanoreceptor?

- Photoreceptors
- Baroreceptors
- Taste receptors
- Nociceptors

which of the following hypothalamic nuclei has nerve fibers travel to the posterior lobe of the pituitary gland and secrete oxytocin

- Supraoptic nucleus
- Paraventricular nucleus
- Preoptic nucleus
- Lateral nucleus
- Suprachiasmatic nucleus

Regarding Broca's area:

- its destruction causes dyslexia.
- its main function is the visual interpretation of language.
- it is also known as premotor speech area.
- it is found in the parieto-occipitotemporal association area.

Streptococcus agalactiae is characterized by the following correct features, **EXCEPT**:

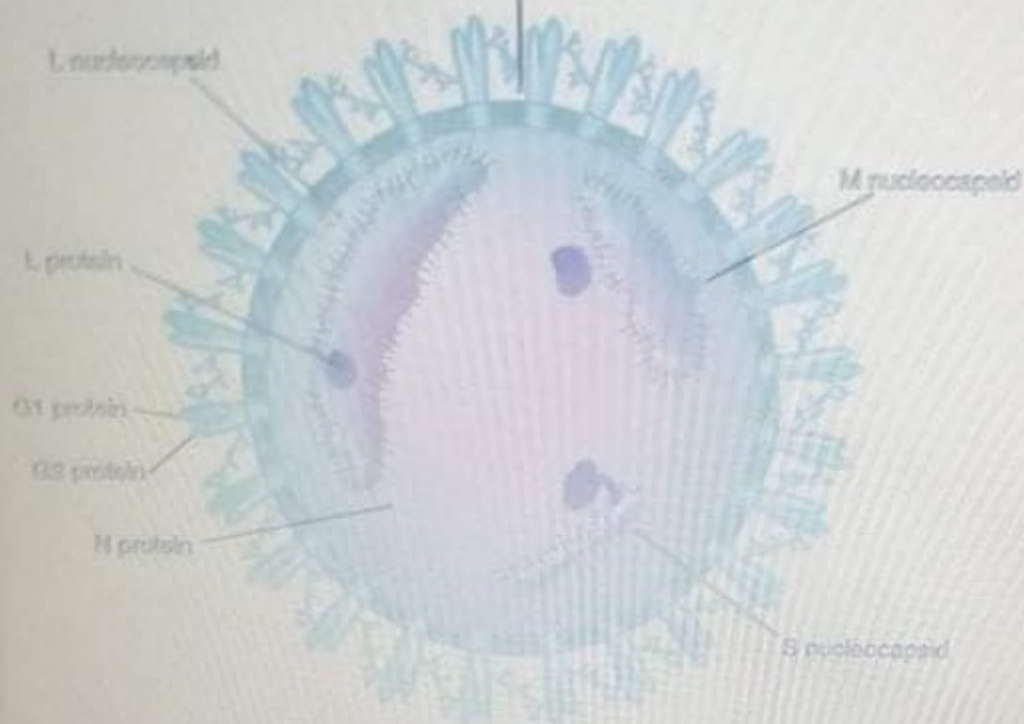
- Encapsulated.
- Common cause of meningitis in the first few days of life.
- Does not produce beta-lactamases.
- Beta-hemolytic.
- Bacitracin sensitive (positive test).

A 47-year-old woman is recovering from a hysterectomy. You prescribed an opioid analgesic as needed for postoperative pain. Which of the following effects **increases** in spite of decrease in the other effects?

- Constipation
- Nausea and vomiting
- Analgesia
- Drowsiness
- Euphoria

Which portion of the limbic system deals with the emotion of pleasure?

- Amygdala
- Mamillary body
- Septal area
- Cingulate gyrus
- Hippocampus



- Flavivirus
- Rabies virus
- Bunyavirus

The following CSF profile (result) indicates meningitis caused by one of the following types of organisms; which one is it?
CSF Result Appearance: **Clear**; **Intracranial pressure:** Increased; **WBC:** Mixed increased; **Protein:** Increased; **Glucose:** Decreased; **Chloride:** Decreased.

- Acute syphilitic
- Acute bacterial
- Viral
- Fungal
- Tuberculous

Cryptococcus neoformans shows the following characteristics, **EXCEPT**:

- It has a complex polysaccharide capsule.
- India ink preparation of the CSF is a practical diagnostic test.
- It can cause chronic meningitis.
- It shows negative urease test.
- Cryptococcal meningitis is common in immunocompromised patients.

Concerning general anesthetics, ONE of the followings is CORRECT:

- Intravenous anesthetics are often used for maintenance of general anesthesia
- Thiopental has been shown to increase the incidence of laryngospasm.
- Nitrous oxide produces effective muscle relaxation
- Halothane is the least hepatotoxic of the inhalation anesthetics
- Irregularity of respiration and blood pressure is characteristic of stage 3 of general anesthesia

You are initializing treatment of a man suffering from a focal-onset seizure with 300 mg/day phenytoin. A blood sample confirms a steady-state plasma level of 9 ug/ml. However, lack of adequate seizure control is a dosage elevation. If his daily drug dosage were doubled, what would be the most likely change in his drug plasma level?

- No change due to zero order clearance
- More than doubled
- Double his previous plasma level
- Less than doubled

Which is the largest branch of the internal carotid artery?

- Posterior cerebral
- Posterior communicating artery
- Middle cerebral artery
- Anterior communicating artery
- Anterior cerebral artery

Brown-Sequard syndrome is characterized by all the following, EXCEPT:

- LMNL same segment on the ipsilateral side of the lesion
- Loss of reflex movements on the same side at the level of the lesion
- Loss of vibration sense on the opposite side below level of the lesion
- Loss of voluntary movements on the same side below the level of the lesion
- Loss of pain sensation on the opposite side below the level of the lesion

Which of the following neurohormonal system is paired with the correct transmitter?

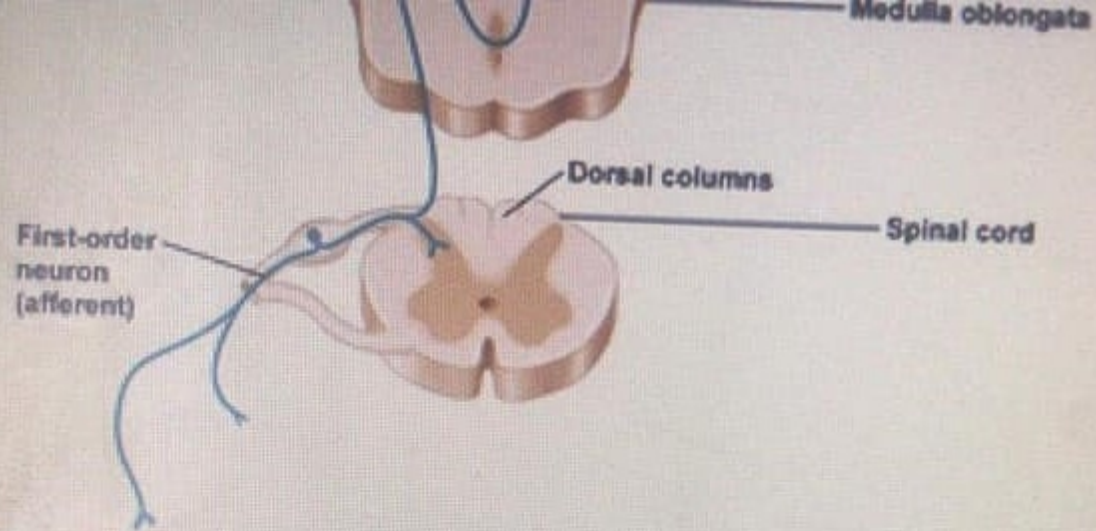
- Substantia nigra → serotonin
- Locus ceruleus → dopamine
- Raphe nuclei → norepinephrine
- Gigantocellular neurons of the reticular formation → acetylcholine

Archicerebellum controls?

- Body Balance
- Muscle tone
- Posture
- Coordination of voluntary movements
- All of the above

The nuclei related to paleocerebellum are?

- Globose and Dentate
- Globose and Emboliform
- Dentate and Fastigial
- Caudate and putamen
- Emboliform and Fastigial



- Pain
- Temperature
- Fine touch
- Light touch

A 58-year old post-menopausal woman who is suffering from major depression. Her medical history indicates that she had an inadequate clinical benefit from previous trials of fluoxetine and imipramine. After discussion, you decide that she should start a trial with an **SNRI** after tapering her dose of fluoxetine. What drug will you prescribe?

- Sertraline
- Amitriptyline
- Duloxetine
- Paroxetine
- Escitalopram

The midbrain:

- Is supplied by the anterior inferior cerebellar artery
- Contains the abducent nuclei
- Lies between pons and upper spinal cord
- Is largely in the middle cranial fossa
- Contains the oculomotor nuclei

Dopamine is derived from

- Alanine
- Aspartic Acid
- Threonine
- Tryptophan
- Tyrosine

Mechanisms of short-term memory include:

- continuous neural activity in a circuit of reverberating neurons.
- structural changes in the synapses.
- presynaptic facilitation or inhibition.
- Two of the above are correct
- All of the above are correct.

Action potentials in the post-synaptic neurons originate from the:

- dendrites
- soma
- axon hillock
- axon terminal

In the brain; **Rosenthal fibers** are seen in:

- Cytomegalovirus infection
- TB infection
- Old gliosis or some tumors
- Herpes simplex infection
- Prion disease

Functions of the hippocampus include:

- critical decision-making.
- translation of short-term memory to long-term memory.
- distribution of signals to the thalamus and parts of the limbic system.
- All of the above are correct.

ONE of the followings drug/therapeutic indication pairs is CORRECT

- Disulfiram- Alcoholic Korsakoff syndrome
- Aripiprazole- Antiemetic
- Carbamazepine-Absence seizures
- Dantrolene- Neuroleptic malignant syndrome
- Chlorpromazine - Hyperprolactinemia

Which one of the following neural tube defects has the **best chance** of survival for an individual after birth?

- Meningomyelocele
- Meningoencephalocele
- Posterior rachischisis
- Anencephaly
- Low lumbar spina bifida occulta

The output of Purkinje cells is always, and it is mediated by the neurotransmitter

excitatory; dopamine

inhibitory; GABA

inhibitory; serotonin

excitatory; glutamate

Rhombencephalon includes all the following EXCEPT:

- Medulla
- Pons
- 4th ventricle
- Cerebellum
- Midbrain

Neuropeptides:

- are packaged in vesicles that are continually recycled.
- are enzymatically split into smaller fragments in the cytosol.
- are synthesized by the ribosomes of neurons.
- Two of the above are correct.
- All of the above are correct.

Regarding Broca's area:

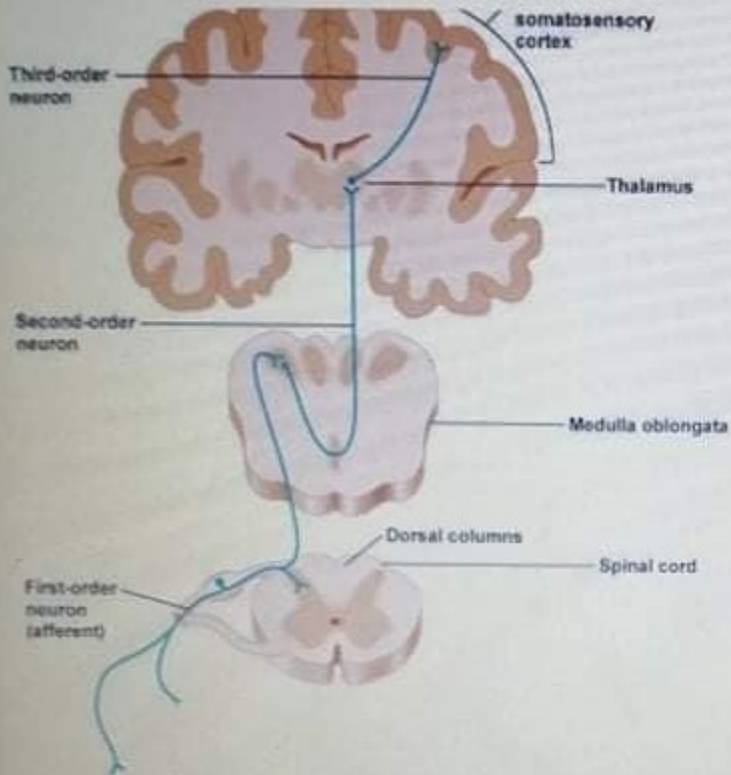
- its destruction causes dyslexia.
- its main function is the visual interpretation of language.
- it is also known as premotor speech area.
- it is found in the parieto-occipitotemporal association area.

With regard to opioid analgesics, ONE of the followings is CORRECT

- Codeine is a less potent antitussive and produces less euphoria than morphine
- Morphine dependence is physical not psychic
- Pentazocine substitutes for morphine in dependent subjects
- The combination of a SSRI with tramadol can result in serotonin syndrome
- Buprenorphine is a κ (kappa) receptor agonist

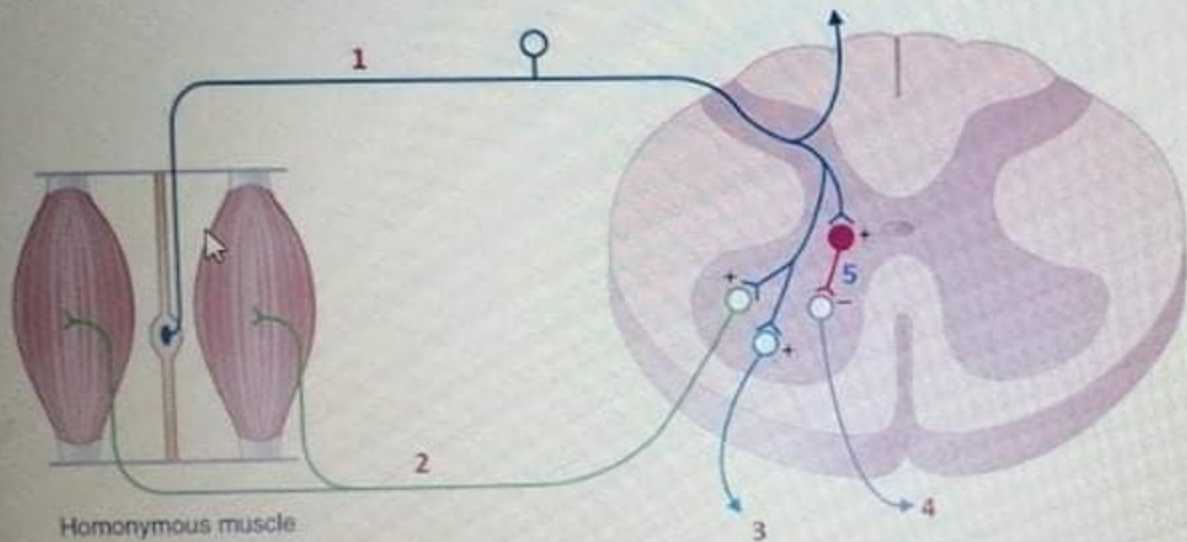
brain biopsy with the following morphological features seen in the neuronal cell body: enlargement of cell body, peripheral displacement of nucleus, enlargement of nucleolus, depletion of Nissl substance from center to periphery, most likely caused by:

- Reactive gliosis next to a brain tumor
- Axonal injury
- Global brain ischemia
- Increase in intracranial pressure
- Viral infection



- Temperature
- Fine touch
- Pain
- Light touch

Regarding the image below, which of the following is correctly paired?



- 2 = γ -motor neuron
- 3 = antagonist muscles
- 4 = synergist muscles
- 5 = efferent neuron
- 1 = Ia afferent fiber

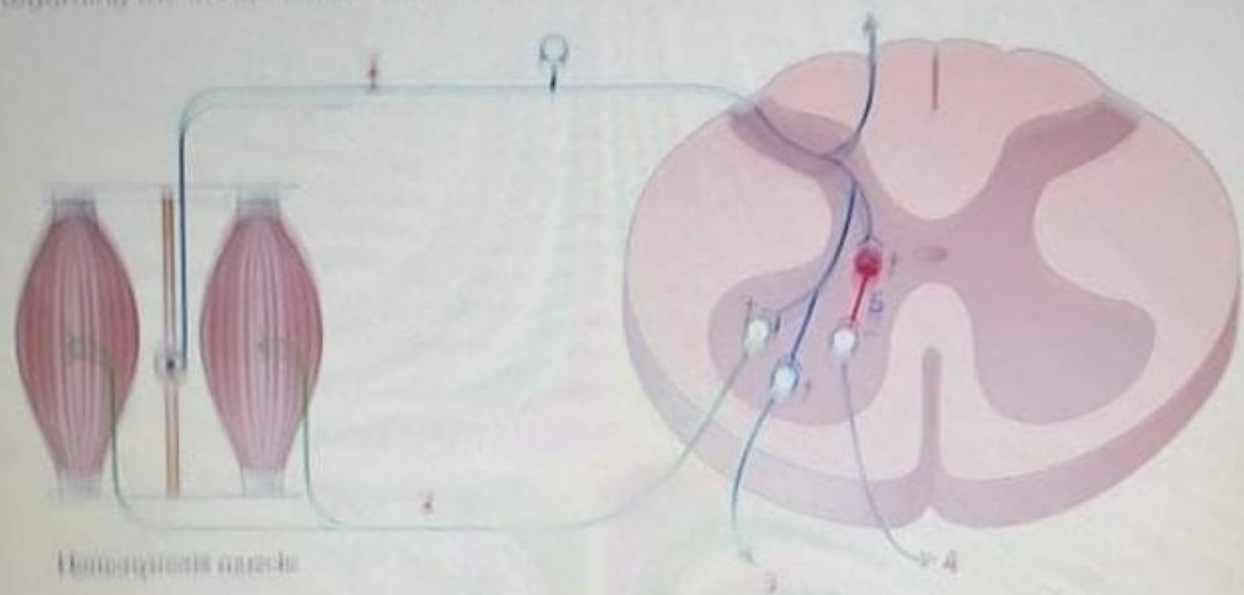
Causes of **subarachnoid** hemorrhage includes mainly all of the following **except**

- Vascular malformation
- Trauma causing skull fracture
- Rupture saccular (berry) aneurysm
- Hematological disturbances
- Tumors

Action potentials in the post-synaptic neurons originate from the:

- dendrites
- soma
- axon hillock
- axon terminal

Identifying the motor below, which of the following is correctly paired?



Antagonistic muscles

- 1 = afferent neuron
- 2 = antagonistic muscles
- 3 = synergistic muscles
- 4 = afferent neuron
- 5 = Ia afferent fiber

With regards to the spinal cord blood supply, which of the following is considered TRUE

- The posterior spinal artery arises from the posterior superior cerebellar
- The anterior spinal artery retains a uniform size throughout its length
- There are two anterior spinal arteries
- The anterior spinal artery arises from the vertebral artery
- The posterior spinal artery is singular

First generation and second generation antipsychotics differ in terms of their common side effects. Which of the following would be more likely observed in a patient taking clozapine?

- Extrapyramidal symptoms
- Tardive dyskinesia
- Agranulocytosis
- Endocrine side effects
- Hyperprolactemia

Synapses perform selective actions by:

- channeling signals in many directions rather than in only one direction.
- blocking weak signals while allowing strong signals to pass.
- selecting and amplifying certain weak signals.
- All of the above are correct.

The only thalamic nucleus that does not project to the cerebral cortex.

- Pulvinar
- Lateral geniculate body (LGN)
- Reticular nucleus
- Medial nucleus
- Medial Geniculate body (MGN)

Neuropeptides:

- are packaged in vesicles that are continually recycled.
- are enzymatically split into smaller fragments in the cytosol.
- are synthesized by the ribosomes of neurons.
- Two of the above are correct.
- All of the above are correct.

Common microscopic features seen in most of the viral meningo-encephalitis includes all of the following **except**

- Neuronophagia
- Perivascular mononuclear infiltrate
- Nuclear or cytoplasmic inclusions
- granulomatous arteritis
- Microglial nodules

Concerning general anesthetics, ONE of the followings is CORRECT:

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The most prominent feature of Huntington's disease is:

- Tremor at rest
- Akinesia
- Rigidity
- Wild flail-like movement of one limb
- Involuntary jerky movement and dementia

Heschl's convolutions contain the

- Broca's area
- Somatosensory association area
- Gustatory (taste) area
- Primary auditory area
- Primary visual area

Ceramide molecule is formed from the combination of

- Fatty acid and sphingosine
- Choline and phosphoric acid
- Glycerol and phosphoric acid
- Fatty acid and glycerol
- All of the above

Which of the following statements is correct regarding cerebral blood flow?

- It normally depends on the value of mean arterial pressure.
- The effect of sympathetic activation on cerebral blood flow usually exceeds that of autoregulation.
- Glial cells play a role in the regulation of cerebral blood flow.
- Increased pH increases cerebral blood flow.