Course Times: 8:30 AM - 2:40 PM CST

Sleep: How it Affects Our Health

- The epidemiology and diagnosis of insomnia. Gender differences in sleep patterns.
- Circadian rhythms: what are they? How do they affect our health?
- How much sleep do we need? Current recommendations for sleep.

Obesity and Sleep Apnea

- Obesity induced sleep apnea. Defining sleep apnea and how it effects sleep quality.
- Increased incidence of coronary artery disease in individuals with sleep apnea.
- How sleep duration effects regulation of appetite and food intake.
  - Metabolic and endocrine effects of sleep deprivation.
- Metabolic state signaling through central hypocretin/orexin neurons.

Asthma

- How asthma impacts sleep quality. How sleep and nighttime impact airway resistance.
- Nocturnal asthma: current treatment options.
- The relationship between sleep apnea and the prevalence and severity of asthma.

Inflammation

- Effect of sleep loss on C-reactive protein, an inflammatory marker of cardiovascular risk.
- Effects of sleep and sleep deprivation on interleukin-6, growth hormone, cortisol, and melatonin levels.
- The role of cytokines in physiological sleep regulation.

Fibromyalgia

- Fibromyalgia - new concepts of pathogenesis and treatment.
- The relationship between sleep and pain. Fibromyalgia, sleep disorder and chronic fatigue syndrome.
- Pharmacologic treatment of fibromyalgia. Medications that increase serotonin.

The Immune System

- Brain-immune interactions in sleep.
- Links between the innate immune system and sleep.

Menopause

- Association between hot flashes, sleep complaints, and psychological functioning.
- Sleep, breathing, and menopause: the effect of fluctuating estrogen and progesterone on sleep and breathing in women.
  - Hormone therapy may improve sleep quality in menopausal women.

Diabetes

- Sleep duration as a risk factor for the development of type 2 diabetes and insulin resistance.
- How sleep patterns affect glucose and insulin levels during the day and night.
- Obstructive sleep apnea syndrome, plasma adiponectin levels, and insulin resistance.

Sleep and Aging: How Aging Influences "Sleep Architecture"

- Insomnia in the elderly: cause, approach, and treatment.
- How sleep deprivation accelerates the aging process.
- Sleep deprivation: increased risk for falls, difficulty with concentration and memory, decreased quality of life.
- Age related changes in the activity-rest circadian rhythms.

Treatment Options for Improving Sleep Quality: Diet, Exercise and Pharmacological Therapy

- Clinical perspectives for the use of melatonin and other dietary supplements.
- Continuous positive airway pressure therapy for moderate to severe obstructive sleep apnea/hypopnea.
- Drugs for sleep disorders: mechanisms and therapeutic prospects.
- Caffeine: how caffeine affects the quality of sleep. The therapeutic and stimulatory effects of caffeine.
- How exercise influences sleep quality and duration. Does exercise intensity have an effect on sleep?
- Weight loss strategies to improve sleep apnea. Diet composition - does it make a difference?

Course Objectives

- Define insomnia and the role of sleep in maintaining health.
- Review cause, effect and treatment options for common sleep issues and disorders
- Discuss how sleep deprivation excelerates the aging process.
- Review treatment options for improving sleep quality (e.g diet, exercise, pharmacological therapy).