
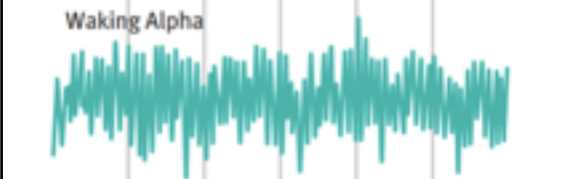
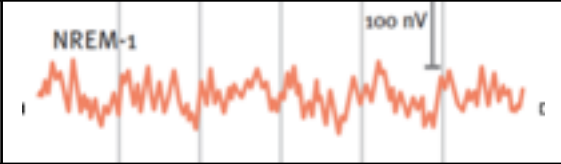

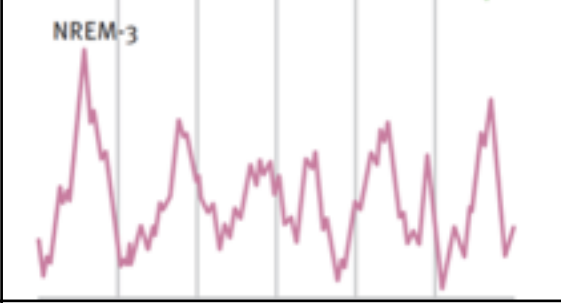
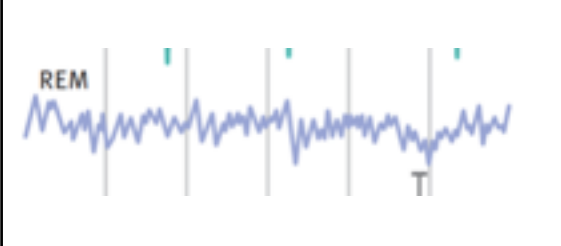


Stage	Wave characteristics	What is observed?	Visual
<b>Waking Beta</b>	<i>small baby chill</i>	<i>Alert awakened state</i>	 <p>Waking Beta</p>
<b>Waking Alpha</b>	<i>close together and spiky</i>	<i>Awake but relaxed</i>	 <p>Waking Alpha</p>
<b>NREM-1</b>	<i>Spiky, small amplitude</i>	<i>Hallucinations can occur here</i> <i>-Hypnagogic Sensations</i>	 <p>NREM-1</p> <p>100 nV</p>
<b>NREM-2</b>	<i>medium amplitude</i>	<i>Deeply relaxed</i> <i>-Sleep Spindles</i>	 <p>NREM-2</p>
<b>NREM-3</b>	<i>Large slow delta waves make cool mountains</i>	<i>Difficult to awaken, at the end of this stage kids tend to pee their bed</i>	 <p>NREM-3</p>
<b>REM</b>	<i>Rapid sleep waves, resemble NREM 1</i>	<i>-dream phase</i> <i>-sleep paralysis</i> <i>-genital arousal</i> <i>-eye darting</i> <i>-high heartbeat and breathing</i>	 <p>REM</p>

## Order of Regular Sleep:

NREM-1  
NREM-2  
NREM-3  
NREM-2  
REM

## 5 Dream Theories

1. Evolutionary Protection
2. Body Recuperation
3. Restore and Rebuild Memories
4. Creative Thinking
5. Supports Physical Growth

## Order of Eyeball Things

- light goes to *rods and cones*
- rods and cones chemically transduce light into neural signals
- neural signals activate *bipolar cells*
- bipolar cells activate *ganglion cells*
- axons of ganglion cells form *optic nerve*
- information from optic nerve sent to *thalamus*
- from thalamus to *primary visual cortex*

## Order of Ear Things

- *outer ear* funnels sound waves to *eardrum*
- tiny bones in the middle ear (*hammer, anvil & stirrup*) amplify and relay vibrations
- middle ear bones send vibrations through oval window into the fluid-filled *cochlea*
- ripples in the fluid and pressure changes of the cochlea cause *basilar membrane* to ripple thus bending *hair cells* lining its surface
- hair movements trigger impulses at the base of the *nerve cells* whose fibres converge to form the *auditory nerve*
- auditory nerve sends neural messages to the *thalamus*
- thalamus sends messages to the *auditory cortex* within the temporal lobe

## Steps of Smell

- *odourant* molecules bind to receptors
- *olfactory* receptor cells are activated and send an electric signal
- signal is relayed via *converged olfactory axons*
- signal is transmitted to higher regions of the brain
  - between *frontal and temporal lobe*

## 4 Defining Categories of Substance Abuse Disorder

1. control
2. social function
3. hazardous use
4. drug action
  - evidence of tolerance or withdrawal

## Monocular Cues

- Relative height
  - closer taller farther away shorter
  - background from foreground, whatever is on the bottom
- Interposition
  - one in front of there other therefore closer
- Relative size
  - 2 things that are supposedly the same size, if one is smaller it is farther away
- Linear perspective
  - the sharper the angle the farther away
  - parallel things tend to move towards a common point
- Light and shadow
  - light comes from above
  - is something indented or coming out
- Relative motion
  - if you're moving sometimes you think other things are moving

Theory Name	Scientists	Explanation
<b>Signal Detection Theory</b>		<p>predicts how and when we will detect a faint stimulus amid background noise</p> <p>theory implies that there is no singular absolute threshold</p>
<b>Weber's Law</b>	<b>Weber</b>	<p>for an average person to perceive a difference two stimuli must differ by a constant minimum % exact proportion varies based on stimulus</p> <p>% NOT amount</p> <p>light = 8%</p> <p>weight = 2%</p>
<b>Pitch: Place Theory in Hearing</b>		<p>links pitch heard with the place where the cochleas membrane is stimulated</p> <p>explains HIGH pitches</p>
<b>Pitch: Frequency/Temporal Theory in Hearing</b>  <b>= low</b>		<p>rate of nerve impulses traveling up the auditory nerve=frequency of a tone</p> <p>explains LOW pitches</p>

Theory Name	Scientists	Explanation
<b>Combination of Place and Frequency Theory</b>		<p>pitches in the intermediate range</p> <p>calls alternate their firing so they can keep up with the constant input of information</p>
<b>Stage #1 of Colour Processing</b>  <b>Trichromatic Theory</b>	<b>Young-Helmoltz</b>	<p>3 types of retinal cones</p> <p>RED GREEN and BLUE</p> <p>lack of specific cones = colour blindness</p> <p>yellow = red+green</p> <p>before we even saw the cones and rods, 19th century</p>
<b>Stage #2 of Colour Processing</b>  <b>Opponent-Process Theory</b>	<b>Hering</b>	<p>after images</p> <p>once cones have responded, info is further processed by opponent process cells located in the retina and thalamus</p> <p>opponent process cells are impairs and in opposition</p> <p>cannot process 2 colours at a time, activated by _____ deactivated by _____</p>

Theory Name	Scientists	Explanation
<b>Feature Detection</b>	<b>Hubel &amp; Wiesel</b>	<p>Primary visual processing</p> <p>research with cats</p> <p>specilized neaurons called feature detectors</p> <p>helped children with cataracts</p> <p>specialized neurons in the visual cortex respond to specific features of the stimulus</p> <p>feature detection neurons pass information onto supercell clusters to create complex patterns</p> <p>occipital and temporal lobes will have areas that associate with specific object and biological recognition patterns</p>
<b>Visual Cliff Experiment</b>	<b>Gibson &amp; Walk</b>	crawling=movement=depth perception

Theory Name	Scientists	Explanation
<b>Gate Control Theory</b>	Melzack & Wall	<p>large and small nerves</p> <p>small nerves = pain large nerves = gates to stop pain</p> <p>information to large ages comes from the brain</p> <p>*does not explain why chronic pain occurs or phantom limb pain occurs</p>
<b>BEM 2011</b>	Bem	<p>9 experiments that showed minimal anticipation of future events are possible</p> <p>But a lot of criticism against this dumb ass study</p> <p>argues against ESP (extrasensory perception)?</p>
<b>Animals can Learn Predictability</b>	Rascorla & Wagner	<p>cognition plays a large part</p> <p>ice cream and characters</p> <p>tone and shock + light = they're only scared of tone because the light brings no new information</p>

Theory Name	Scientists	Explanation
Latent Learning		rats learn the maze even without being bribed with food
Bobo Doll Experiment	Albert Bandura	observational learning  children treat doll as poorly as the parents

## Transduction

- conversion of one form of energy into another
  - receive
  - transform
  - deliver

## Sensory Adaptation

- diminished sensitivity as a consequence of constant stimulation
- we perceive the world as it is useful to us within the capacity of our sensory systems
- DOES NOT APPLY TO VISION
  - why? because our eyes move so much that we don't lose vision

## Order from Vision to Perception

1. scene
2. retinal processing
3. feature detection
4. parallel processing
5. recognition

## **Gestalt Principles**

1. Form Perception
  - figure ground
  - grouping
    - proximity, continuity, closure
2. Depth Perception
  - visual cliff experiment
  - binocular and monocular cues
3. Perceptual Constancy
  - colour constancy
  - shape and size constancy

## **Types of Hearing Loss**

- Sensorineural Hearing Loss
  - more common
  - nerve deafness
  - damage to cell receptors or association nerves
  - HEADPHONES are a cause
- Conduction Hearing Loss
  - less common
  - damage to mechanical system that conducts waves to the cochlea

## **Cochlear Implant**

- converts sound into electrical signals
- stimulates auditory nerves through electrodes in the cochlea

## **How do we Perceive Loudness vs. Softness**

- number of cells activated
- number of cells determined by the frequency of the sound wave

## **4 Distinct Skin Senses**

1. pressure
2. hot
3. cold
4. pain

## **3 Methods of Pain Control**

1. placebo
2. distraction
3. hypnosis

## **Perceptual Adaptation**

- Sensory Restriction
  - critical development stage
- Perceptual Adaptation
  - adjusting that can only occur past your point of system development