12/11

- Brain development and plasticity

  - Children's brains re-organize and recover

  - Kennard Principle: injury at an earlier age recovers more fully, more plasticity

  - Fetal: neurogenesis (neuron creation)

    - 7 months gestational age > 1 trillion neurons
    - Complete at birth
    - Infancy: synaptogenesis (creation of synapses)
    - Myelination
      - Sensory motor areas first
      - First year: temporal/parietal(synaptogenesis)
      - Frontal lobes: continues into adulthood

- Sensitive/critical periods

  - Language acquisition: 2-11 years of age (need language exposure)
    - Genie: 14 years old, not exposed to language, could not learn it

- Intellectual disorders/birth disorders

  - Downs syndrome/trisomy 21: 3 copies of 21st gene, myosis failure
    - Maternal Age (causes)
    - Simian Crease
  - Fetal alcohol Syndrome: alcohol kills brain cells
  - Anoxia (no oxygen)/ hypoxia (little oxygen)
  - Cerebral palsy: caused by anoxic/hypoxic episodes during birth
    - Normal intellectual development, motor pathways damaged
    - Dyslexia: phonological representation problems

❖ Hebbian Synapse: once nerve signal transmits between neurons, connection gets stronger, easier to fire next time.
  - Use it=more efficient

- Recovery of function during damage

  - Transneuronal degeneration: worsening of symptoms, lose more function as connected areas also degenerate due to lack of activity.
  - Edema: (swelling) pressure builds up, impeded blood flow, whole brain compromised
    - As swelling goes down most function returns

- Generalized disorders: affect entire brain

  - Closed brain injury (concussion, blows to head) acceleration/deceleration injury (coup injury) brain slams into front of head- bounces back (back of skull, contra coup).

- Synapses/connections more fragile/break easier than neurons
- Most common (600,000 per year)
- Concussions=cumulative

- Dementia

- Alzheimer's
  - Fabraloid tangles/amyloid plaques
  - Genetic basis
  - Formal schooling: lower risk
- Frontal/temporal dementia/Pick's dementia
  - Memory distributed across brain
  - Socio-emotional
- Creutzfeldt-Jacob disease: prions (protinatious infective ions) involuntary movements, fast decline
- Parkingsons/huntingtons

- Demylinating diseases

- Multiples sclerosis: immune system thinks mylin shealths are alien/attacks
  - Motoric symptoms

- Malingering: fake deficits , hard to fake memory deficits

- Epilepsy: tumors, toxins, infections, fevers, trauma, weird wiring

- Focal seizures: Confined to specific brain region
- Flashing lights (4-8 times a second), stress, reading, laughing
- Gelastic seizure: uncontrollable laughter

o Neuropsychology of Art

- Visual art: LH damage- features will be missing

- Sad- leftward bias
- Content- right ward bias

- Bilateral involvement in artists, both hemispheres

- asthetic preference: mirror image (interesting stuff on R side) read pictures like text?

- Weaker Right ward bias in R-L readers

- Music: melody, harmony, timbre: R hemi-rythmic

- Melodic intonation therapy: quasi treatment for aphasia (lost Lh speech) teach to talk with singing

- Automatic speech, sware words