



Sleep and Chronic Illness

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Disclosure

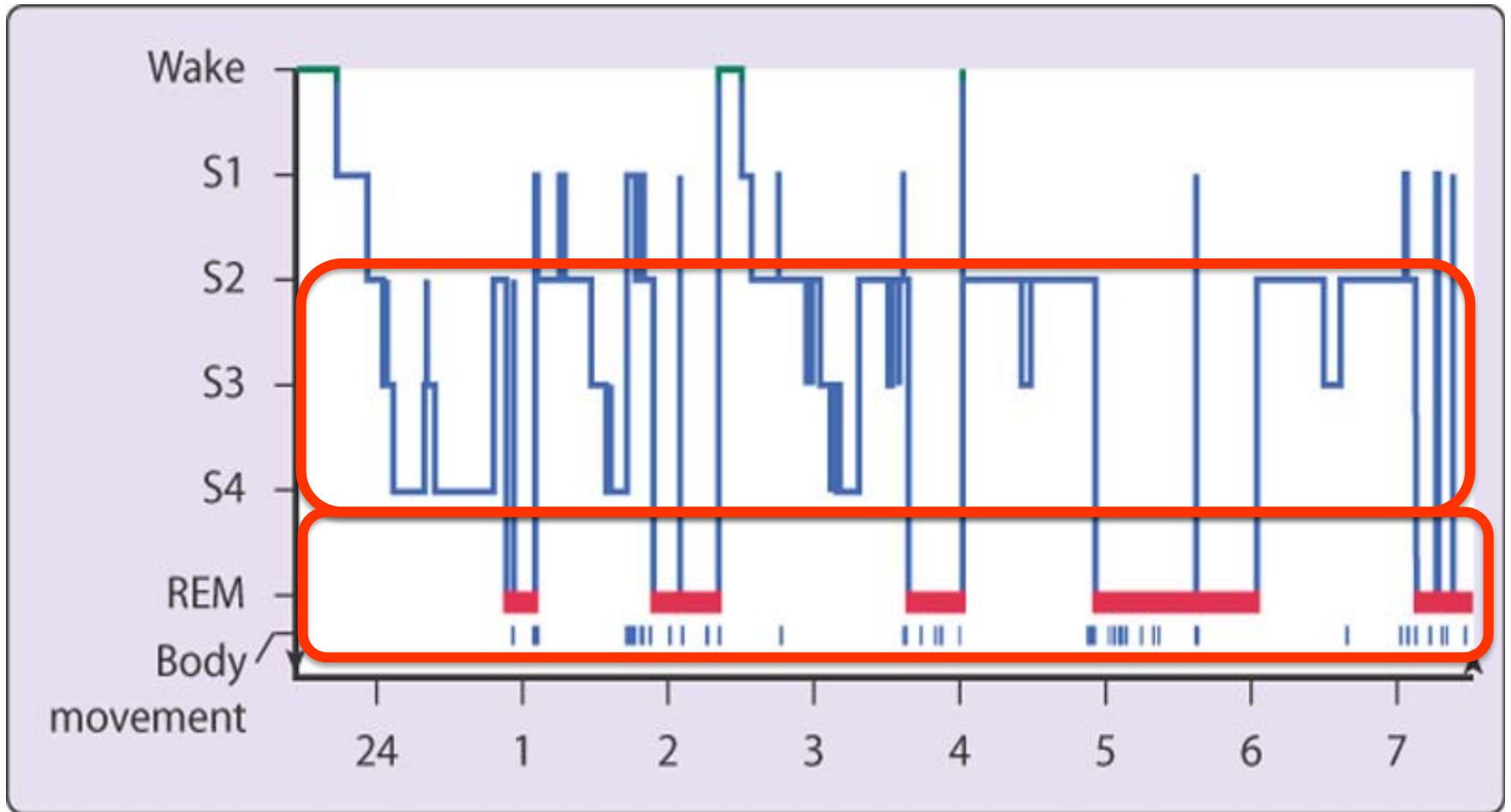
- Speaker's bureau for American Physician's Institute
- Research grant with Dymedix, Corp.

Outline

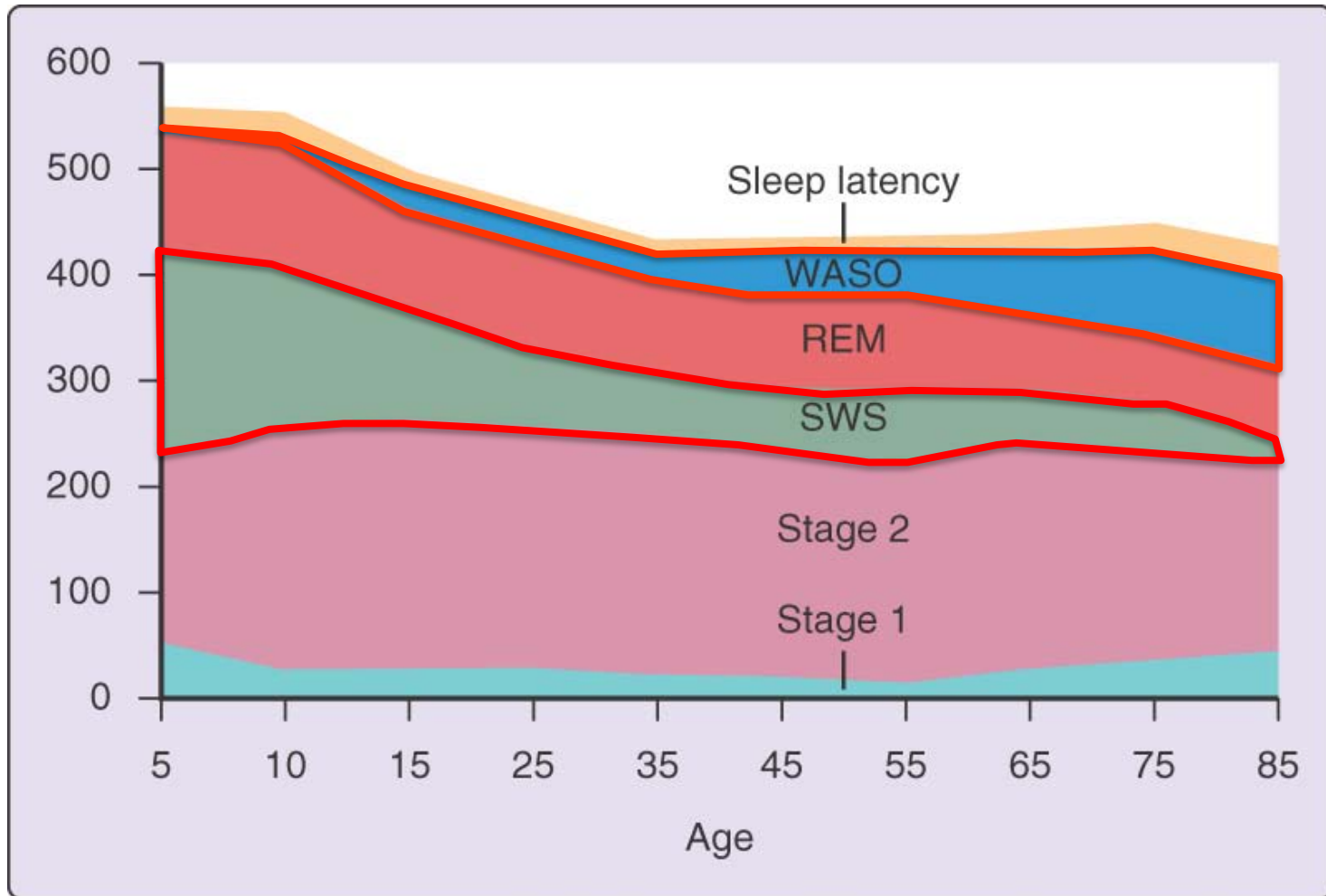
- Normal sleep
- Chronic diseases and sleep
- Impact of poor sleep
- Treatment

Normal sleep

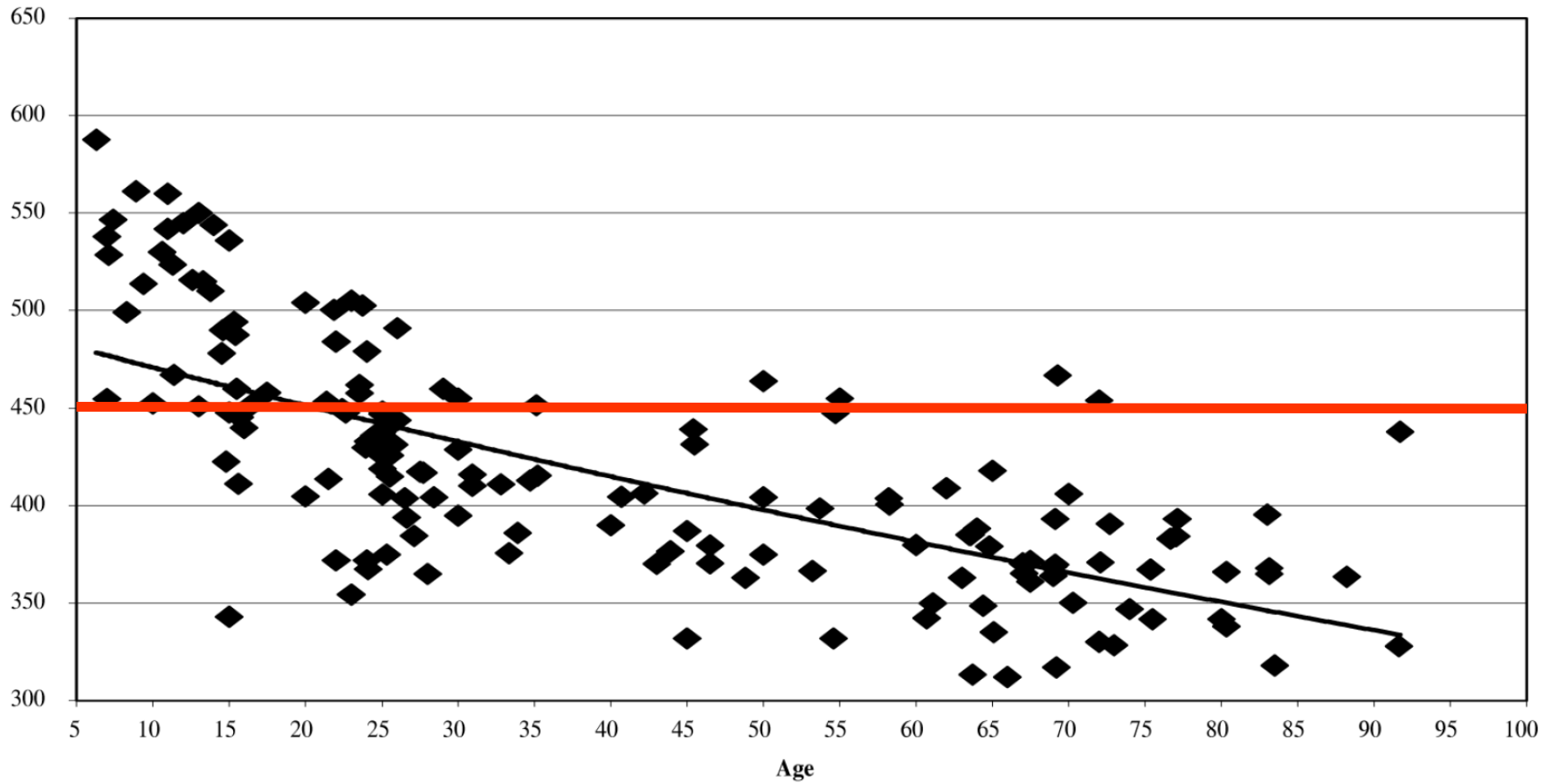
Normal Sleep Architecture



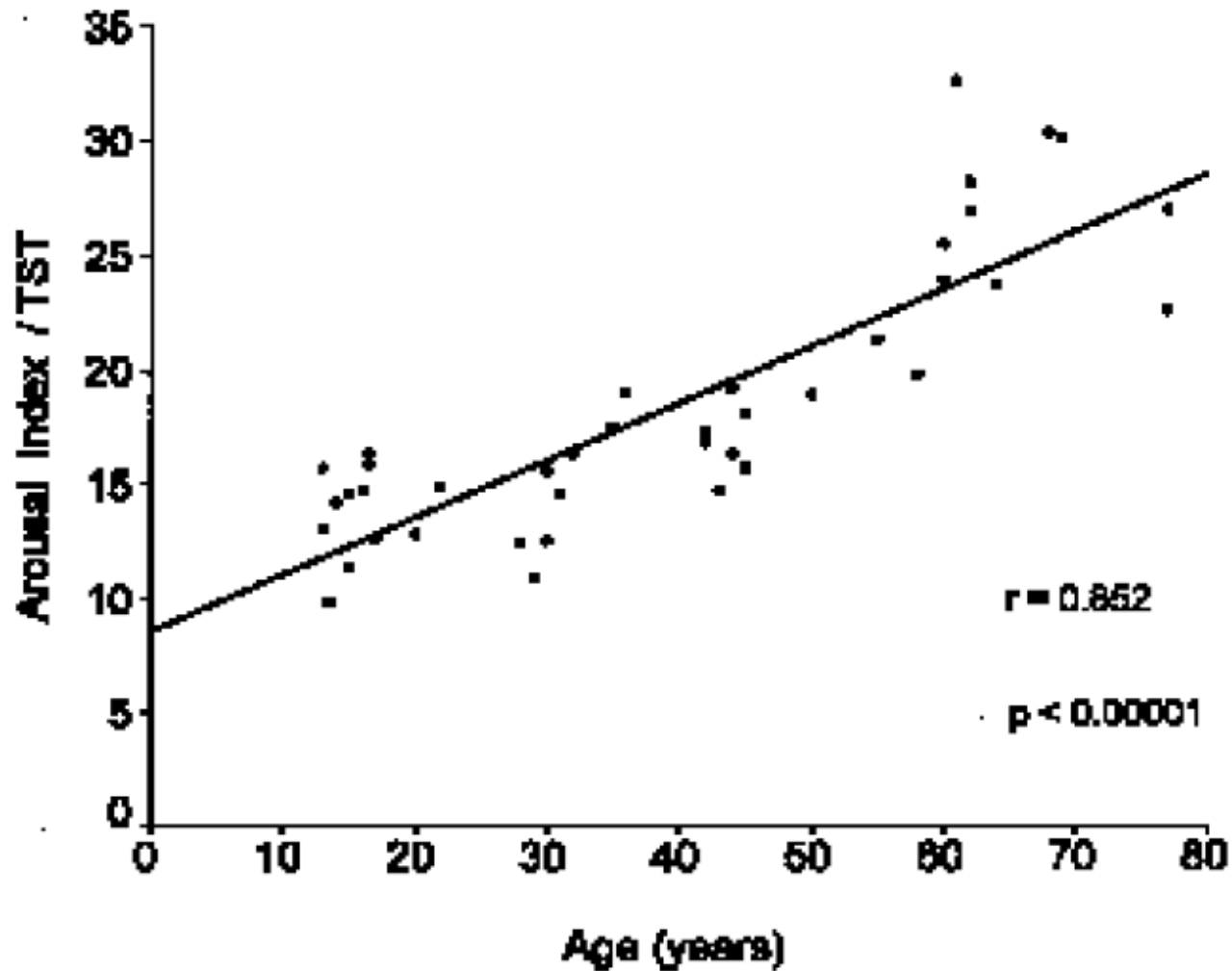
Normal Sleep



Total Sleep

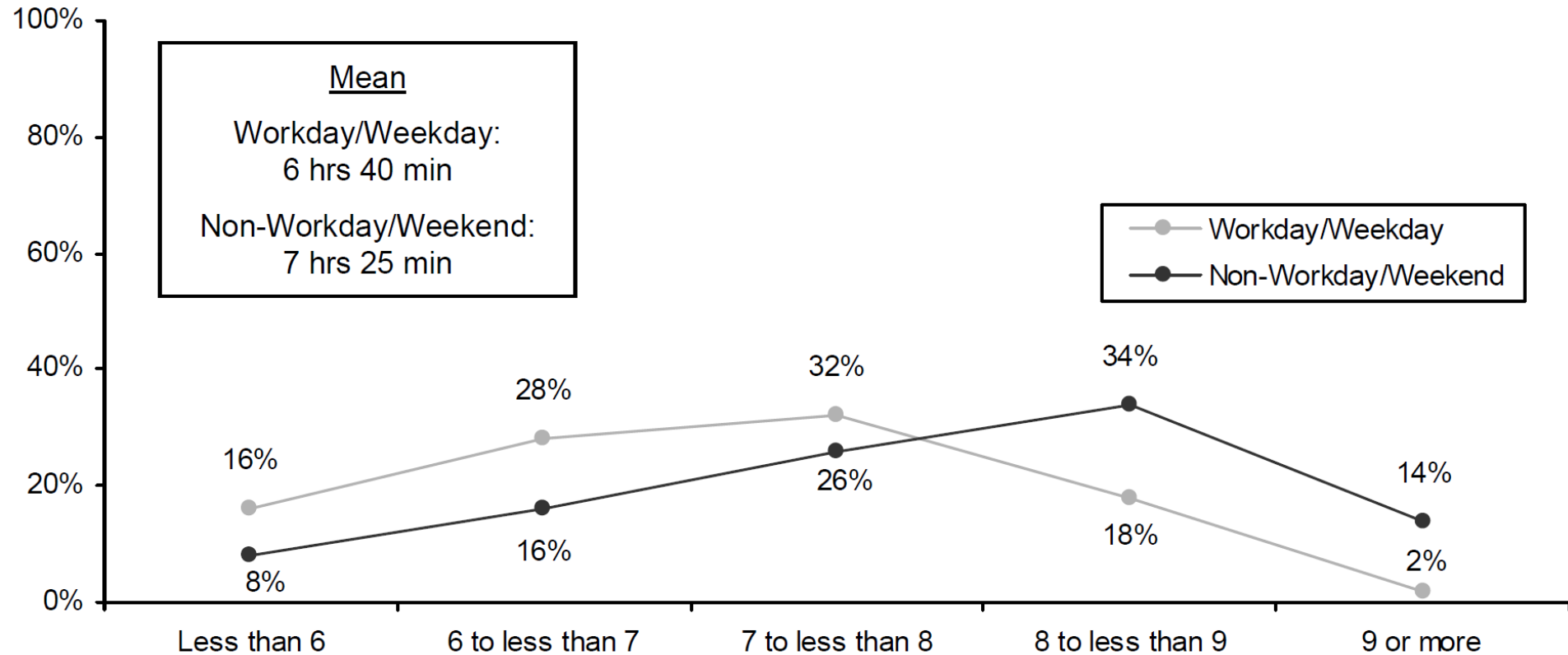


Arousals During Sleep



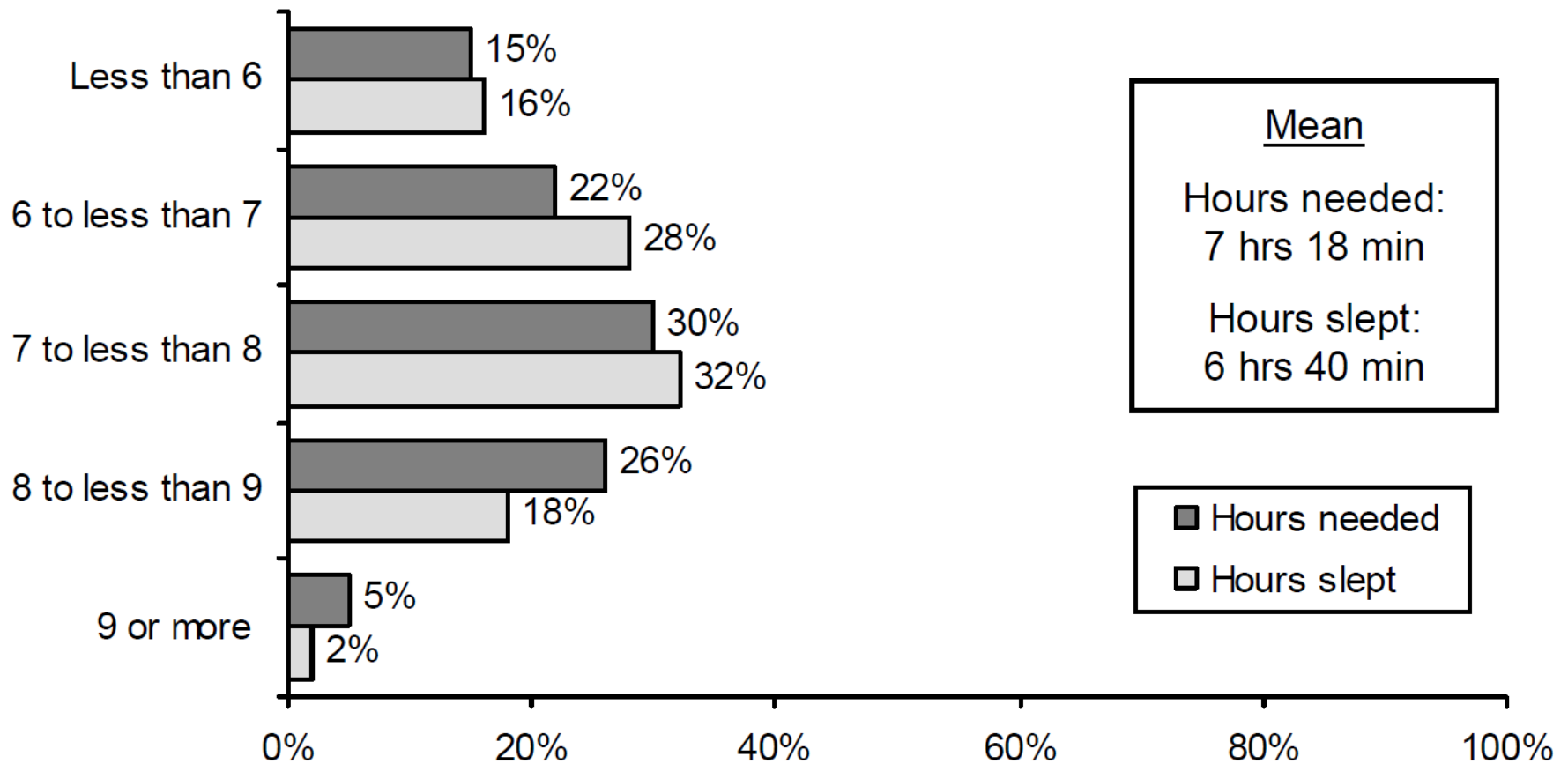
Sleep Duration

Total Sleep Time (in hours)



Sleep Needed

Hours of Sleep Needed to Function at Best During Day vs. Hours Slept on Workdays/Weekdays



Sleep in America Poll, National Sleep Foundation, 2008

Normal Sleep: Summary

- Most probably need about 7 – 7.5 hours of sleep
- Most get about 6.5 hours of sleep during the week
- Normal to have about 20 – 30 minutes of wake time after falling asleep
- Normal to see up to 15 – 20 arousals/hour of sleep

Chronic Disease and Sleep

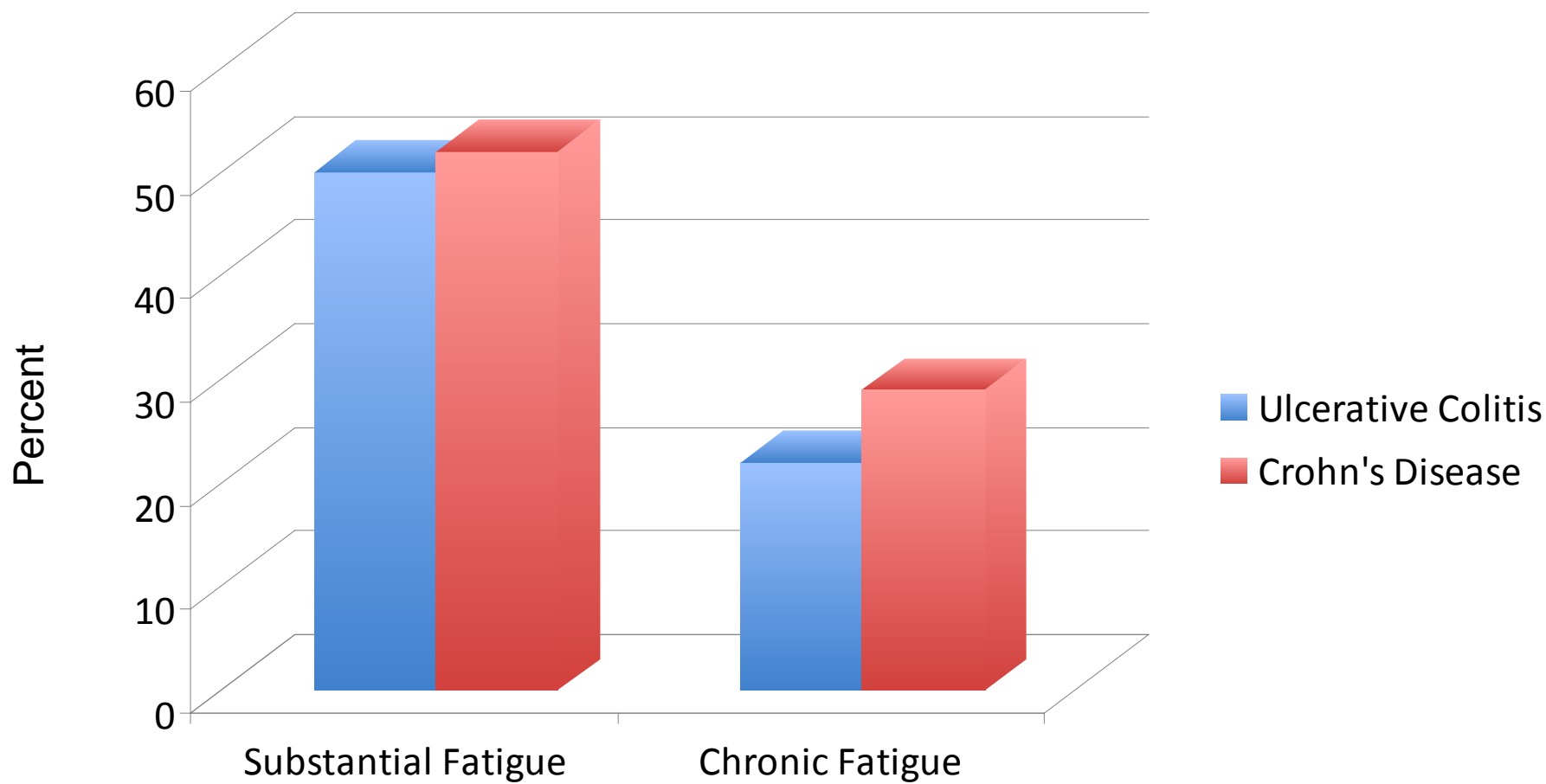
Sleep Deprivation

- Insufficient sleep duration to support full level of functioning the next day (in alertness or performance)
 - Insufficient sleep
 - Most common
 - Sleep debt is cumulative
 - Poor quality of sleep
 - Due to sleep disturbances

Fatigue

- Different from sleepiness
- Types:
 - Difficulty in initiating activity due to weakness without objective causes
 - Difficulty in maintaining activity
 - Difficulty in concentrating or recall

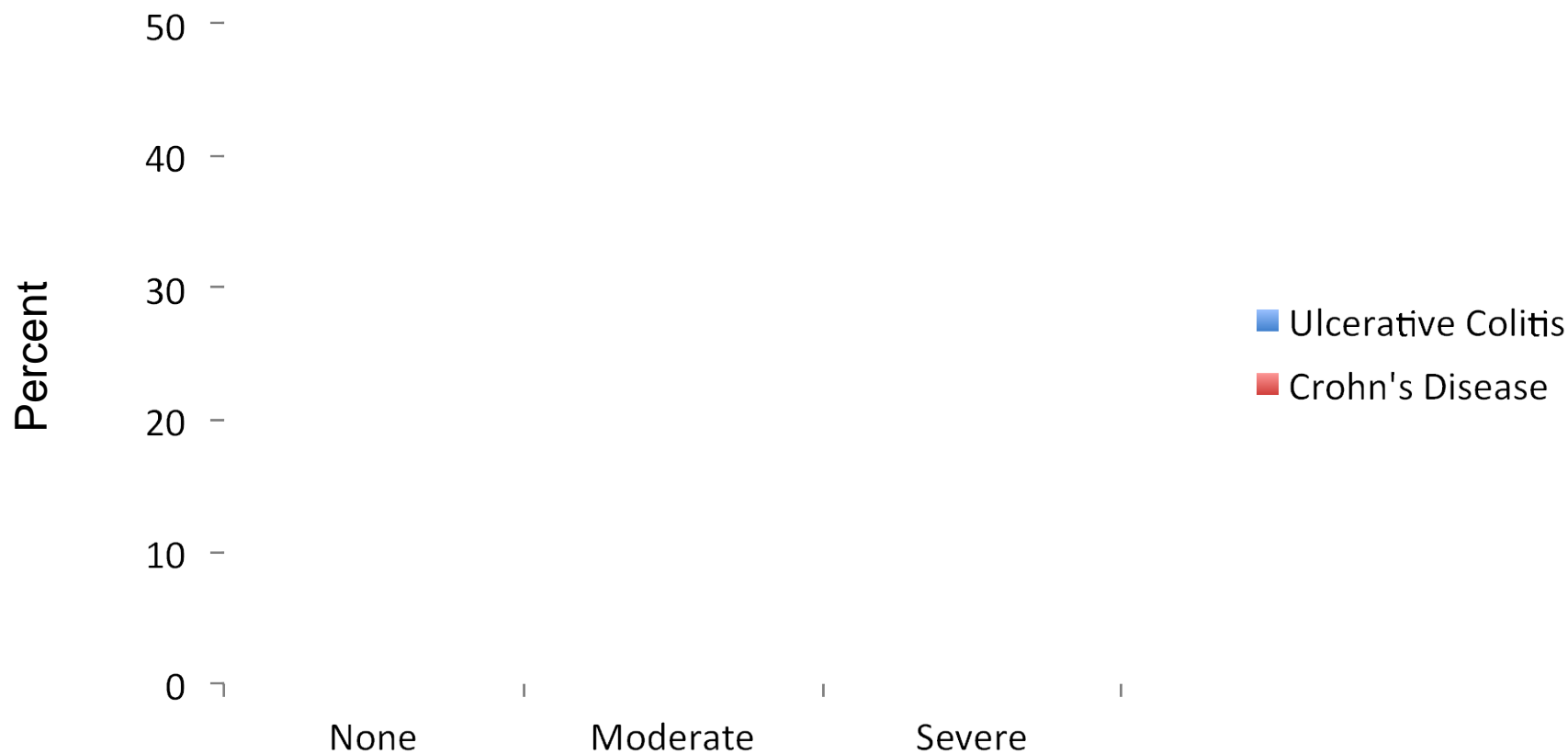
Fatigue and Inflammatory Bowel Disease



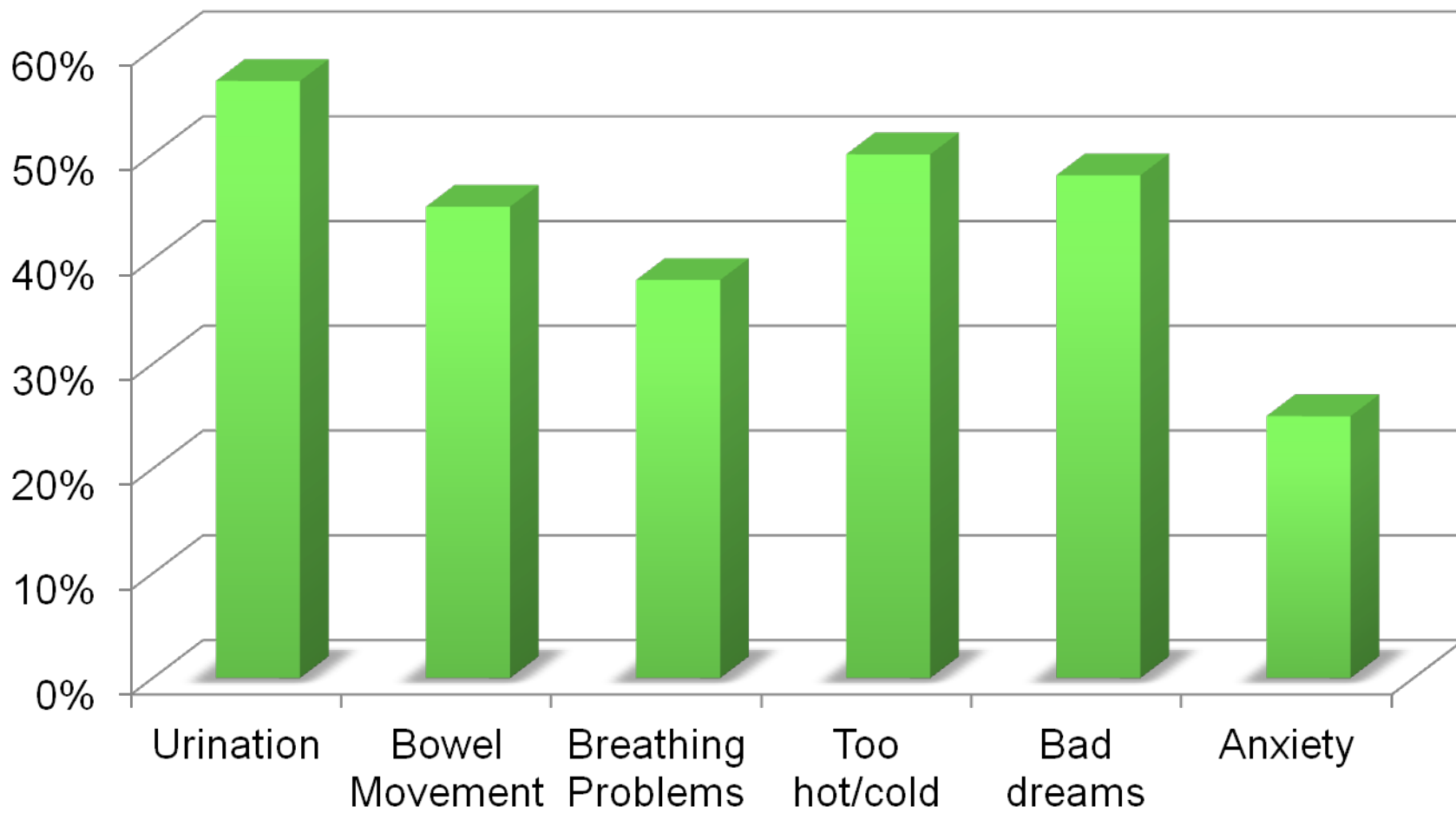
Fatigue and Inflammatory Bowel Disease

- Factors affecting fatigue
 - Disease symptoms
 - Hemoglobin
 - Altered sleep
 - Smoking
 - Crohn's disease
 - Correlated with physical fatigue scores
 - Perceived stress

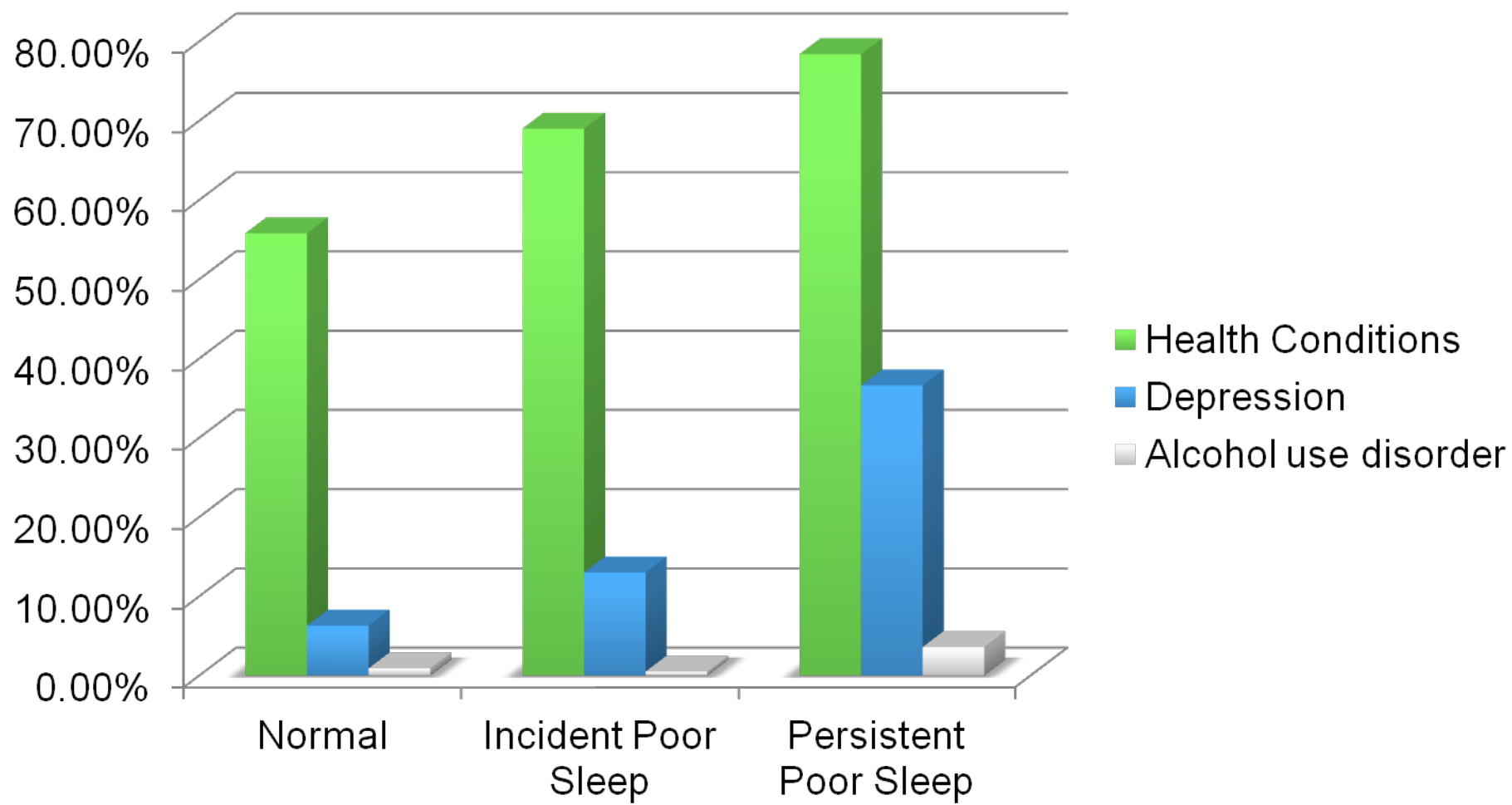
Sleep and Inflammatory Bowel Disease



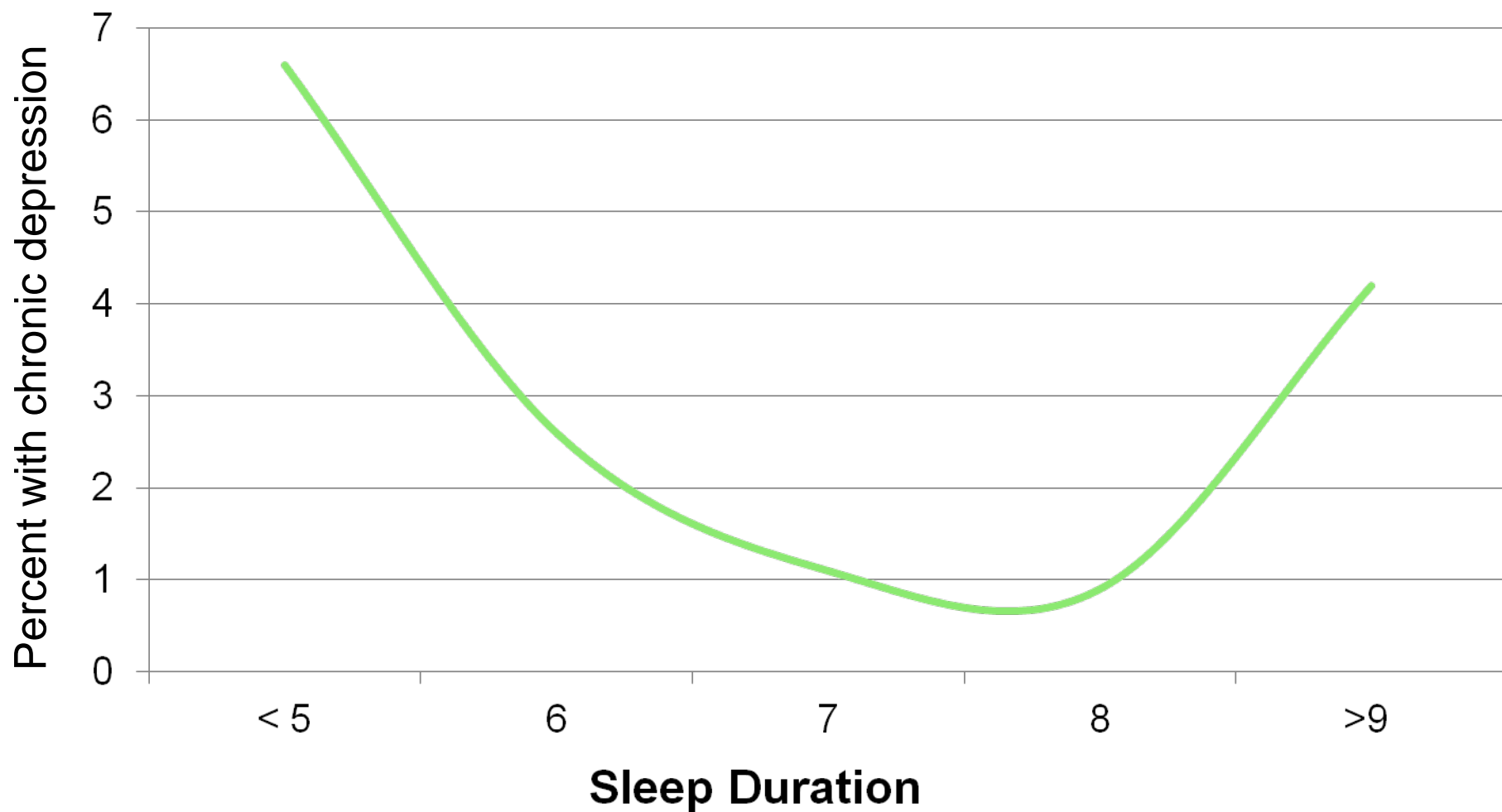
Sleep Disturbance and IBD



Predictors of Poor Sleep



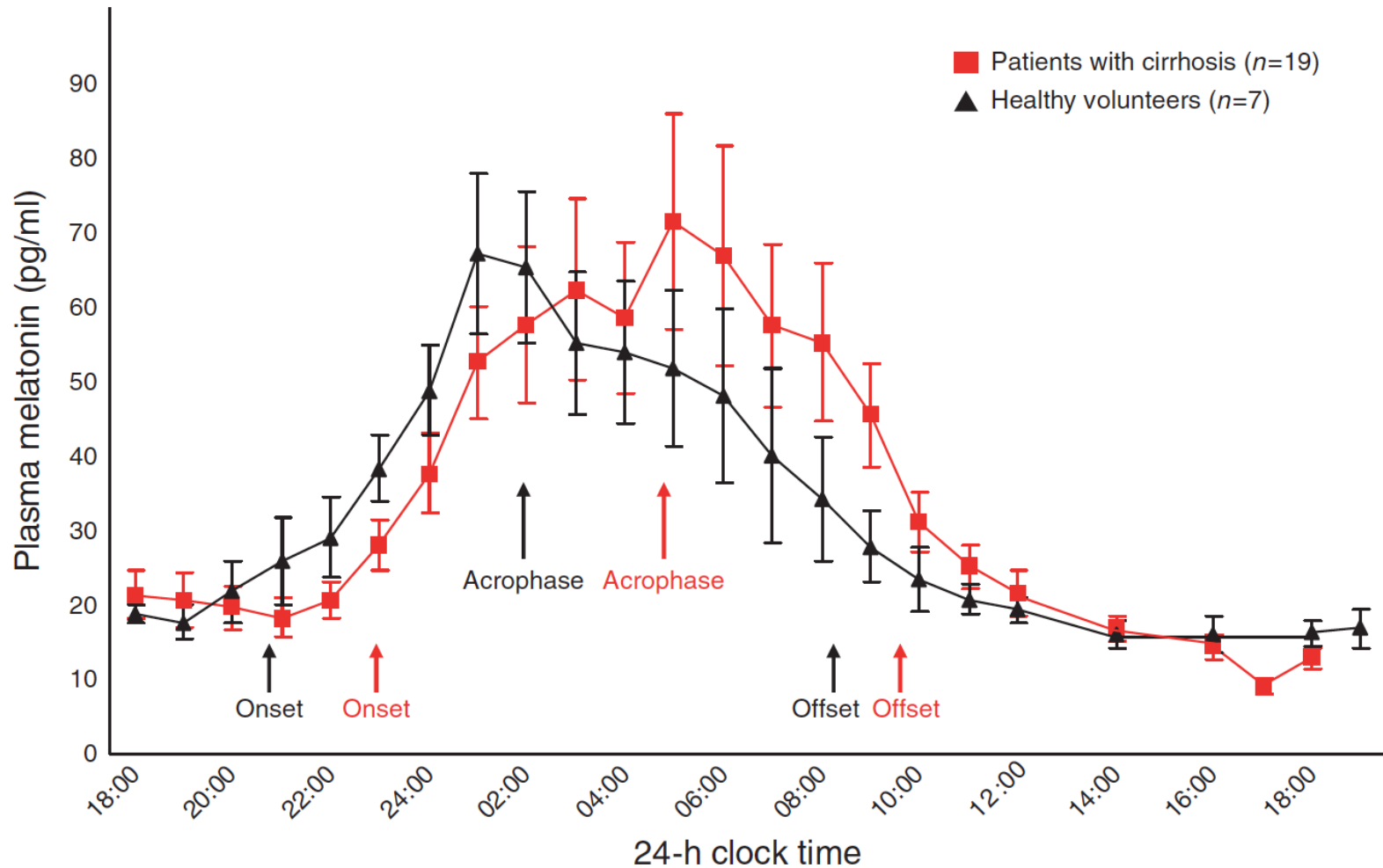
Sleep and Depression



Fatigue and PSC

- Sense of well being, fatigue and depression was worse if you had inflammatory bowel disease in addition to PSC
- Fatigue was was not related to severity of the liver disease but was related to gastrointestinal symptoms (reflux, abdominal pain, constipation, indigestion, and diarrhea) and depression

Delayed Circadian Rhythm in Cirrhosis

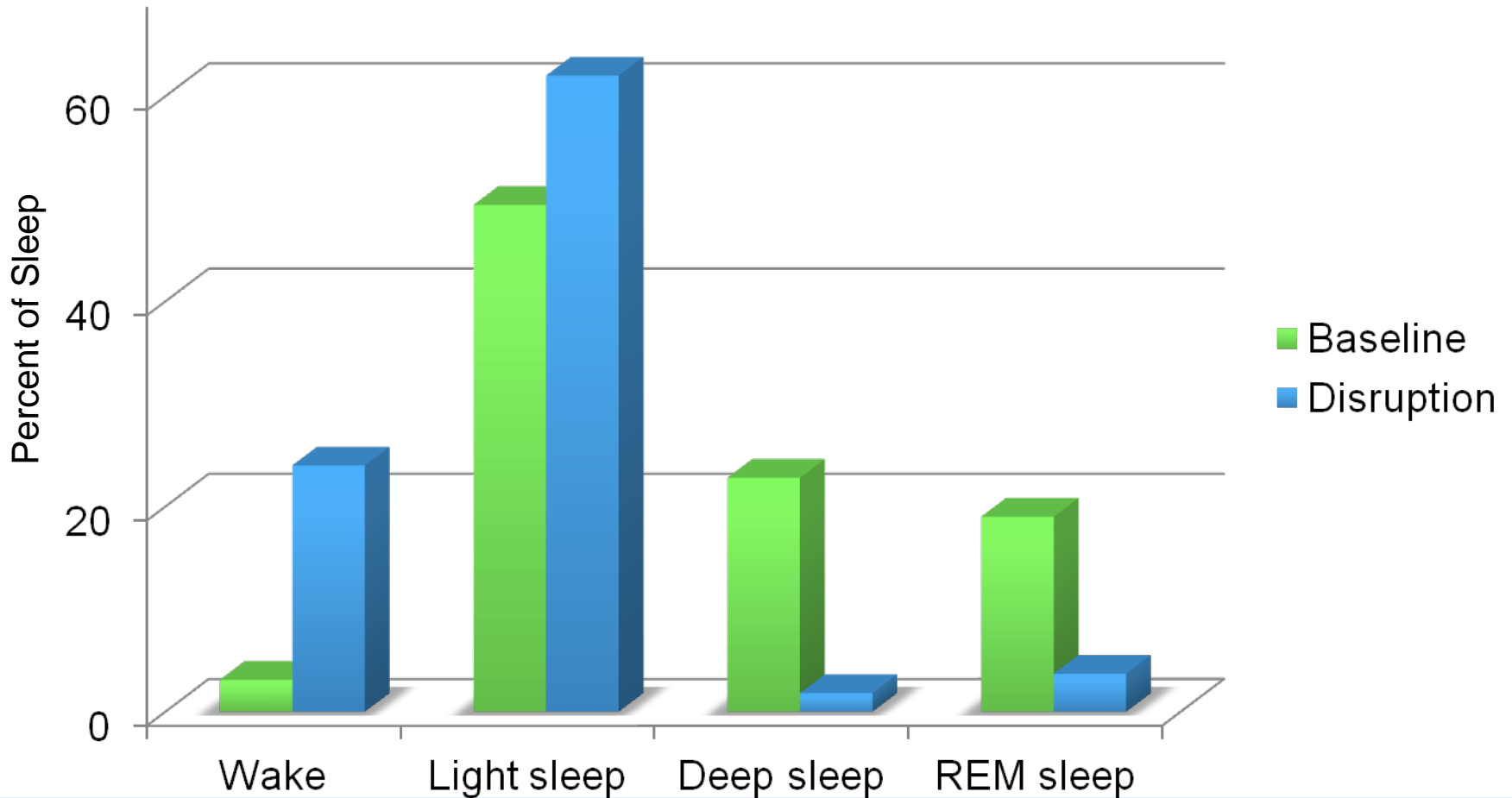


Chronic Disease and Sleep

- Disease states, hemoglobin, and altered sleep are among main contributors of fatigue
- Disease itself often cause interrupted sleep
- Co-existing depression will also impact sleep
- There may be a delay in circadian rhythm in cirrhosis

Impact of Poor Sleep

Effect of Sleep Disruption

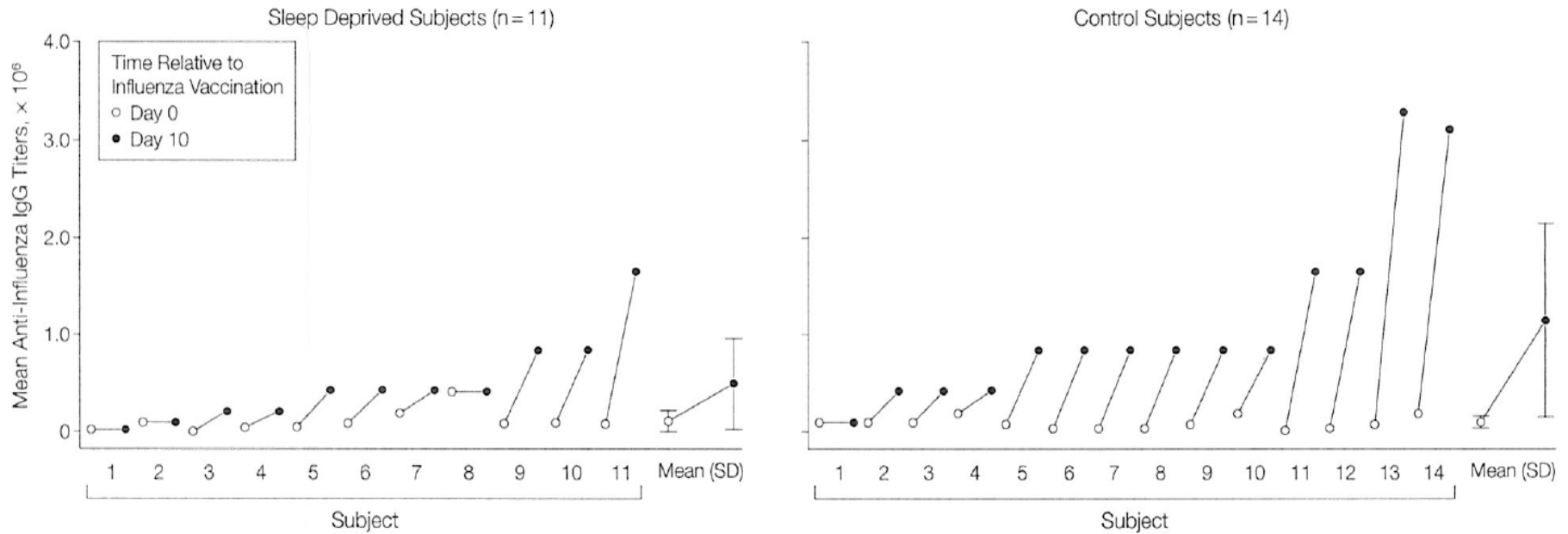


Effects of Sleep Deprivation

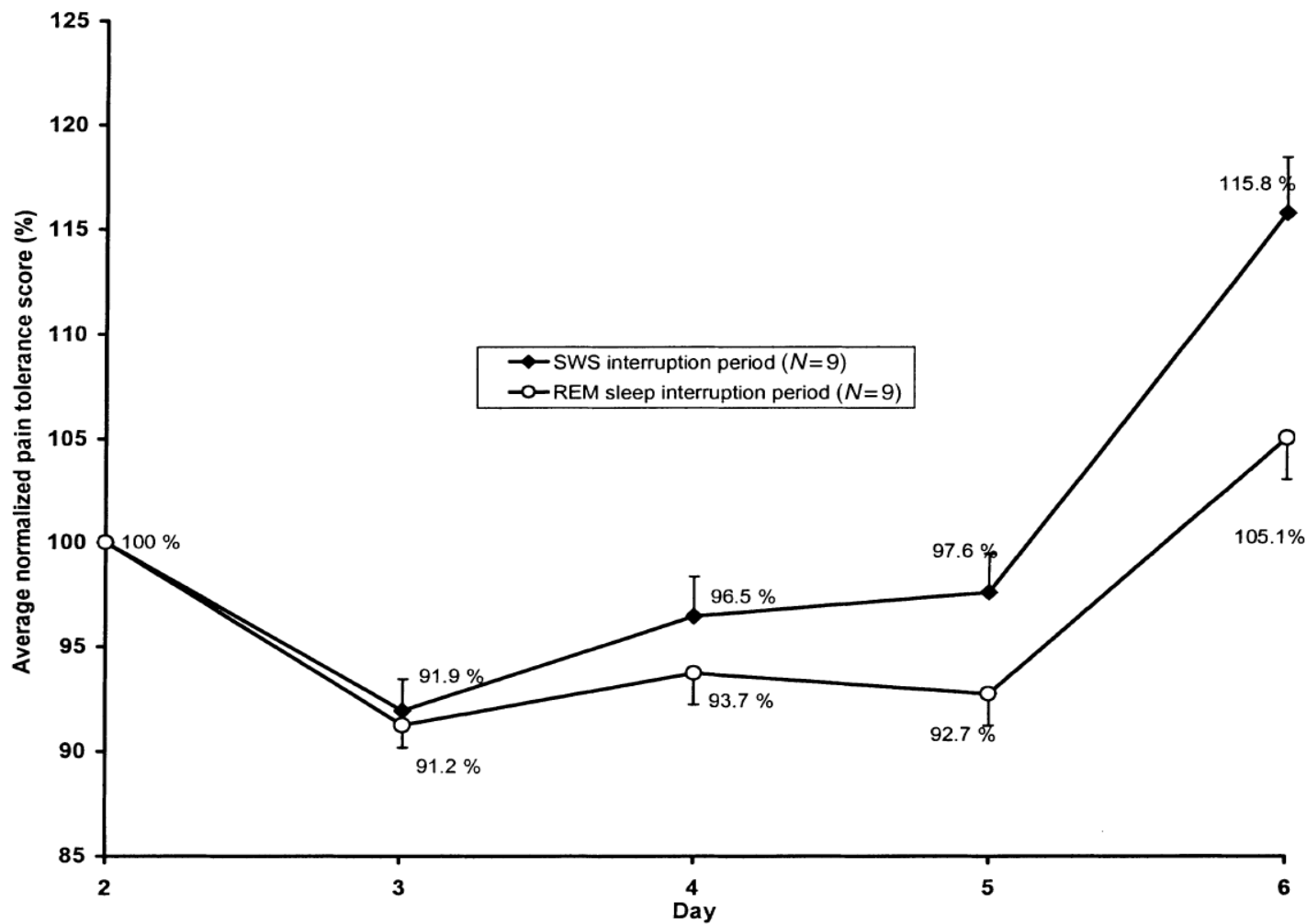
- Mood
- Cognitive function
- Accidents
- Quality of life
- Immune function
 - Poor immune response
 - Increased cytokines
- Appetite
- Effect on the heart

Sleep Deprivation Antibody Response

Figure. Antibody Titers at Baseline and 10 Days Following Influenza Vaccination



Pain and Sleep



Treatment

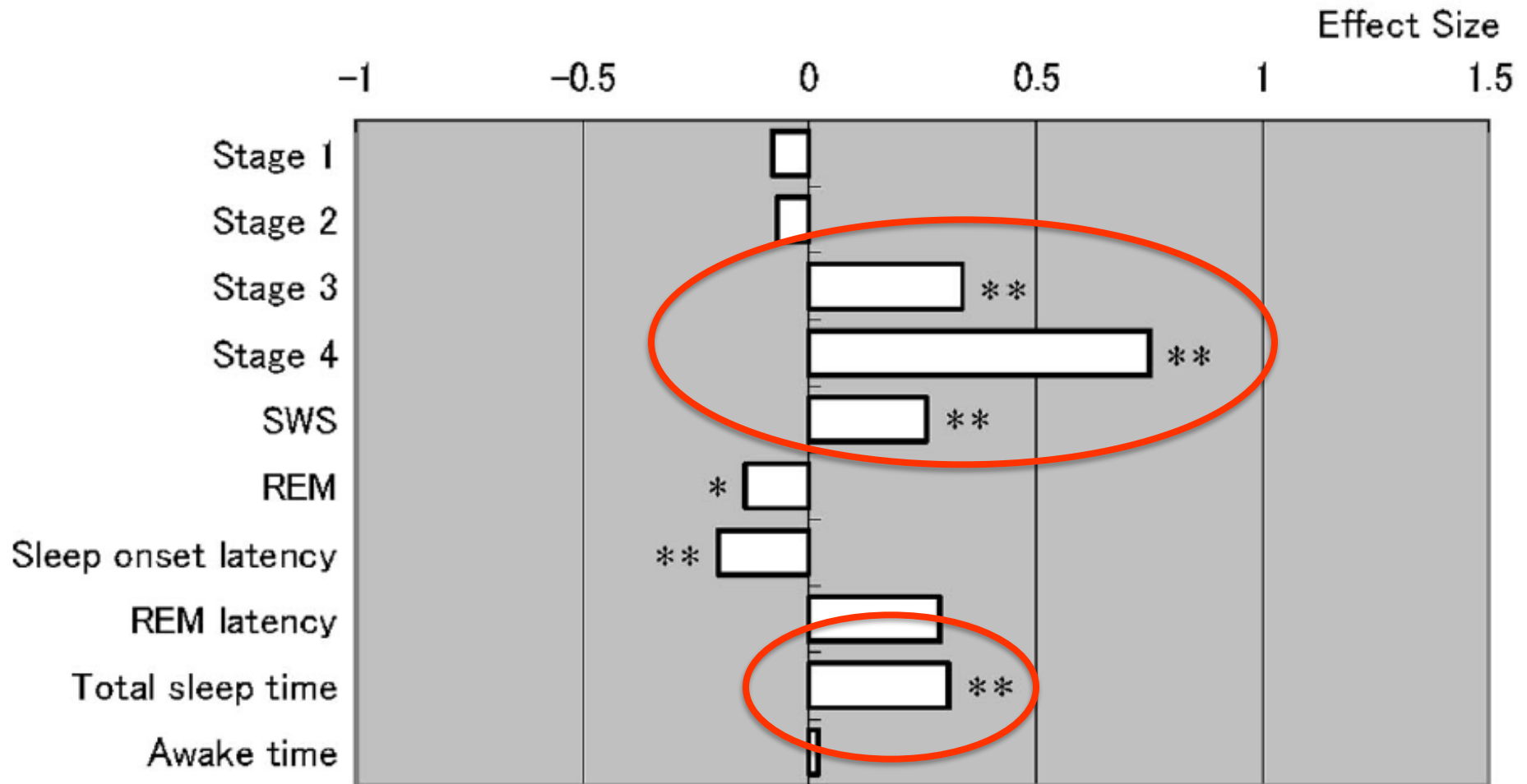
Conservative Management

- Maintain adequate sleep hygiene
 - Preparation for sleep
 - Slow down and dim the lights
 - Avoid mentally or physically stimulating activities
 - Use of thinking time
 - Caffeine and alcohol
 - Sleep environment
 - TV off or at least on a timer
 - Noise and light reduction in the room
 - Temperature adjustment
 - Bootzin technique
 - Stimulus control

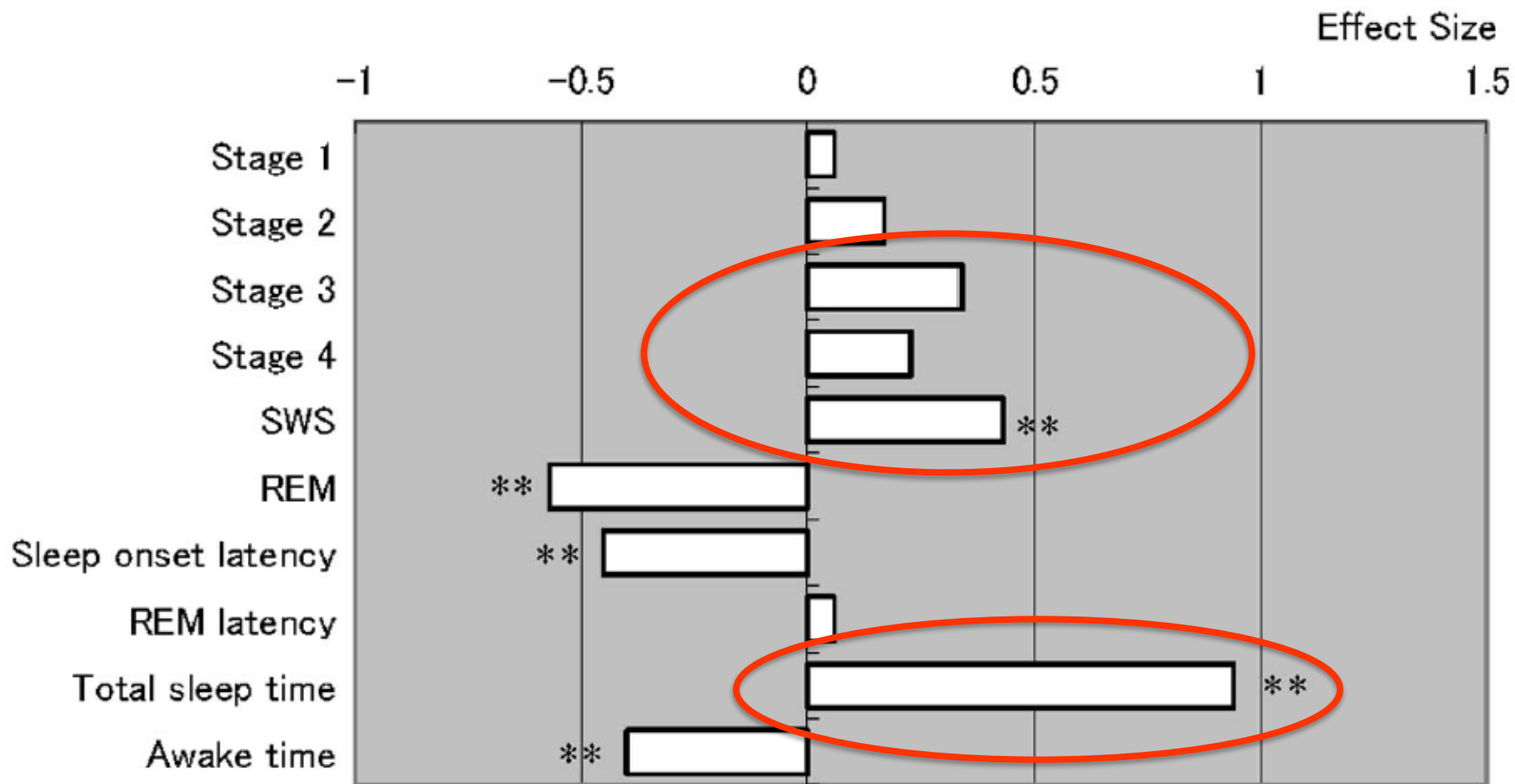
Conservative Management

- Adequate bedtime
 - Goldilocks of sleep
 - Naps
- Watch your routine during your “sleep time”
 - Snacking, smoking, internet/working
- Avoid clock watching
- Individualized approach

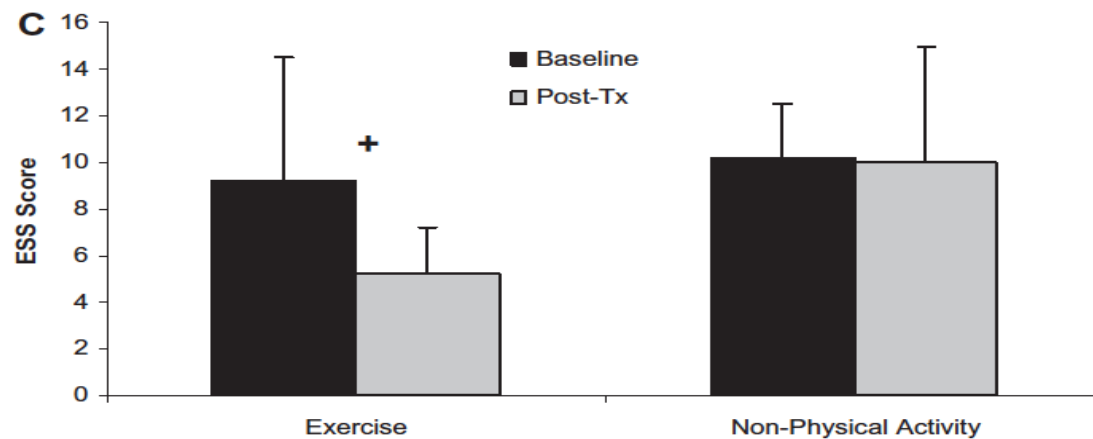
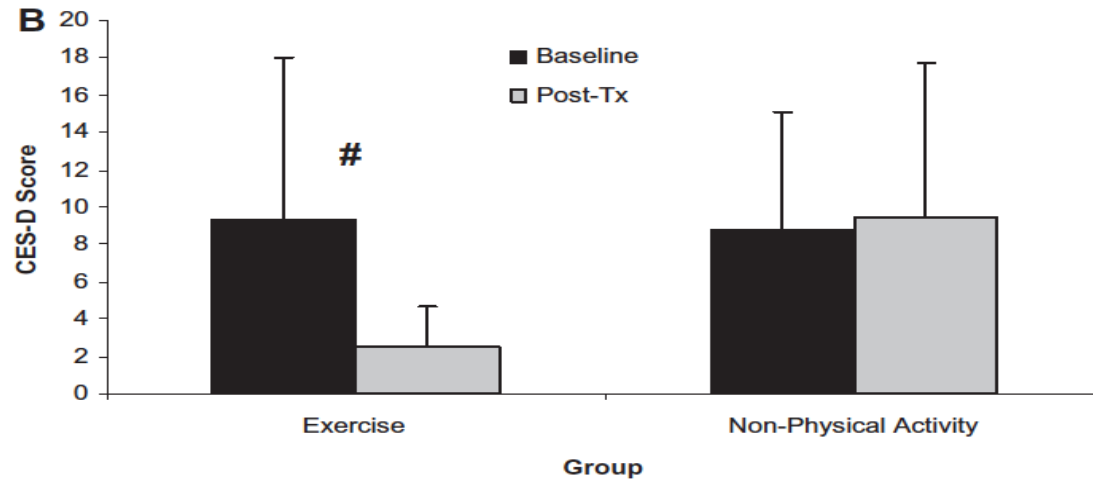
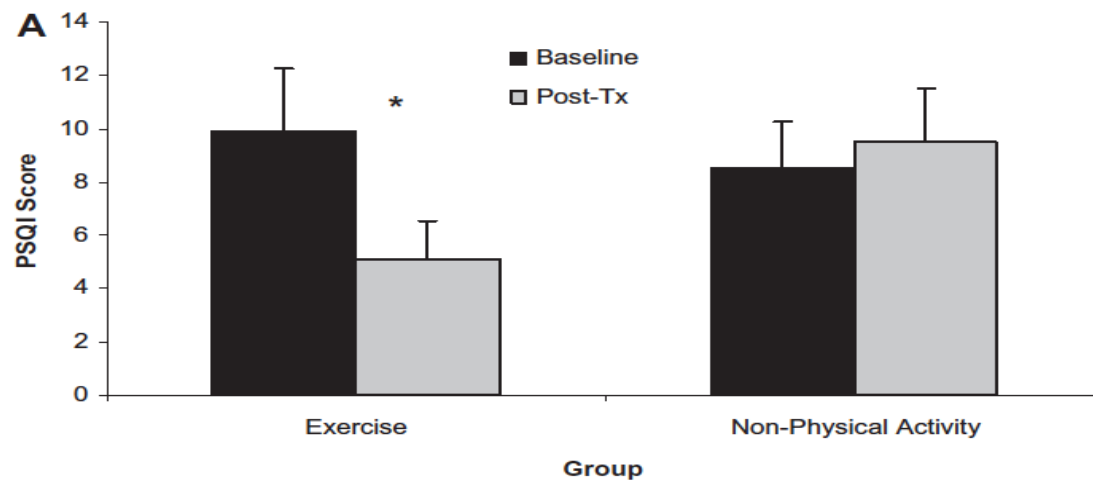
Exercise: Acute



Exercise: Chronic



Exercise

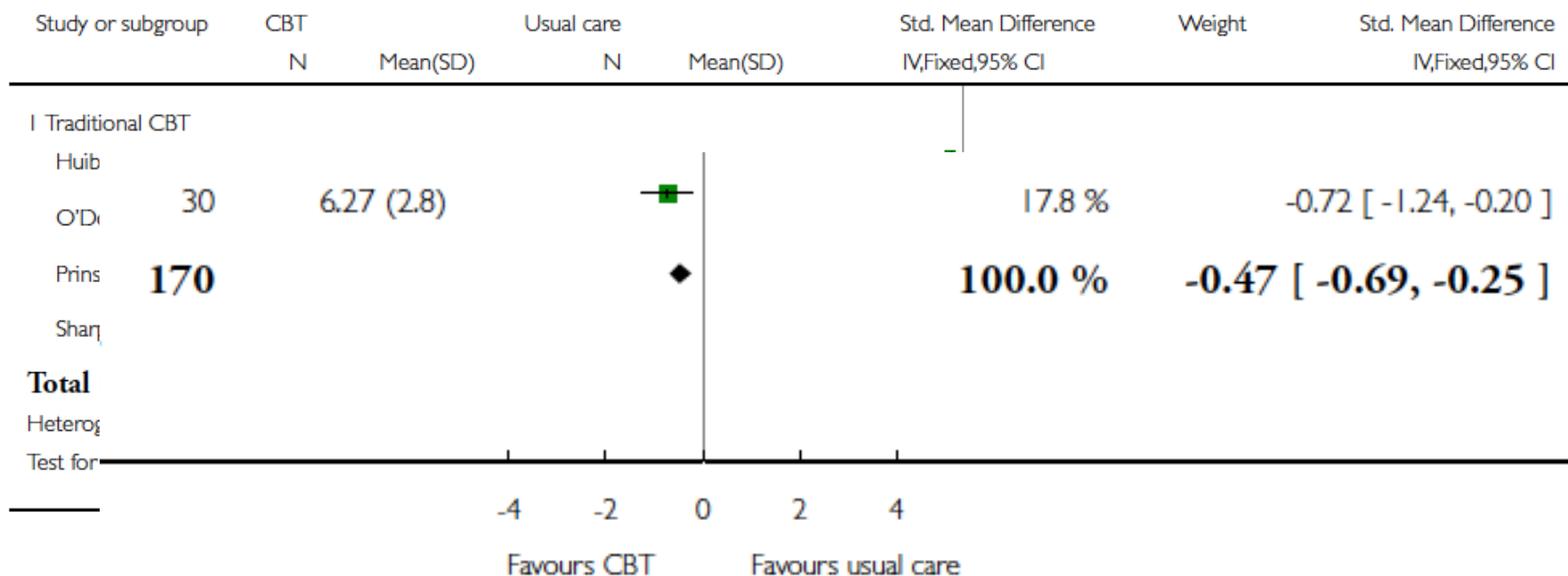


Exercise

- Moderate intensity
 - 30 – 60 minutes few days a week
 - Strength training
 - Start slow and gradually build up to target
 - If pain or symptoms worsen, reduce the intensity and slowly increase

Cognitive Behavior Therapy: Fibromyalgia

- Corrections of thoughts, behaviors, and beliefs that may negatively impact disease
- Many programs combine graded increase in activity



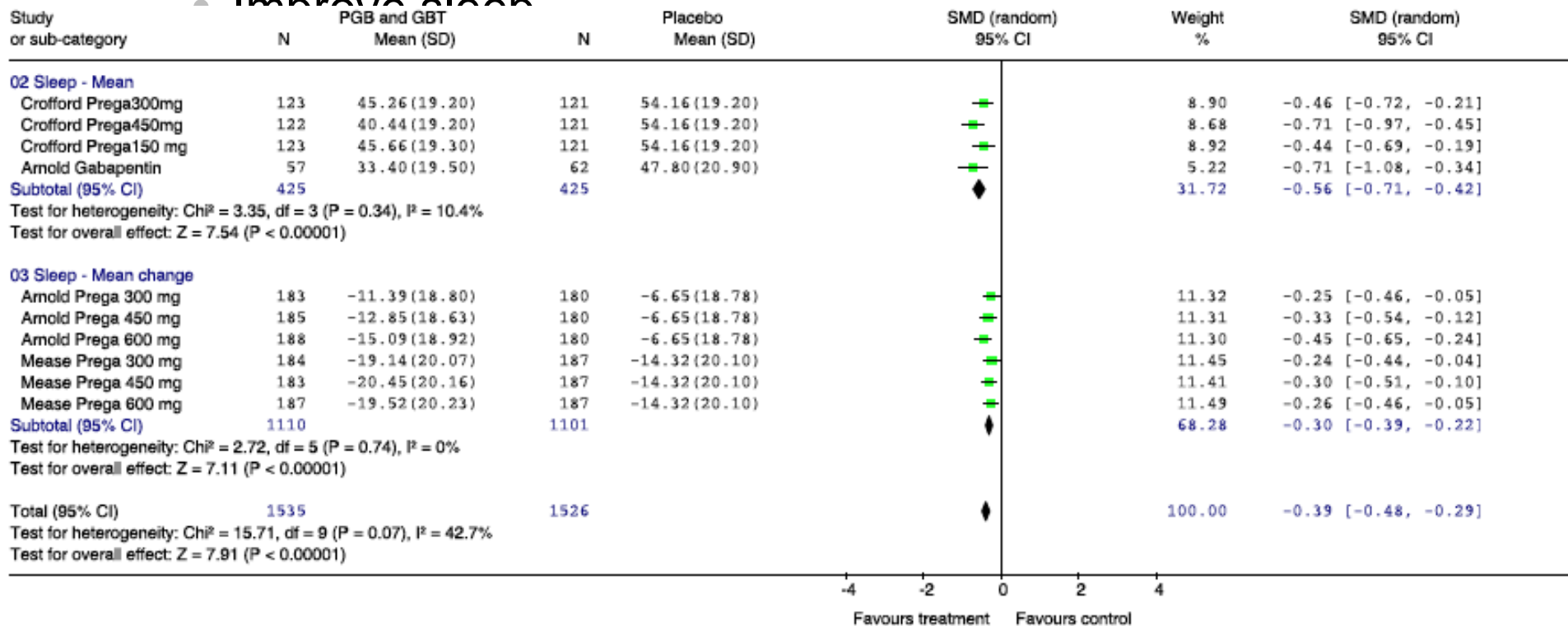
Treat Co-existing Sleep Disorders

- Restless leg syndrome
 - Periodic limb movement disorder
- Obstructive sleep apnea
- Depression/anxiety disorder

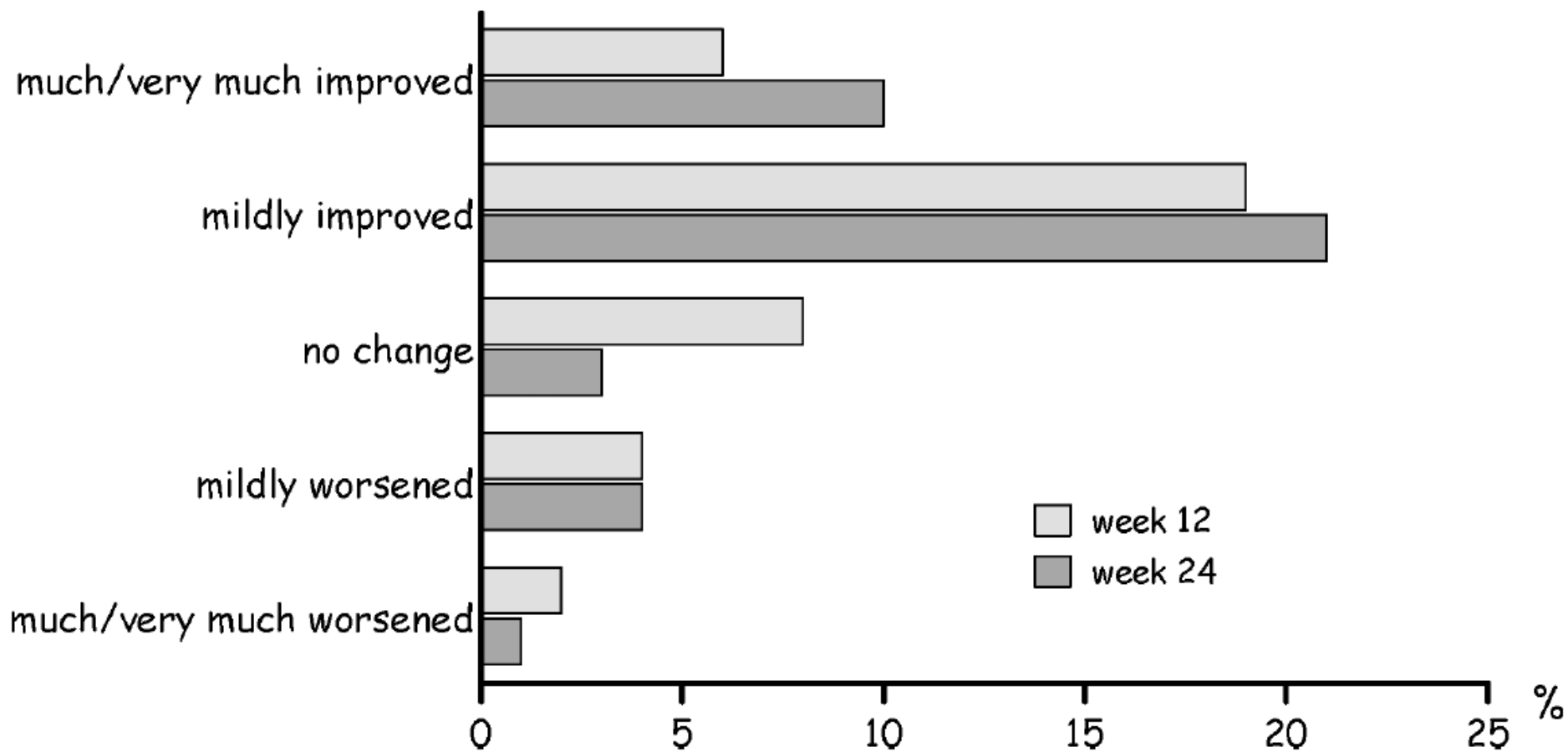
Gabapentin and Pregabalin

- Pregabalin is FDA indicated for fibromyalgia
- Both have shown to:

Improve sleep

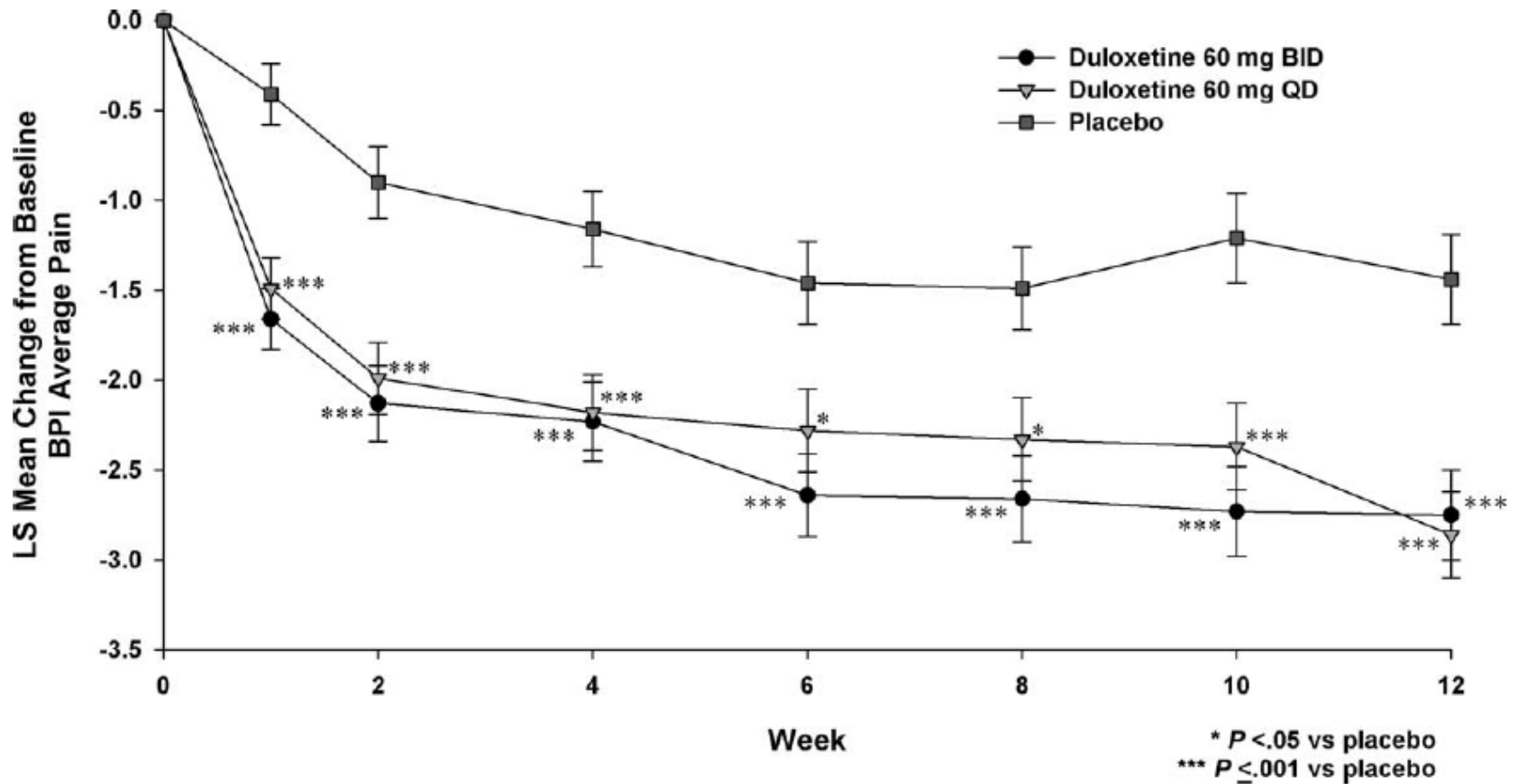


Trazodone and Pregabalin: Fibromyalgia



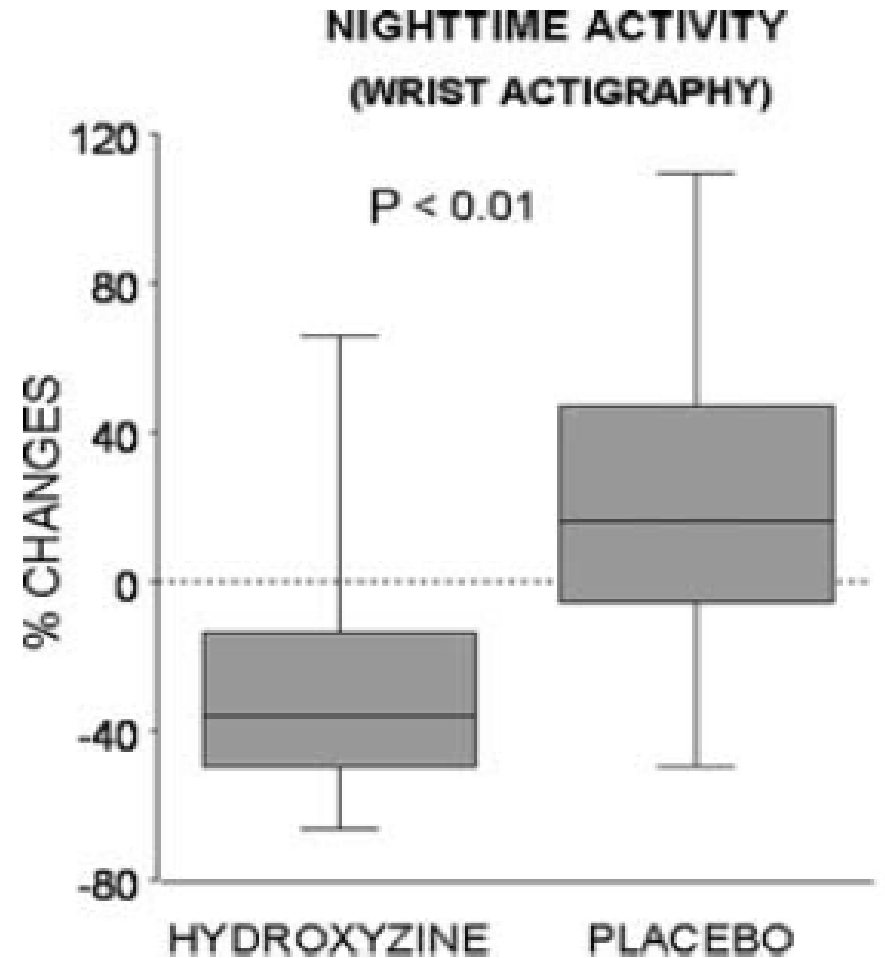
Duloxetine

- Antidepressant

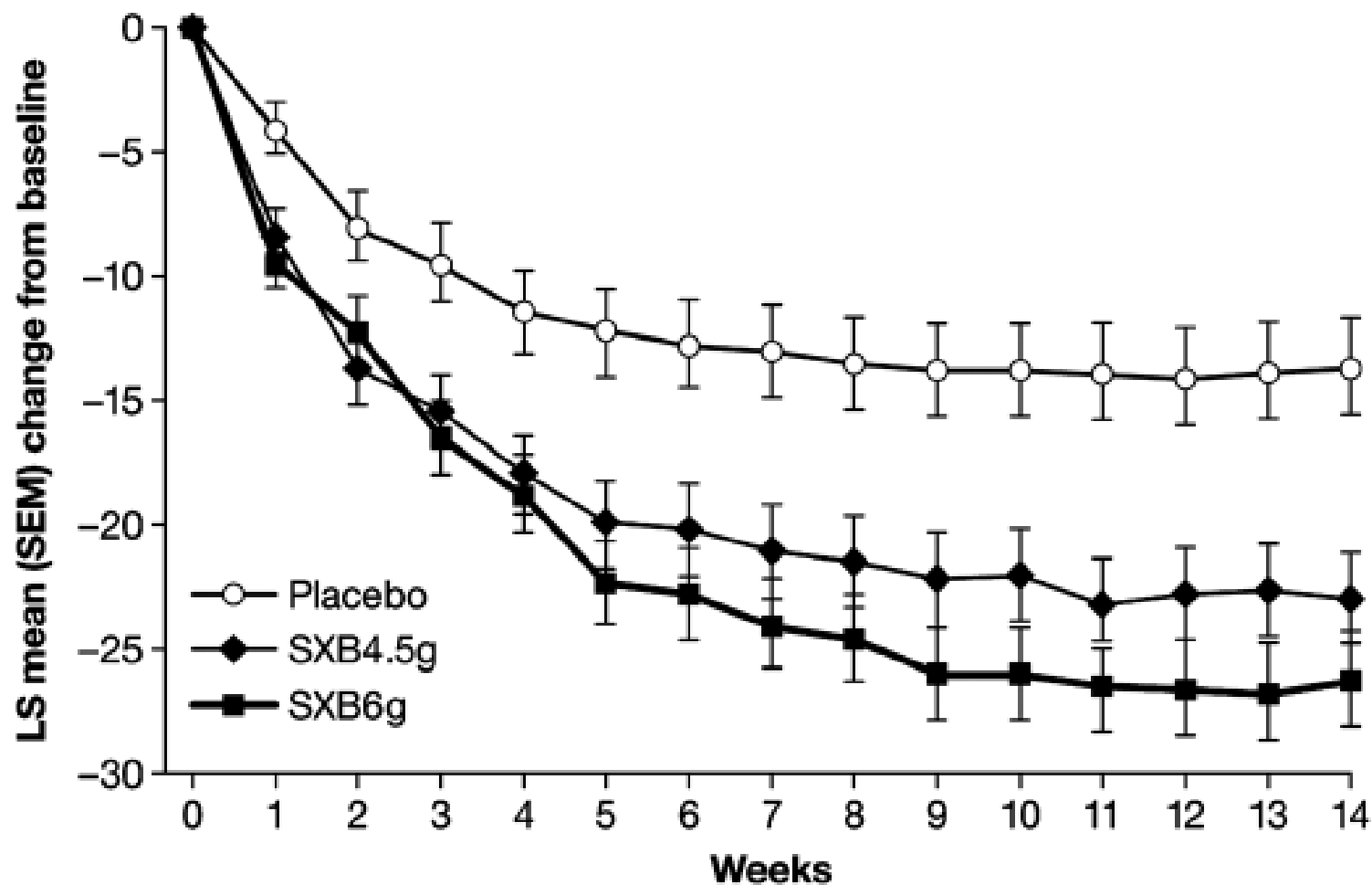


Hydroxyzine in Cirrhosis

- Histamine blocker
- Caution in those with overt hepatic encephalopathy



Sodium Oxybate



Alternative Medicine: Insomnia

- Acupuncture and Acupressure: Insomnia

- May improve sleep quality
- Limited in size of the study and some inconsistencies in different studies

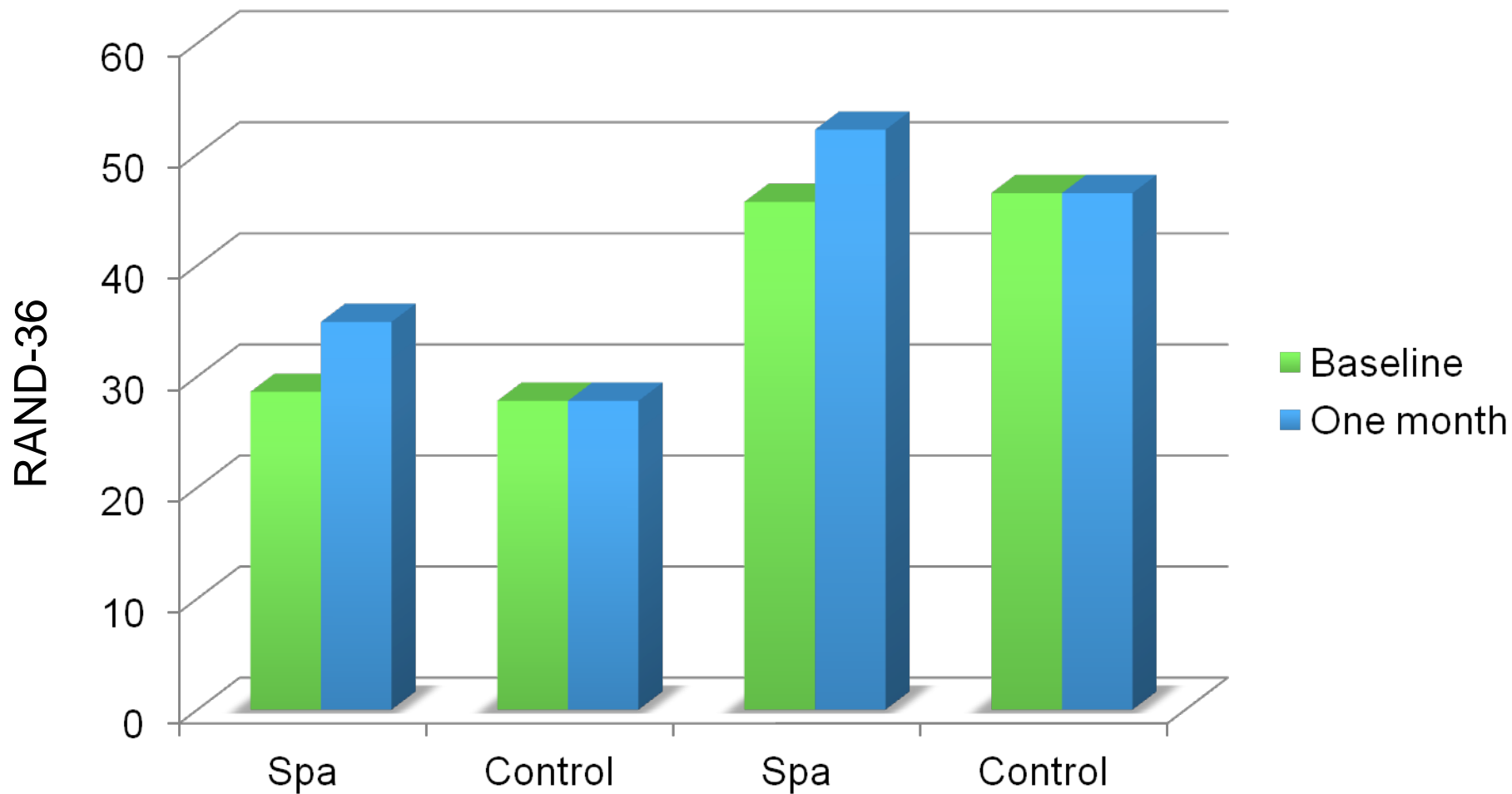
Cochrane Database of Systematic Review 2007

- Yoga: Fatigue

- Improved fatigue and vigor among breast cancer survivors

Cancer 2011

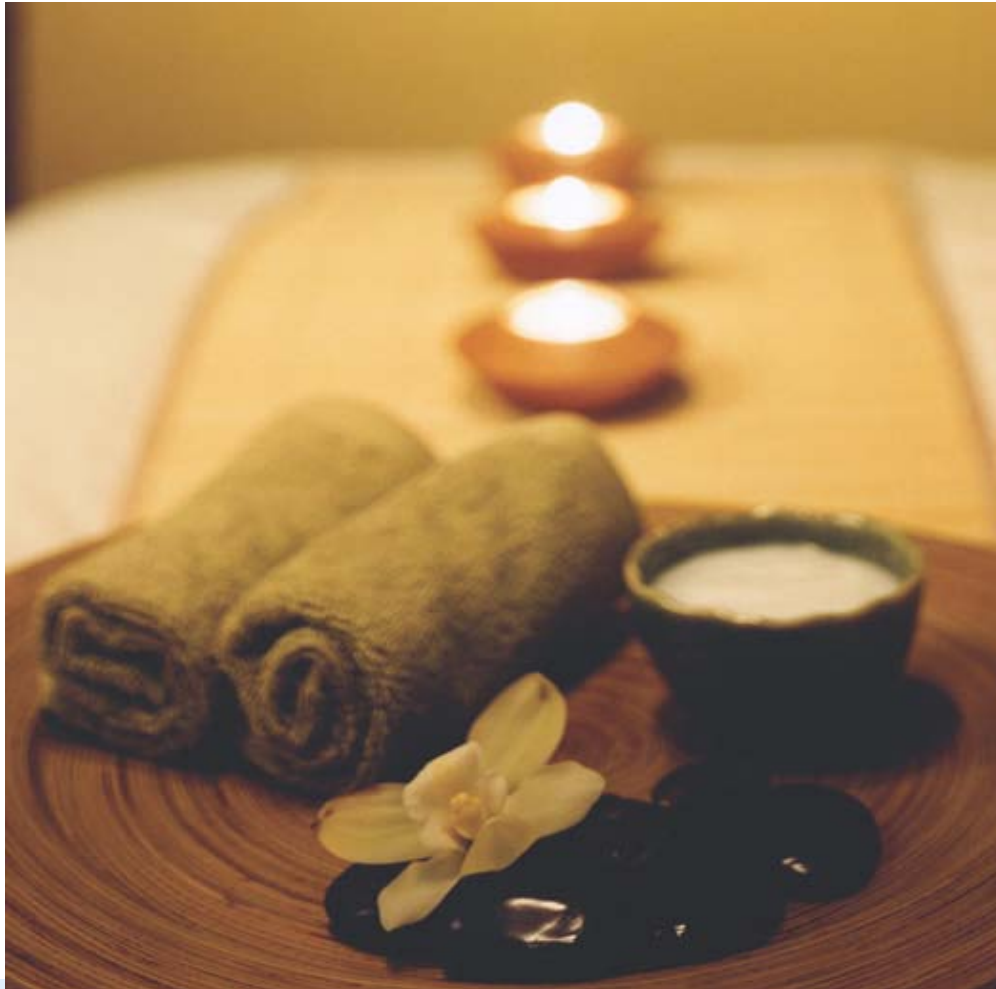
Spa Therapy



Treatments

- Treatment of underlying disease
- Conservative treatments in sleep hygiene
- Exercise
- Cognitive Behavior Therapy
- Medications: from fibromyalgia managements
 - Pregabalin
 - Duloxetine
 - Others
- Some evidence for alternative medicine

When all else fails. . .





Thank you !

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