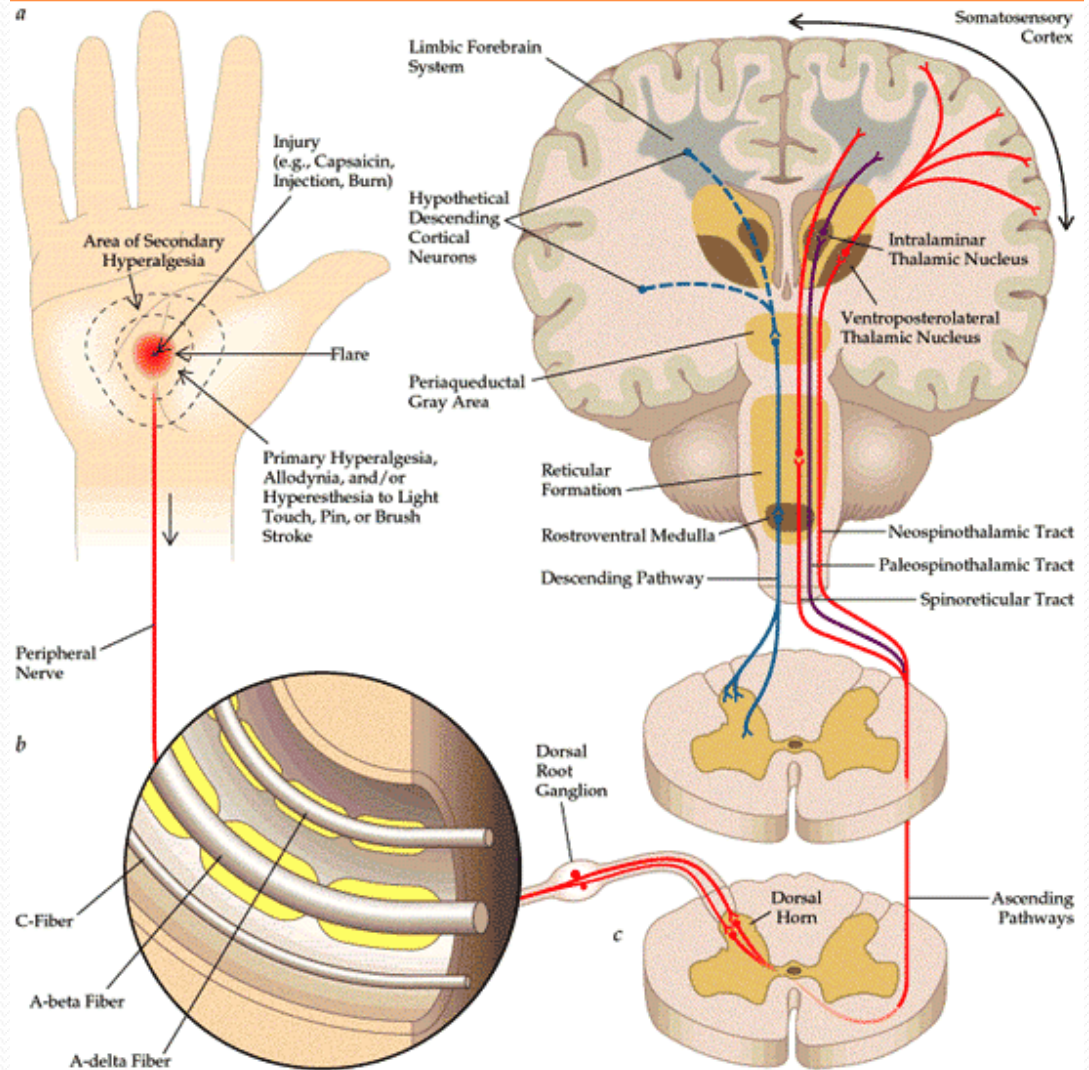


Labor Pain Physiology

دکتر مونا کدخدائی
متخصص طب فیزیکی، توانبخشی و نوار عصب
بیمارستان شهدای عشایر

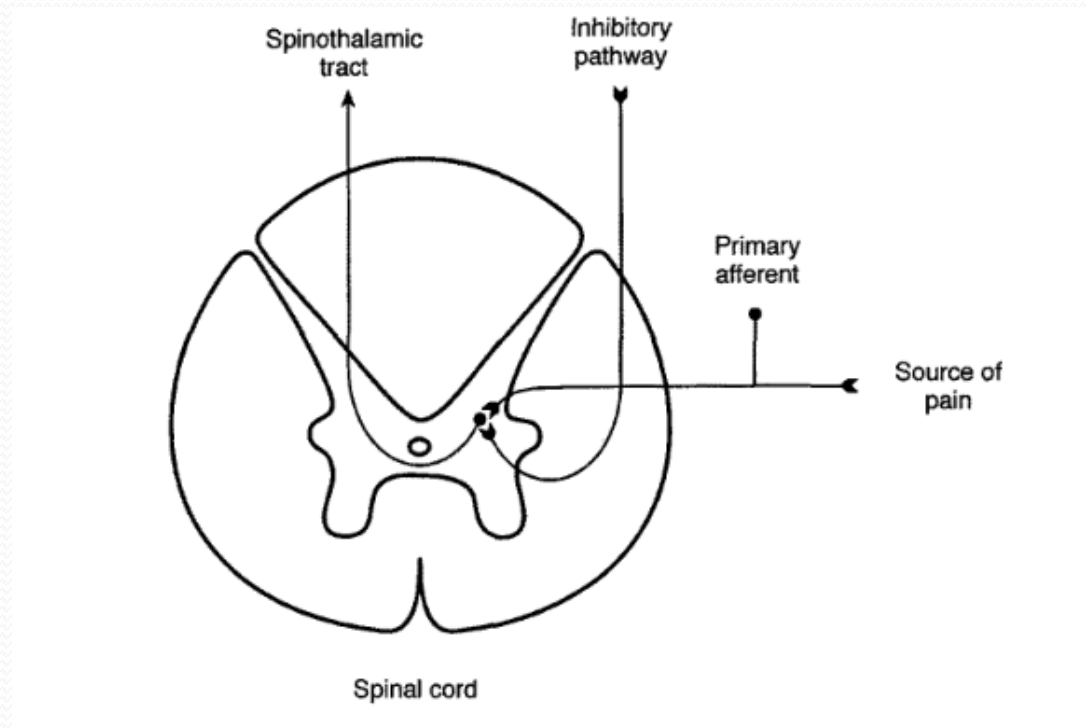
Pain neural pathway

- Nociceptive information
- A-delta and C afferents
 - Pain threshold
- Dorsal horn
 - Pain modulation site
- Neurotransmitters (Asp. Glu. Substance P, Neurokinine)
 - Spinal reflexes (Stress response to pain)
 - Spinothalamic tract to brain



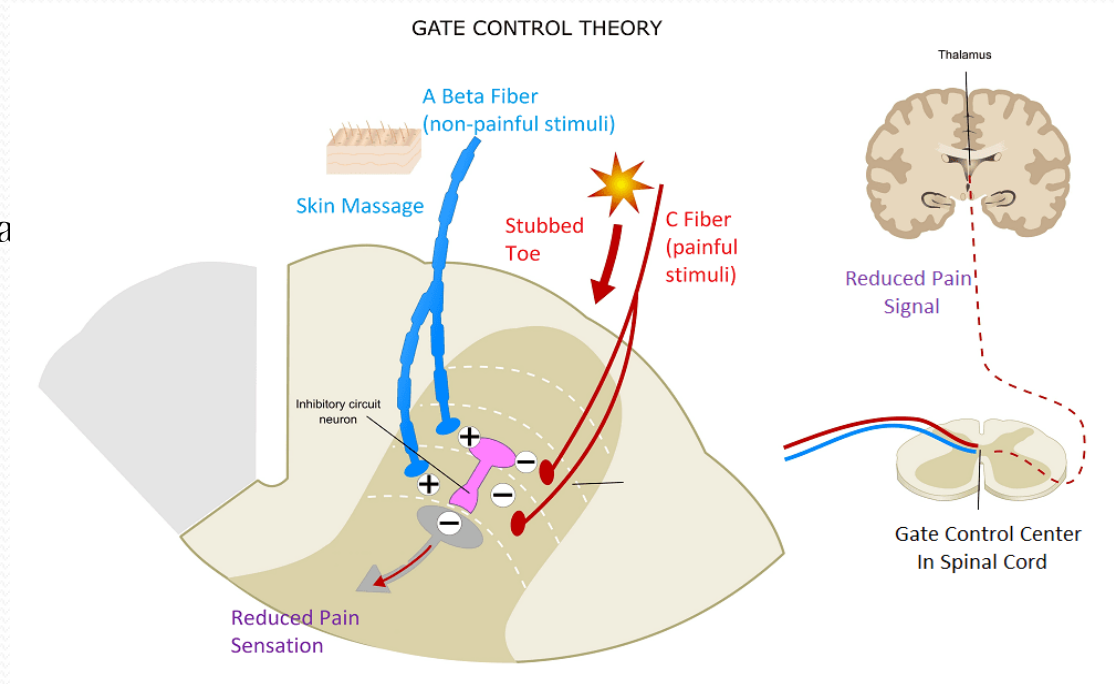
Stimulation induces analgesia

- Input from higher centers and limbic
- Natural opioid release in dorsal horn



Gate theory of pain

- In Dorsal horn
 - Small nerve fibers (pain fibers)
 - Large nerve fibers (normal fibers for touch, pressure, and other skin senses)
- Benefits
 - Touch
 - Massage
 - TENS

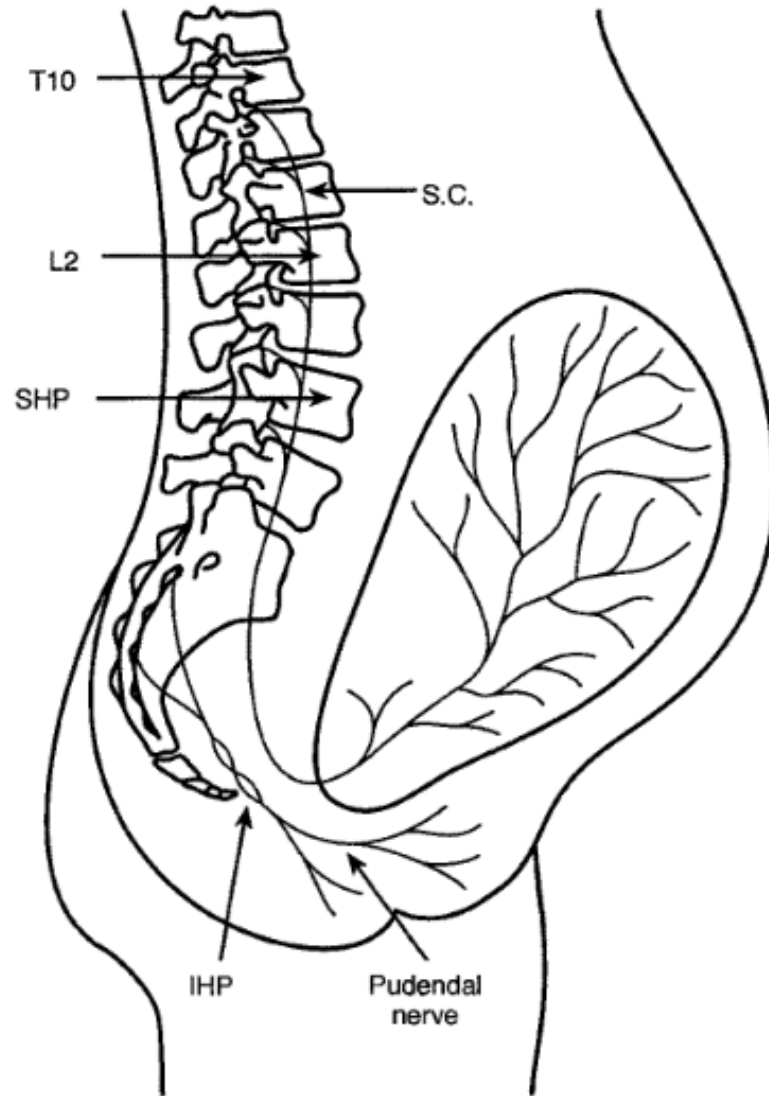


Other control centers of pain

- On-call and off-call system in medulla
- Cortex
 - Affective and cognitive aspects of pain
 - Pain expression and behavior depends on
 - Previous experiences
 - Cultural background
 - Perceptual factors and emotions

First phase of labor

- Origin:
 - Distension of the lower uterine segment
 - Dilatation of the cervix
 - Muscle contraction
- C fibers (slow) of sympathetic
- Dull pain



Second phase of labor

- Distension of the lower segment and cervix
- Presenting part within the pelvis (traction and pressure)
- Sharp and localized
- Direct pressure on plexus

Stress response

- Respiratory
 - Hyperventilation
- Hormonal (stress hormones)
 - Adequate: increases cardiac output
 - Overdose: irregular contractions, long labor, fetus arrhythmia
- Fetus
 - Decrease placental circulation

Factors effective on pain modulation

Physical factors

- Parous
 - Primiparous women: early stages
 - Multiparous women: transitional phase
- Exercise (higher endorphin)
- Body weight
- Position
- History of dysmenorrhea (more PG)

Physiologic factors (pregnancy induced hypoalgesia)

- From 18 days before delivery
- Mechanism
 - Excitatory
 - Inhibitory
 - Endogen opioids
 - Placenta

Psychological factors

- Focus on delivery rather than pain
- Anxiety
- Confidence and support
- Abortion
- Pain expectation
- Pain behavior vs. pain rating
 - Ethnic, Culture, Socioeconomic class
- Low pain labor!!!!