

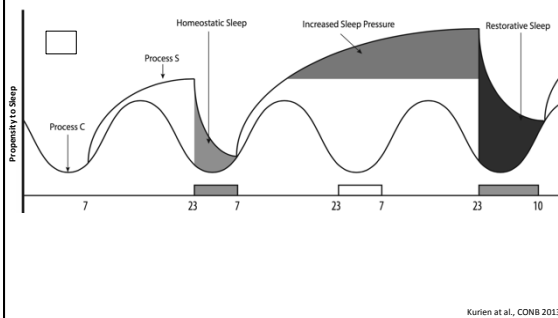
Sleep and Circadian Disruption in the Perioperative Setting

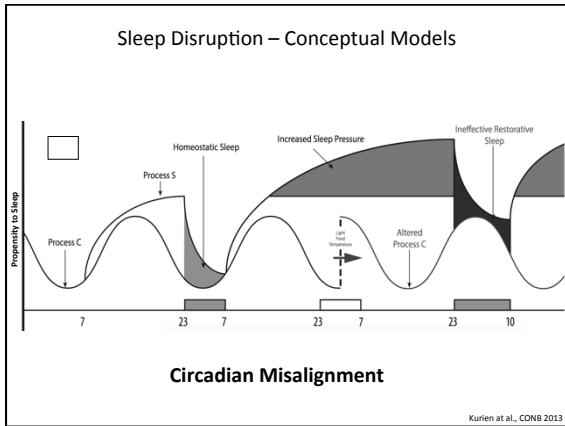
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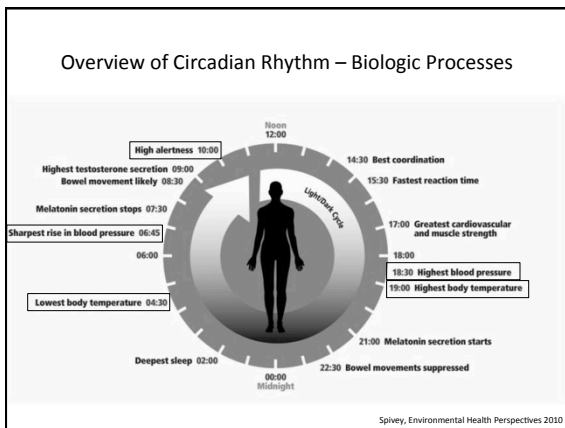
Outline

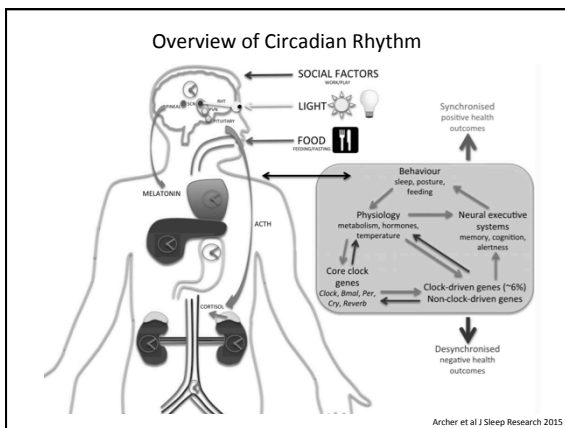
- Models of Sleep and Circadian Integration
- Background of Circadian Rhythm
- Effects of Sleep Disruption
 - Cognition, Immunity, Metabolism
- Effects of Anesthesia on Sleep and Circadian Rhythm
- Recovery from Circadian Disruption
 - Temperature
 - Feeding
 - Melatonin
- Overview of Ongoing Research
 - Circadian Disruption
 - Innate Immunity and Circadian Rhythm

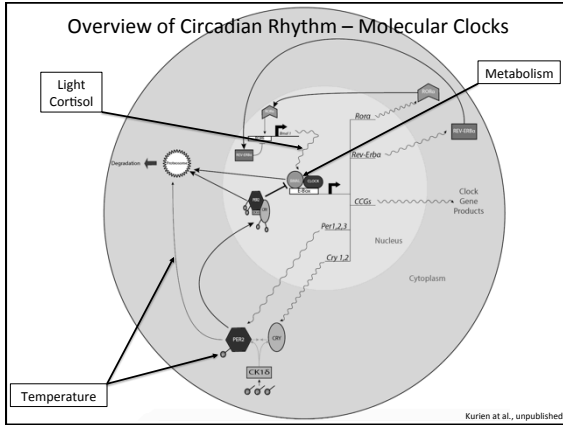
Sleep Disruption – Conceptual Models











Case Presentation – Additional Factors

74 M. ASAII. History of descending colon mass s/f open resection. PMH of HTN, HL, DM II, BPH, denies OSA, exercise tolerance: normal.

Preoperatively:

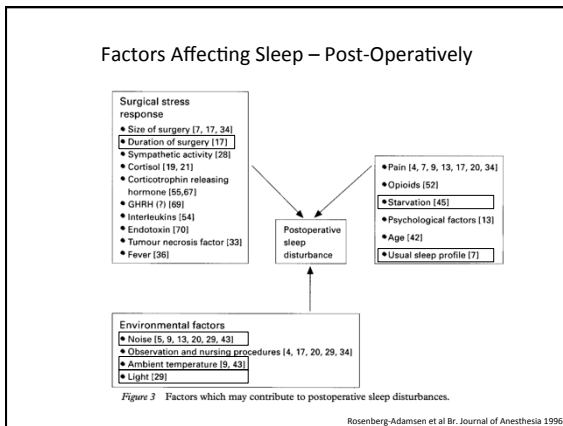
- Patient has fragmented sleep (nocturia)
- Patient finished bowel prep but resulted in reduced sleep on the night prior to surgery
- Patient has a late sleep preference (12am – 8am) but was asked to come to the OR at 630 am

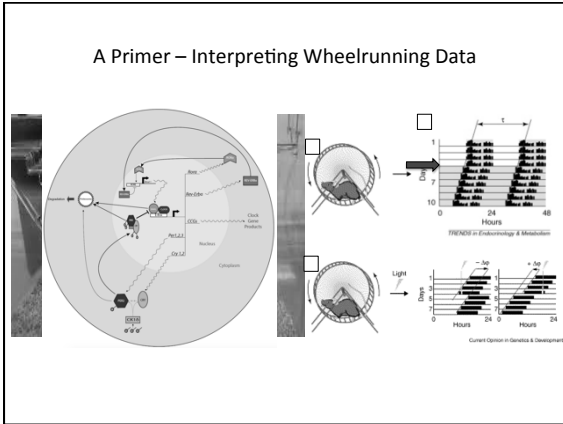
Intraoperatively:

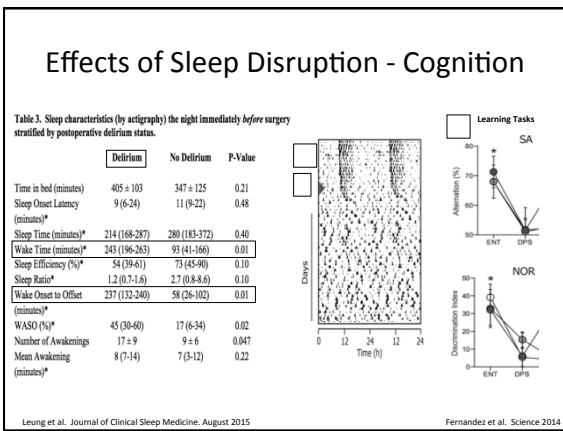
- Case uneventful 6 hours operative time
- Temperature nadir 35.0 °C at 09:00

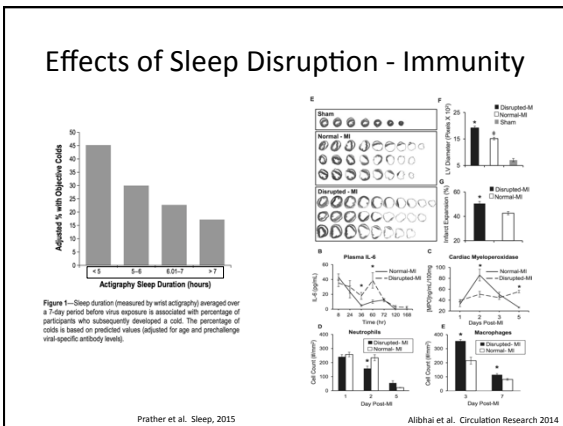
Postoperatively:

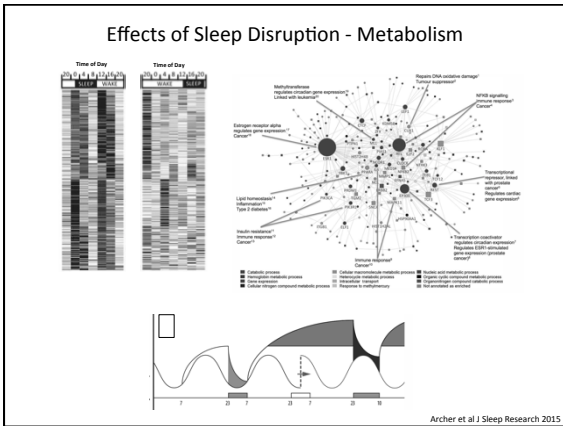
- Sent to telemetry ward with q4 vitals
- NPO for 4 days then started on clears at 2pm

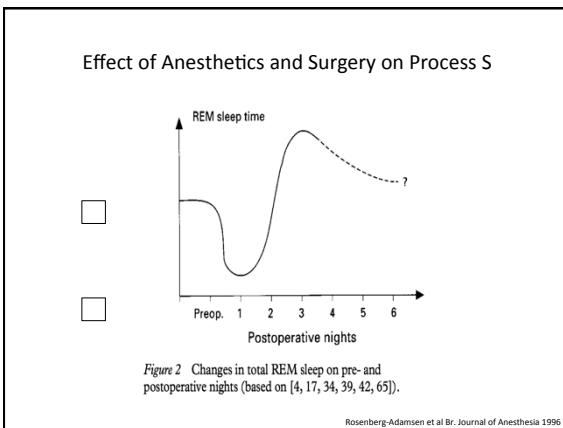


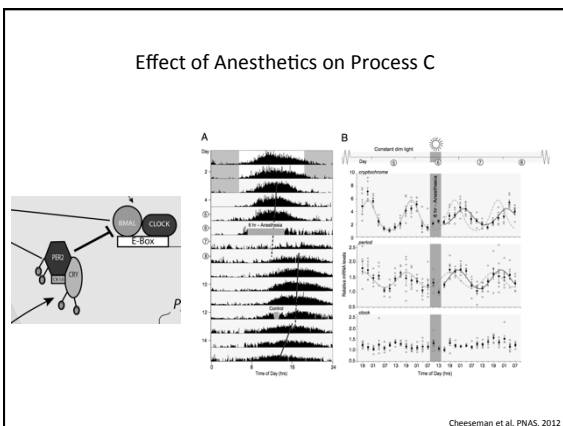


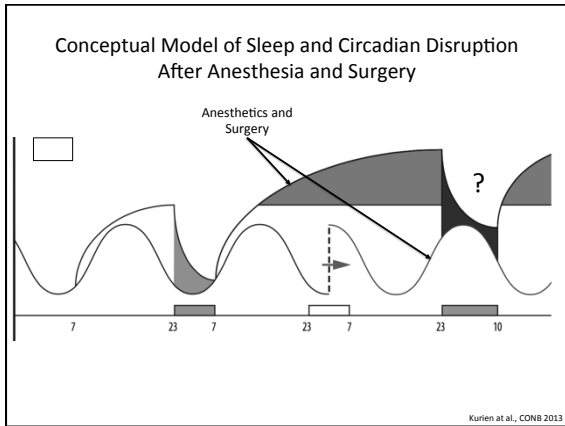


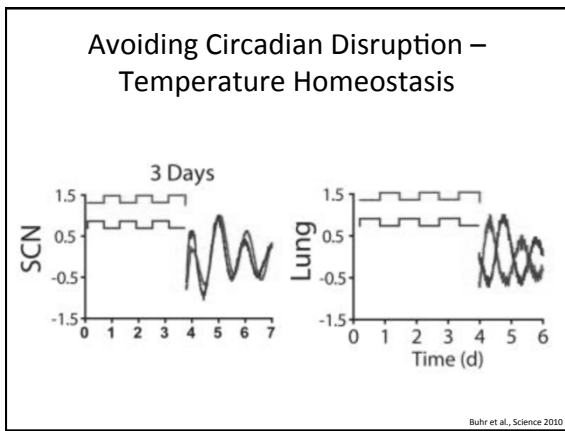


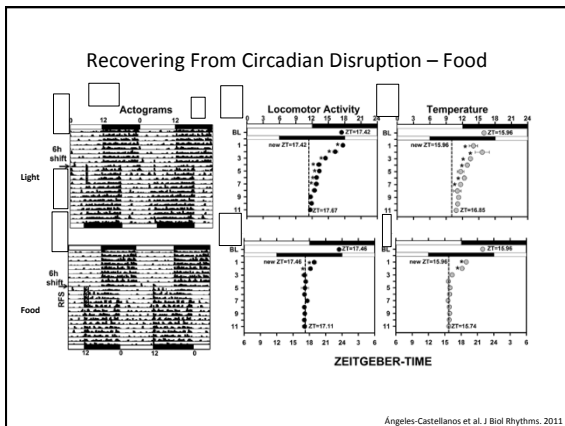


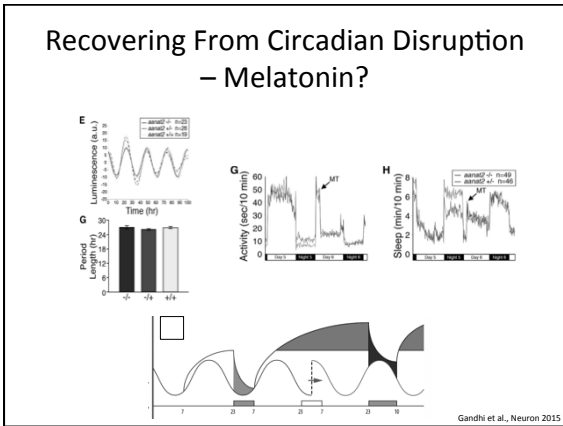


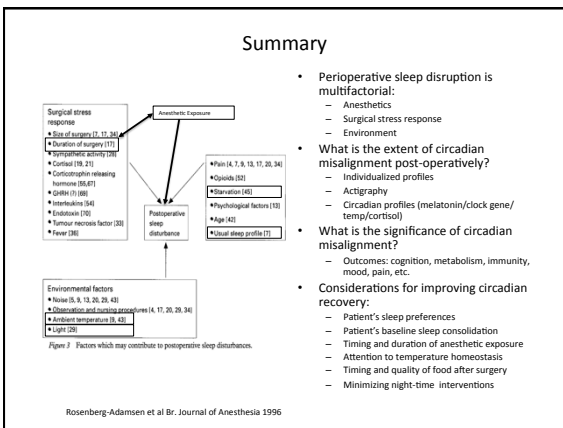












- Perioperative sleep disruption is multifactorial:
 - Anesthetics
 - Surgical stress response
 - Environment
- What is the extent of circadian misalignment post-operatively?
 - Individualized profiles
 - Actigraphy
 - Circadian profiles (melatonin/clock gene/ temp/cortisol)
- What is the significance of circadian misalignment?
 - Outcomes: cognition, metabolism, immunity, mood, pain, etc.
- Considerations for improving circadian recovery:
 - Patient's sleep preferences
 - Patient's baseline sleep consolidation
 - Timing and duration of anesthetic exposure
 - Attention to temperature homeostasis
 - Timing and quality of food after surgery
 - Minimizing night-time interventions

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