DISCOVERING PSYCHOLOGY: THE RESPONSIVE BRAIN

- *The relationship between the brain and behavior is reciprocal. That is, the brain controls behavior, but behavior also feeds back information that influences the brain.*

I. TOUCH

A. Sex Differences In Regards To Being Touched And Touching Others

1. Touching others:
   a. Women are more likely to touch, kiss, and embrace friends and family.
   b. Men tend to limit touch to a handshake
   c. Regardless of sex, research has shown that those who are comfortable touching others are more cheerful, less conforming, and less suspicious of others' motives. Whereas those uncomfortable with touching others have lower self-esteem and are generally more socially withdrawn.

2. Being touched:
   a. One study found that women reacted positively (i.e., lower blood pressure and reduced anxiety) when touched by a nurse before an operation. In contrast, the same type of touch (i.e., increase blood pressure and anxiety) upset men.

B. Importance Of A Mother's Or Father's Touch (Brains need for touch demonstrated)

1. Premature Infants and the effect of human touch (Field, 1986). When a mother interacts with her newborn child, much of the interaction is physical: the mother usually caresses and strokes the baby. Several experiments have indicated that stroking and massage promote growth.
   a. 20 premature infants received massages (45 minutes per day for 10 days) and 20 premature infants received no massage.
   b. Results: Massaged infants gained 47% more weight, were more active, and more alert. At 8 months, massaged infants were still showing a weight advantage along with more advanced cognitive and motor development.

2. Infant rats require a mother's touch for normal growth and development.
   a. Short-term deprivation of mom's touch has dramatic effects on the rat pup. These can be reversed by reinstating mom's touch or with a touch by an experimenter with a brush that mimics the mom's touch.

- These examples indicate that the need for a mother's (or caregiver's) touch is brain based.

3. Psychosocial Dwarfism: failure of the hypothalamus to produce growth hormones. This is due to psychological and social factors and not nutritional factors (it is caused by emotional deprivation)
   a. Video showed examples of children who were brought up in orphanages and who received food, shelter, and clothing, but who did not receive regular interaction with their "care-givers."

b. This is a reversible disorder: These children catch up to their peer in growth development when placed with a normal family in which they receive the emotional interaction that had been. For example, one study showed an average 8-inch height increase, in one year, for children with this disorder when the average growth for normal children, for this same time period, is 2 ½ inches.

4. Early touching has been found to not only help rats grow and develop early in life, but also helps them cope with stress better throughout their lives. This in turn serves to decrease the normal effects of aging such as learning difficulties and diseases of senility. Why? See below.

II. STRESS

A. How Rats Are Affected By Stress.

1. Secretion of glucocorticoids which increases heart rate, decreases digestion, and enables the organism to better deal with the stressor.
   a. Problem with extensive exposure to glucocorticoids is that they can kill brain cells -- especially those in the hippocampus, which is a critical area for learning and memory.

2. Effects of stress on aging.
   a. Animals who are handled when young are more capable of turning off the stress response than nonhandled rats. Therefore, nonhandled rats will be exposed to higher levels of glucocorticoids than handled rats.
   b. Nonhandled rats also show major impairments in learning and memory in old age.
      (1) Example: Rats learning where platform is in a pool of cloudy water.
         (a) Handled rats learn this task at about the same rate as young rats.
         (b) Nonhandled rats take a significantly longer to learn this task.

B. Social Structure Of Baboon

1. For baboons, where you are in the status hierarchy has everything to do with your quality of life and how your body is functioning $\rightarrow$ it influences the baboons reproductive system, immune system, cardiovascular system, and cholesterol (correlational study first)
   a. From research on baboons we now know that the baboon gets his/her high rank first and then his/her body starts working better (naturalistic observation). Indicating that rank is responsible for body functioning. Conversely, body functioning is not responsible for rank.

2. What is it about high rank that makes a baboon's body work more efficiently?
   a. Stress has a lot to do with control over your life, control over situations, and predictability of your environment. For a dominant animal he/she has a lot more control over his/her life than does a subordinate animal.
   b. Style of dominant animal also matters. Dominant animals with lots of cooperative partners and social affiliations have the best physiology.