



BLUEPRINT FOR **FC NEUROSURG(SA) FINAL EXAMINATION**

Neurosurgery Syllabus: Basic Science and Neurosurgery

Methodology of weighting for impact and frequency of basic science knowledge and neurosurgery. The subsection: Anatomy/Topographical Relationships also covers the required knowledge for Neuro-anatomy of the Primary Examination.

Impact	Weight	Frequency encountered	Weight
Useful	1	Rarely	1
Good understanding required	2	Relatively commonly	2
Essential core knowledge	3	Very common	3

Area of Knowledge	Impact (I)	Frequency (F)	IxF
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Anatomy / Topographical Relationships

• Scalp, skull, dura, leptomeninges, foramina	3	2	6
• Cavernous sinus, orbit and nasal cavities	3	2	6
• Cerebrum	3	3	9
• Commissures	2	1	2
• Cerebellum, pons and brainstem	3	3	9
• Pineal gland	3	1	3
• Cranial nerves	3	3	9
• Vertebral column	3	3	9
• Spinal cord and spinal tracts / pathways	3	3	9
• Cauda equina / bladder innervation	3	2	6
• Brachial and lumbosacral plexus	3	3	9
• Peripheral nerves	2	2	4
• Autonomic plexus, ganglia and nerves	2	2	4
• Ventricular system	3	3	9
• Subarachnoid space and cisterns	2	3	6
• Cerebrovascular system	3	3	9
• Choroid plexus	2	2	4
• Spinal vascular system	3	2	6
• Somatic sensorimotor system	3	3	9
• Thalamic nuclei	2	2	4
• Limbic system	2	2	4
• Visual pathway	3	3	9
• Auditory pathway	2	2	4
• Hypothalamopituitary axis	2	2	4
• Brainstem reticular formation	3	2	6

Embryology

• Cranial skeleton	2	2	4
• Differences: fetal, infant, child, adult brain	2	2	4
• Development of ventricular system	3	2	6
• Development of vascular system	2	2	4
• Development of pituitary gland	2	2	4
• The Notochord	3	2	6
• Spinal cord development	3	2	6

Physiology

• Energy metabolism in the brain	3	2	6
• Cerebral blood flow	3	3	9
• Pathophysiology of vasospasm	3	2	9
• Production and absorption of CSF	3	3	9
• Intracranial pressure	3	3	9
• Blood brain barrier / cerebral oedema	3	3	9
• Hyper and hyponatremia	3	3	9
• Hypothalamic pituitary axis	3	2	6
• Neuropharmacology of common drugs	3	3	9

Pediatric and Congenital

• Developmental malformations of the CNS	3	2	6
• Spina bifida	3	2	6
• Encephalocoele	3	2	6
• Craniosynostosis	2	1	2
• Pediatric head injury	3	3	9
• Subdural effusions in infancy	2	2	4
• Intracranial tumors in children	3	3	9
• Spinal tumors in children	3	2	6
• Phakomatoses	3	1	3
• Craniovertebral abnormalities	2	1	2
• Vascular lesions in pediatric age group	2	1	2

Hydrocephalus

• CSF physiology	3	3	9
• Pathophysiology and classification	3	3	9
• Investigation and treatment	3	3	9
• Benign intracranial hypertension	3	2	6

Cerebrovascular

• Pathophysiology and diagnosis of cerebral ischemia	3	3	9
• Occlusive carotid and vertebral disease	3	3	9
• Carotid endarterectomy /brain revascularization	2	1	2
• Spontaneous intracerebral / spinal hemorrhage	3	2	6
• SAH	3	3	9
• Cerebral aneurysms: pathology, classification	3	3	9
• Cerebral aneurysms: natural history, presentation	3	3	9
• Cerebral aneurysms: investigation and treatment	3	3	9
• Cerebral aneurysms: outcome and prognosis	3	3	9
• AVM: pathology, classification, natural history	3	2	6
• AVM: investigation, treatment, prognosis	3	2	6
• Cavernomas, CCF, venous thrombosis	3	2	6
• Interventional radiology	2	2	4

Trauma

• Mechanism / classification of traumatic brain injury	3	3	9
• Mechanism / classification of traumatic spinal injury	3	3	9
• Pathophysiology of CNS trauma	3	3	9
• Initial resuscitation and triage	3	3	9
• Clinical assessment	3	3	9
• Medical management	3	3	9
• Surgical management	3	3	9
• Outcome assessment, prognosis	3	3	9

Perioperative and intensive care

• Ventilation	3	3	9
• Fluid balance nutrition and feeding	3	3	9
• Blood coagulation	2	2	4
• DVT / pulmonary embolism	2	2	4
• Fever in neurosurgical patients	3	2	6
• Postoperative seizures	3	2	6
• Brainstem death	3	1	3
• The neurogenic bladder	3	2	6

Infections

• Infection in neurosurgery: prophylaxis	3	3	9
• Infection in neurosurgery: treatment	3	2	6
• Intracranial abscess and empyema	3	2	6
• Spinal abscess and empyema	3	2	6
• HIV and AIDS related infections	3	3	9
• Bacteria, viral, fungal, parasitic infections	3	2	6
• CNS TB	3	2	6

Tumors

• CNS tumors: presentation and management	3	3	9
• Principles and techniques of tumor biopsy	3	3	9
• Operative management of brain / spinal tumors	3	3	9
• Radiotherapy and chemotherapy for tumors	1	2	2
• Specific tumors of brain, skull base and orbit including glioma, meningioma, pituitary, parasellar CP angle tumors, metastases, ventricular tumors, pineal, region tumors, lymphoma, medulloblastoma	3	3	9
• Specific tumors of spine including spinal column, extradural, intradural and intramedullary, spinal nerve roots and peripheral nerves	3	3	9
• HIV related tumors	3	2	6

Spinal disorders

• Spinal cord compression	3	3	9
• Biomechanics of the spine	3	3	9
• Principles of spinal stabilization / fusion	3	3	9
• Degenerative spinal disease	3	3	9
• Syringomyelia and arachnoiditis	3	2	6
• Spasticity	3	3	9

Pain

• Pathophysiology of pain	3	3	9
• Craniofacial pain syndromes	2	1	2
• Trigeminal and glossopharyngeal neuralgia	3	2	6
• Analgesia and pain control	3	3	9
• Neuropathic pain and its control	3	2	6

Peripheral nerves

• Entrapment neuropathies	2	2	4
• Causalgia	2	1	2

Functional and stereotactic surgery

• Stereotactic and neuronavigation surgery	3	2	6
• Epilepsy: medical and surgical treatment	3	3	9
• Movement disorders: surgical management	2	1	2

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