

# Don't Sleep on Chiropractic: Hour 1 notes

## Foundations of Sleep

### Journal of Clinical Sleep Medicine

- Sleep is Essential to Health: An American Academy of Sleep Medicine Position Statement [LINK](#)
- Sleep Facts from the CDC [LINK](#)
- Healthy Behaviors in children and adolescents include regular physical activity, less sedentary time, reduced screen time exposure unless studying, and sleep. Including high sleep improved all outcomes [LINK](#)
- Sleep duration seems to have a sweet spot between 7-8hours. Patients with optimal sleep time of 7-8hrs/night were associated with the lowest risk of death. Short sleep (<7hrs) 17% higher risk and long sleep (>9hrs) 29% higher risk. [LINK](#)
- Objectively measured sleep traits, including nocturnal sleep duration and onset timing, sleep rhythm, and sleep fragmentation linked to 172 diseases. Sleep timing and regularity are important to maintain health. Poor sleep timing and regularity linked to Parkinsons, Type 2 Diabetes, and kidney failure. [LINK](#)
- When thinking of sleep, consider 4 main pillars: Quantity, Quality, Regularity, and Timing

## Quantity

Adults: 7 or more hours on a regular basis

Teenagers: 8-10 hours per day on a regular basis

Children 6-10yrs: 9-12 hours on a regular basis

Children ages 3-5yrs: 10-13 hours (including naps) on a regular basis

Children ages 1-2yrs: 11-14 hours (including naps) on a regular basis

Infants (4-12 months): 12-16 hours (including naps) on a regular basis

## Quality

### Normal sleep stages and durations

- **Stage 1:** changeover from wakefulness to sleep lasting around 1-5 minutes
  - Eye movements, heartbeat, and breathing slow
- **Stage 2:** Non-REM sleep, light sleep just before getting to deep sleep. 45-55% of total sleep time
  - Body temperature drops, eye movements stop, heartrate, breathing slow even more with muscle relaxation
- **Stage 3:** Non-REM, Slow-Wave Sleep
  - Deep sleep – needed to feel refreshed in the morning

- Repair and growth of tissues from Growth Hormone secretions
- Approximately 20% of total sleep
- **REM Sleep:** First REM cycle occurs about 90 minutes into sleep.
  - Approximately 20-25% of total sleep time
  - Most dreaming occurs in this stage of sleep
  - Heart rate and breathing become faster and more irregular to near waking levels
  - Active sleep – brainwaves also appear similar to wakefulness
  - Arm and leg movements are suppressed – prevent movements during dreams
    - If moving during REM cycle we consider it REM sleep behavior disorder (RBD) predictor of neurodegenerative disorders

## Regularity

**Circadian Rhythm** – regularity of sleep and waking each day. Allows for adaptation and efficiency of physiological processes

Zeitgebers- time cues to reset each day.

**Melatonin**- hormone produced in response to darkness, helps initiate sleep

**Adenosine**- (Sleep Pressure), byproduct of cellular metabolism- physical activity throughout the day. Caffeine acts as a receptor blocker and can impact sleep

**Cortisol**- Energy mobilizer. Negative feedback loop, important to see peak of cortisol curve shortly after waking.

## Timing

Chronotypes – body's preferences for morning or evening.

Morningness-Eveningness Questionnaire [LINK](#)

## Sleep Disorders

**Insufficient Sleep Syndrome:** Social jet lag – routinely lacking sleep while free from other sleep disorders. Mostly due to lifestyle

**Insomnia:** most prevalent sleep disorder. Trouble falling asleep or staying asleep

Difficulty falling asleep, staying asleep, or nonrestorative sleep

Difficulty present despite adequate opportunity and circumstance to sleep

Associated with daytime impairment or distress

Occurs at least 3x/wk, for 1 month

Cognitive Behavioral Therapy for Insomnia

Sleep Restriction Therapy: Build up sleep pressure, avoid bed until tired

Stimulus Control Therapy: Lie down only when sleepy, if unable to sleep within 15 minutes, get out of bed and do something until sleepy.

Sleep Hygiene: limit caffeine, alcohol, and late meals

Cool, dark, quiet area for sleep – reduce factors that increase risk of sleepless night

Cognitive Therapy: Identify dysfunctional thoughts on sleep  
Journal keeping with reflections on the day. Write out lists, work on decatastrophizing.

**Obstructive Sleep Apnea**

Upper airway as a collapsable cylinder- neck circumference a main risk factor  
Oropharyngeal muscle exercises as a potential therapy [LINK](#)

## Patient Screening

---

- Promis-29 [LINK](#)
- Epworth Sleepiness Scale [LINK](#)
- Pittsburgh Sleep Quality Index [LINK](#)
- STOP BANG Questionnaire [LINK](#)