Measuring Stress

- Physiological
  - HR, BP, GSR, Respiration
- Biochemical
  - EPI, NE, Cortisol, immune system substances
- Advantages: Clear data (ratio level)
- Disadvantages: Often Invasive
- Life Events Scales
  - SRRS: change requires energy for adjustment
- Everyday Hassles Scales
  - perception of daily events most important

Reliability & Validity of Stress Measurement

- Tests/scales must be able to predict stress illness
  - must be reliable and valid
- Reliability: how consistently does the test measure the phenomena
  - are the results of the test the same each time it is taken
  - are the results consistent between raters (e.g., behavior)
- Validity: does the test measure what it is supposed to measure
  - Accurately represents experience of stress by person?
  - Do the question really measure stress?
  - Do they predict illness as proposed?
Overview of the stress process. A potentially stressful event, such as a major exam, elicits a subjective appraisal of how threatening the event is. If the event is viewed with alarm, the stress may trigger emotional, psychological, and behavioral reactions, as people’s response to stress is multidimensional.

The Basic Units of Stress Physiology

- **Stress as a message and response**
- **Basic mechanism: the neuron**
  - electrochemical cell that specializes in sending and receiving information (electric and chemical info)
  - Billions and Billions

- **Sending info to the Brain: Afferent Neurons**

- **Outgoing Info: Efferent Neurons**
  - remember “effervescence”
  - Electricity leads to chemical messenger
    - Neurotransmitters

> The Major External Features of a Typical Neuron
Systems of Neurons = Nervous Systems
- Central Nervous & Peripheral
- Somatic & Autonomic Nervous System
- Autonomic “Stress Systems”
  - Sympathetic Nervous System
    - Fight/Flight (see figure)
  - Parasympathetic Nervous System
    - Return to state of conservation
- A Sign of Health: Allostasis & Allostatic Load
The Neuroendocrine System

- Central Nerves affecting Glandular Activity
  - Hypothalamus (brain structure-- neural)
  - Pituitary Gland
    - ACTH release
  - Adrenal Glands
    - Epinephrine/Norepinephrine release
    - Cortisol release- a “gluco” corticoid
      - effects: prolong, sensitize and release fats

- Purpose of Neuroendocrine and SN systems?
  - “Adaptation”

Brain-body pathways in stress. In times of stress, the brain sends signals along two pathways. The pathway through the autonomic nervous system controls the release of catecholamine hormones that help mobilize the body for action. The pathway through the pituitary gland and the endocrine system controls the release of corticosteroid hormones that increase energy and ward off tissue inflammation.

Selye’s Stress Response: Our Body Under Demand
Hans Selye: “Diseases of Adaptation”

- Many Chronic Diseases = Diseases of Adaptation
- General Adaptation Syndrome:
  - Stress is “wear and tear on the body”
  - Stressor: stimulus resulting in stress response
  - Alarm: initial physiological response to increased demand
  - Resistance: martial energy to meet demands
  - Exhaustion: breaking down and “end-organ damage”
- Problems:
  - no attention to perception… Different people experience same stimulus in different ways (better or worse).
  - Little attention to emotion (animal research)

Lazarus & Folkman: Appraisal Process

- A Transactional Approach
  - Stress: a relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering well-being.
  - Appraisal: Our perception and subsequent cognitions are key to stress appraisal and response
- Appraisal: How one comes to perceive a stimulus
  - Primary Appraisal: Am I in trouble?
    - Irrelevant, benign-positive, stress
    - Stress: harm/loss, challenge, threat (more than resources)
  - Secondary Appraisal: What can I do about it?
    - Adaptive skills, conditions, resources
Stress is the product of an interchange between a person and the environment.

Coping With Stress

- Coping: an active, learned, process of managing an appraised stressor
- How do you cope with stress?
  - Emotion Focused Coping
  - Problem-Focused Coping—typically better in the long haul
- Cope differently at different times/situations
  - health/energy
  - efficacy (positive belief in self)
  - basic problem solving skills
  - social skills
  - social support
  - material resources

Environmental Stressors

- Population Density vs. Crowding as a stressor
  - Animal & Prison research
- Noise—relative to individual
  - headaches, moodiness in workers
  - elevated stress physiology
  - performance declines in children
  - health complaints
- Pollution—direct health effects, stress/control issues—secondary
- Urban Press—combined urban stressors (name some?)
  - media & fear victimization—sensitized health
- Personal Control as a Moderator of ES.
Stress at Work

- What are the conditions that are most related to “work stress”? (thoughts?)
- “level on the ladder” related to stress, health
- what about “executive stress” then?
  - How can a doctor with a busier schedule and more responsibilities suffer less from stress related problems than a secretary?
- Demand and Control (personal control; decision latitude)
  - particularly “latitude” related to health
    - heart disease, hypertension, HD mortality
- Women and multiple roles- control & support are key!

Personal Relationships & Social Support

- Check out TOP 5 on SRRS.
  - What do you notice?
- Relationships that Help
  - Social Support “buffers” stress (see women and work)
  - Traditional Gender Roles-
    - conflict between husbands and wives
      - work, money & sex