SLEEP & PAIN
Circadian Rhythms
Architecture of Sleep

• Stage 1
  Wake: low voltage-random, fast
  Drowsy: 8 to 12 cps-alpha waves
  Stage 1: 3 to 7 cps-theta waves
  Stage 2: 12 to 14 cps-sleep spindles and K complexes
  Delta sleep: (stages 3 and 4) 1/2 to 2 cps-delta waves >75 μV

• Stage 2

• Stage 3 [?4]

• REM sleep
  REM sleep: low voltage-random, fast with sawtooth waves

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Sleep Cycles

A typical hypnogram showing sleep stages and cycles in adult sleep (image by Luke Mastin)
Association between Sleep & Pain

• Sleep complaints present in 67-88% of pain disorders

• Are sleep & pain reciprocally or unidirectionally related?

The association of sleep and pain: An update and a path forward

Association between Sleep & Pain

• Insomnia increased risk chronic musculoskeletal pain [regional & widespread]

• Good sleep predicted resolution of pain @ 1 year follow up

MAKE SLEEP A PRIORITY
Sleep Hygiene- Sleep is natural... in your DNA

- Set a time go to sleep & wake up- create habit
- Gentle afternoon exercise
- Eat smallish meal + no caffeine/V/tea + no alcohol – warm milk?
- Minimise drama – TV/computer /arguments
- Temperature – warm shower
- Light
- Journal
- Bed – comfortable only for sleep/sex
- 4/7/8

The role of sleep hygiene in promoting public health: A review of empirical evidence.  
Irish LA¹, Kline CE², Gunn HE², Buysse DJ², Hall MH².  
MEDICATIONS

• ‘natural’ – herbs Valerian passiflora camomile etc
• **Melatonin** – helps sleep onset/overall incr 15 min
• **Benzo’s** - GABA/benzodiaz complex –decr REM & addictive
• **Z drugs** zopiclone, eszopiclo, zaleptin & zolpidem – don’t change architecture but addictive
• **TCA** [amitrip/nortrip] – change architecture but not addictive & reduce pain