

**Canadian Society of Clinical Neurophysiologists (CSCN)
EEG Examination**

2008 READING LIST

INTRODUCTION

This reading list was prepared by the Chief Examiner with input from other experienced CSCN EEG examiners. The list was prepared to assist candidates in their preparation for the CSCN EEG examination. This list is not intended to be all inclusive and a quick perusal will reveal overlap (or duplication) of some topics. Some individuals will undoubtedly prefer one publication, textbook, or EEG atlas compared to another that covers the same or similar material. It is not the intention of the Examination Board to promote (or exclude) specific references and the following are put forward only as potentially useful sources of information. You may wish to use this reading list in conjunction with the CSCN EEG Examination Board “Outline of Content” topics document.

EEG STANDARDS AND TECHNOLOGY

(Note: Candidates are strongly encouraged to review the published guidelines listed below).

TEXTBOOKS

- Tyner FS, Knott Jr, Mayer WB. Fundamental of EEG Technology. Volume 1. Lippincott, Williams, and Wilkins. 1983.
 - Comment: An excellent “general” EEG technology text BUT NOT useful for important DIGITAL EEG technical aspects (see other references, below)

Review Papers and Selected Book Chapters

- McLachlan R, Young GB. Minimal Standards for Digital/Quantitative Electroencephalography in Canada. Can J Neurol Sci 1999; 26: 153
- Task Force of the Canadian Society of Clinical Neurophysiologists. Minimal Standards For Electroencephalography in Can Can J Neurol Sci 2002; 29:216-220
- International Organization of Societies for Electrophysiological Technology. Guidelines for Digital EEG.
<http://www.oset.org/plaatjes/GuidesdigitEEGOSETJG1299RTF%5B1%5D.doc>
- Canadian Association of Electrophysiology Technologists Guidelines (2001): (obtain from a member of CAET in your laboratory).
- American Clinical Neurophysiology Society Guidelines (Numbers 1-8). 2006.
<http://www.acns.org/>
- Harper PF, Sannit TS. A review of the International Ten-Twenty System of Electrode Placement. Grass Instrument Company. 1974. (Note: may purchase via www.Grass-Telefactor.com and follow links to educational literature; alternatively most EEG Laboratories likely have this publication available)

- Sperling, MR, Guina L. The necessity for sphenoidal electrodes in the presurgical evaluation of temporal lobe epilepsy: Pro Position. *Journal of Clinical Neurophysiology* 2003;20(5):299-304.
- Blume WT. The necessity for sphenoidal electrodes in the presurgical evaluation of temporal lobe epilepsy: Con Position. *Journal of Clinical Neurophysiology* 2003;20(5):305-310.
- Lagerlund TD. Electrical safety in the laboratory and hospital. Chapter 2. pp 18-28. In: *Clinical Neurophysiology*. (ed Jasper Daube). Contemporary Neurology Series. Volume 46. 1996 F.A. Davis Company (publisher)
- Fisch and Spehlmann's EEG Primer: Basic Principles of Digital and Analog EEG. Bruce Fisch. Elsevier. 1999. Chapter 3 "Digital and analog EEG instruments: parts and functions. pp 35-72.
 - Comment: This chapter, and particularly the sections on analog-to-digital conversion and digital filters, is particularly well written.
- Lagerlund TD. Digital signal processing. Chapter 4. pp 40-49 In: *Clinical Neurophysiology* (ed Jasper Daube). Contemporary Neurology Series. Volume 46. 1996. F. A. Davis Company (publisher).
- Epstein CM. Digital EEG: trouble in paradise? *Journal of Clinical Neurophysiology* 2006;23(3) 190-193.
- Lesser RF, Ludges H, Dinner DS, Morris H. An introduction to the basic concepts of polarity and localization. *Journal of Clinical Neurophysiology* 2 (1): 45-61, 1985.
- Knott Jr. Further thoughts on polarity, montages and localization. *Journal of Clinical Neurophysiology* 2 (1): 63-75, 1985.
- Misulis KE. Basic electronics for clinical neurophysiology. *Journal of Clinical Neurophysiology* 6(1): 41-74, 1989

PHYSIOLOGY

REVIEW PAPERS

- Gloor P. Neuronal generators and the problem of localization in electroencephalography: Application of volume conductor theory to electroencephalography. *J Clin Neurophysiol* 1985; 2(4):327-354

- Olejnicz P. Neurophysiologic Basis of EEG. Journal of Clinical Neurophysiology. 2006;23(3):186-189.
- Lagerlund TD. Volume conduction. Chapter 3, pp 29-39 In: Clinical Neurophysiology (ed Jasper Daube). Contemporary Neurology Series. Volume 46. 1996. F.A. Davis Company (publisher)
- Lothman EW. The neurobiology of epileptiform discharges. American Journal of EEG Technology 1993;33:93-112.
 - Comment: A relatively simple “first read” of a potentially difficult topic that is covered in more depth in other papers/chapters cited below.
- Schwartzkroin, PA. Basic mechanisms of epileptogenesis. In: The Treatment of Epilepsy: Principles and Practice (ed. Elaine Wyllie). Lea and Febiger, Publishers.
- Blume WT. Invited Review: Clinical and basic neurophysiology of generalized epilepsies. Can J Neurol Sci 2002; Feb (1): 6-18.
- Blumenfeld H. Cellular and network mechanisms of spike-wave seizures Epilepsia 46 (suppl 9): 21-33, 2005
- McCormick DA, Contreras D. On the cellular and network bases of epileptic seizures. Annual Rev Physiol 2001 63: 815-46
- Gloor P, Ball G, Schaul N. Brain lesions that produce delta waves in the EEG Neurology 1977 27: 326-33
- Amzica F. Physiology of sleep and wakefulness as it relates to the physiology of epilepsy. Journal of Clinical Neurophysiology 2002; 19(6):488-503
- Stafstrom CE. The role of the subiculum in epilepsy and epileptogenesis. Epilepsy Currents. 2005;5(4):121-129.
 - *Note: A very useful discussion of the anatomy- physiology of the mesial temporal lobe.*

EEG CLINICAL

REVIEW PAPERS

- Mendez, OE, Brenner RP. Increasing the yield of EEG. *Journal of Clinical Neurophysiology*. 2006; 23(4): 282-293
- Blume, WT. Drug effects on EEG. *Journal of Clinical Neurophysiology* 2006; 23(4): 306-311
- Hrachovy, RA, Frost James D. Jr. The EEG in selected generalized seizures. *Journal of Clinical Neurophysiology*. 2006;23(4):312-332.
- Verma A, Radtke R. EEG of Partial Seizures. *Journal of Clinical Neurophysiology*. 2006;23(4):333-339.
- Olejnicz P. Neurophysiologic Basis of EEG. *Journal of Clinical Neurophysiology*. 2006;23(3):186-189.
- Tatum, WO, Husain AM, Benbadis, SR., Kaplan PW. Normal Adult EEG and patterns of uncertain significance. *Journal of Clinical Neurophysiology* 2006;24(3): 194-207.
- Husain, Aatif M. Electroencephalographic Assessment of Coma. *Journal of Clinical Neurophysiology*. 2006;23(3): 208-220.
- Kaplan PW. The EEG in metabolic encephalopathy and coma. *Journal of Clinical Neurophysiology* 2004;21(5):307-318.
- Young, GB. The EEG in Coma. *Journal of Clinical Neurophysiology*. 2000;17(5):473-485.
- Kaplan, Peter W. The EEG of Status Epilepticus. *Journal of Clinical Neurophysiology* 2004; 21 (5): 307-318.
- Brenner, Richard P. EEG in Convulsive and Nonconvulsive Status Epilepticus. *Journal of Clinical Neurophysiology* 2004;21 (5): 319-331.
- Ohtahara,S, Yamatogi Y. Encephalopathies in early infancy with suppression-burst. *Journal of Clinical Neurophysiology*. 2003;20(6):398-407.
- Markand ON. Lennox-Gastaut syndrome (childhood epileptic encephalopathy). *Journal of Clinical Neurophysiology* 2003;20(6):426-441.
- Hrachovy RA, Frost, James D. Jr. Infantile epileptic encephalopathy with hypsarrhythmia (infantile spasms/West syndrome). *Journal of Clinical Neurophysiology* 2003; 20(6):408-425.
- Yamatogi Y, Ohtahara S. Severe epilepsy with multiple independent spike foci. *Journal of Clinical Neurophysiology* 2003; 20(6):442-448.

- Guerrini R; Aicardi J. Encephalopathies with myoclonic seizures in infants and children (severe myoclonic epilepsy and myoclonic-astatic epilepsy). *Journal of Clinical Neurophysiology* 2003;20(6): 462-472.
- Smith, MC, Hoepfner, T J. Epileptic encephalopathy of late childhood: Landau-Kleffner Syndrome and the syndrome of continuous spikes and waves during slow-wave sleep. *Journal of Clinical Neurophysiology* 2003; 20(6): 462-472.
- Brenner, RP. Electroencephalography in syncope. *Journal of Clinical Neurophysiology* 1997;14(3):197-209.
- Jankel WR, Niedermeyer E. Sleep spindles. *Journal of Clinical Neurophysiology* 1985; 1(1):1-35.

EEG REFERENCE TEXTBOOKS

- Fisch and Spehlmann's EEG Primer: Basic Principles of Digital and Analog EEG. Bruce Fisch. Elsevier. 1999.
 - Comment: a very easy to read, succinct text.
- Ebersole JS, Pedley TA. *Current Practice of Clinical Electroencephalography*. Third Edition. Lippincott, Williams, and Wilkins. 2002
- Niedermeyer E, Lopes da Silva F. *Electroencephalography*. 5th Edition. Lippincott, Williams, and Wilkins. 2004

EEG ATLASES

Comment: These volumes should be used by candidates to enhance EEG pattern recognition skills.

- *Atlas of Adult Electroencephalography*, 2nd Edition Blume WT, Kaibara M, Young GB 2001. Lippincott Williams & Wilkins.
- *Goldensohn's EEG Interpretation. Problems of Overreading and Underreading*. 2nd Edition. (by Eli Goldensohn, Steven Wolf, Samuel Koszer, Alan Legatt.) . Blackwell Publishing. 1999
- *Atlas of Pediatric Electroencephalography*, 2nd Edition Blume WT, Kaibara M.. Lippincott, Williams and Wilkins.

- Stern JM, Engel J Jr. Atlas of EEG Patterns. Lippincott Williams and Wilkins. 2005
- Abon-Khalil B, Misulis KE. Atlas of EEG and Seizure Semiology. Butterworth Heinemann. 2006
- Kellaway P, Mizrahi E, Hrachovy R. Atlas of Neonatal Electroencephalography. 3rd Edition. Lippincott, Williams, and Wilkins. 2003