- Reticular formation: part of the midbrain that extends from medulla → forebrain, arousal
- Pontomesencephalon: -part of midbrain that contributes to cortical arousal
  -axons extend to hypothalamus, thalamus, and basal forebrain, which release Ach and glutamate
  -produce excitatory effects all over cortex
  -awakens people, increases wakefulness
- Locus coeruleus - in pons, axons release norepinephrine to increase wakefulness
  -usually dormant while asleep
- Hypothalamus has neurons that release “histamine” (excitatory)
- Antihistamines produce sleepiness
- Orexin- peptide neurotransmitter: -lateral nucleus of hypothalamus, ability to stay awake
  -stimulates Ach-releasing cells in basal forebrain (wakefulness)
- If the pons remains in REM and the other brain areas wake up → inability to move body
- Narcolepsy - suddenly attacks of sleepiness
  -cataplexy: muscle weakness triggered by strong emotions
  -lack of hypothalamic cells that release orexin (a.k.a. hypocretin)
- REM behavior disorder - leg out movement, acting out dreams
- Damage to pons inhibits spinal neurons that control muscle movements

**Hunger**
- Weight is maintained homeostatically
- Hypothalamic nuclei involved in weight control
  -VMH (ventromedial hypothalamus) appetite suppressing detector
  -LHA (lateral hypothalamic area) appetite promoting detector
  -ARC (arcuate nucleus)
- Hormonal signal for circulating appetite suppression
- Parabiosis experiments- connecting 2 mice