THE SLEEP-WAKE CYCLE

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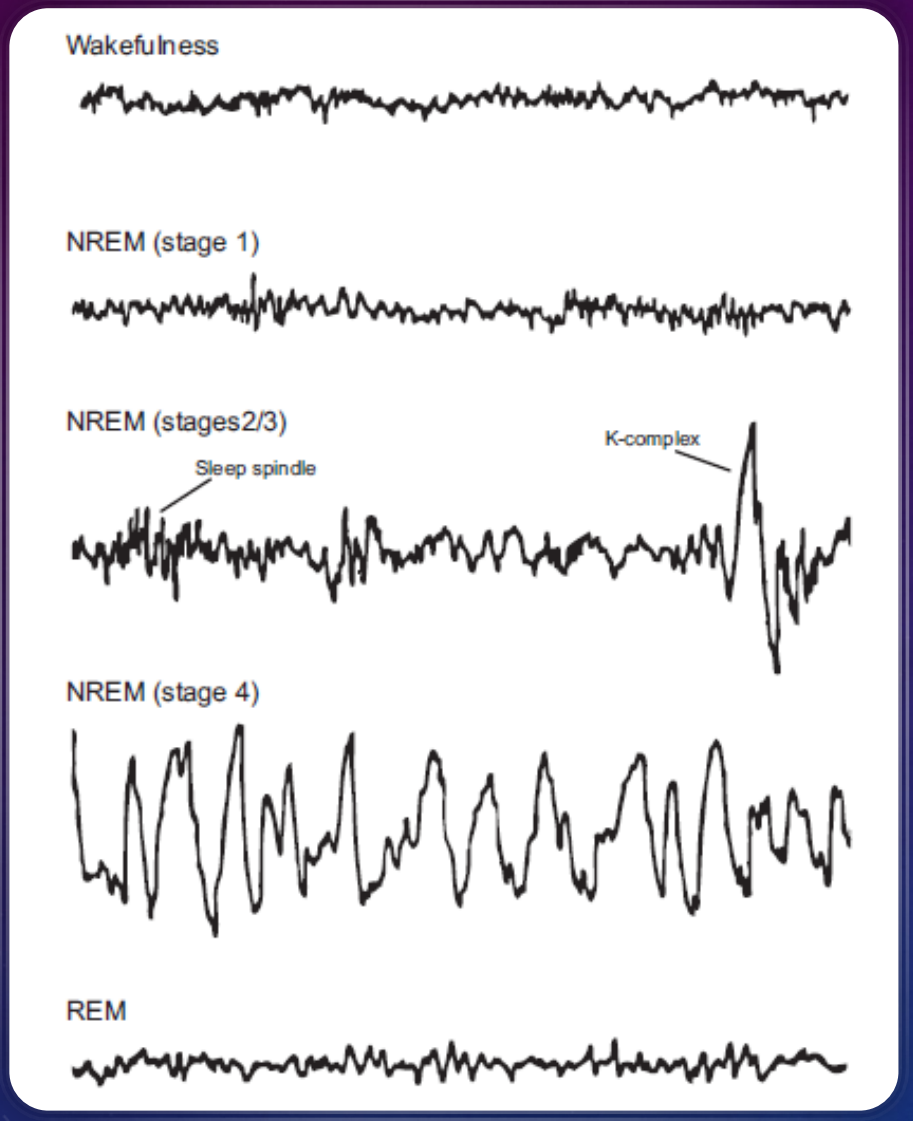

Figure 1. EEG recordings of human vigilance states[3]

PHYSIOLOGIC PATTERNS OF SLEEP

Basic physiologic rhythm divided into 3 states[1]:

- Wakefulness
- NREM sleep
- REM sleep

/AKEFULNESS

Figure 2. EEG recordings of wakefulness[3]

Electrographic Signals of Wakefulness

Activating Systems

- ARAS (Ascending Reticular Activating System)

Essential neurotransmitters

- Acetylcholine, serotonin, orexins/hypocretins, etc.

NREM SLEEP

Electrographic Signals of NREM sleep

Maintenance and Homeostasis

Functionality in Metabolism and Homeostasis

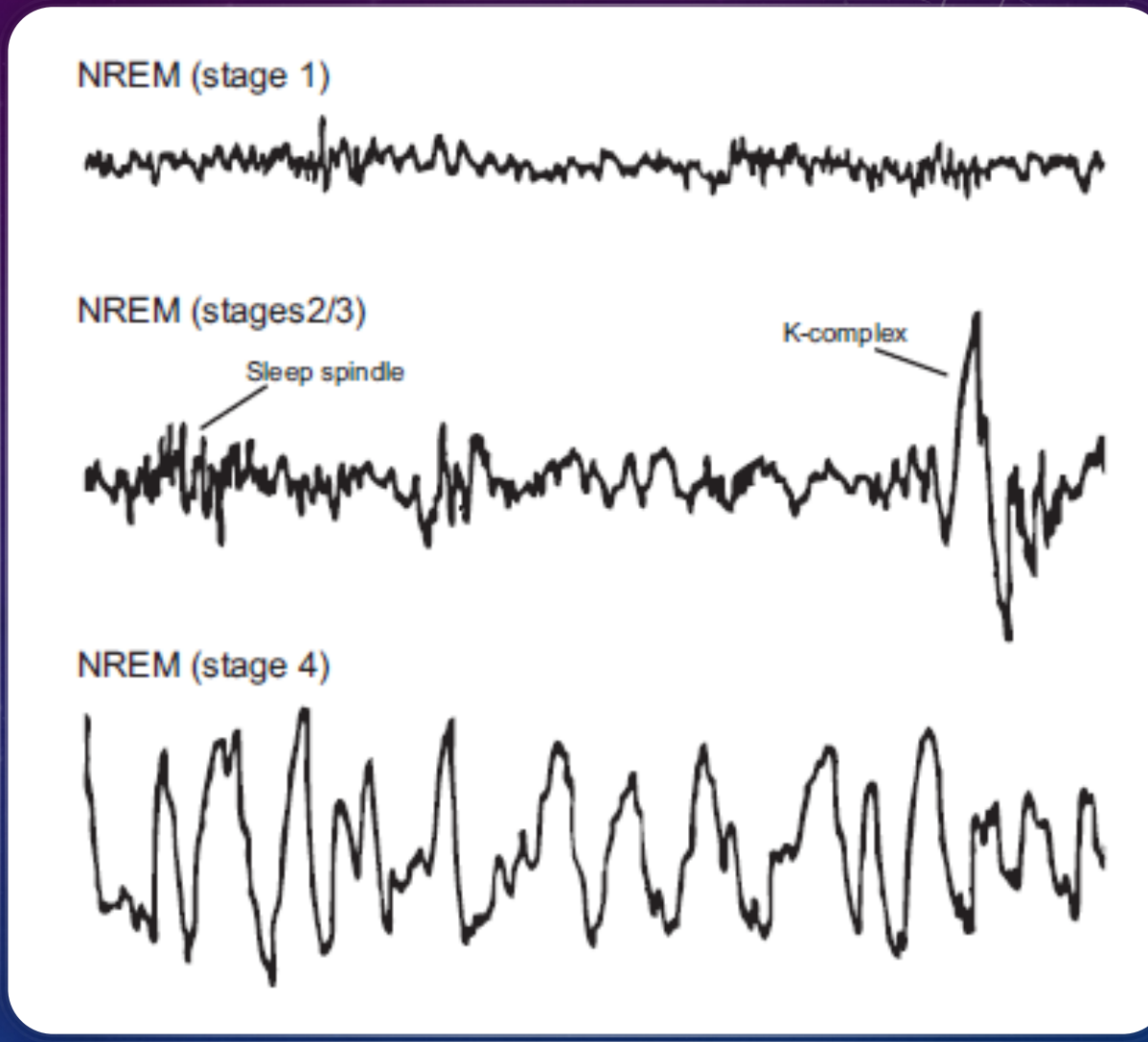

Figure 3. EEG recordings of NREM stages 1-4[3]

EM SLEEP

Figure 4. EEG recordings of REM sleep[3]

Electrographic Signals of REM sleep

Control mechanisms within stage and between

Dreaming

CONSEQUENCES OF SLEEP LOSS ON COGNITION

- Attention and Executive Function
- Emotion
- Learning and Memory

EFERENCES

1.) Harris, C. D. (2005 January). Neurophysiology of sleep and wakefulness. *Elsevier Inc.* (567-586).

2.) Schwartz, J. R. L, Roth, T. (2008). Neurophysiology of sleep and wakefulness: Basic science and clinical implications. *Current Neuropharmacology, 6* (367-378).

3.) Brown, R. E. et al. (2012). Control of sleep and wakefulness. *Physiol Rev, 92* (1087-1187).