Andrew Rosen

Motivational States:

- Instincts were once used to categorize innate actions, but the list became unorganized and extensive
- Bernard said that organisms have external and internal (biochemical) environments
  - The internal environment stays relatively constant, so the organism must be capable of making substantial changes to prevent too much internal change
  - This is homeostasis
    - Drive – Internal state of biological and psychological tension from a deviation from homeostasis

Thermoregulation:

- Thermoregulation – The process by which organisms maintain a constant body temperature
- Mammals and birds are endotherms (stable body temperatures)
- Most other organisms are ectotherms (variable body temperatures)
- Autonomous nervous system (ANS) has the sympathetic branch (rev up) and parasympathetic branch (calm down)
- Vasodilation – Widening of the skin’s capillaries to send warm blood to the surface to release heat
- Vasoconstriction – Contraction of the capillaries that squeeze blood away from the body’s cold periphery to keep a warmer core
- Hypothalamus regulates internal systems
- Homeostasis is controlled by anticipation as well as current problems

Hunger, Eating, and Obesity:

- Set point – General term for the level at which negative feedback tries to maintain stability
- Liver converts glucose to glycogen and vice versa
- Glucoreceptors – Receptors in the brain that detect the amount of glucose in the bloodstream
- Adipose cells – Fat cells
  - Absorb fatty acids and swell to be drained if energy is needed in a future point that can be turned to glucose
- Full fat cells secrete leptin – chemical produced by the adipose cells that seems to signal that plenty of fat is stored and that no more fat is needed in order to diminish eating
  - Inhibits the actions of neuropeptide Y (NPY) – Chemical found widely in the brain and periphery that acts as a neurotransmitter and as a potent elicitor of eating
- Dual-center theory – Hypothesis that one area in the lateral hypothalamus is the “on” center, the initiator of eating, while another area in the ventromedial hypothalamus is the “off” center, the terminator of eating
  - Modern evidence says that these areas are crucial but other circuits are involved
  - Disruption of the lateral portion disrupts the initiation of feeding
  - Damage to the ventromedial portion will disrupt circuits that stop eating
- Organisms tend to eat when other organisms around them are (social influence)
- Hunger is based on the memory of having eaten as well
- Body Mass Index (BMI) – Commonly used measure of whether or not someone is at a healthy weight
  - Calculated as weight in kg divided by the square of height in m
- Morbid obesity – Level of obesity at which someone’s health is at risk (over 40)
- Genetics control sensitivity to leptin and NPY
- Genetics controls where the fat deposits will be stored
- Genetics controls the efficiency of the digestive apparatus and metabolism
- Obesity can lead to heart attack, stroke, Type II diabetes, and some cancers

Threat and Aggression:

- Intense sympathetic arousal leads to fight or flight response with adrenaline (epinephrine)
- Tending – Taking care of others
- Befriending – Using social support
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- Comparative method – Research method in which one makes systematic comparisons among different species in order to gain insights into the function of a particular structure or behavior, or the evolutionary origins of that structure or behavior
- Testosterone – Principal male sex hormone in mammals
- People with high self-esteem are provoked easier
- High levels of sensation seeking are associated with aggression

**Sexual Behavior:**

- Estrus – Period in the cycle when the female is sexually receptive (in mammals)
- Follicles in the ovary mature from pituitary secretions
- Follicles produce estrogen – A female sex hormone that dominates the first half of the female cycle through ovulation
  - Follicle growth is accelerated until follicle ruptures and release the mature ovum
    - Leads to estrus
- Estrogen peaks in estrus
- Ruptured follicle secretes progesterone – Female sex hormone that dominates the latter phase of the female cycle during which the uterine walls thicken to receive the embryo
  - If the ovum is not fertilized, the thickened uterine walls are reabsorbed to being another cycle
- Castration or ovariectomies of animals besides humans decrease sexual activity
- Human sexual response cycle – Sequence of four stages that characterizes the sexual response in both men and women: excitement, plateau, orgasm, and resolution
  - Excitement phase – Heart rate and blood pressure increase, breathing quickens, increased muscle tension and blood flow to sex organs
  - Plateau phase – Same factors still rise but at a slower rate and muscles tighten in sex organs
  - Orgasm phase – Heightened arousal and rhythmic muscle contractions that lead to ejaculation and vaginal contractions
  - Resolution phase – Everything relaxes and returns to normal
- Refractory period – Point in time, for men, when another organism is not possible
- Exposure to sexual material may, for a few hours, heighten sexual behavior
- Viewing sexual material makes people less pleased with their partner
- Physical attractiveness is more important for men while status and resources is important for women
- Men prefer younger women and women prefer older men
- As early as ages 3 or 4, children begin to feel attraction
- Sexual attraction begins around age 10
- Puberty leads to clearer sexual orientations
- Sexual orientation is slightly genetic
- Women exposed to high androgen levels as a fetus are more likely to be homo or bisexual

**Motives beyond Drives:**

- People need to “belong”
- Tangible support – Social support focused on practical or material needs
- Emotional support – Social support focused on emotional needs
- Mastery orientation – A learning orientation characterized by a focus on gaining new knowledge or abilities and improving
- Performance orientation – A learning orientation characterized by a focus on presenting oneself well and appearing intelligent to others
  - Not as good as dealing with negative feedback

**The Diversity of Motives:**

- Hierarchy of Needs – The theory that people will strive to meet their higher order needs only when their lower, more basic needs have been met defined by Maslow
- Self-actualization – The full realization of one’s potential
- Pain matrix – Distributed network of brain regions, including the thalamus and anterior cingulate cortex, thought to respond to many types of pain
Intrinsically rewarding – An activity or object that is pursued for its own sake
Extrinsic rewarding – An activity or object that is pursued because of rewards that are not an inherent part of that activity or object
Wanting – An organism’s motivation to obtain a reward
Liking – The pleasure that follows receipt of a reward
Nucleus accumbens – A dopamine-rich area in the forebrain that is critical in the physiology of reward

Emotion and Emotion Regulation:
Emotions – Affective responses which are characterized by loosely linked changes in behavior, subjective experience, and physiology
Moods – Affective responses that are typically longer-lasting than emotions and less likely to have a specific object or target
Display rules – Cultural rules that govern the expression of emotion
Dimensional view of emotions is concerned with “more this” and “less that” while classification is more “this type” or “that type”
James-Lange Theory of Emotion – Theory that the subjective experience of emotion is the awareness of one’s own bodily reactions in the presence of certain arousing stimuli
Cannon-Bard Theory of Emotion – The theory that a stimulus elicits an emotion by triggering a particular response in the brain which then causes both the physiological changes associated with the emotion and the emotional experience itself
Schacter-Singer Theory of Emotion – The theory that emotional experience results from the interpretation of bodily responses in the context of situational cues
Confederate – Someone who appears to be a research participant but actually is part of the research team
Affective neuroscience – A field that uses cognitive neuroscience research methods to study emotion and related processes
Memory consolidation – The biological process through which memories are established in permanent storage
Emotion regulation – The ability to influence one’s emotions
Cognitive reappraisal – Form of emotion regulation in which an individual changes her emotional response to a situation by altering her interpretation of that situation
Suppression – A form of emotion regulation that involves inhibiting emotion-expressive behavior