Physical Pain & Mental Pain
How are they related?

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Everyday Language

- Painful experience
- It hurt me to the bottom of my heart
- By saying so he hit a sore spot
- Grief is a painful process
- Etc.......
International Association for the Study of Pain

• “Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage”
IASP Definition

- This definition implies that pain is a subjective experience with both sensory and affective dimensions, that are usually but not necessarily associated with tissue damage (nociception)
Dimensions of pain (Melzack and Casey 1968)

- Sensory-discriminative:
  - Pain Sensation: Intensity (rational)
  - *How intense is the pain?*
  - Somatosensory Cortex 1 & 2 (S1; S2)
Dimensions of pain (Melzack and Casey 1968)

• Emotional-motivational:
  – Pain Affect: Unpleasantness (emotional/suffering)
  – How much does the pain bother you?
  – Anterior Cigular Cortex (ACC), Insular Cortex (IC)
Pain Affect encoded in Anterior Cingulate But Not Somatosensory Cortex (Rainville 1997)
Pain Circuits in the Human Brain
(Treede 1999)
Social Exclusion: A Paradigm for Mental Pain

• Virtual ball tossing game
• Three players
• One of them is excluded without forgoing information
• fMRI monitoring
Does rejection hurt? (Eisenberger 2003)

Fig. 1. (A) Increased activity in anterior cingulate cortex (ACC) during exclusion relative to inclusion.