Touch

Touch is the only sensation with receptors that are not localized to a single region of the body (skin, muscles, joints, tendons)

Crucial to our survival

Skin is largest organ of the body

- Cover 2 sq. yds
- Weighs 10-15 lbs.

Skin is filled with receptors that let you know what the world around you is like.

- If your skin had no receptors you wouldn't know when you had hurt yourself, what you touched warm, soft, you couldn't write without this feedback

Skin receptors give information about three things:

1. Pressure
2. Temperature
3. Pain

Pressure:
When you touch something, your skin is **depressed** (or deformed) and this sends a message-signal-firing off toward the cortex (hairs on your body (95%) do not actually sense anything directly but when they are bent it depresses the skin)

The touch sense emphasizes **changes in stimulation**; it filters out constant stimulation (clothes, glasses, watch, etc)

Touch may be **active** (you initiate, hands explore) or **passive** (skin is contacted by another object, i.e. cat rubs your leg)

When tested to identify cookie cutter shapes:
Passive = 29% correct Active = 95% correct

Different parts of the body have **different threshold** to the sensitivity of touch (finger, hands, face very sensitive, calf, thighs and arm)

Pressure can also tell you:
Size = # of receptors stimulated
Texture = the way receptors vibrate
Location = where the sensation is coming from

Temperature:
The normal human body temp is 98.6 degrees
Hot and cold are relative terms, in relation to your body temp.

- Put one hand in cold water, the other in hot water and then both in lukewarm water and they will not feel the same sensation - cold will now feel hot, hot will feel warm
- There are two separate sensory systems at work, one for cold (50-68 degrees), one for warm (77-113 degrees)

Pain: A painful stimulus causes specialized pain receptors to fire

- **A delta fibers**: carry sharp, pricking pain (stubbed toe)
- **C fibers**: carry dull, chronic aches

We do not all experience pain in the same manner, culture; expectations, personality, etc make it subjective

Gate- Control Theory: pain is not just a result of the receptors being stimulated, but also the way that we perceive that pain.

At least 2 substances play a role in the brains ability to block pain

- **Serotonin**: neurotransmitter, which is released by sending neurons from the brain.
- **Endorphins**: natural opiates, painkillers.

They both block the synapses of the fibers carrying the pain signal.

The messages from receptors in your skin, muscles, joints and tendons will tell your brain 4 things:
1. The **location** of the experience: what part of the body?
2. The **quality** of the experience: pressure, temperature, pain
3. The **quantity** of the experience: intensity, warm-cold, strong-weak
4. The **duration** of the experience: brief or continuing