

Sleep and Stroke: Clinician Module

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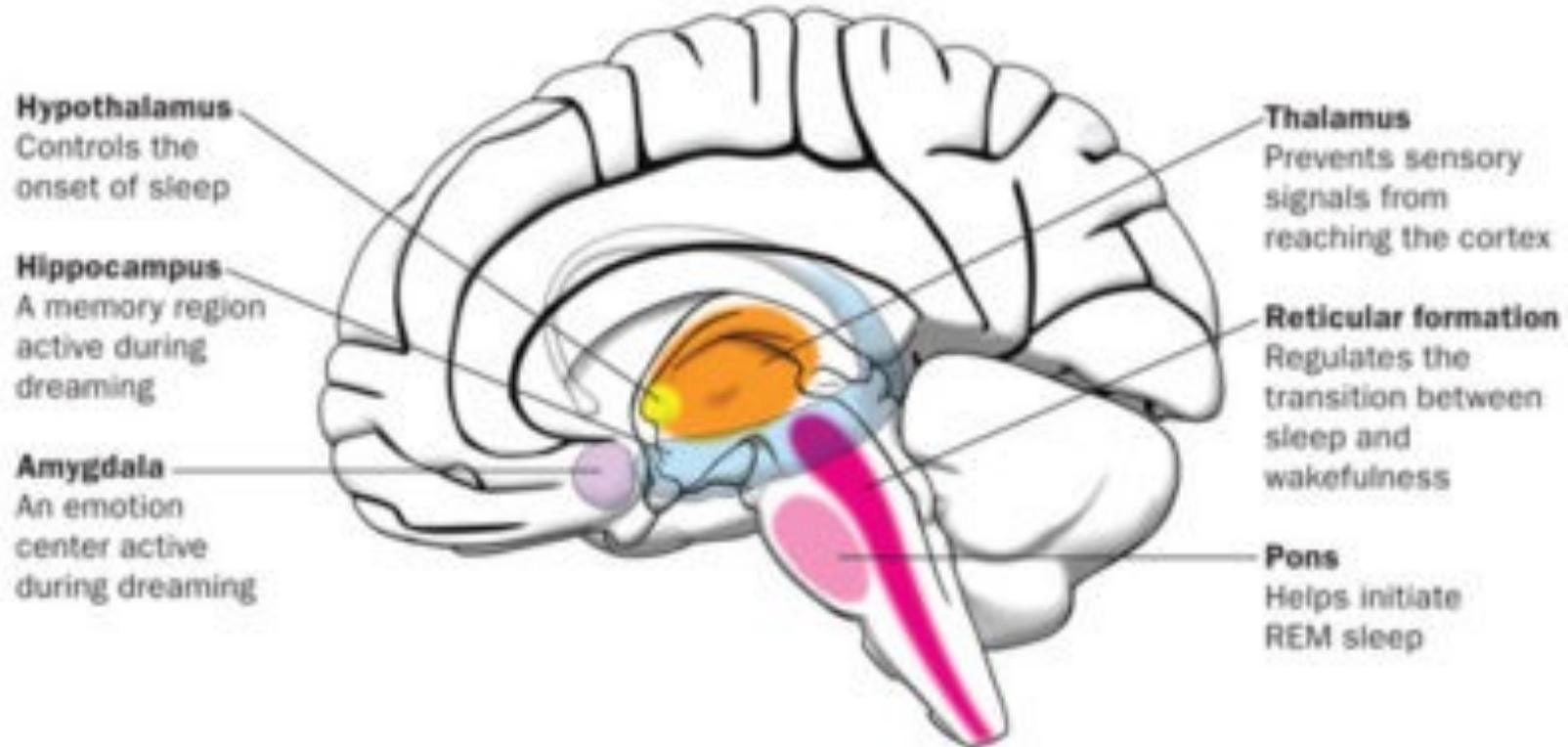


Schedule

- Sleep after Stroke
- Common Sleep Disorders
- Sleep and Function
- Sleep Duration
- Sleep Management
- Outcomes

Sleep after Stroke^{1,2}

Central Brain Regions Involved in Sleep



Common Disorders³⁻⁷

1. Sleep Disordered Breathing
2. Insomnia
3. Periodic Leg Movement During Sleep (PLMS)
4. Restless Leg Syndrome (RLS)
5. Sleep Wake Cycle Disorders

Sleep Disordered Breathing^{3,4}

Characteristics: snoring, hypopnea, and apnea with intermittent awakening accompanied by gasping or choking, daytime sleepiness, and fatigue

Prevalence: 43-70% with decreasing prevalence from the acute to chronic phase

Risk Factors: male sex, obesity defined as a body mass index >35 kg/m², neck circumference >40 cm, a recessed lower jaw, positive family history for OSA, hypertension resistant to treatment, type 2 diabetes mellitus, atrial fibrillation, congestive heart failure, and previous stroke.

Insomnia³

Characteristics: trouble falling asleep, daytime drowsiness, trouble staying asleep, and daytime fatigue.

Prevalence: most prevalent in the sub-acute phase after stroke where it has a prevalence of 50%

Risk Factors: presence of negative emotions such as anxiety and depression

Periodic Leg Movement During Sleep³

Characteristics: repetitive jerking, cramping, or twitching of limbs during sleep, fatigue, daytime sleepiness, and frequent awakening

Prevalence: 38-48% trending upwards from the acute to chronic stage

Risk Factors: increased age, presence of comorbidities, and smoking history were correlated with the prevalence of PLMS.

Restless Leg Syndrome³

Characteristics: irresistible urge to move limbs, abnormal limb sensations while still

Prevalence: 10-14% trending upwards from the acute to chronic stage

Risk Factors: female sex, increased body mass

Sleep Wake Cycle Disorders⁵⁻⁷


Characteristics: lack of clearly define circadian rhythm, changes in total sleep duration, fragmented sleep, and decreased sleep efficiency

Prevalence: up to 50%

Risk Factors: motor impaired, R hemisphere stroke patients

Sleep and Function^{2,8}

The Impact of Sleep Disorders on Functional Recovery and Participation Following Stroke: A Systematic Review and Meta-Analysis

George D. Fulk, PhD¹ , Pierce Boyne, PhD², Makenzie Hauger¹, Raktim Ghosh¹, Samantha Romano¹, Jonathan Thomas¹, Amy Slutzky, PhD¹, and Karen Klingman, PhD¹

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Sleep problems worsen health-related quality of life and participation during the first 12 months of stroke rehabilitation

George Fulk¹, Pamela Duncan²
and Karen J Klingman¹ 

Clinical Rehabilitation
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Sleep Duration^{5,9,10}

- Fragmented sleep and sleep deprivation
 - Acute
 - Chronic
- Daytime napping
- Hypersomnia

Sleep Management^{4,6,11}

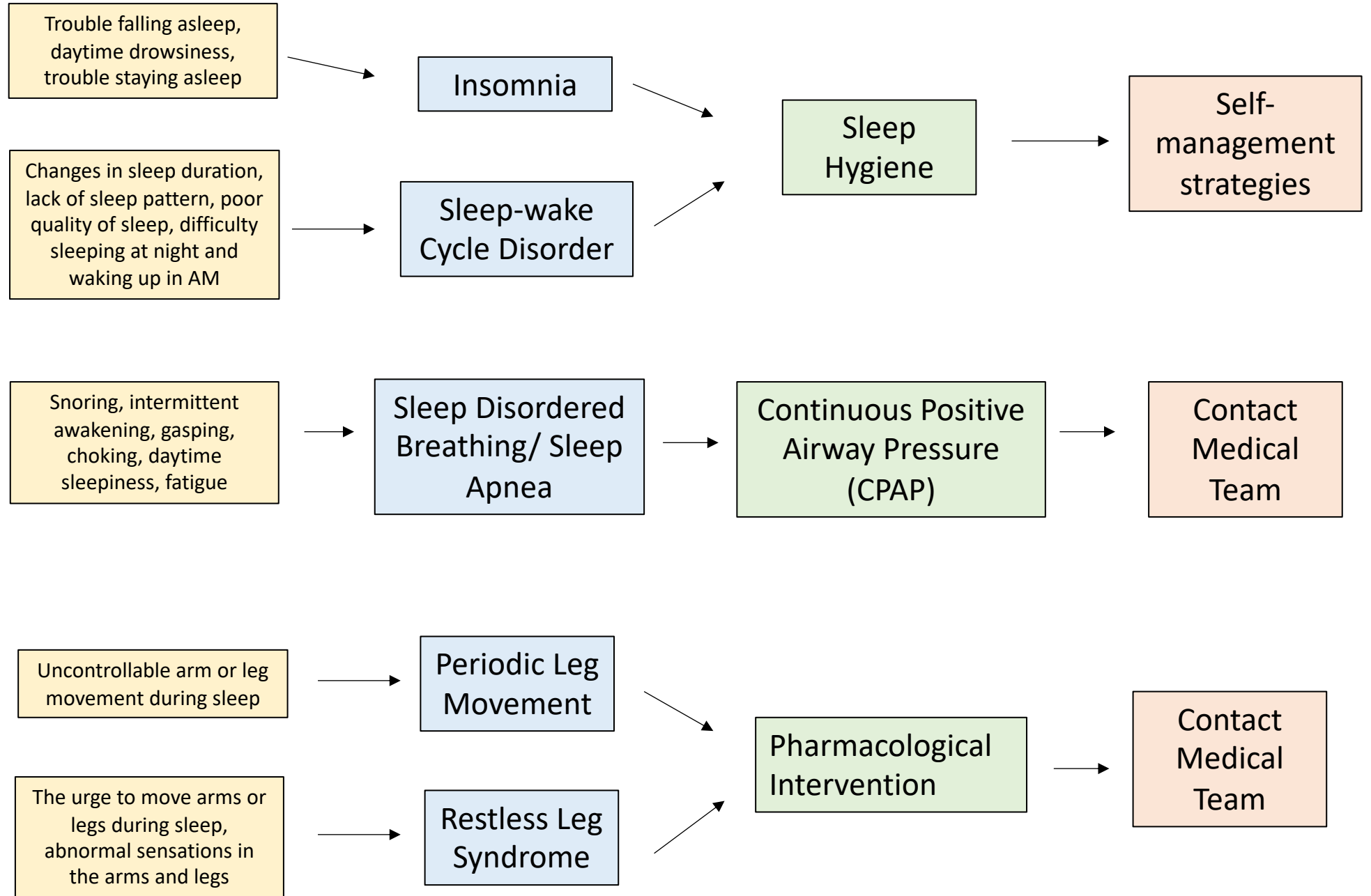
1. Sleep Hygiene
2. Pharmacological Treatment
3. Continuous Positive Airway Pressure (CPAP)

Sleep Hygiene: Healthy Sleep Habits^{12,13}

Impactful Sleep Hygiene Practices

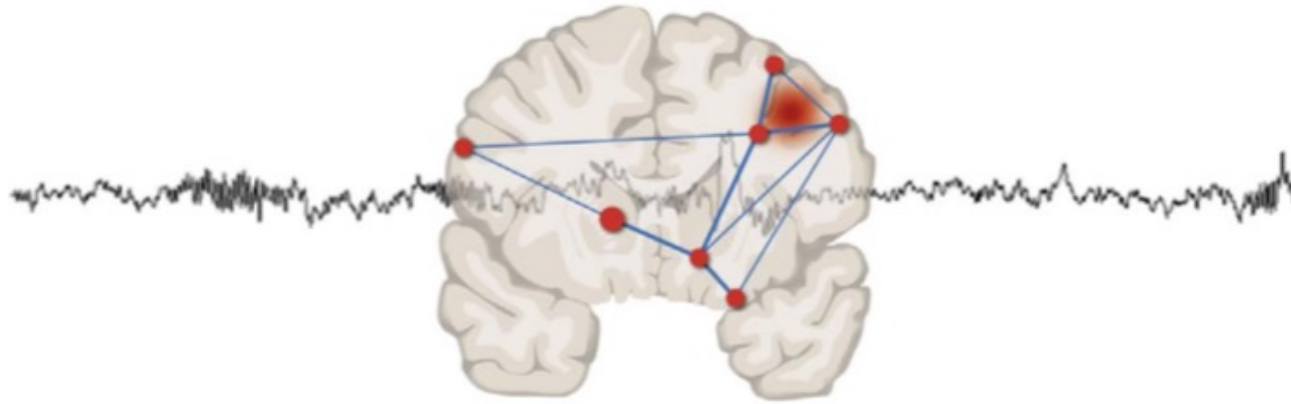
- Establish a nighttime routine
- Get up and go to sleep at the same time
- Create a healthy sleep environment
- Turn off electronics an hour before bed
- Limit caffeine
- Exercise
- Reduce stress
- Avoid large, fatty meals prior to sleeping

verywell



Sleep and Stroke Outcomes⁹

Improving stroke outcome by promoting healthy sleep



Treatment of sleep disorders

- By:
- ventilation treatments (SDB)
 - drugs improving sleep continuity

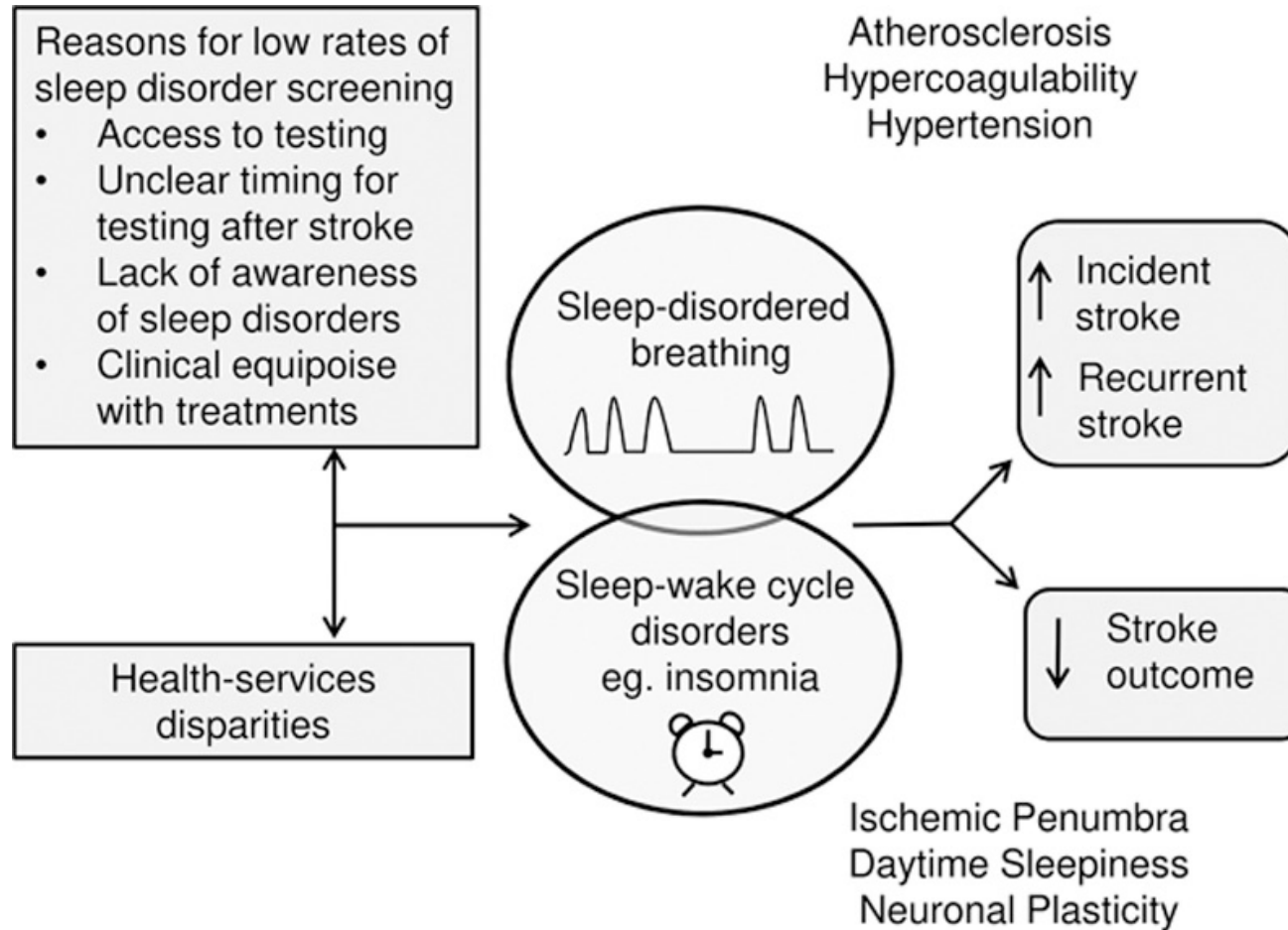
↓ Risk of stroke reoccurrence
↑ Rehabilitation outcome

Promotion of sleep

- By:
- environmental enrichment
 - optimal timing of neurorehabilitation
 - physical and cognitive training and exercise
 - non-invasive brain stimulation

↑ Sleep quality
↑ Rehabilitation outcome

Sleep and Stroke Outcomes⁶



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