

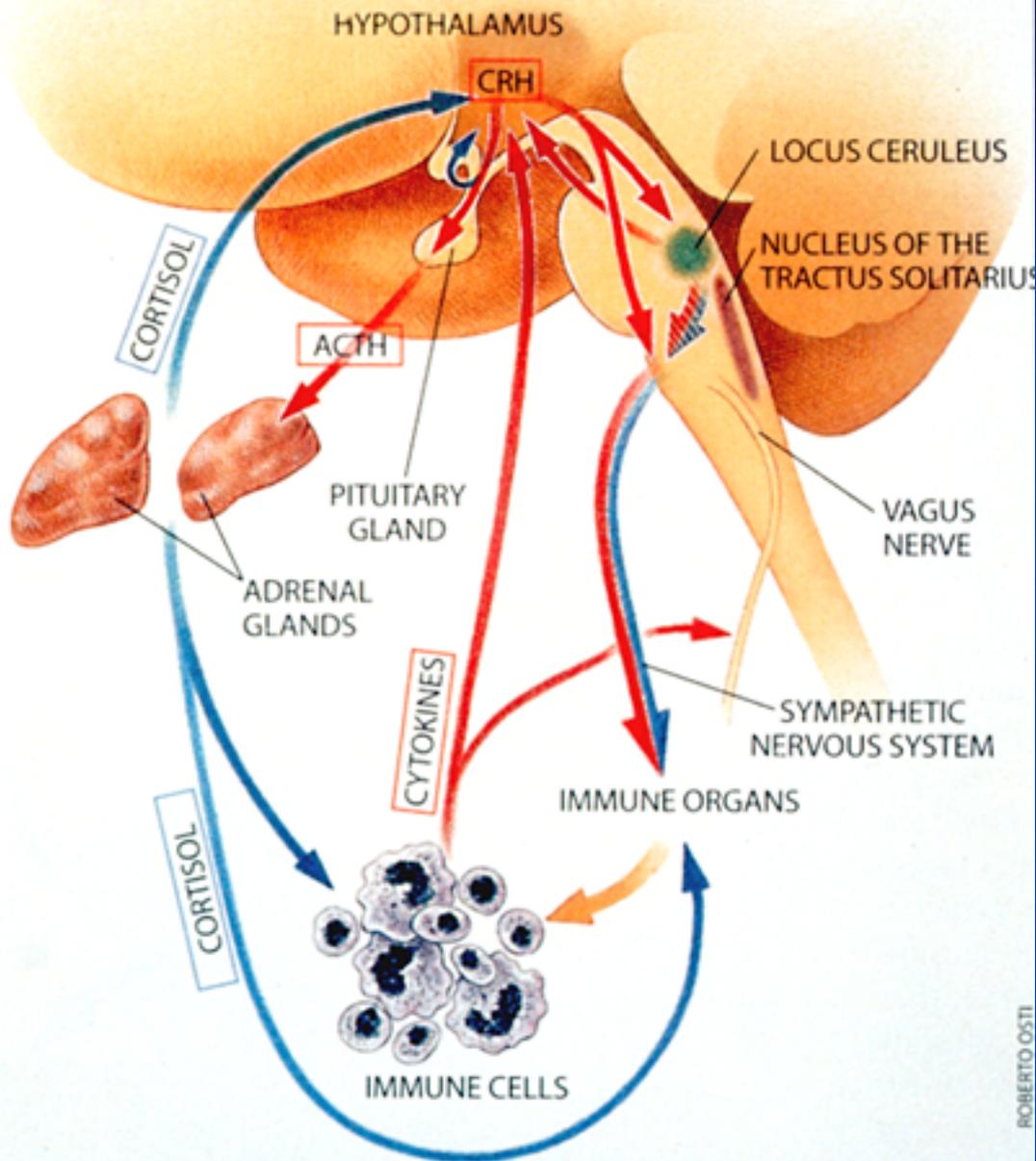
# How Does Spiritual Care Become a Medical Intervention?

8:10-8:30

Today, **Steven W. Cole, PhD**, will talk about:

The Physiology of Transformational Experience

# Interaction of the Brain and Immune System



# Stress and the HPA Axis

- Immune and endocrine systems interacting with each other to achieve homeostasis
- Acute stress increases sympathetic system activation, increasing the stress hormones cortisol, epinephrine, & norepinephrine
- Cortisol suppresses or dampens immune function and reduces inflammation in the short-term, but...
- Chronic stress (PTSD) results in down-regulation of HPA axis such that cortisol level decreases and inflammation increases over time (**with many physical health consequences**)
- Chronic inflammation may also cause symptoms that resemble depression (complex bi-directional effects)

# Effects of Negative Emotions on Health

- Kiecolt-Glaser et al. Proc Nat Acad Sci 2003; 100(15): 9090-9095  
[**stress of caregiving** affects **IL-6 levels** for as long as 2-3 yrs after death of patient]
- Blumenthal et al. Lancet 2003; 362:604-609  
[817 undergoing CABG followed-up up for 12 years; controlling # grafts, diabetes, smoking, LVEF, previous MI, **depressed pts had double the mortality**]
- Brown KW et al. Psychosomatic Medicine 2003; 65:636–643  
[**depressive symptoms** predicted **cancer survival** over 10 years]
- Epel et al. Proc Nat Acad Sci 2004; 101 :17312-17315  
[psychological **stress** associated with shorter **telomere length**, a determinant of cell senescence/ longevity; women with highest stress level experienced telomere shortening suggesting they were aging at least 10 yrs faster than low stress women]
- Tindle et al. Circulation 2009; 120: 656-662  
[hostility associated with 25% increased risk of CHD mortality]

# Effects of Positive Emotions on Health

- Kubzansky et al. Arch Gen Psychiatry 2007; 64:1393-1401  
[emotional vitality – reduces risk of coronary heart disease by nearly 20% over 15 years in over 6,000 persons]
- Tindle et al. Circulation 2009; 120: 656-662  
[optimism associated with a 30% decrease in CHD mortality]
- Davidson et al. Don't worry, be happy: positive affect and reduced 10-year incident coronary heart disease: the Canadian Nova Scotia Health Survey. European Heart Journal 2010; ehp603. [positive affect reduced CHD by 22%]
- Xu & Roberts. The power of positive emotions: It's a matter of life or death— Subjective well-being and longevity over 28 years in a general population. Health Psychology 2010; 29(1): 9-19 [reduced mortality by up to 10% in 6,856]
- Kok et al. How positive emotions build physical health perceived positive social connections account for the upward spiral between positive emotions and vagal tone." Psychological Science 2013; 24:1123-1132.
- [increase in positive emotions produced increases in vagal tone, an effect mediated by increased perceptions of social connections]

# Why Research on the Physiological Responses to Spiritual Transformation is so Important

- Religious cognitions and behaviors (like prayer) help people to cope and derive meaning and purpose, help to relieve anxiety and reduce depression and other negative emotions
- Negative emotions adversely affect basic physiological systems that are responsible for health and healing (immune, endocrine, and cardiovascular systems)
- If spiritual care interventions can help to neutralize negative emotions and enhance positive emotions through Spiritual Transformation, then they may counter these adverse physiological effects and result in better health, faster healing, better medical outcomes, and greater longevity

# Can Research on the Physiology of Transformational Experiences give Clues to Effective Spiritual Care Interventions?

- Listen carefully to Dr. Cole's talk and the discussions that follow today. Be thinking about spiritual care interventions that might help increase vagal tone (parasympathetic response) and thereby reverse the physiological changes caused by stress
- Experiencing love from God, or from a faith community, or from a pastoral counselor who understands and cares --may go a long way towards eliciting spiritual transformation that ultimately changes physiology

**Dr. Steven Cole** will now talk about the Physiology of Transformational Experiences