

# Unit 8B:

## Motivation and Emotion: Emotions, Stress and Health



# Unit Overview

- [Theories of Emotion](#)
- [Embodied Emotion](#)
- [Expressed Emotion](#)
- [Experienced Emotion](#)
- [Stress and Health](#)



Click on the any of the above hyperlinks to go to that section in the presentation.

# Theories of Emotion



# Theories of Emotions

- Emotion
  - Physiological arousal
  - Expressive behavior
  - Conscious experience
- Common sense theory



# Controversy

- 1) Does physiological arousal precede or follow your emotional experience?
- 2) Does cognition (thinking) precede emotion (feeling)?

**Does your heart pound  
because you are afraid...  
or are you afraid  
because you feel  
your heart pounding?**



# Common Sense View

When you become happy, your heart starts beating faster.

That is, first comes conscious awareness, then comes physiological activity.



# James-Lange Theory

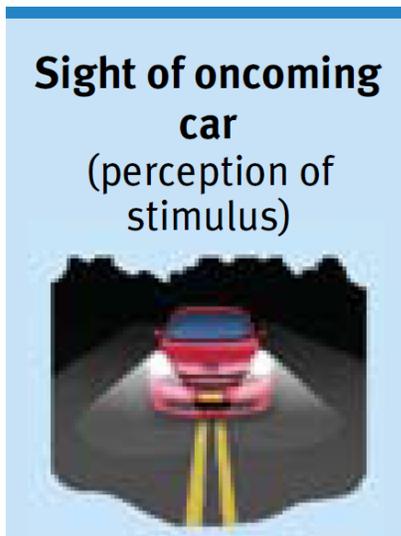
William James and Carl Lange

proposed an idea that was diametrically opposed to the common-sense view.

The James-Lange Theory proposes that physiological activity precedes the emotional experience.

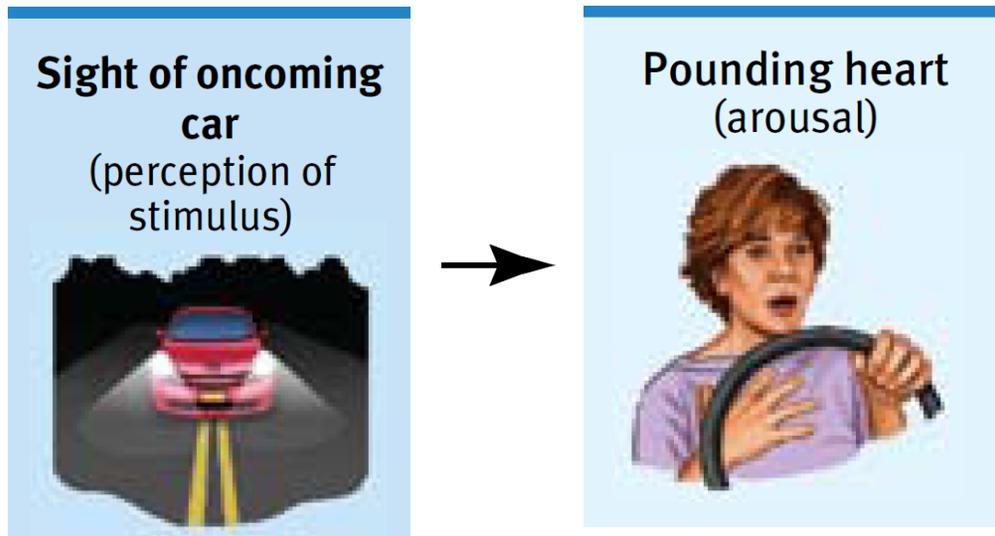
# Theories of emotions

- James-Lange theory



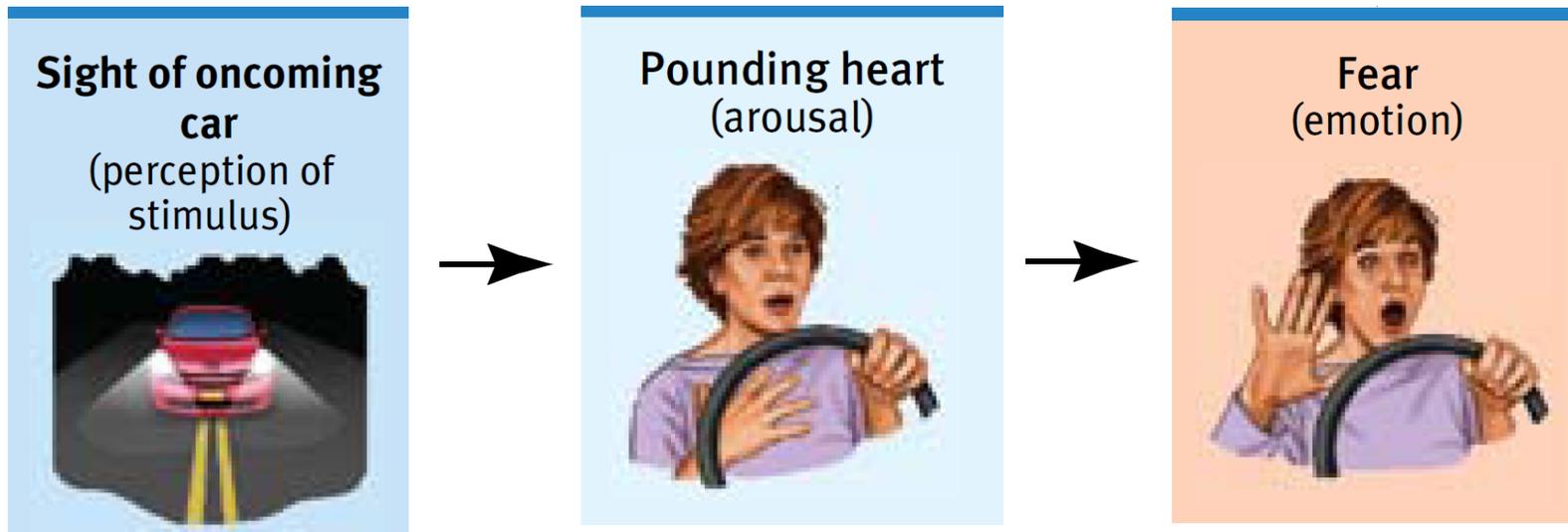
# Theories of emotions

- James-Lange theory



# Theories of emotions

- James-Lange theory

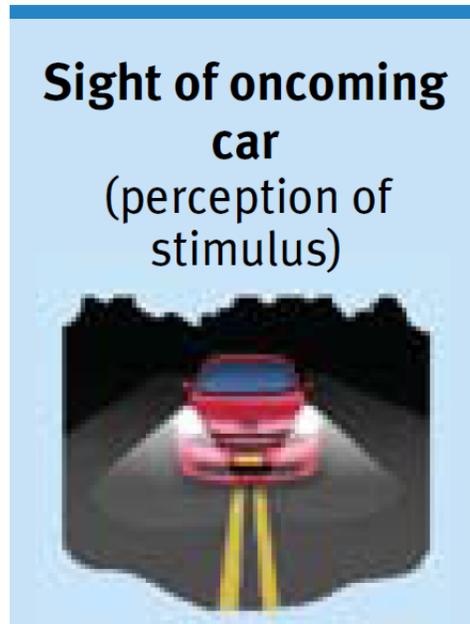


# Cannon-Bard Theory

Walter Cannon and Phillip Bard questioned the James-Lange Theory and proposed that an emotion-triggering stimulus and the body's arousal take place simultaneously.

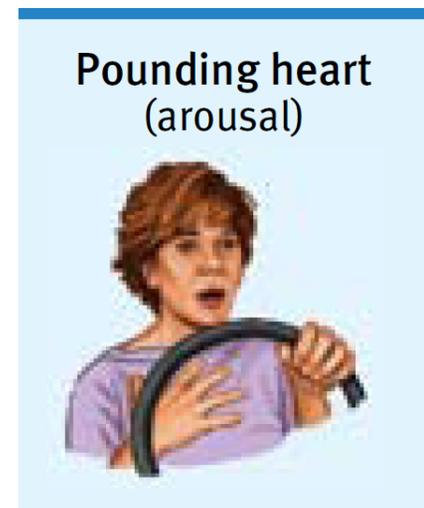
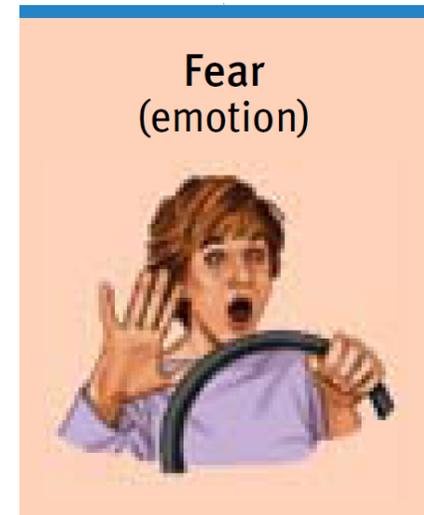
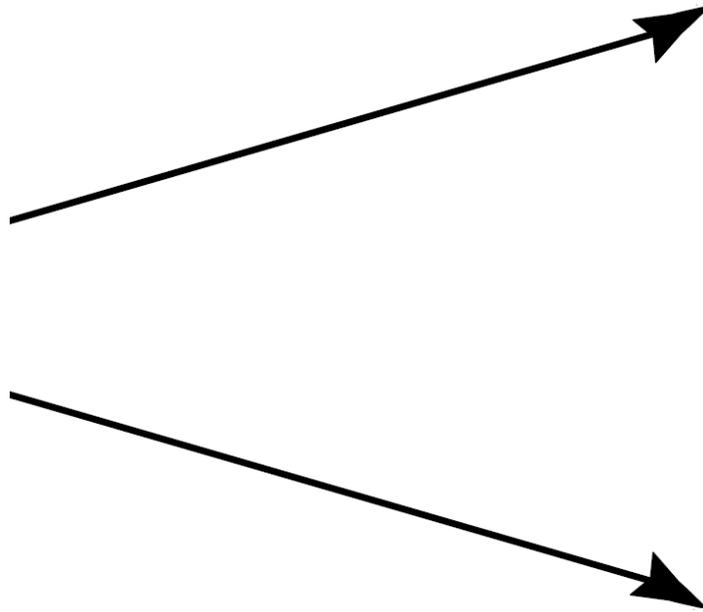
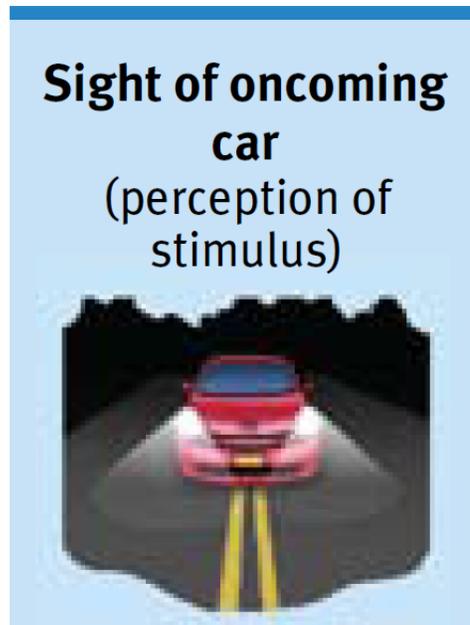
# Theories of emotions

- Cannon-Bard theory



# Theories of emotions

- Cannon-Bard theory

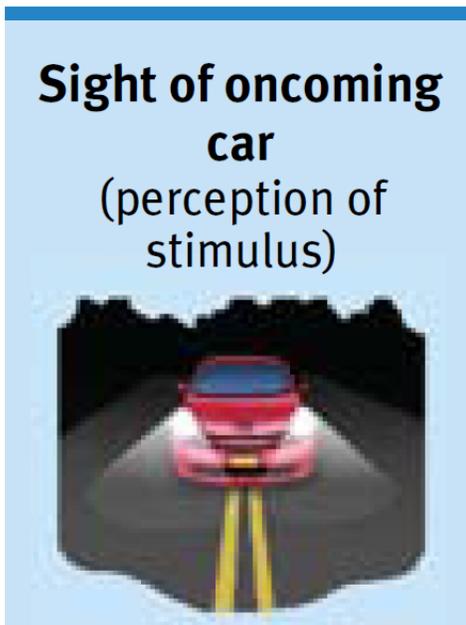


# Two-Factor Theory

Stanley Schachter and Jerome Singer proposed yet another theory which suggests our physiology and cognitions create emotions. Emotions have two factors—physical arousal and cognitive label.

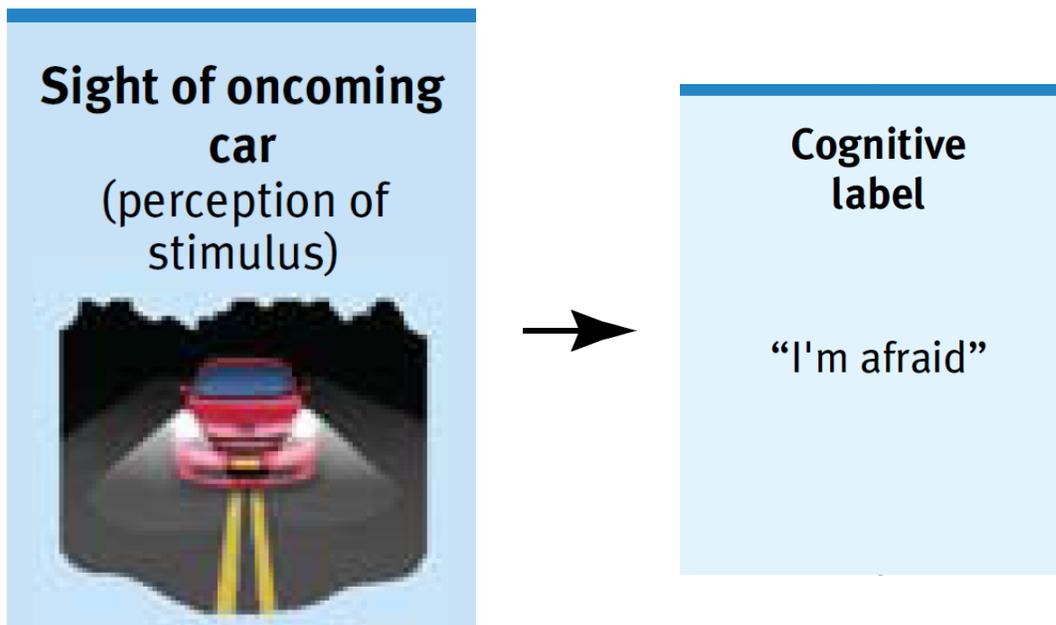
# Theories of emotions

- Two-factor theory  
– Schachter-Singer



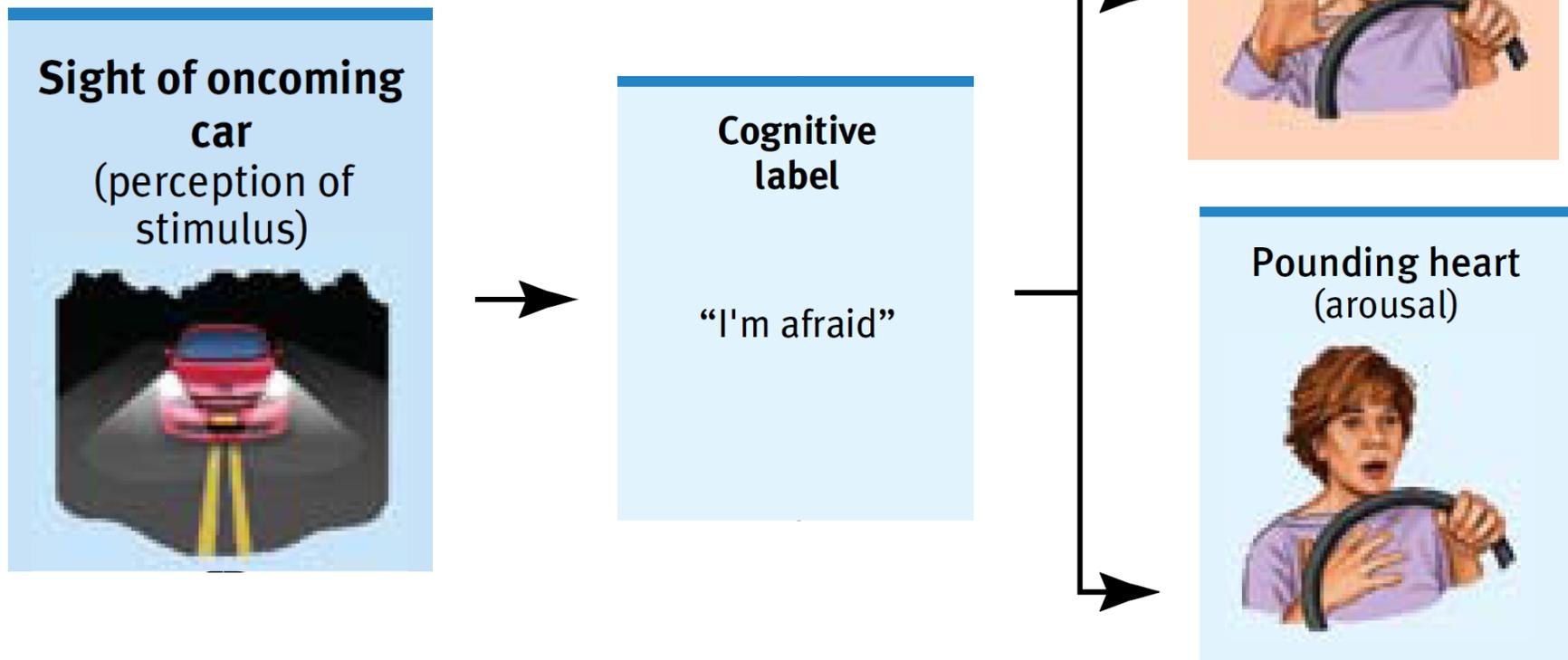
# Theories of emotions

- Two-factor theory  
– Schachter-Singer

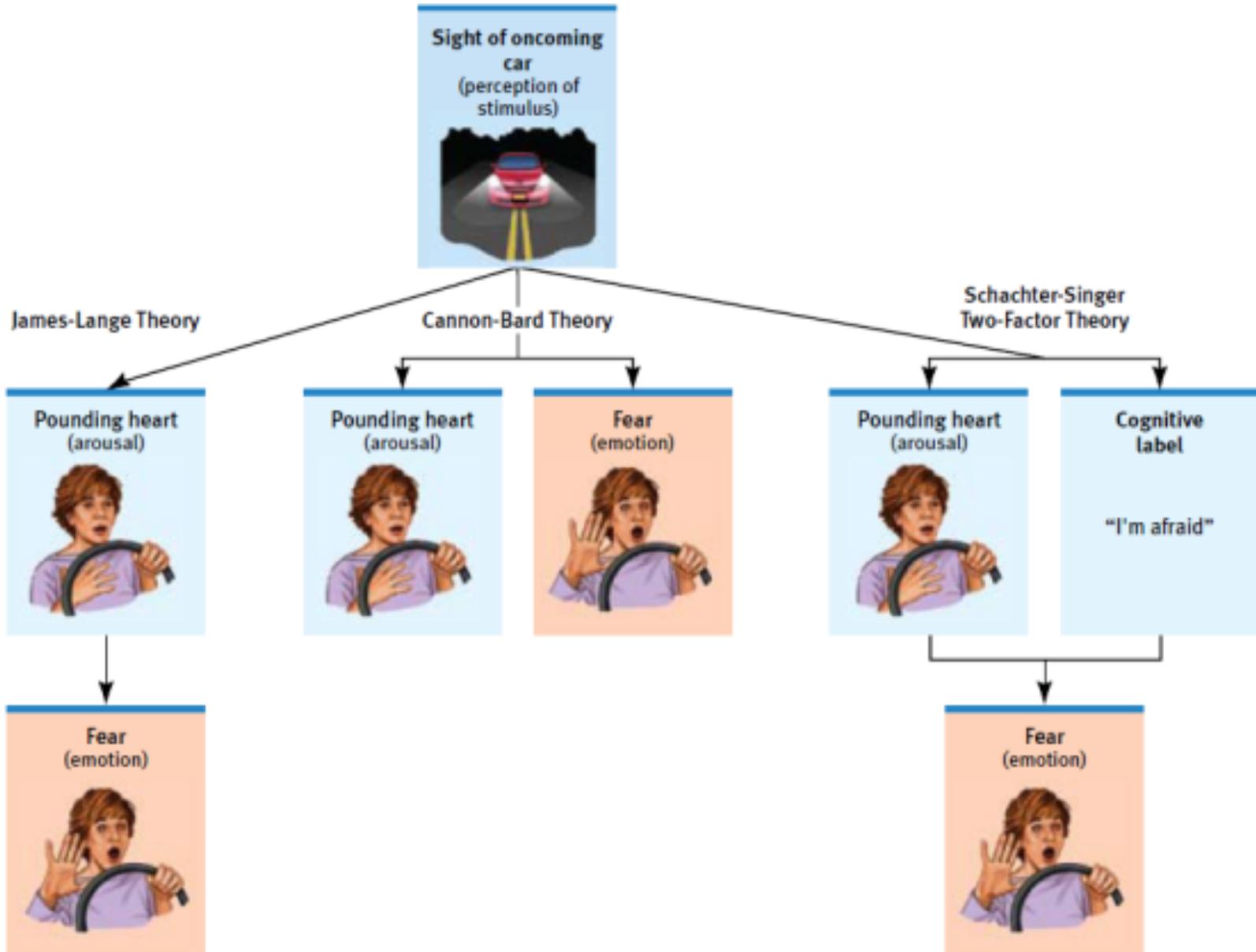


# Theories of emotions

- Two-factor theory  
– Schachter-Singer



# Theories of emotions



# Embodied Emotion



# Embodied Emotion

We know that emotions involve bodily responses.

Some of these responses are very noticeable (butterflies in our stomach when fear arises).

However, others are more difficult to discern (neurons activated in the brain).

# Emotions and the Autonomic Nervous System

- Autonomic nervous system
  - Sympathetic nervous system
    - arousing
  - Parasympathetic nervous system
    - Calming
  - Moderate arousal is ideal

# Emotions and the Autonomic Nervous System

## Autonomic Nervous System Controls Physiological Arousal

Sympathetic  
division (arousing)

Parasympathetic  
division (calming)

Sympathetic division (arousing)		Parasympathetic division (calming)
	EYES	
	SALIVATION	
	SKIN	
	RESPIRATION	
	HEART	
	DIGESTION	
	ADRENAL GLANDS	



# Emotions and the Autonomic Nervous System

## Autonomic Nervous System Controls Physiological Arousal



Sympathetic division (arousing)		Parasympathetic division (calming)
Pupils dilate	EYES	
Decreases	SALIVATION	
Perspires	SKIN	
Increases	RESPIRATION	
Accelerates	HEART	
Inhibits	DIGESTION	
Secrete stress hormones	ADRENAL GLANDS	



# Emotions and the Autonomic Nervous System

## Autonomic Nervous System Controls Physiological Arousal

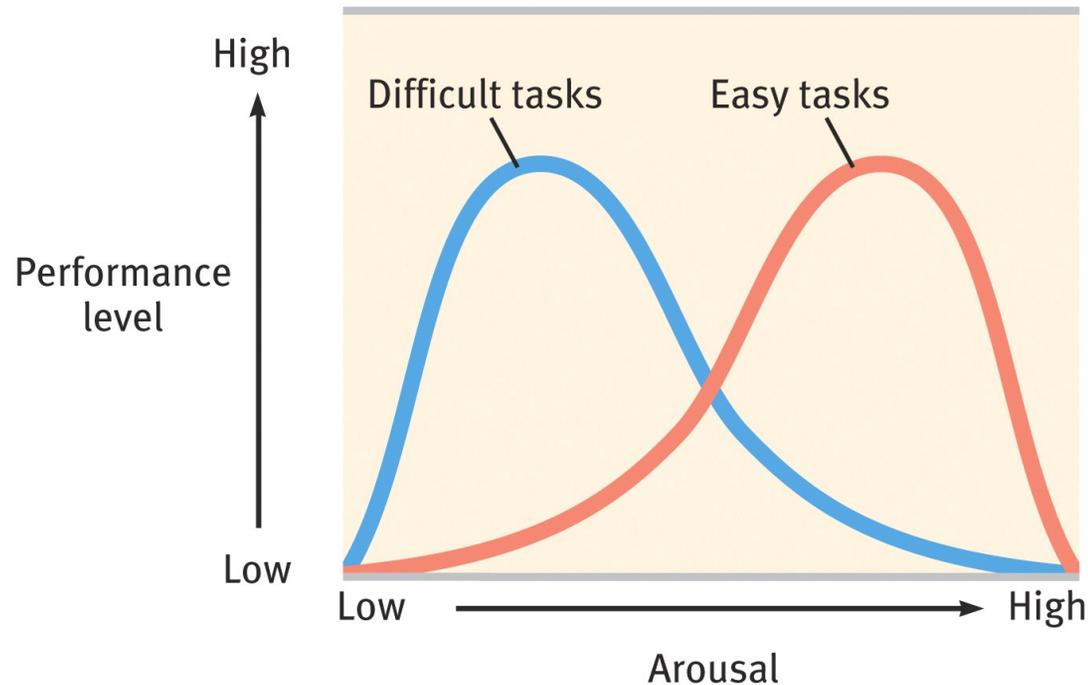


Sympathetic division (arousing)		Parasympathetic division (calming)
Pupils dilate	EYES	Pupils contract
Decreases	SALIVATION	Increases
Perspires	SKIN	Dries
Increases	RESPIRATION	Decreases
Accelerates	HEART	Slows
Inhibits	DIGESTION	Activates
Secrete stress hormones	ADRENAL GLANDS	Decrease secretion of stress hormones



# Arousal and Performance

Arousal in short spurts is adaptive. We perform better under moderate arousal, but optimal performance varies with task difficulty.



# Physiological Similarities Among Specific Emotions

- Different movie experiment



# Physiological Similarities

Physiological responses related to the emotions of fear, anger, love, and boredom are very similar.



M. Casper/Stock Boston

Excitement and fear involve a similar physiological arousal.

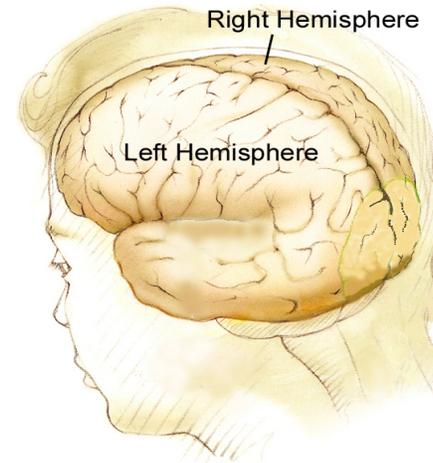
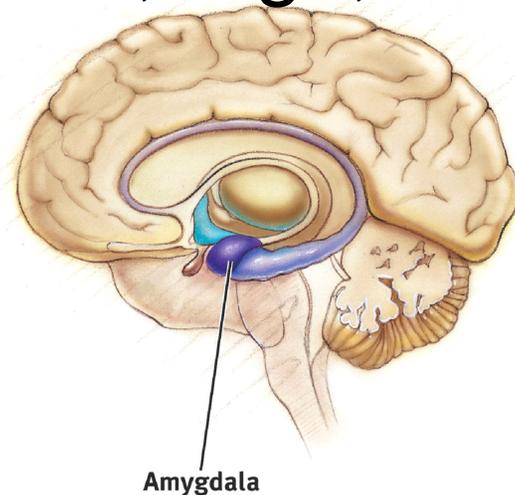
# Physiological Differences Among Specific Emotions

- Differences in brain activity
  - Amygdala
  - Frontal lobes
    - Nucleus accumbens
  - [Polygraph](#)



# Physiological Differences

Physical responses, like finger temperature and movement of facial muscles, change during fear, rage, and joy.



The amygdala shows differences in activation during the emotions of anger and rage. Activity of the left hemisphere (happy) is different from the right (depressed) for emotions.

# Cognition and Emotion

## *Cognition Can Define Emotion*

- Spill over effect
  - Schachter-Singer experiment

Arousal fuels  
emotions;  
cognition  
channels it



# Cognition Can Define Emotion

An arousal response to one event spills over into our response to the next event.

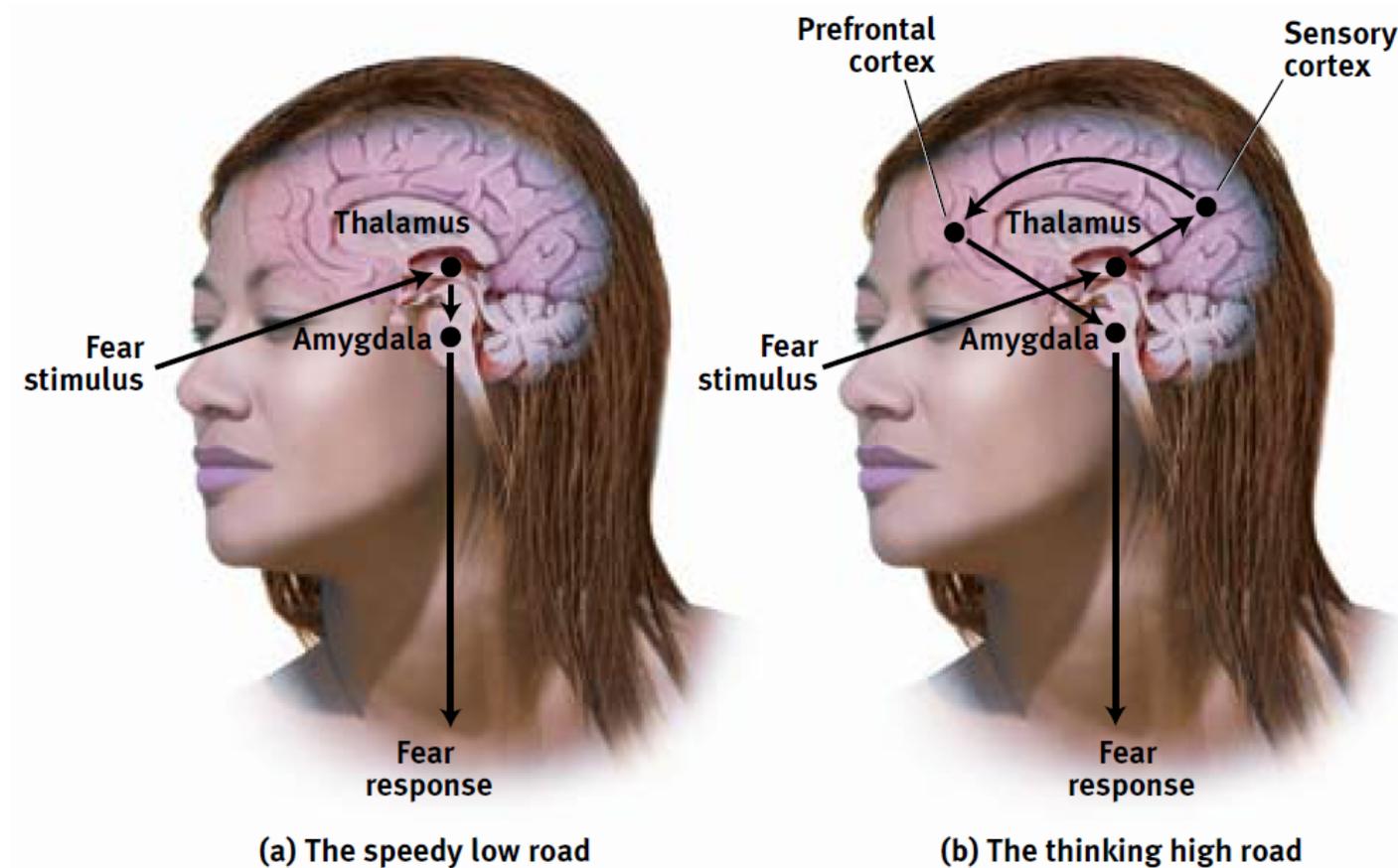


Arousal from a soccer match can fuel anger, which may lead to rioting.

# Cognition and Emotion

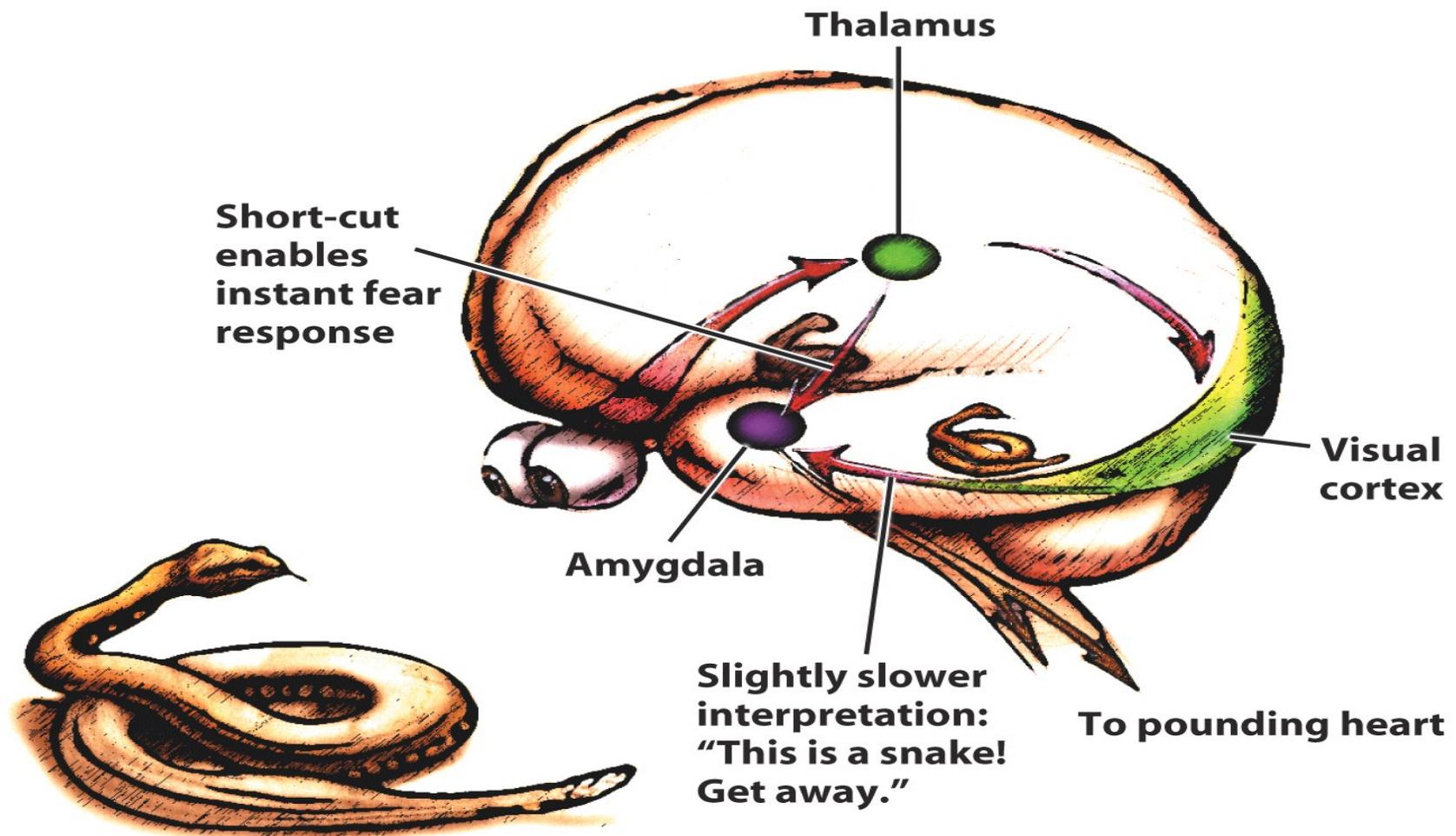
## *Cognition Does Not Always Precede Emotion*

- Influence of the amygdala



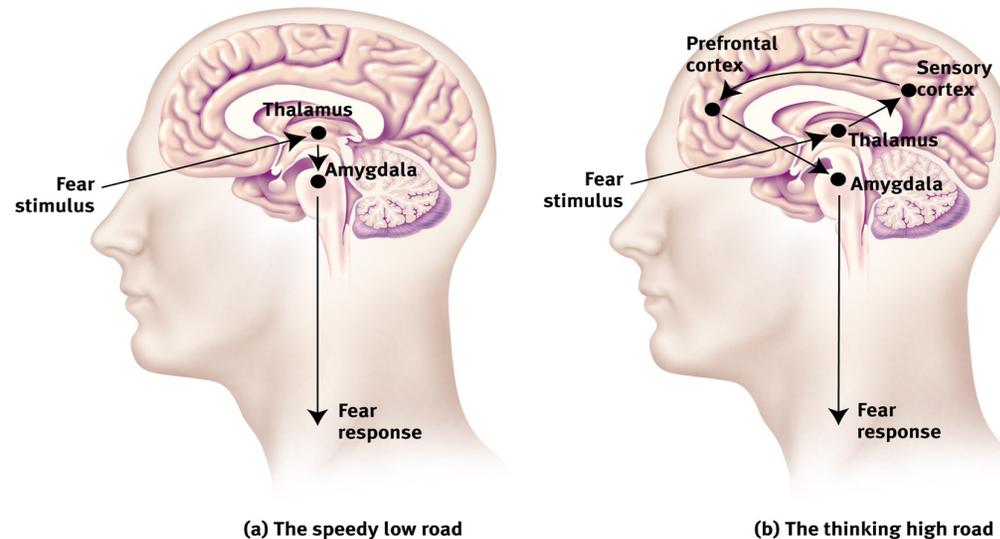
# Cognition and Emotion

- The brain's shortcut for emotions



# Cognition Does Not Always Precede Emotion

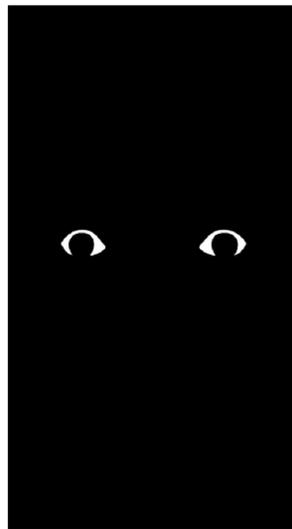
A subliminally presented happy face can encourage subjects to drink more than when presented with an angry face (Berridge & Winkeilman, 2003).



Emotions are felt directly through the amygdala (a) or through the cortex (b) for analysis.

# Cognition Does Not Always Precede Emotion

When fearful eyes were subliminally presented to subjects, fMRI scans revealed higher levels of activity in the amygdala (Whalen et al. 2004).



Fear



Happy

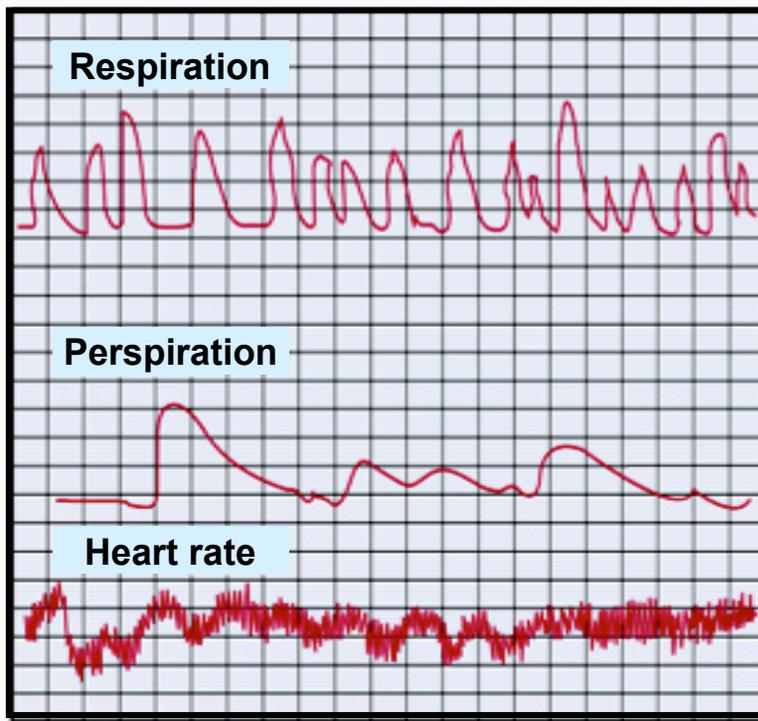
# Emotion-Lie Detectors

- Polygraph
  - machine commonly used in attempts to detect lies
  - measures several of the physiological responses accompanying emotion
    - perspiration
    - cardiovascular
    - breathing changes

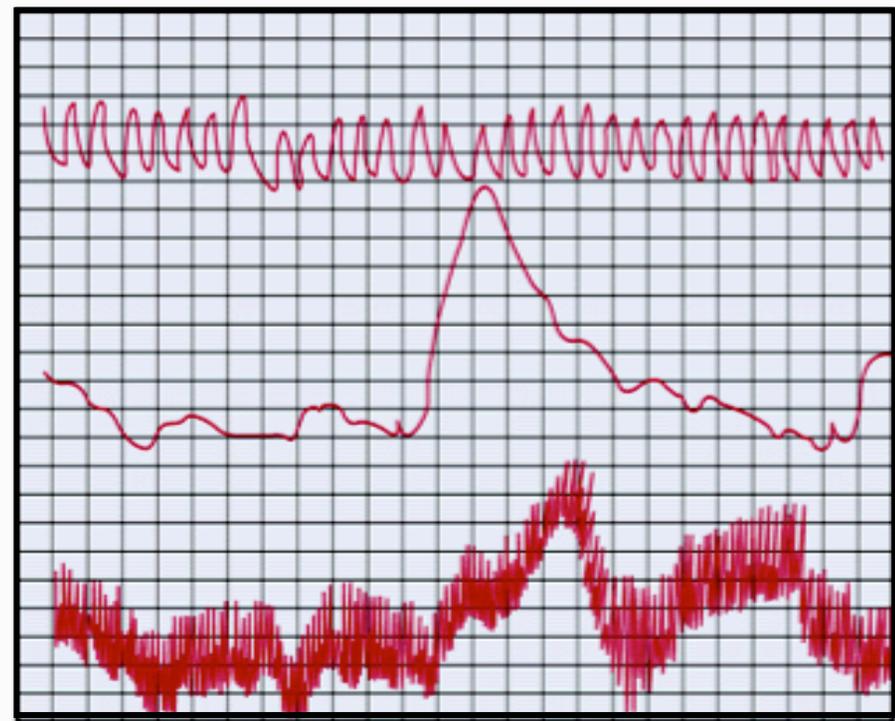
# Emotion--Lie Detectors

- Control Question
  - Up to age 18, did you ever physically harm anyone?
- Relevant Question
  - Did [the deceased] threaten to harm you in any way?
- Relevant > Control --> Lie

# Emotion--Lie Detectors

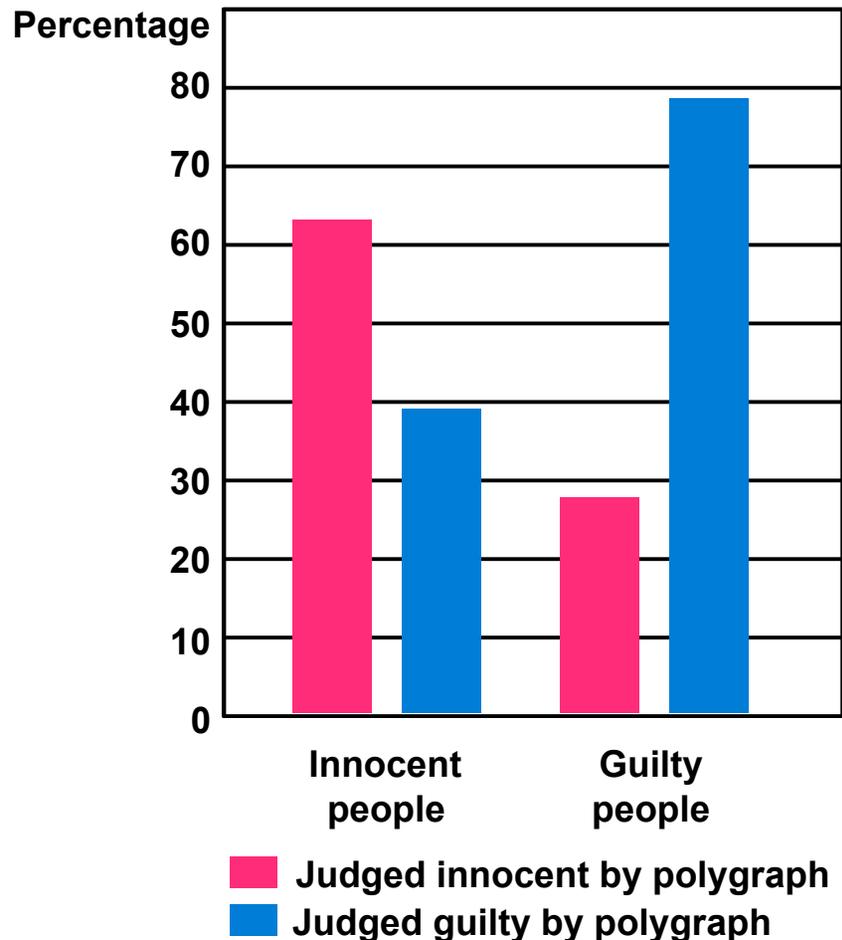


Control question    Relevant question    (a)



Control question    Relevant question    (b)

# Emotion--Lie Detectors



- 50 Innocents
- 50 Thieves
  - 1/3 of innocent declared guilty
  - 1/4 of guilty declared innocent (from Kleinmuntz & Szucko, 1984)

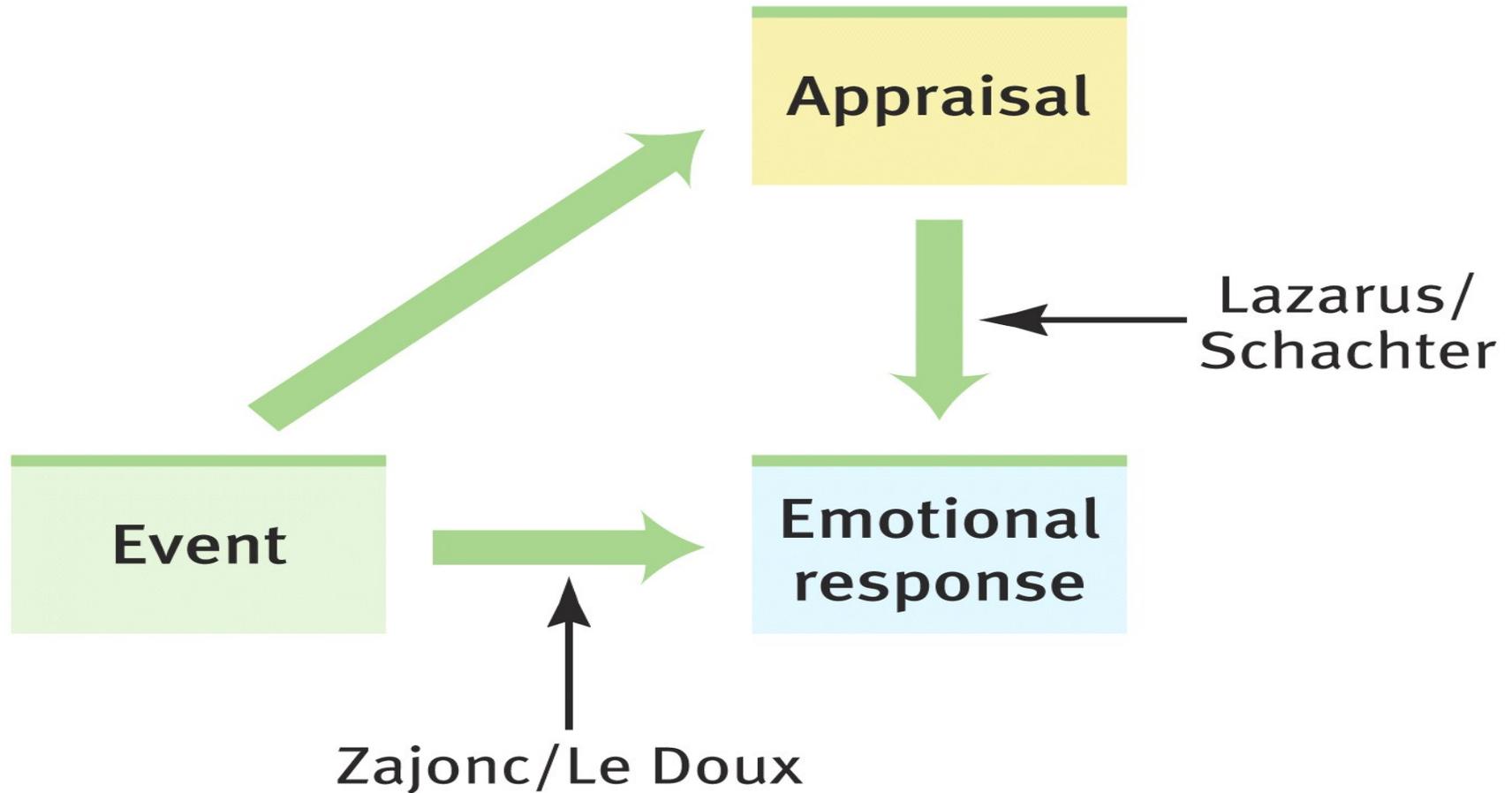
# Emotion – Lie Detectors

- Is 70% accuracy good?
  - Assume 5% of 1000 employees actually guilty
    - test all employees
    - 285 will be wrongly accused
- What about 95% accuracy?
  - Assume 1 in 1000 employees actually guilty
    - test all employees (including 999 innocents)
    - 50 wrongly declared guilty
    - 1 of 51 testing positive are guilty (~2%)

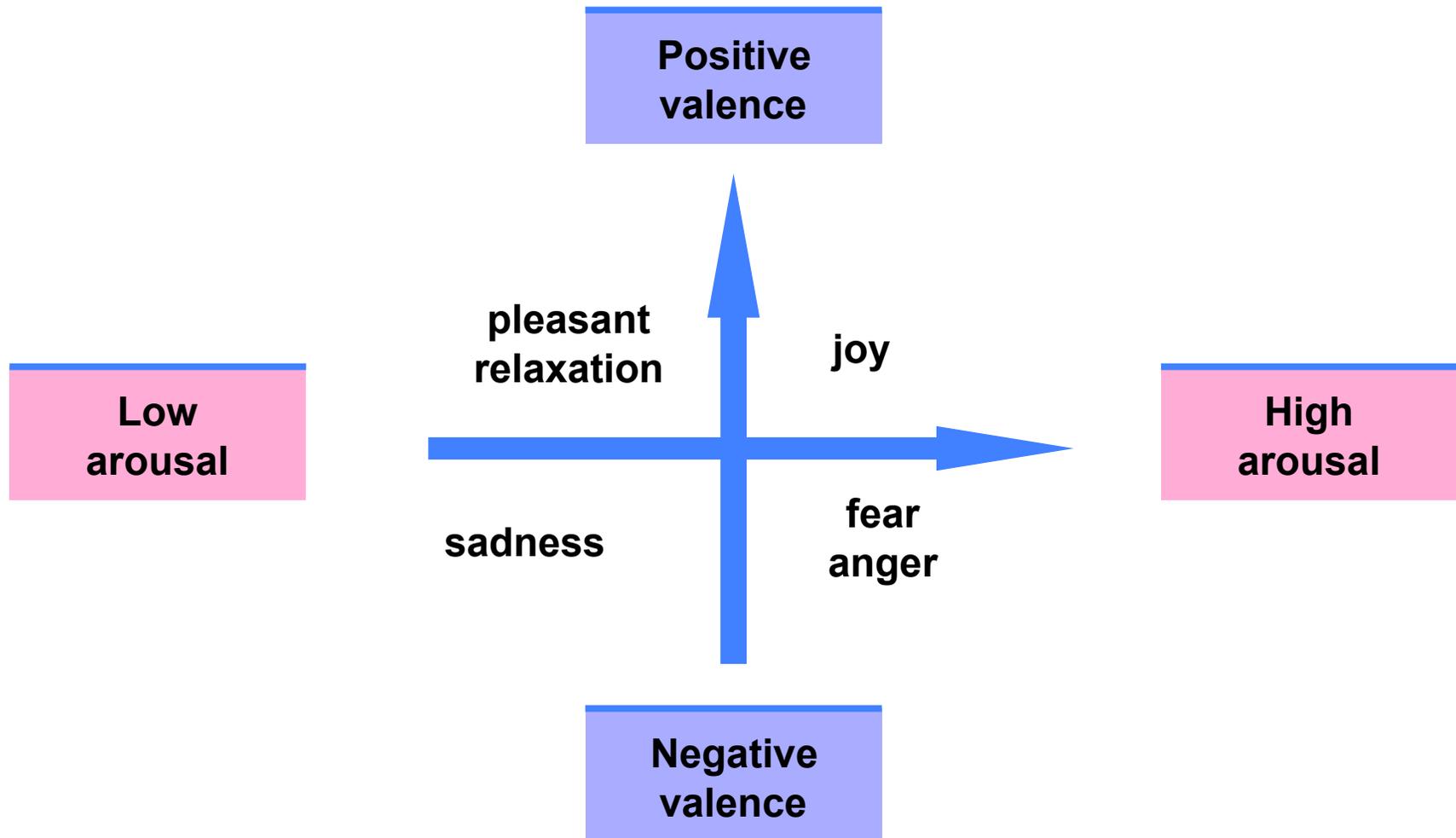
# Emotion – Lie Detectors

- **Guilty knowledge test**--typically used to assess a suspect's responses to details of a crime.

# Two Routes to Emotion



# Two Dimensions of Emotion



# Expressed Emotion



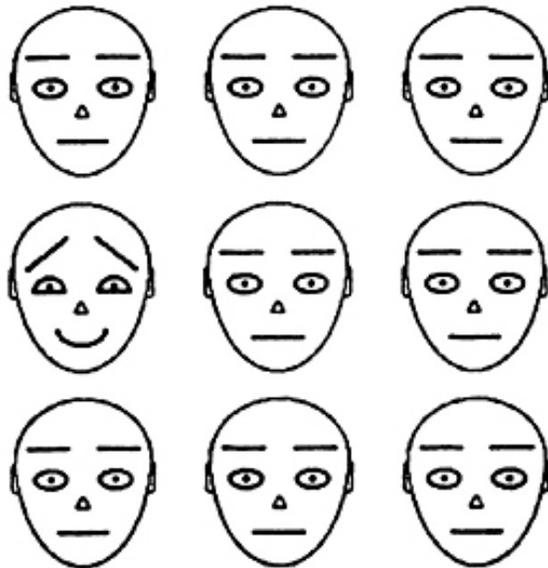
# Expressed Emotion

Emotions are expressed on the face, by the body, and by the intonation of voice. Is this non-verbal language of emotion universal?



# Nonverbal Communication

Most of us are good at deciphering emotions through non-verbal communication. In a crowd of faces a single angry face will “pop out” faster than a single happy face (Fox et al. 2000).

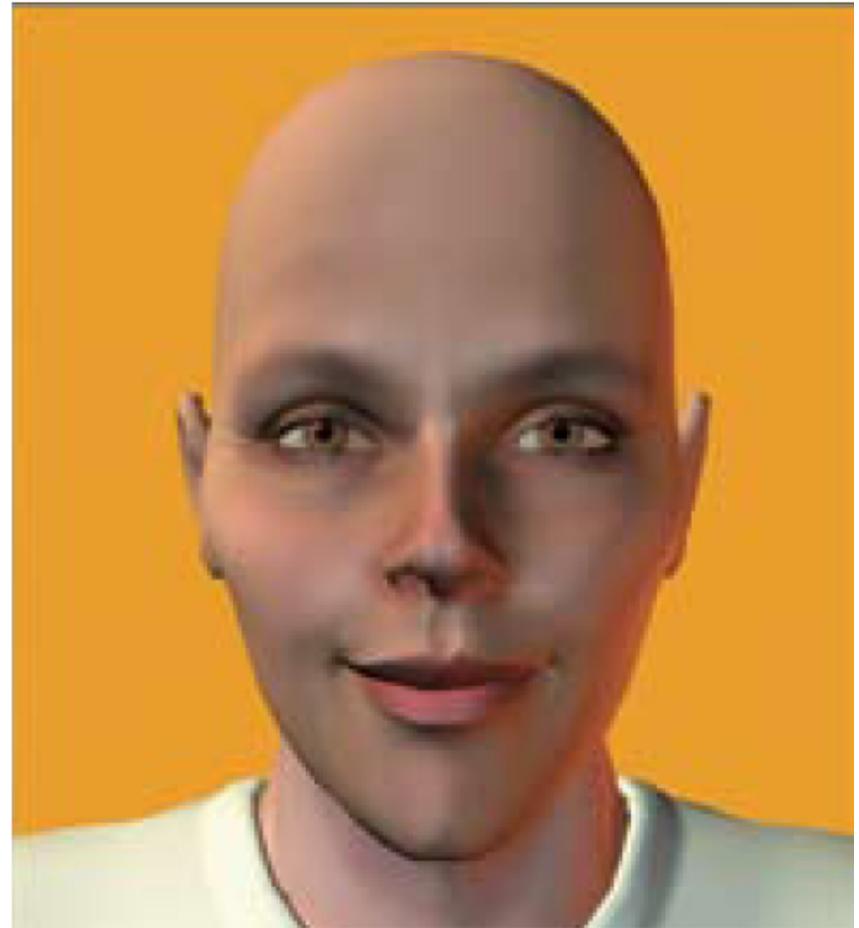


# Detecting Emotion

- Nonverbal cues
  - Duchenne smile



# Gender, Emotion, and Nonverbal Behavior



# Detecting and Computing Emotion

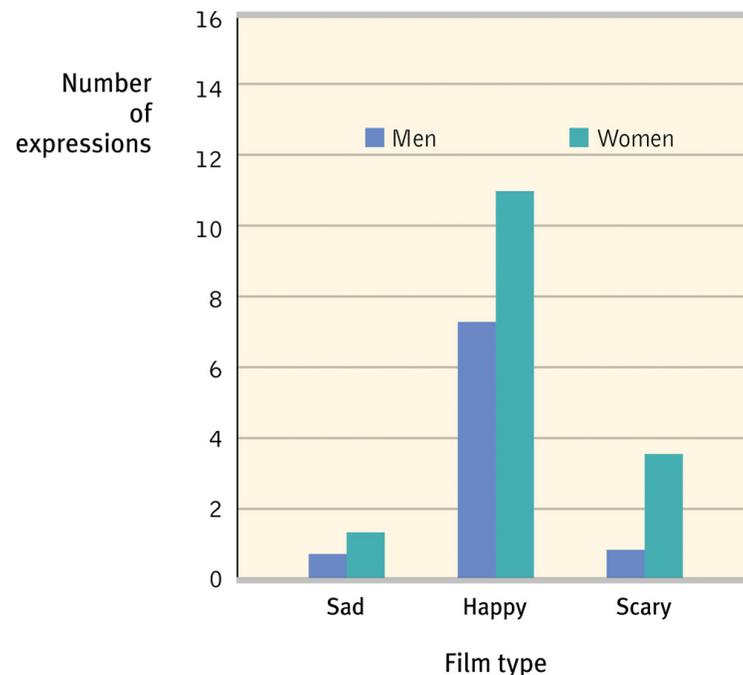
Most people find it difficult to detect deceiving emotions. Even trained professionals like police officers, psychiatrists, judges, and polygraphists detected deceiving emotions only 54% of the time.



Which of Paul Ekman's smiles is genuine?

# Gender, Emotion, and Nonverbal Behavior

Women are much better at discerning nonverbal emotions than men. When shown sad, happy, and scary film clips women expressed more emotions than men.

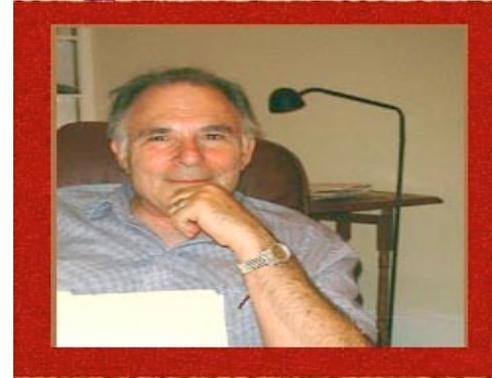


# Gender, Emotion, & Nonverbal Behavior

- Females are better at reading people's emotional cues.
- Women are also far more likely than men to describe themselves as empathic (identifying with others).
- Women also react more visibly to films displaying emotions.
- Women and men also differ in the emotions they express best.
- Women recalled being happy nearly 2/3 of the time, but they were able to spot it less than half the time when observing men.
- Men, however slightly surpassed women in conveying their anger.

# Detecting and Computing Emotion

- Psychologists are now linking various emotions with specific facial muscles (Paul Ekman)
- We don't do well using our intuition to determine if someone is lying (50% of the time we guess right). When people aren't seeking to deceive us, we do much better.
- Our brains are amazing emotion detectors.
- Computers outperformed human non-experts, with 91% accuracy in recognizing six facial expressions.
- E-mail communication. Problems??? :) :-)



# Culture and Emotional Expression



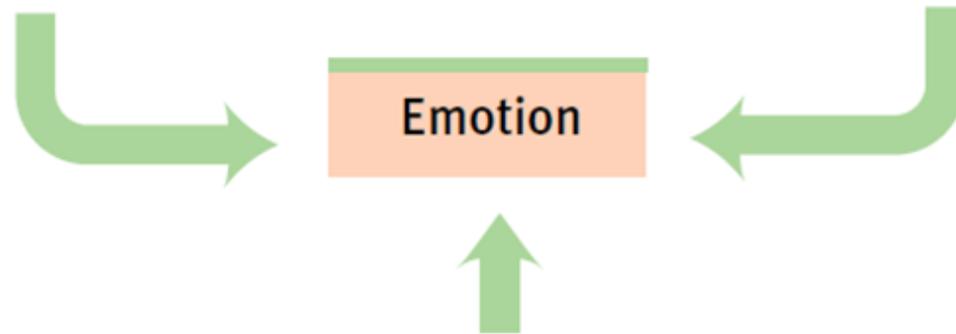
# Emotions are Adaptive

Darwin speculated that our ancestors communicated with facial expressions in the absence of language. Nonverbal facial expressions led to our ancestor's survival.



Charles Darwin (1809-1882)

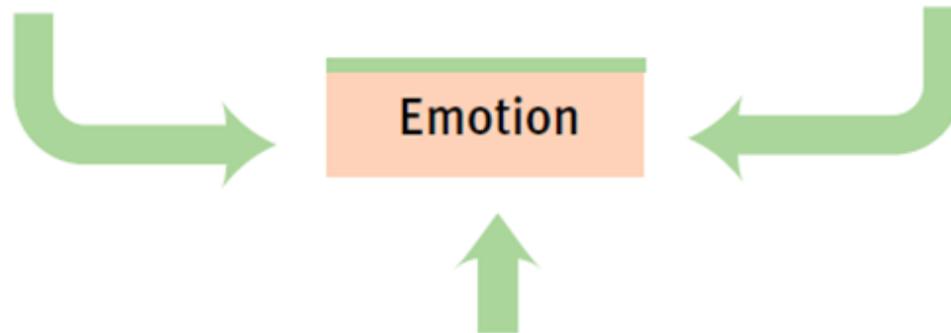
# Levels of Analysis for the Study of Emotion



# Levels of Analysis for the Study of Emotion

## Biological influences:

- physiological arousal
- evolutionary adaptiveness
- brain pathways
- spillover effect



# Levels of Analysis for the Study of Emotion

## Biological influences:

- physiological arousal
- evolutionary adaptiveness
- brain pathways
- spillover effect

## Psychological influences:

- cognitive labeling
- gender differences

The diagram illustrates the levels of analysis for the study of emotion. At the top, two boxes represent 'Biological influences' (light blue) and 'Psychological influences' (light purple). Below these, a central orange box labeled 'Emotion' is the focus. Three green arrows point towards the 'Emotion' box: one from the left (from the biological influences box), one from the right (from the psychological influences box), and one from the bottom.

Emotion

# Levels of Analysis for the Study of Emotion

## Biological influences:

- physiological arousal
- evolutionary adaptiveness
- brain pathways
- spillover effect

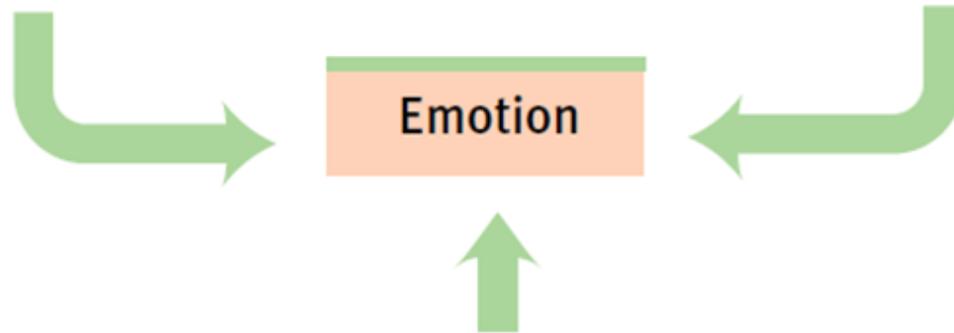
## Psychological influences:

- cognitive labeling
- gender differences

Emotion

## Social-cultural influences:

- expressiveness
- presence of others
- cultural expectations



# Culture and Emotional Expression

- Facial expression such as happiness and fear are common throughout the world. (Universal language)
- Americans are more likely than Asians to openly display their feelings by their facial expressions.
- Children's facial expressions – even those of blind children who have never seen a face– are also universal.
- To effectively manage emotions, people would be best advised to control their facial expressions.



# Hindu Dance

In classical Hindu dance, the body is trained to effectively convey 10 different emotions.



Network Photographers/ Alamy

**Open Palm** Greece: an insult dating to ancient times; West Africa: You have five fathers, an insult akin to calling someone a bastard



**Thumbs-up** Australia: up yours; Germany: the number one; Japan: the number five; Saudi Arabia: I'm winning; Ghana: an insult; Malaysia: the thumb is used to point rather than the finger

**Thumb and forefinger** Most countries: money; France: something is perfect; Mediterranean: a vulgar gesture

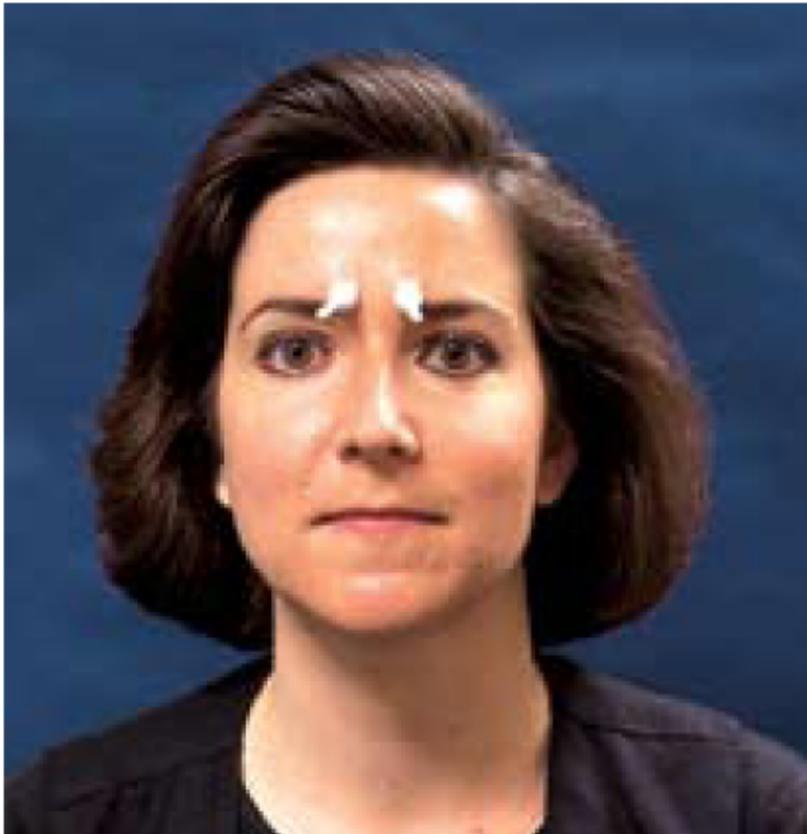


**OK Sign** France: you're a zero; Japan: please give me coins; Brazil: an obscene gesture; Mediterranean countries: an obscene gesture



# The Effects of Facial Expressions

- [Facial feedback](#)



# The Effects of Facial Expression

If facial expressions are manipulated, like furrowing brows, people feel sad while looking at sad pictures.



Attaching two golf tees to the face and making their tips touch causes the brow to furrow.

# The Effects of Facial Expressions

- When people mimicked expressions of emotion, they experienced those emotions.



# Experienced Emotion



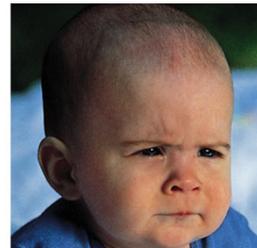
# Experienced Emotion

Izard (1977) isolated 10 emotions. Most of them are present in infancy, except for contempt, Shame, and guilt.



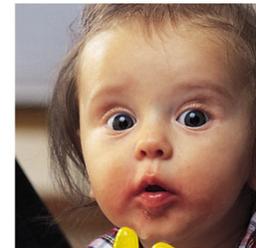
Tom McCarthy/Rainbow

(a) Joy (mouth forming smile, cheeks lifted, twinkle in eye)



Patrick Domehuf/Photo Researchers, Inc.

(b) Anger (brows drawn together and downward, eyes fixed, mouth squarish)



Bob Daemrich/The Image Works

(c) Interest (brows raised or knitted, mouth softly rounded, lips may be pursed)



Lew Merritt/Photo Researchers, Inc.

(d) Disgust (nose wrinkled, upper lip raised, tongue pushed outward)



Nancy Brown/The Image Bank

(e) Surprise (brows raised, eyes widened, mouth rounded in oval shape)



Marc Grinberg/The Image Bank

(f) Sadness (brow's inner corner raised, mouth corners drawn down)



Michael Newman/PhotoEdit

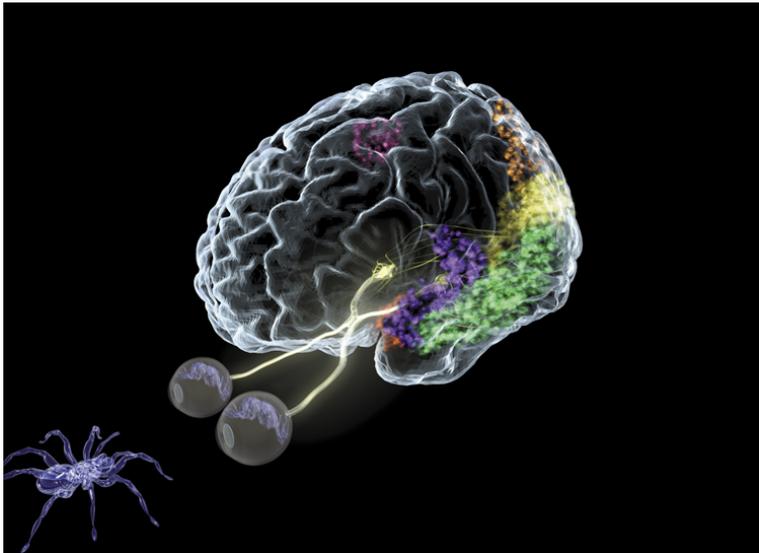
(g) Fear (brows level, drawn in and up, eyelids lifted, mouth corners retracted)

# Emotion and Facial Expressions

- Each basic emotion is associated with a unique facial expression
- Facial expressions are innate and “hard-wired”
- Innate facial expressions the same across many cultures
- Display rules—social and cultural rules that regulate emotional expression, especially facial expressions.

# Fear

- Adaptive value of fear
- The biology of fear
  - amygdala

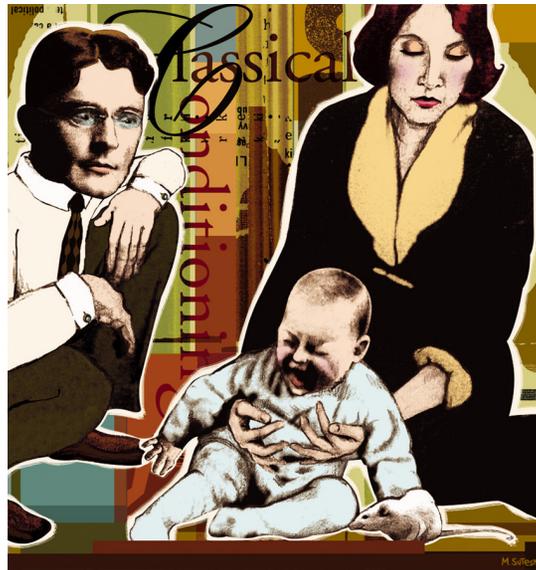


# Fear

Fear can torment us, rob us of sleep, and preoccupy our thinking. However, fear can be adaptive – it makes us run away from danger, it brings us closer as groups, and it protects us from injury and harm.

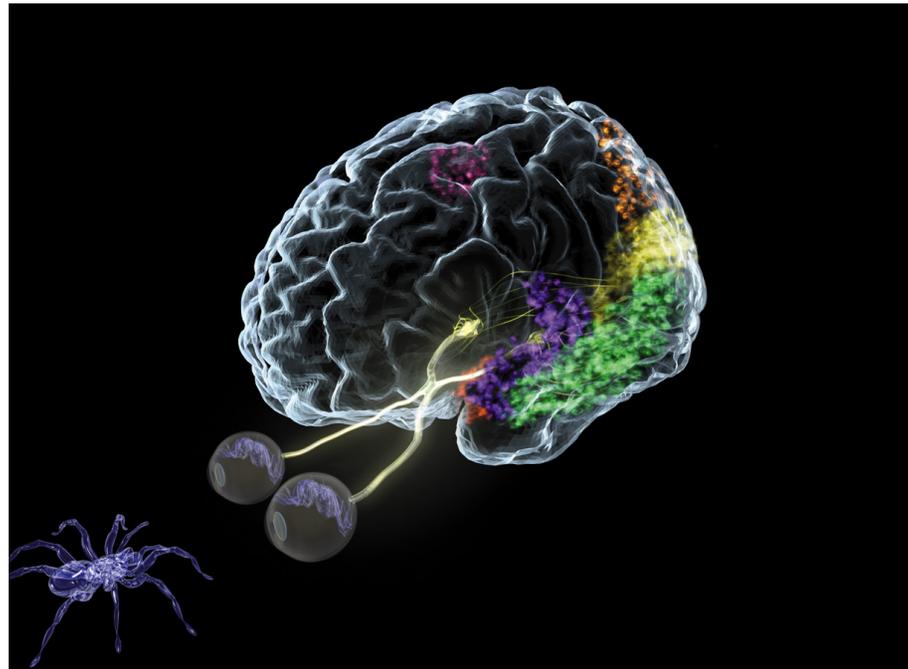
# Learning Fear

We learn fear in two ways, either through **conditioning** and/or through **observation**.



# The Biology of Fear

Some fears are easier to learn than others. The amygdala in the brain associates emotions like fear with certain situations.









# The Biology of Fear

The **amygdala** plays a key role in associating various emotions, including fear, with certain situations.



# The Biology of Fear

- Rabbits fail to react with fear to a signal of impending shock if they have suffered damage to the amygdala



# Anger

- Anger
  - Evoked by events
  - Catharsis
  - Expressing anger can increase anger



# Causes of Anger

1. People generally become angry with friends and loved ones who commit wrongdoings, especially if they are willful, unjustified, and avoidable.
2. People are also angered by foul odors, high temperatures, traffic jams, and aches and pains.

# Anger (Rage)

- Anger is most often evoked by events that not only are frustrating or insulting but also are interpreted as willful, unjustified, and avoidable.
- Blowing off steam may be temporarily calming, but in the long run it does not reduce anger.
- Expressing anger can actually cause more anger.

# Catharsis Hypothesis

Venting anger through action or fantasy ---- achieves an emotional release or “catharsis.”

## Catharsis

emotional release

catharsis hypothesis

“releasing” aggressive energy (through action or fantasy) relieves aggressive urges

Opposing Theory-- Expressing anger breeds more anger, and through reinforcement it is habit-forming.

# Happiness

- Happiness
  - Feel-good, do-good phenomenon
  - Well-being



# Cultural & Gender Differences

1. Boys respond to anger by moving away from that situation, while girls talk to their friends or listen to music.
2. Anger breeds prejudice. The 9/11 attacks led to an intolerance towards immigrants and Muslims.
3. The expression of anger is more encouraged in cultures that do not promote group behavior than in cultures that do promote group behavior.



# Feel-Good, Do-Good Phenomenon

When we feel happy we are more willing to help others.



# Emotional Ups and Downs

Over the long run, our emotional ups and downs tend to balance. Although grave diseases can bring individuals emotionally down, most people adapt.



Courtesy of Anna Putt

# Subjective Well-Being

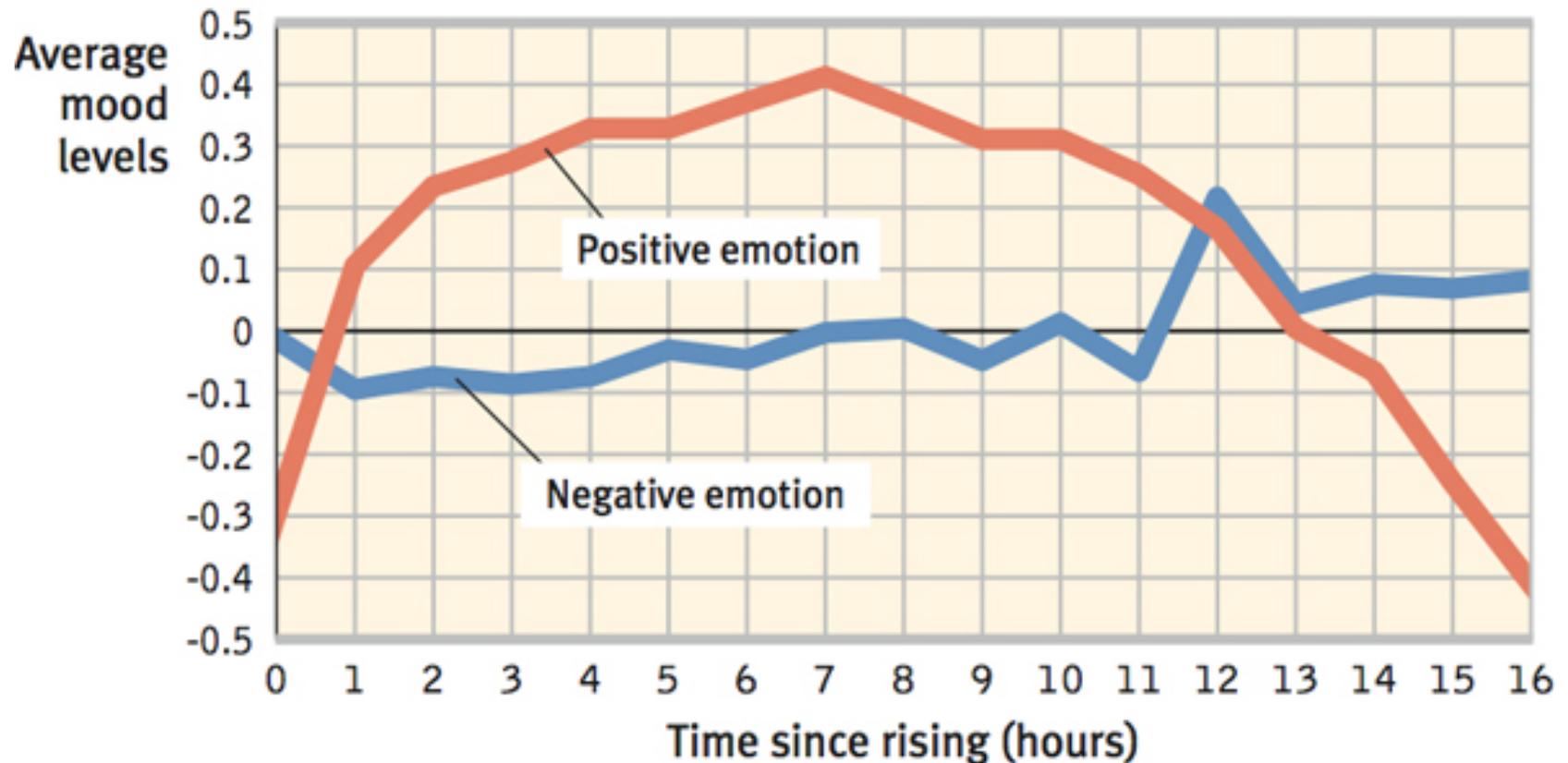
Subjective well-being is the self-perceived feeling of happiness or satisfaction with life. Research on new positive psychology is on the rise.



# Happiness

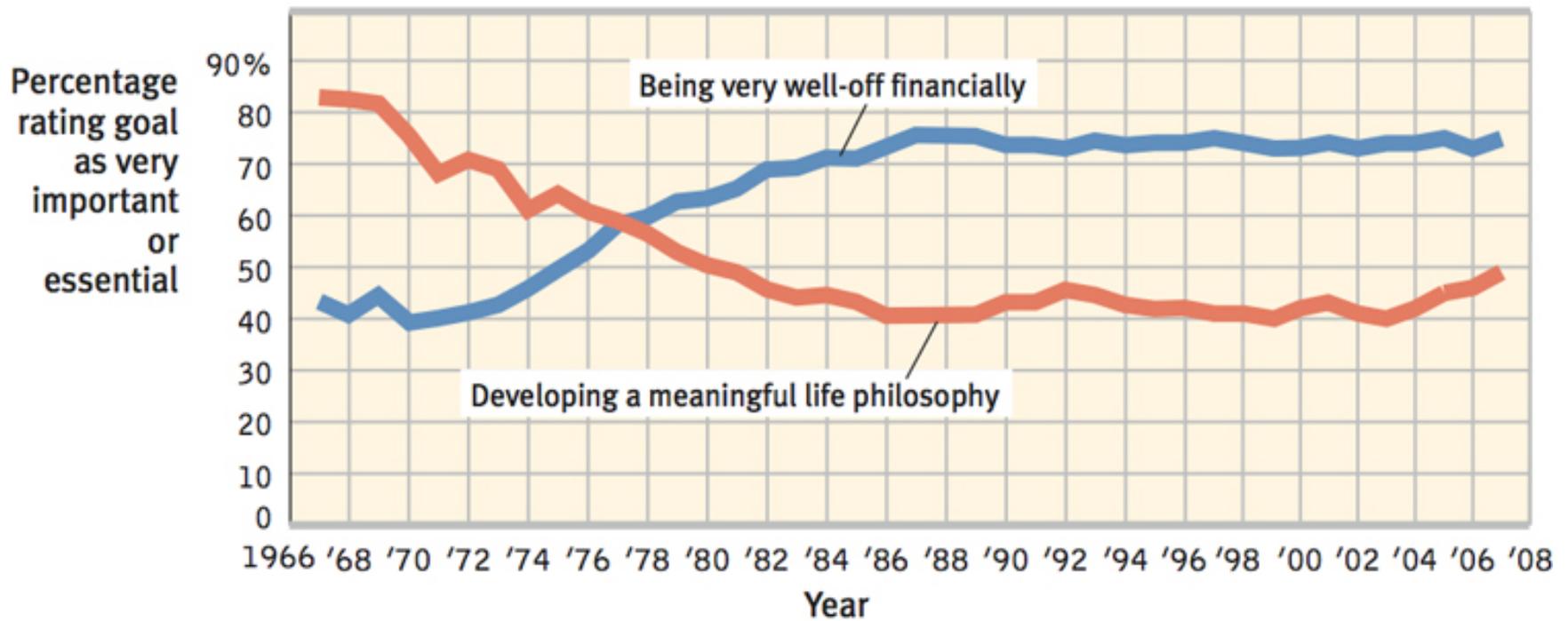
## *The Short Life of Emotional Ups and Downs*

- Watson's studies



# Happiness

## *Wealth and Well-Being*



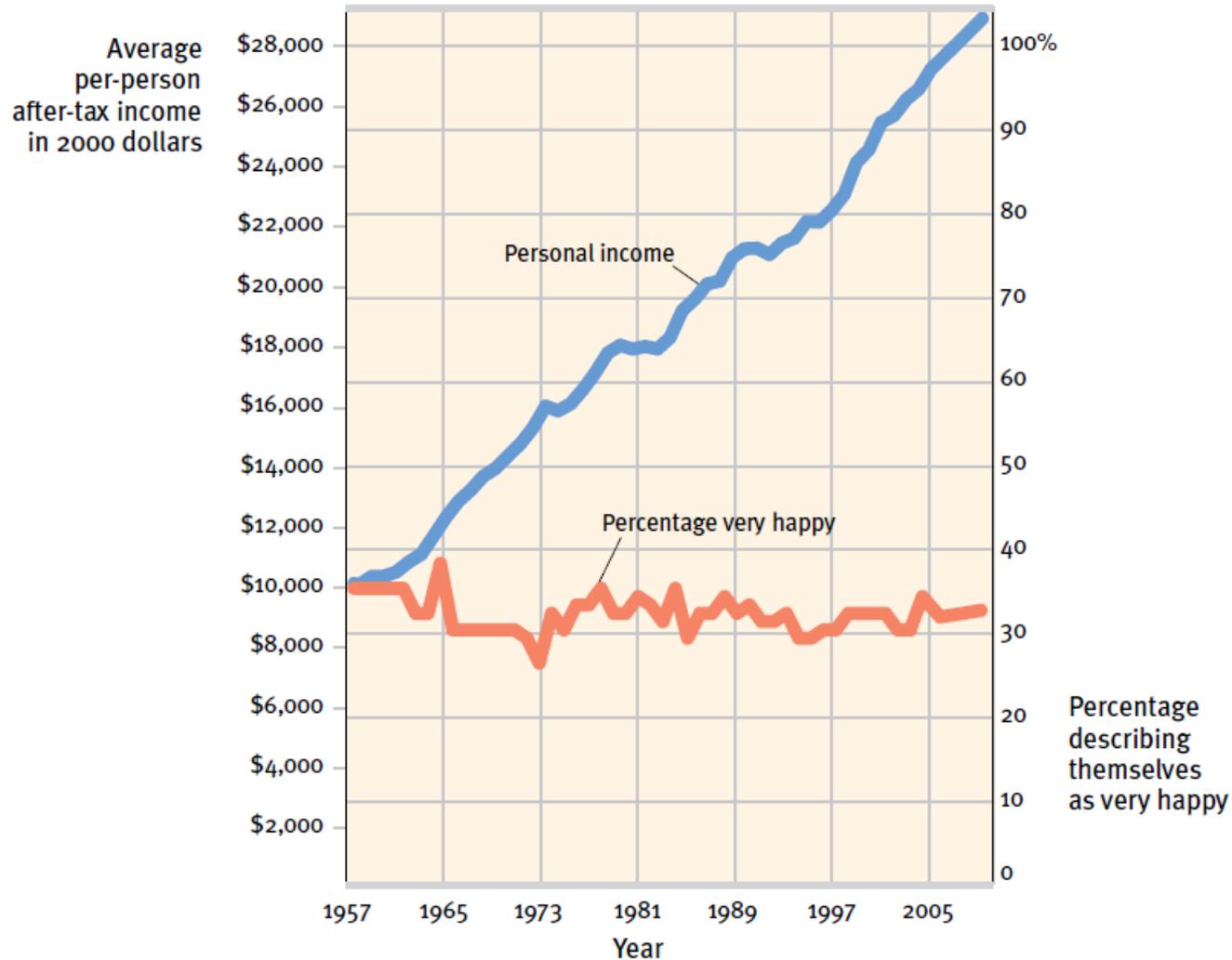
# Wealth and Well-being

1. In affluent societies, people with more money are happier than people who struggle for their basic needs.
2. People in rich countries are happier than people in poor countries.
3. A sudden rise in financial conditions makes people happy.

However, people who live in poverty or in slums are also satisfied with their life.

# Happiness

## *Wealth and Well-Being*



# Happiness

*Two Psychological Phenomena: Adaptation and Comparison*

- Happiness and Prior Experience
  - [Adaptation-level phenomenon](#)
- Happiness and others' attainments
  - [Relative deprivation](#)

# Experienced Emotion

## **The Adaptation-Level Principle:**

### **Happiness is Relative to Our Prior Experience**

If our current condition— income, grade point average, or social prestige, for example— increases, we feel an initial surge of pleasure. We then adapt to this new level of achievement, come to consider it as normal, and require something even better to give us another surge of happiness.

# Experienced Emotion

- Adaptation-Level Phenomenon
  - tendency to form judgments relative to a “neutral” level
    - brightness of lights
    - volume of sound
    - level of income
  - defined by our prior experience

# Relative Deprivation

- Relative Deprivation
  - perception that one is worse off relative to those with whom one compares oneself

# Happiness & Satisfaction

Subjective well-being (happiness + satisfaction) measured in 82 countries shows Puerto Rico and Mexico (poorer countries) at the top of the list.

The Top 10	The Bottom 10
1. Puerto Rico	73. Bulgaria
2. Mexico	74. Belarus
3. Denmark	75. Georgia
4. Ireland	76. Romania
5. Iceland	77. Moldova
6. Switzerland	78. Russia
7. Northern Ireland	79. Armenia
8. Colombia	80. Ukraine
9. Netherlands	81. Zimbabwe
10. Canada	82. Indonesia

# Happiness

People who are happy perceive the world as being safer. They are able to make decisions easily, are more cooperative, rate job applicants more favorably, and live healthier, energized, and more satisfied lives.



# Happiness is...

**Researchers Have Found That Happy People Tend to**

**However, Happiness Seems Not Much Related to Other Factors, Such as**

---

**Have high self-esteem  
(in individualistic countries)**

**Age**

---

**Be optimistic, outgoing, and agreeable**

**Gender (women are more often depressed, but also more often joyful)**

---

**Have close friendships or a satisfying marriage**

**Education levels**

---

**Have work and leisure that engage their skills**

**Parenthood (having children or not)**

---

**Have a meaningful religious faith**

**Physical attractiveness**

---

**Sleep well and exercise**

**Money**

# How to be Happier

1. Realize that enduring happiness doesn't come from financial success.
2. Take control of your time
3. Act happy
4. Seek work and leisure that engages your skills.
5. Join the “movement” movement
6. Give your body the sleep it wants
7. Give priority to close relationships
8. Focus beyond self
9. Be grateful
10. Nurture your spiritual self

# Close Up: Opponent-Process Theory of Emotion

- **Opponent process theory**--every initial emotional reaction triggers an opposing emotion that diminishes the intensity of the initial emotional reaction.

# Stress and Health



# Introduction

- Health psychology
- Behavioral medicine



# Behavioral Medicine

Centers for Disease Control (CDC) claim that half of the deaths in the US are due to people's behaviors (smoking, alcoholism, unprotected sex, insufficient exercise, drugs, and poor nutrition).

# Behavioral Medicine

Psychologists and physicians have thus developed an interdisciplinary field of **behavioral medicine** that integrates behavioral knowledge with medical knowledge, and applies that knowledge to health and disease.

# Health Psychology

**Health psychology** is a field of psychology that contributes to behavioral medicine. The field studies stress-related aspects of disease and asks the following questions:

1. How do emotions and personality factors influence the risk of disease?
2. What attitudes and behaviors prevent illness and promote health and well-being?
3. How do our perceptions determine stress?
4. How can we reduce or control stress?

# Stress and Illness

- Stress
  - Stress appraisal



# Stress

Psychological states cause physical illness.

**Stress** is any circumstance (real or perceived) that threatens a person's well-being.

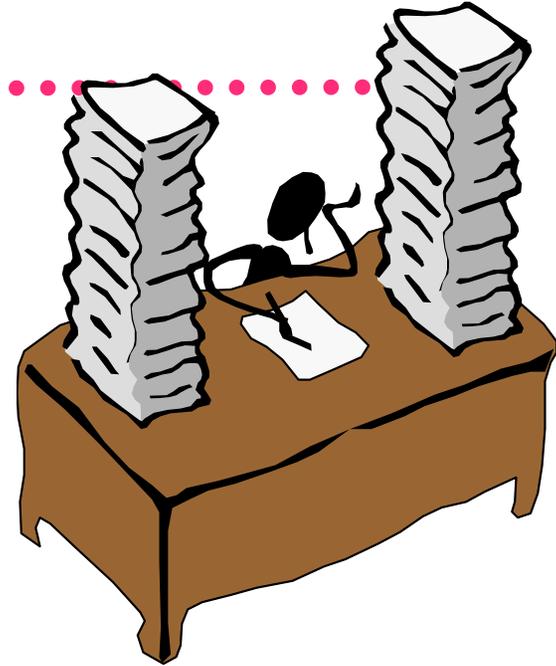


When we feel severe stress, our ability to cope with it is impaired.

# Stress

---

When stress is good and leads to something desirable such as studying for a big exam and then receiving a good grade on the exam, it is called **eustress**.



When the stress has negative effects such as confusion, an inability to make decisions, and illness, it is called **distress**.

# Stress and Illness



- Stress

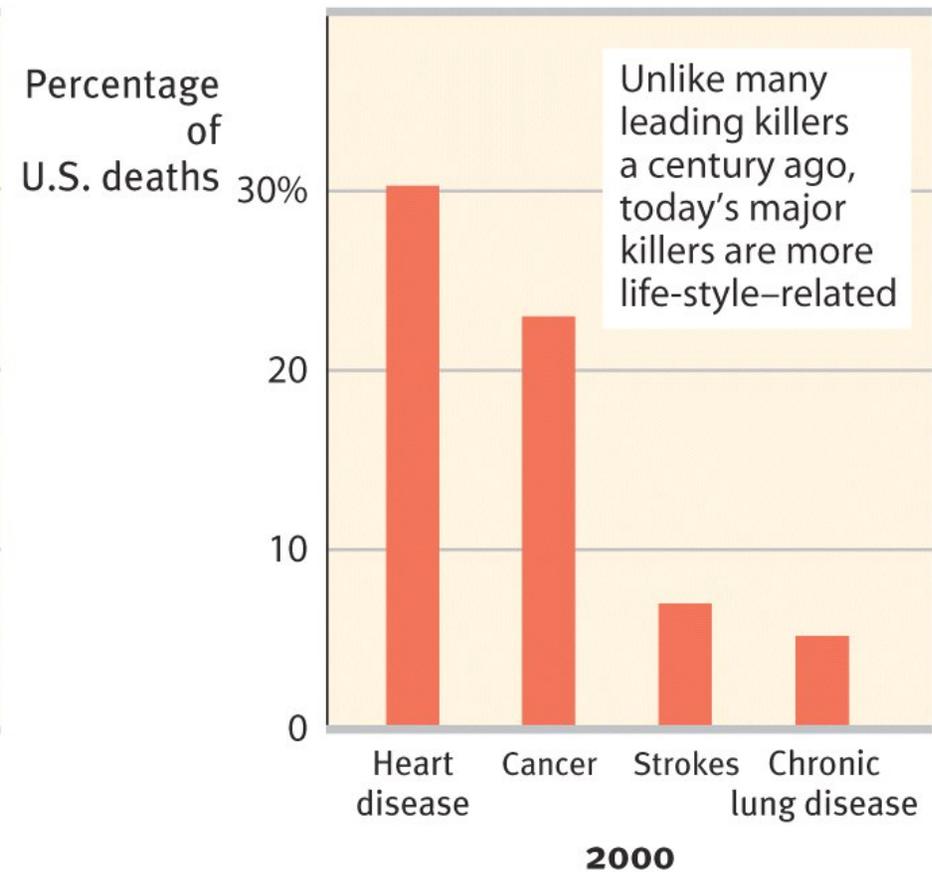
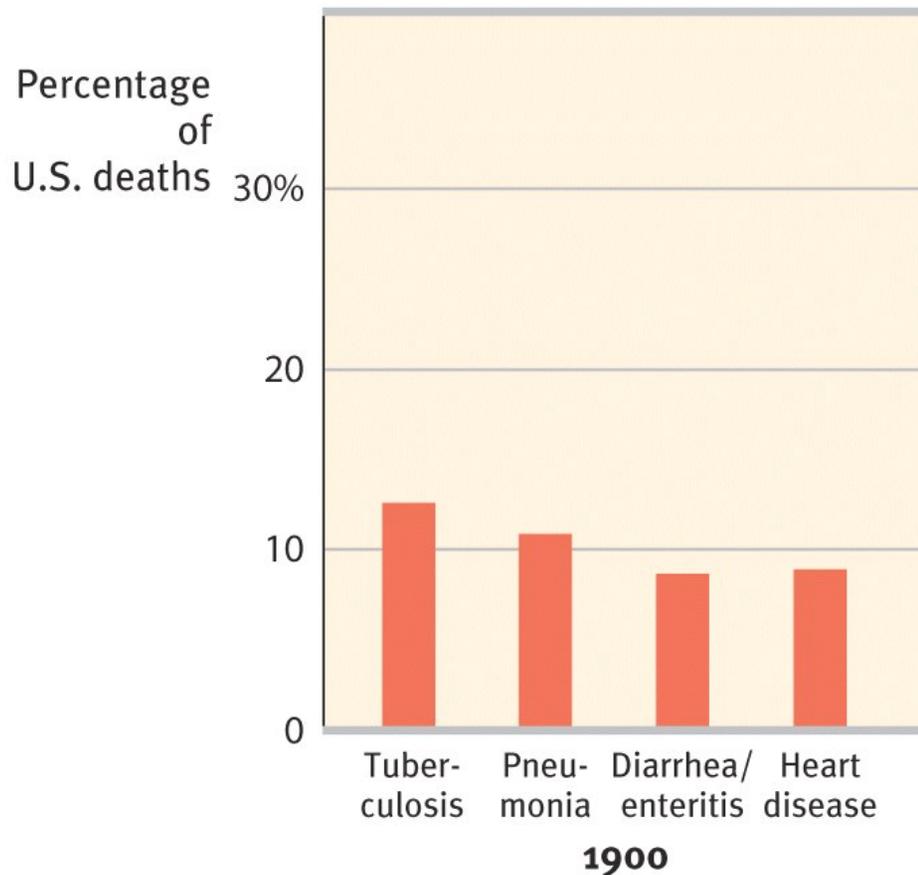
- the process by which we perceive and respond to certain events, called *stressors*, that we appraise as threatening or challenging



# Stress and Illness



- Leading causes of death in the US in 1900 and 2000



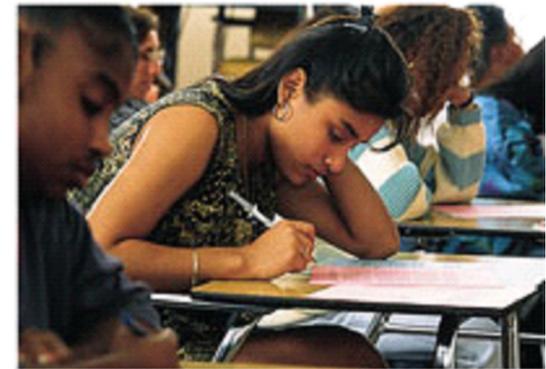
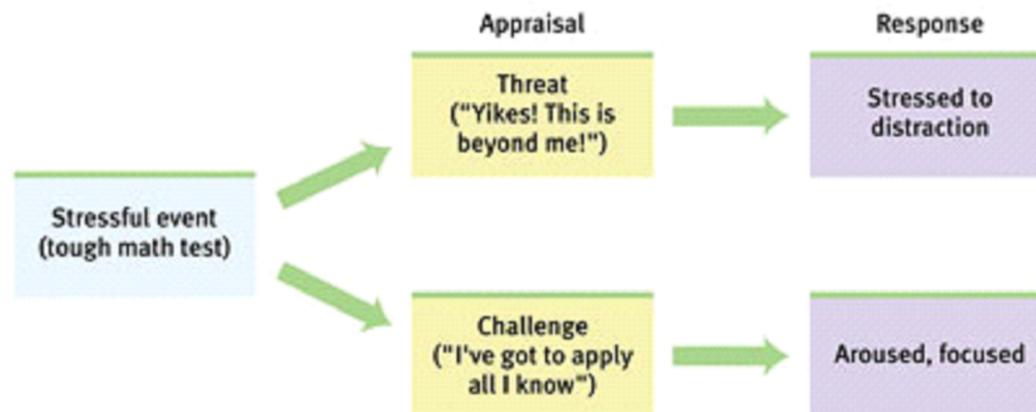
# Stress and Stressors

Stress is a slippery concept.

At times it is the stimulus (missing an appointment) and at other times it is a response (sweating while taking a test).

# Stress and Stressors

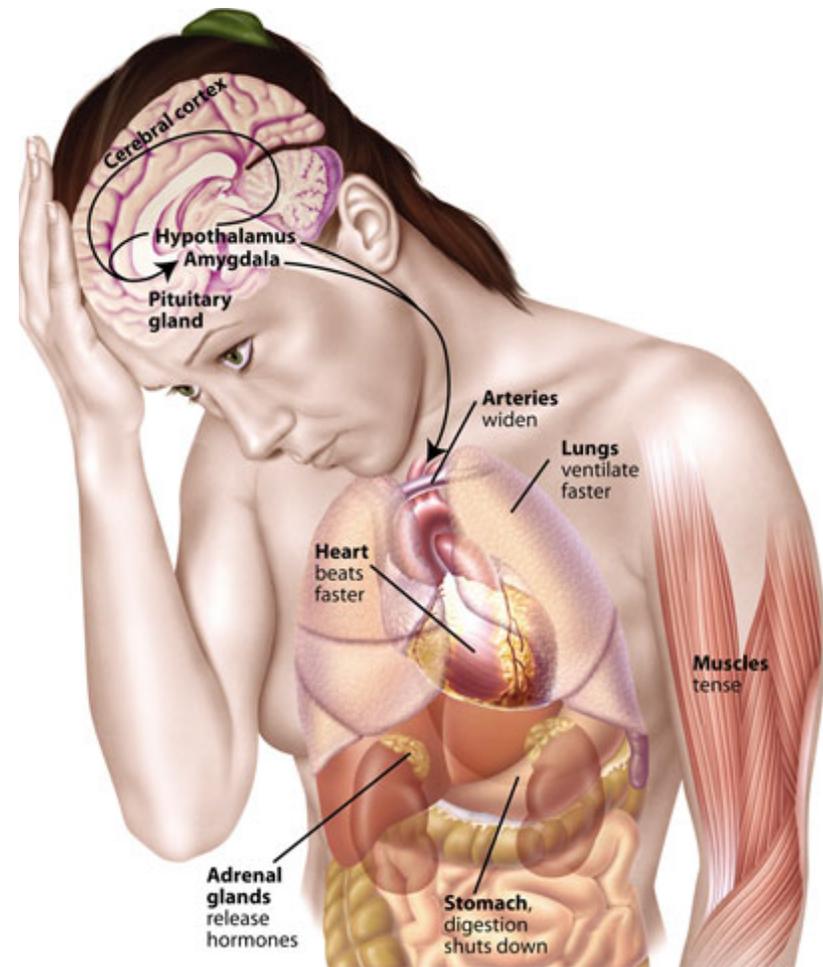
Stress is not merely a stimulus or a response. It is a process by which we appraise and cope with environmental threats and challenges.



When short-lived or taken as a challenge, stressors may have positive effects. However, if stress is threatening or prolonged, it can be harmful.

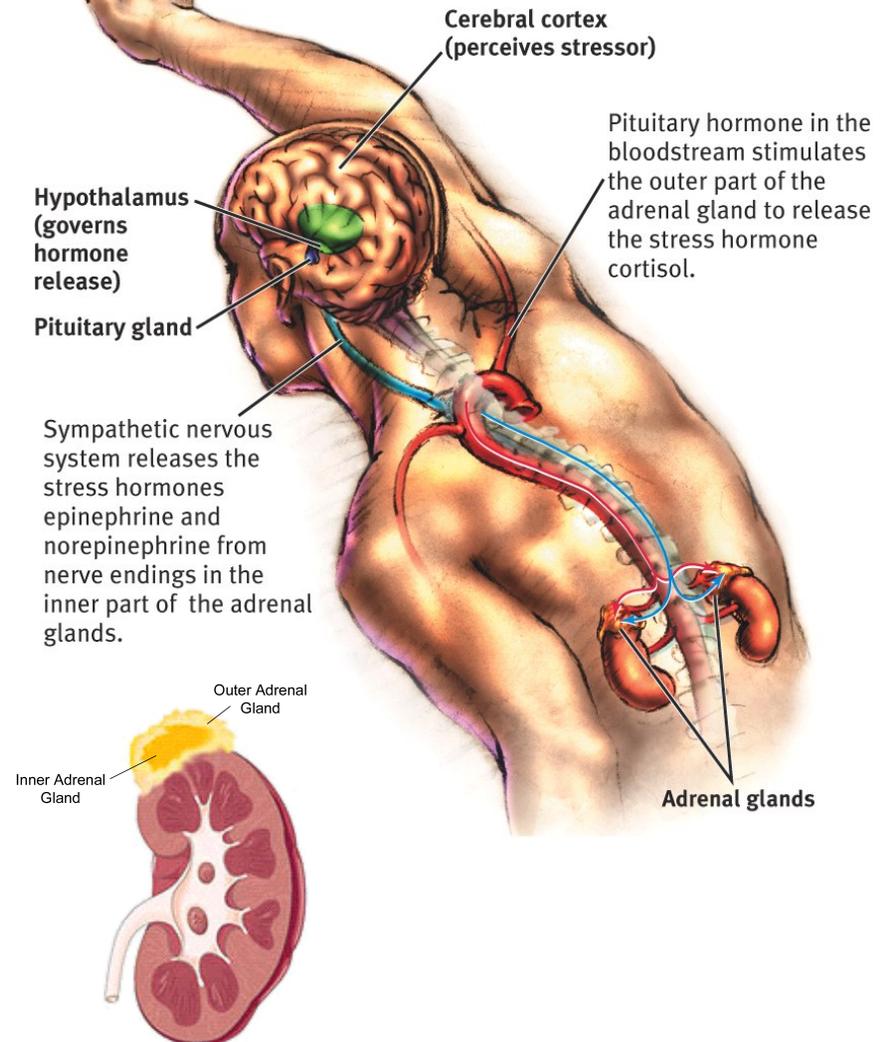
# The Stress Response System

Canon proposed that the stress response (fast) was a *fight-or-flight* response marked by the outpouring of *epinephrine* and *norepinephrine* from the inner adrenal glands, increasing heart and respiration rates, mobilizing sugar and fat, and dulling pain.



# The Stress Response System

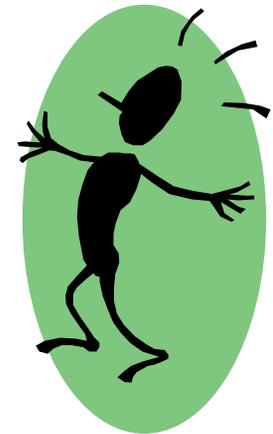
The hypothalamus and the pituitary gland also respond to stress (slow) by triggering the outer adrenal glands to secrete *glucocorticoids* (cortisol).



# Fight or Flight (Walter Cannon)

## Sequence of Steps in the Fight or Flight Behaviors

1. The brain appraises a situation as threatening and dangerous.
2. The lower brain structure secretes a stress hormone.
3. The stress hormone signals the adrenal glands to secrete **adrenaline**.
4. This causes the muscles to tense, the heart to beat faster, and the liver to send out sugar to be used in the muscles.



# Stress and Illness

## *The Stress Response System*

- Selye's general adaptation syndrome (GAS)
  - Alarm
  - Resistance
  - exhaustion

# The General Adaptation Syndrome (Hans Selye)

Defined as a series of stages the body goes through when exposed to stressful situations.

1. The **alarm** stage is the initial stage where the body prepares for attack—either psychological or physical.

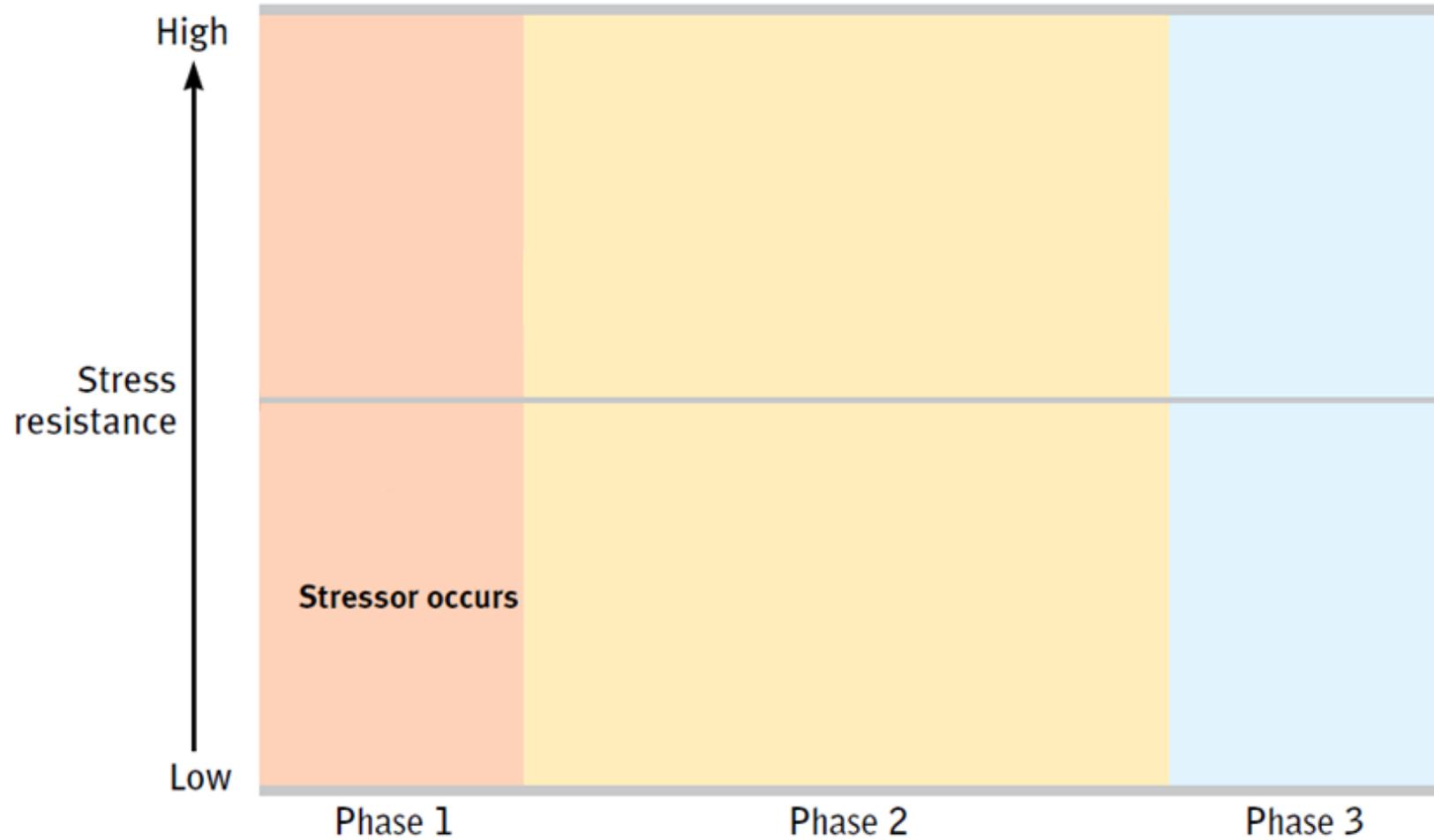
2. The second stage is called the stage of **resistance**. The body uses up a great amount of energy to prepare for the stressor.



3. The third stage is **exhaustion**. It is marked by body exhaustion and health problems.

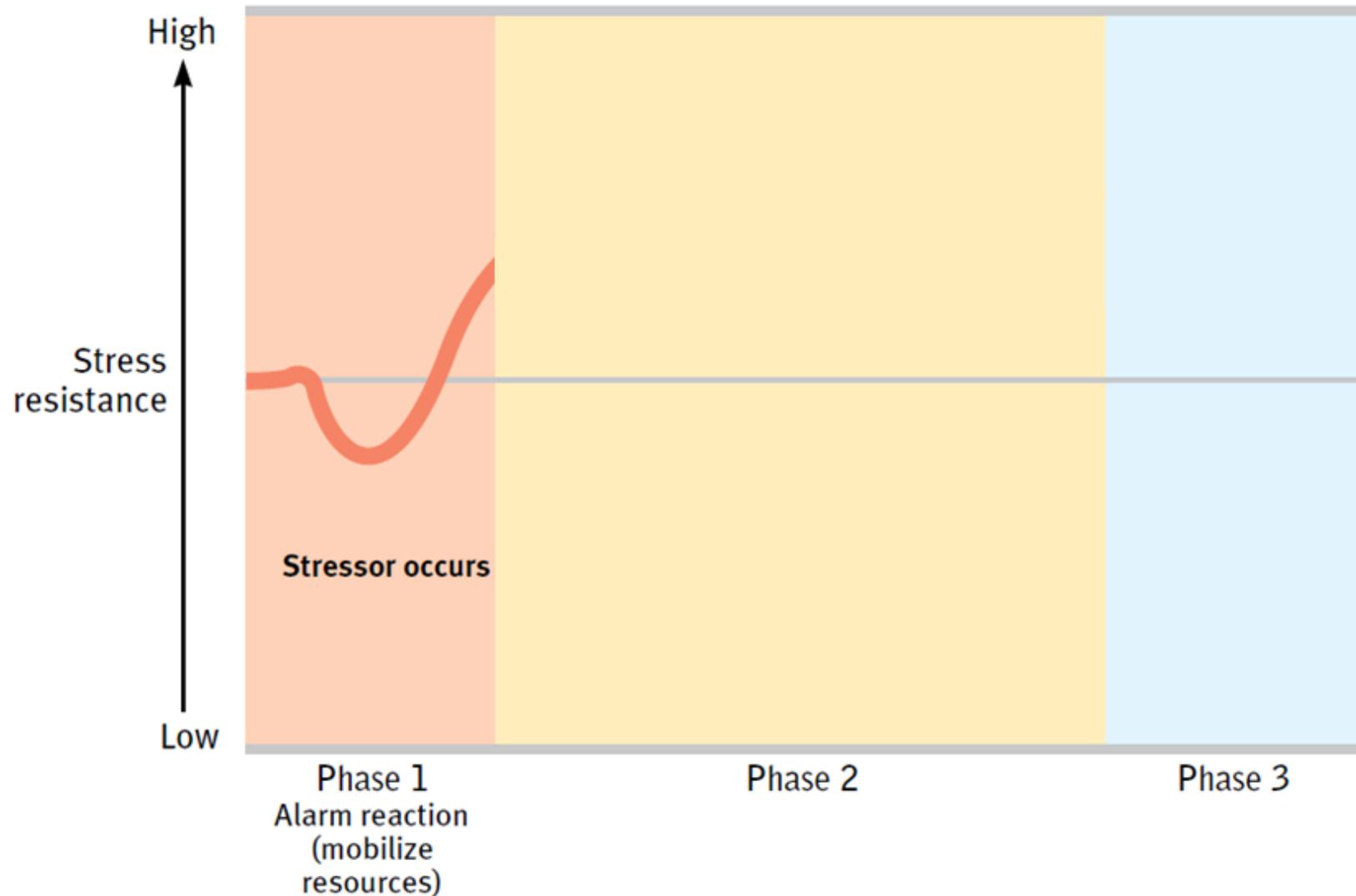
# Stress and Illness

## *General Adaptation Syndrome*



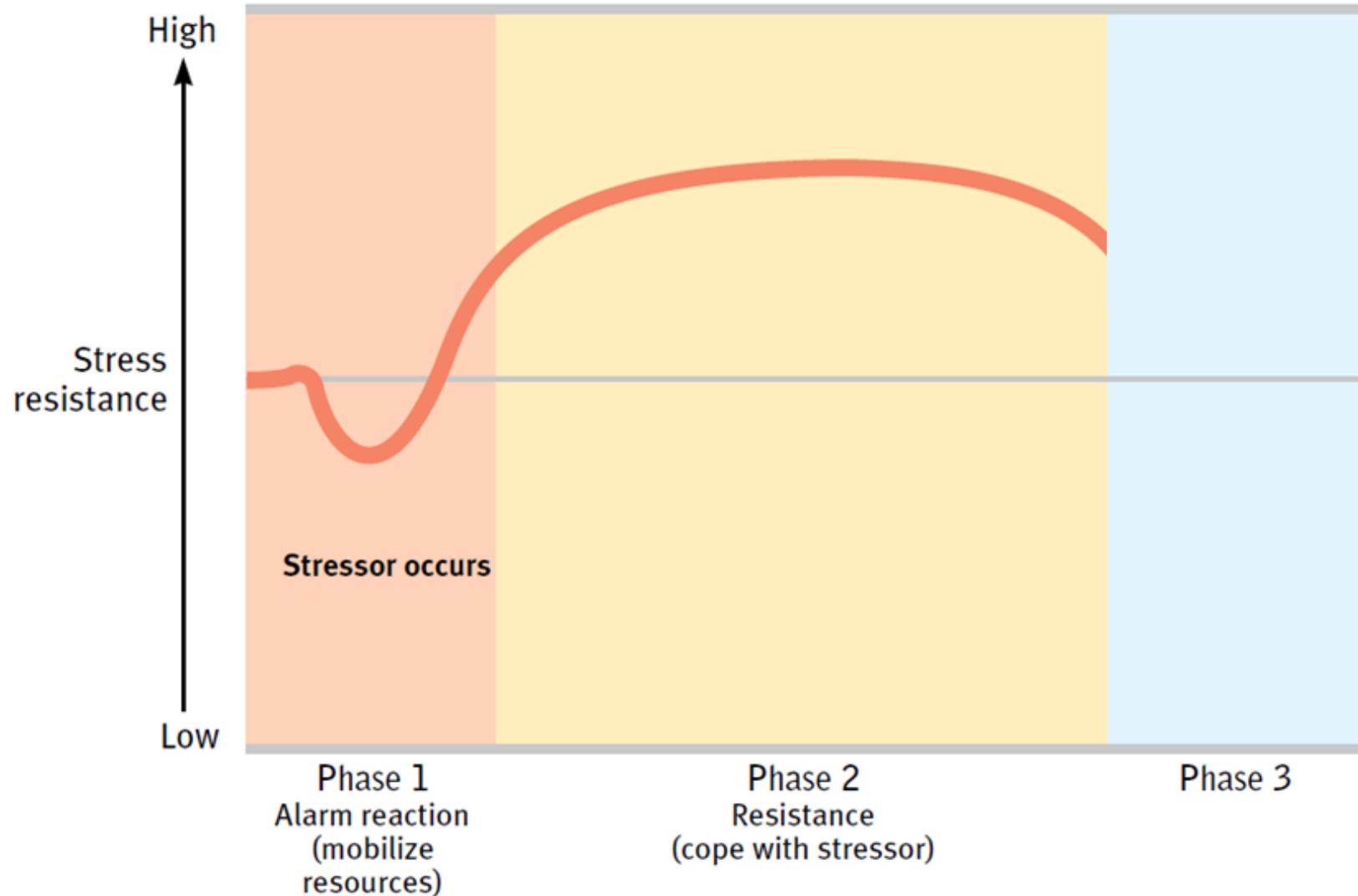
# Stress and Illness

## *General Adaptation Syndrome*



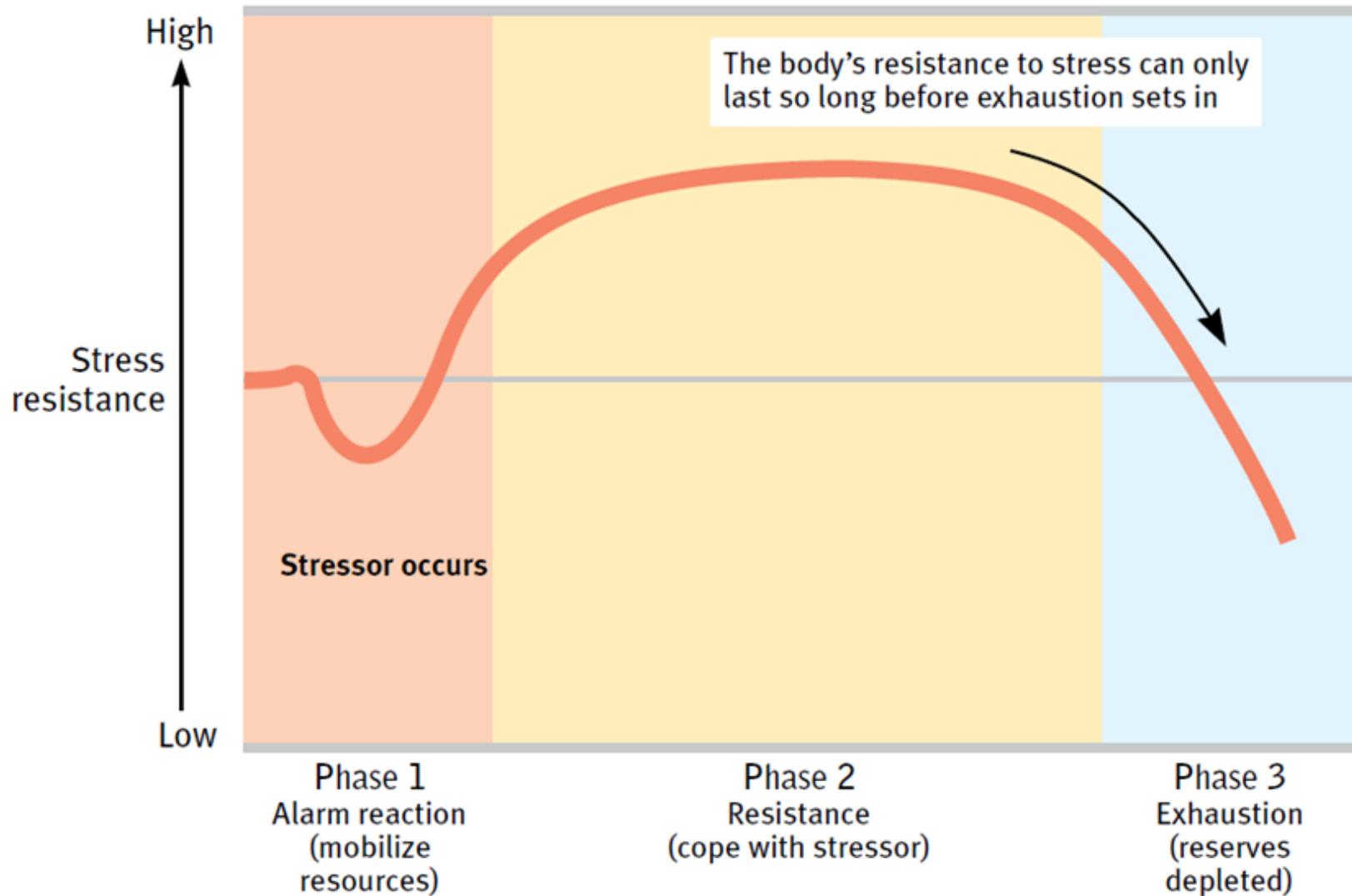
# Stress and Illness

## *General Adaptation Syndrome*



# Stress and Illness

## *General Adaptation Syndrome*



# Stress and Illness

## *Stressful Life Events*

- Catastrophes
- Significant life changes
- Daily hassles



# Stressful Life Events

- Catastrophic Events
  - earthquakes, combat stress, floods
- Life Changes
  - death of a loved one, divorce, loss of job, promotion
- Daily Hassles
  - rush hour traffic, long lines, job stress,
  - **Burnout--** physical, emotional, and mental exhaustion brought on by persistent job-related stress

Pathway 1: Acute stress

Hypothalamus

Sympathetic nervous system

Adrenal medulla

Secretion of catecholamines:

- Increases respiration
- Increases heart rate
- Increases blood pressure
- Increases blood flow to the muscles
- Digestion is inhibited
- Pupils dilate

Pathway 2: Prolonged stress

Hypothalamus

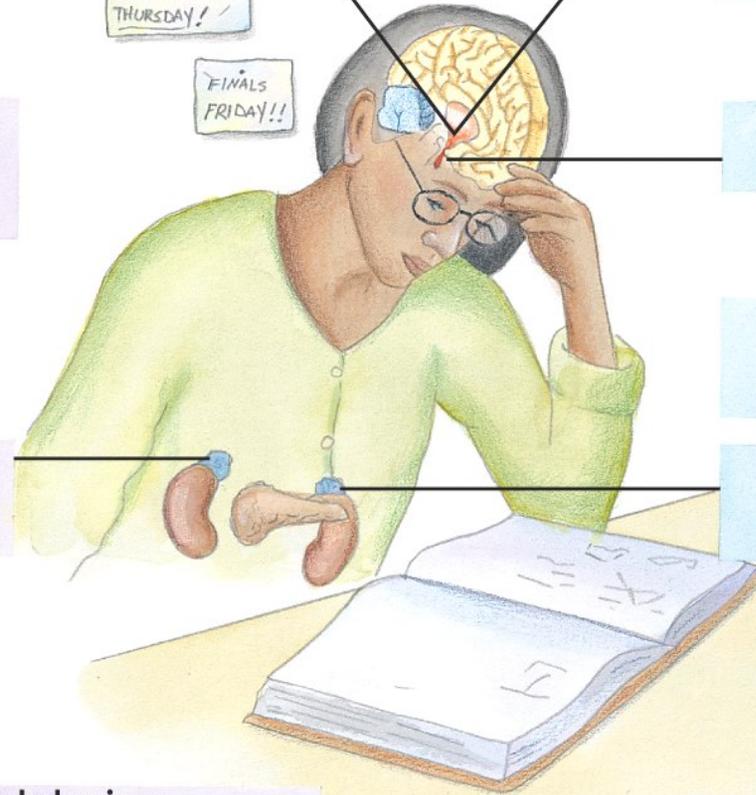
Pituitary

ACTH release

Adrenal cortex

Secretion of corticosteroids:

- Increases release of stored energy
- Reduces inflammation
- Reduces immune system response



## **Some Psychological Stressors for High School Students**

<b>Life Event</b>	<b>Stress Points</b>
<b>Divorce of parents</b>	<b>98</b>
<b>Expulsion from school</b>	<b>79</b>
<b>Major injury or illness</b>	<b>77</b>
<b>Getting a job</b>	<b>62</b>
<b>Major illness of close friend</b>	<b>56</b>
<b>Peer difficulties</b>	<b>45</b>
<b>Moving away</b>	<b>41</b>
<b>Christmas</b>	<b>30</b>
<b>Vacation</b>	<b>25</b>
<b>Traffic ticket</b>	<b>22</b>

## Table 12.1

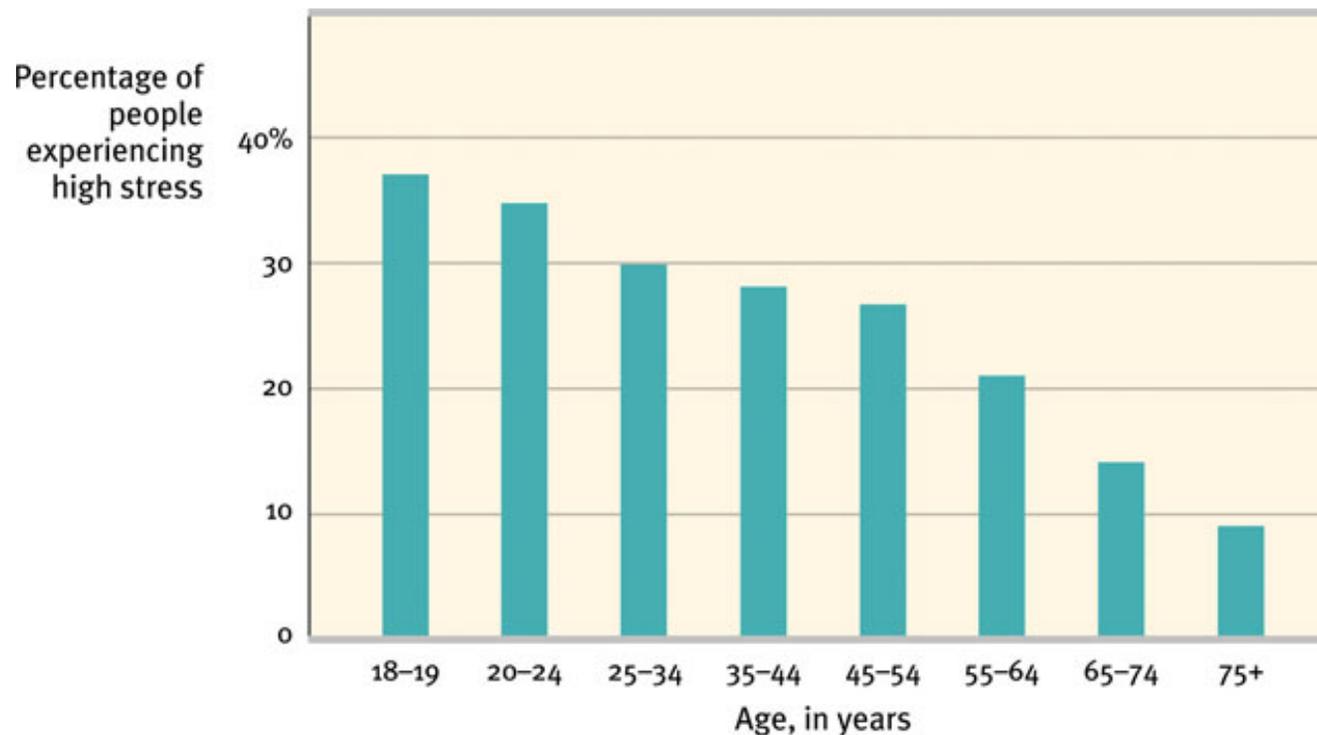
### The Social Readjustment Rating Scale: Sample Items

Life Event	Life Change Units
Death of spouse	100
Divorce	73
Marital separation	65
Death of close family member	63
Major personal injury or illness	53
Marriage	50
Fired at work	47
Retirement	45
Pregnancy	40
Change in financial state	38
Death of close friend	37
Change to different line of work	36
Mortgage or loan for major purchase	31



# Significant Life Changes

The death of a loved one, a divorce, a loss of job, or a promotion may leave individuals vulnerable to disease.

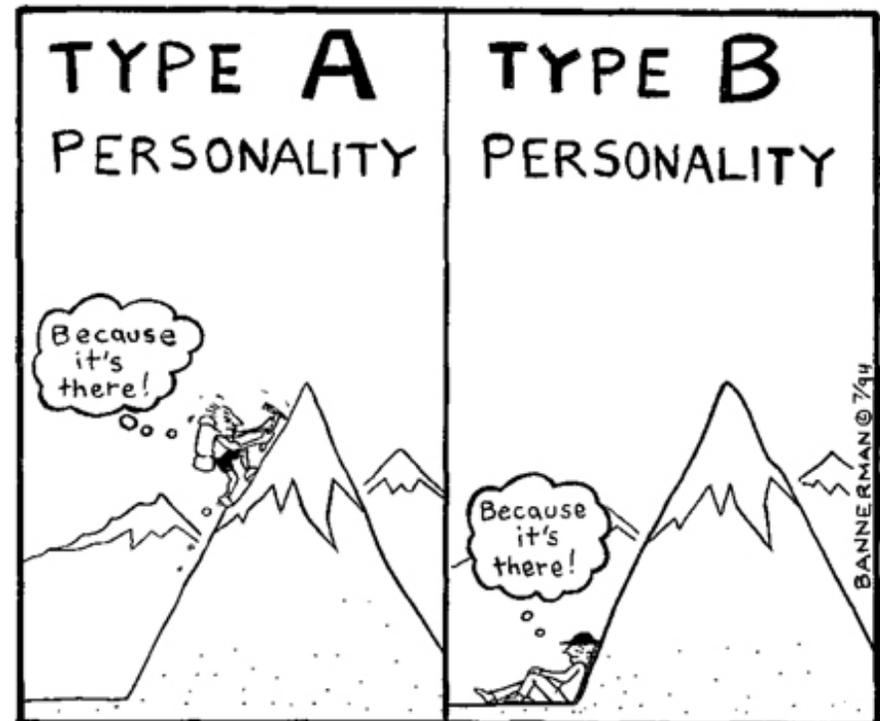


- Our personal control and optimism is related to stress and our immune system.
- With loss of perceived control, we are vulnerable to ill health.
- Optimists respond to stress with smaller increases in blood pressure, and they recover faster from heart bypass surgery.

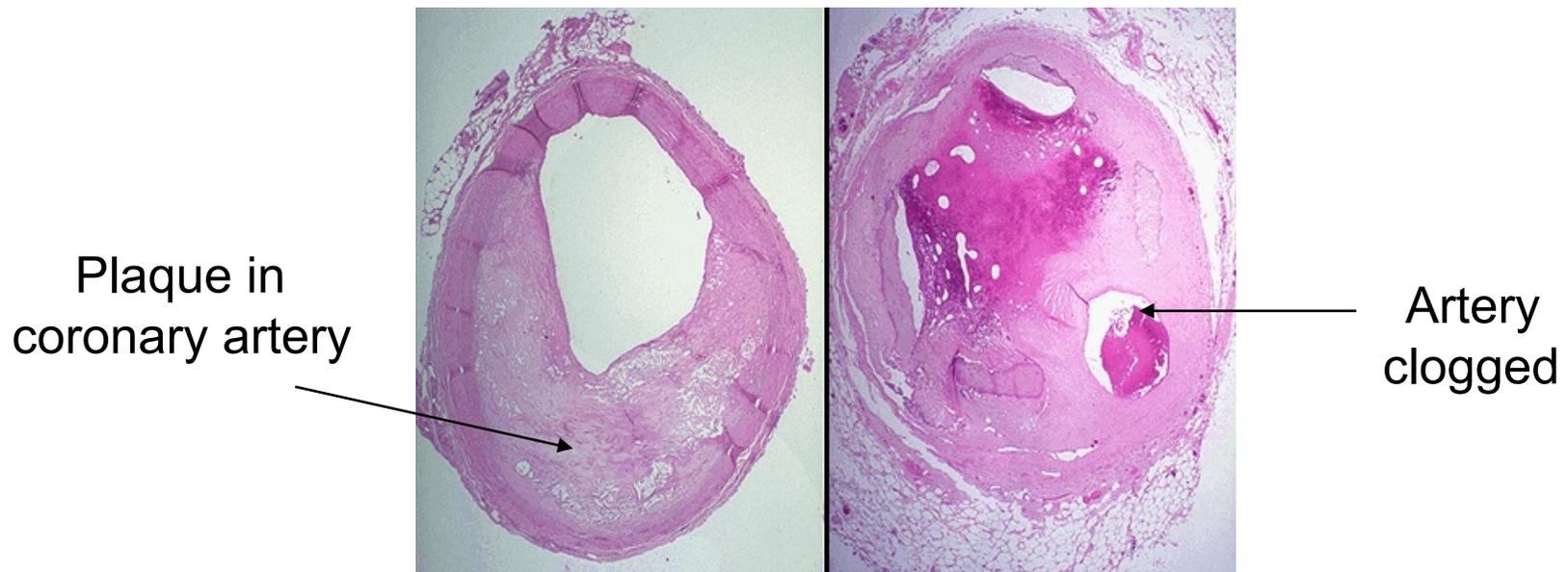
- Poorer people are more at risk for premature death.
- People also tend to die younger in areas where there is greater income *inequality*.
- People at every income level are at greater risk of death if they live in a community with great income inequality.

# Stress and the Heart

- Coronary heart disease
- Type A versus Type B
  - Type A
  - Type B



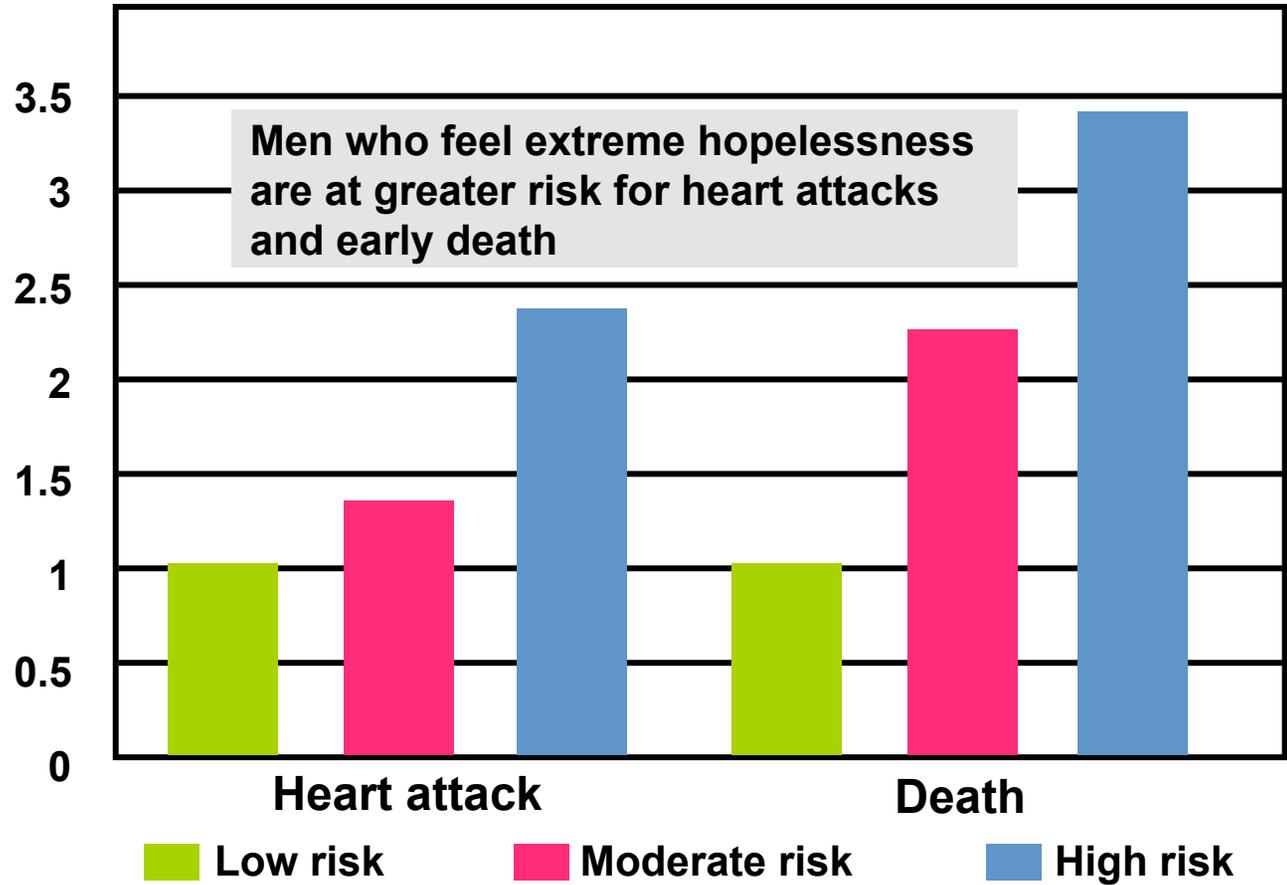
Stress that leads to elevated blood pressure may result in **Coronary Heart Disease**, a clogging of the vessels that nourish the heart muscle.



- Coronary heart disease is North America's leading cause of death
- Habitually grouchy people tend to have poorer health outcomes
- Chronic negative emotions have negative effect on immune system

1. Smoking
2. Obesity
3. High fat diet
4. Physical Inactivity
5. Elevated blood pressure
6. Elevated Cholesterol + stress and personality

**Hopelessness scores**



- Type A

- Friedman and Rosenman's term for competitive, hard-driving, impatient, verbally aggressive, and anger-prone people. Type A personalities are more likely to develop coronary heart disease.

- Type B

- Friedman and Rosenman's term for easygoing, relaxed people



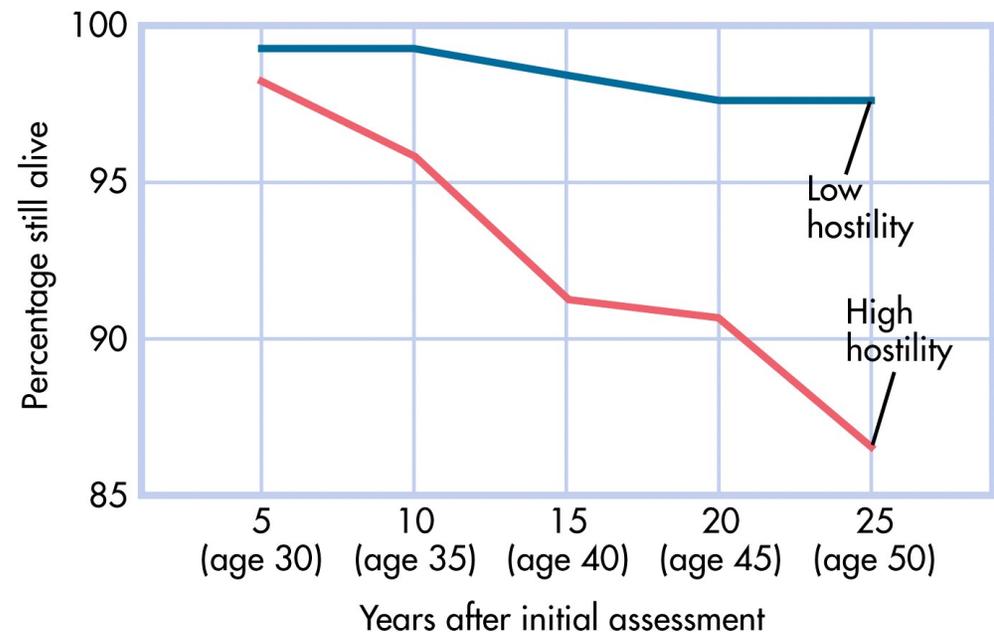
# Type A Personality



# Type B Personality

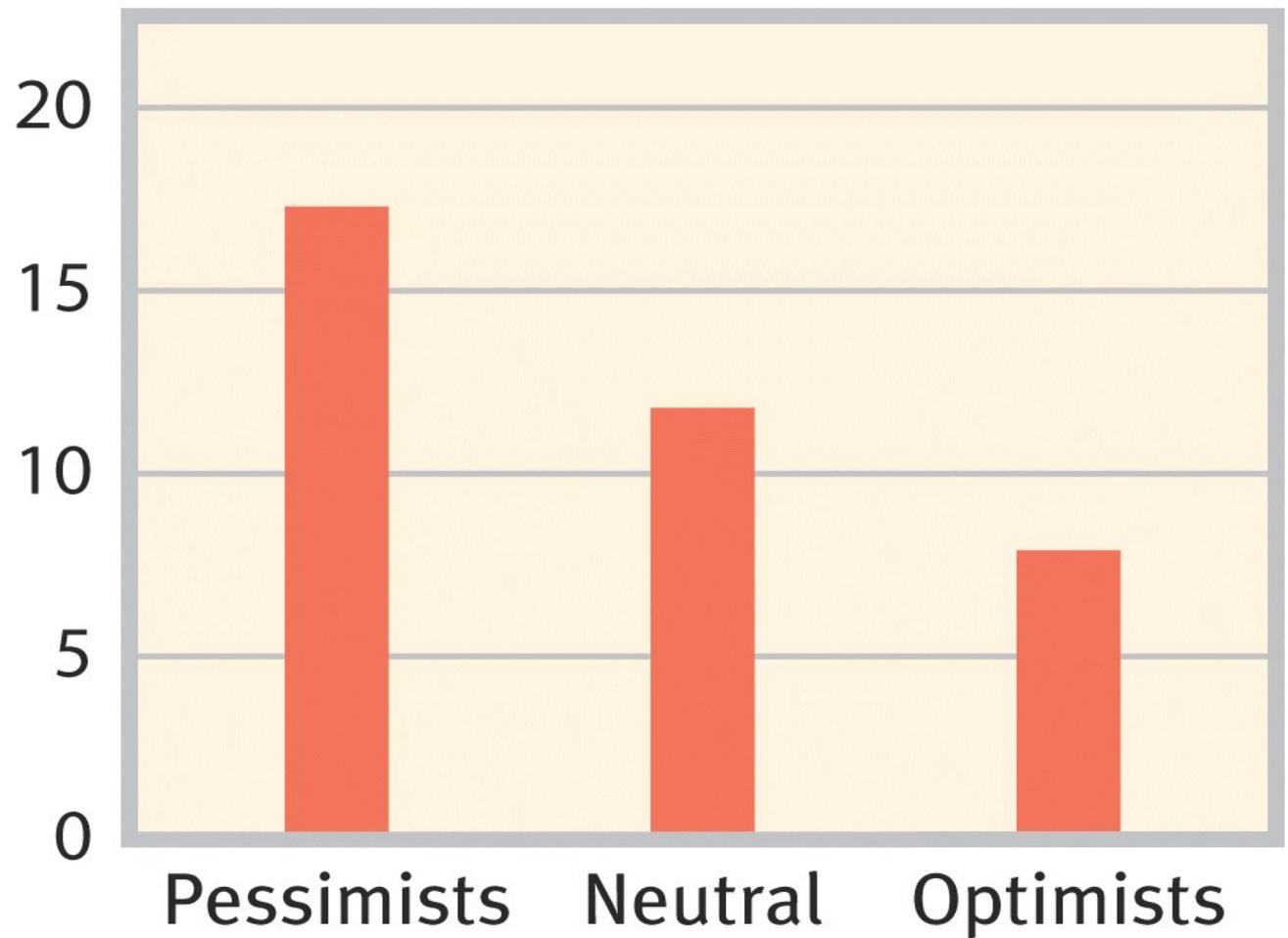


- Time urgency & competitiveness not associated with poor health outcomes
- Negative emotions, anger, aggressive reactivity
- High levels of hostility increase chance of all disease (e.g., cancer)



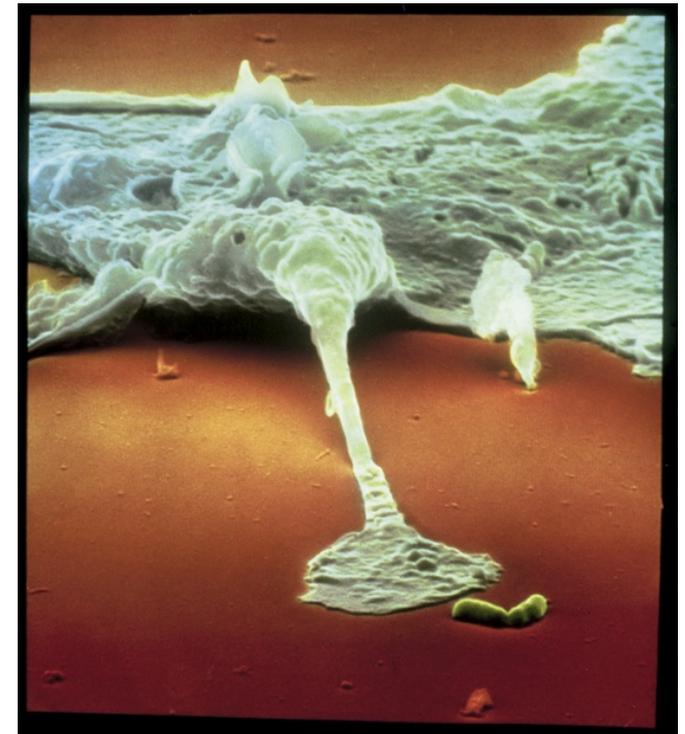
- Optimism
  - use external, unstable, & specific explanations for negative events
  - predicts better health outcomes
- Pessimism
  - use internal, stable, & global explanations for negative events
  - predicts worse health outcomes

Percent  
developing  
coronary  
heart disease



# Stress and Susceptibility to Disease

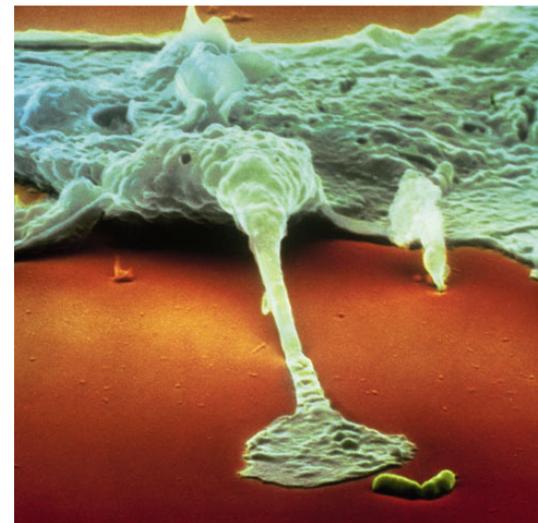
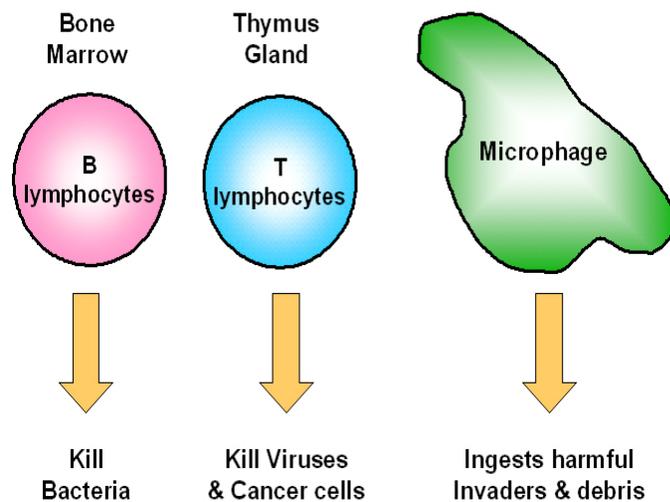
- Psychophysiological illnesses
- Psychoneuroimmunology (PNI)
  - Lymphocytes
    - B lymphocytes
    - T lymphocytes
  - Stress and AIDS
  - Stress and Cancer



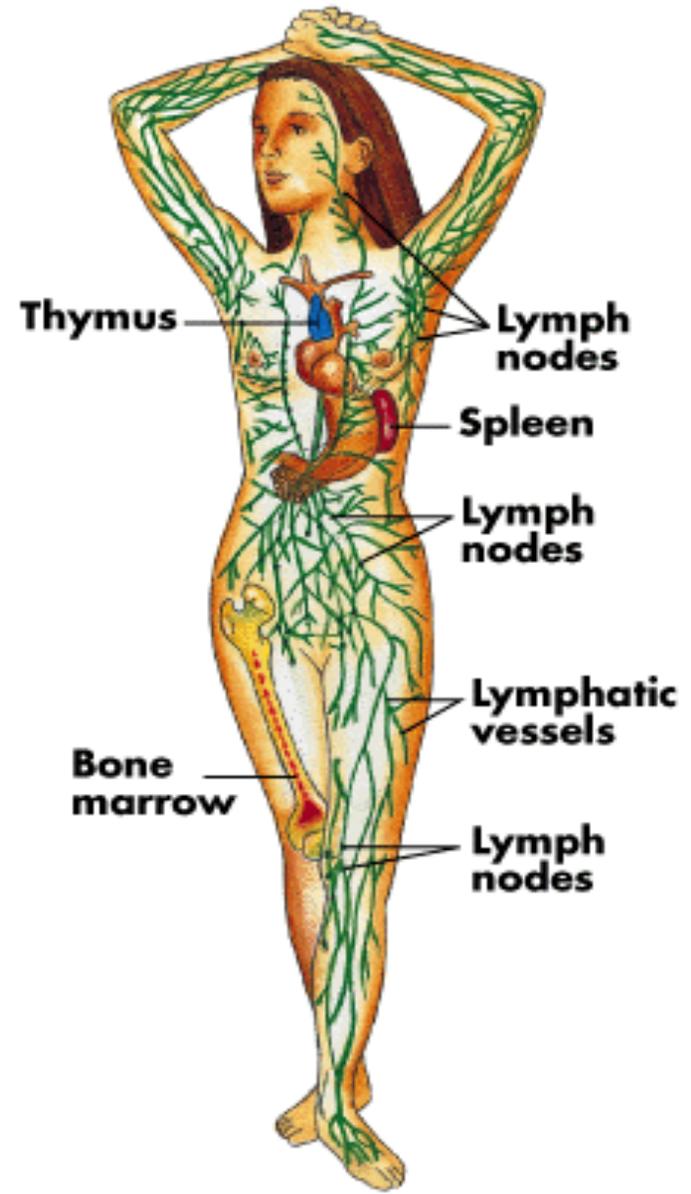
- **Lymphocytes**

- two types of white blood cells that are part of the body's immune system
  - **B lymphocytes** form in the bone marrow and release antibodies that fight bacterial infections
  - **T lymphocytes** form in the thymus and, among other duties, attack cancer cells, viruses, and foreign substances

**B lymphocytes** fight bacterial infections, **T lymphocytes** attack cancer cells and viruses, and **microphages** ingest foreign substances. During stress, energy is mobilized away from the immune system making it vulnerable.



Your immune system battles bacteria, viruses, and other foreign invaders that try to set up housekeeping in your body. The specialized white blood cells that fight infection are manufactured in the bone marrow and are stored in the thymus, spleen, and lymph nodes until needed.



Stress and negative emotions may accelerate the progression from human immunodeficiency virus (HIV) to acquired immune deficiency syndrome (AIDS).



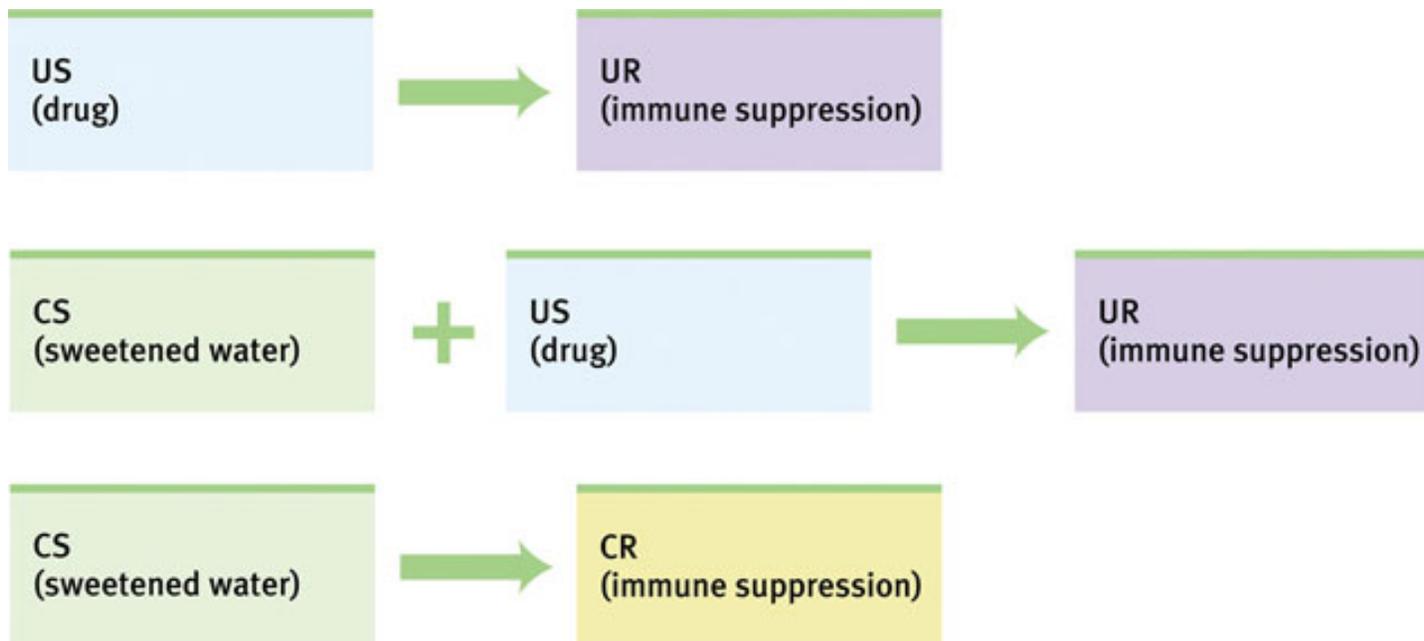
# Stress and Cancer

Stress does not create cancer cells.

Researchers disagree on whether stress influences the progression of cancer.

However, they do agree that avoiding stress and having a hopeful attitude cannot reverse advanced cancer.

If the immune system can be suppressed through conditioning, researchers believe that immune-enhancing responses can be inculcated to combat viral diseases.



# Conflict

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**Conflict** arises when a person needs to decide between two alternatives.

**Types of conflict:**

**Approach - Approach**

**Approach - Avoidance**

**Avoidance - Avoidance**

**Double Approach - Avoidance**

## Approach-Approach

**The** approach - approach conflict is not all bad. You have to decide between two attractive choices.



**The person is  
attracted to two  
goals.**

## Avoidance - Avoidance

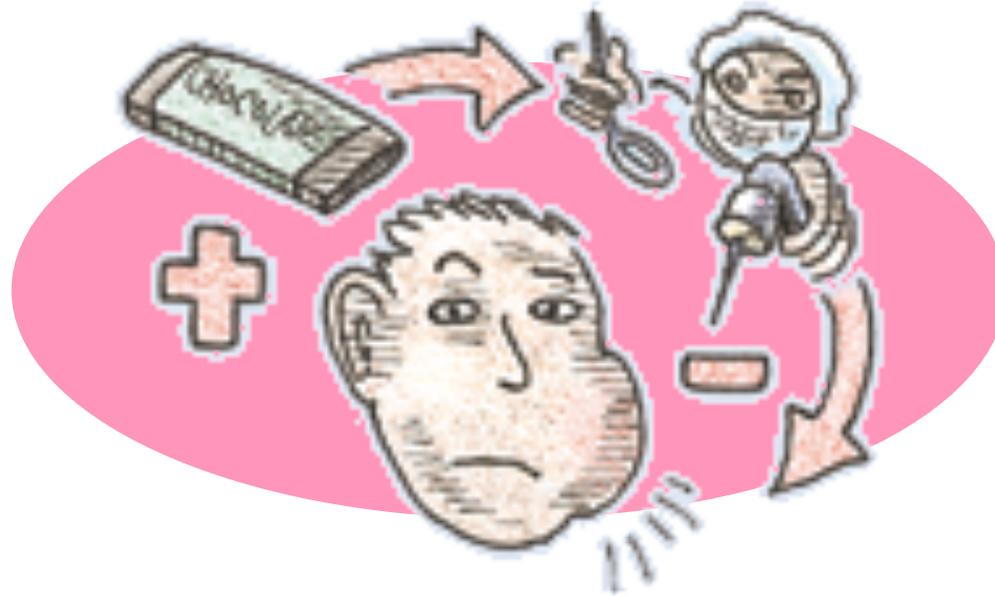
**The avoidance - avoidance conflict presents two undesirable goals.**



**The person has to  
choose between  
them.**

## Approach - Avoidance

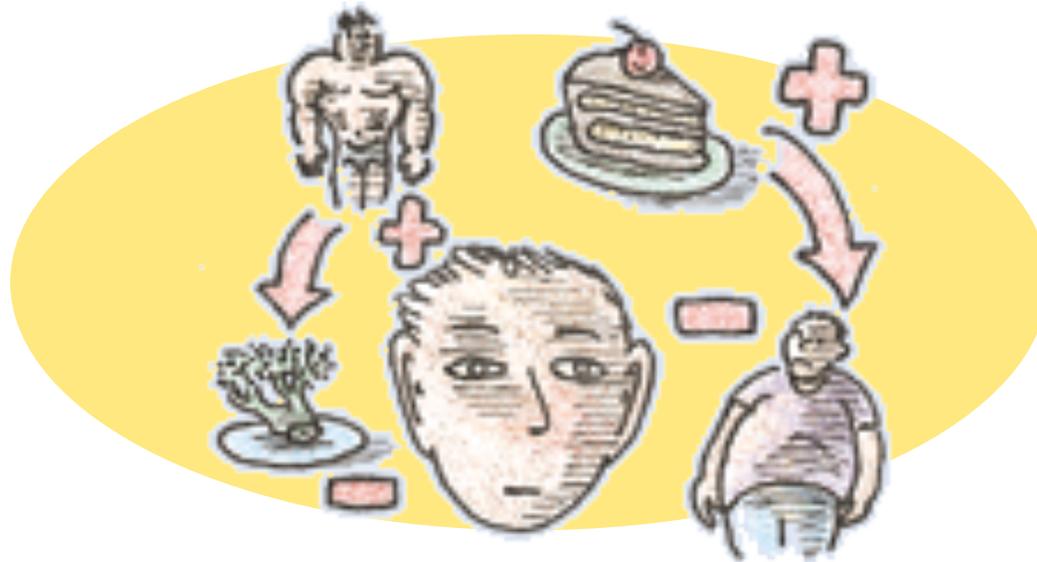
**The** approach - avoidance conflict can be distressing



The person is attracted to one goal but it comes with a negative aspect.

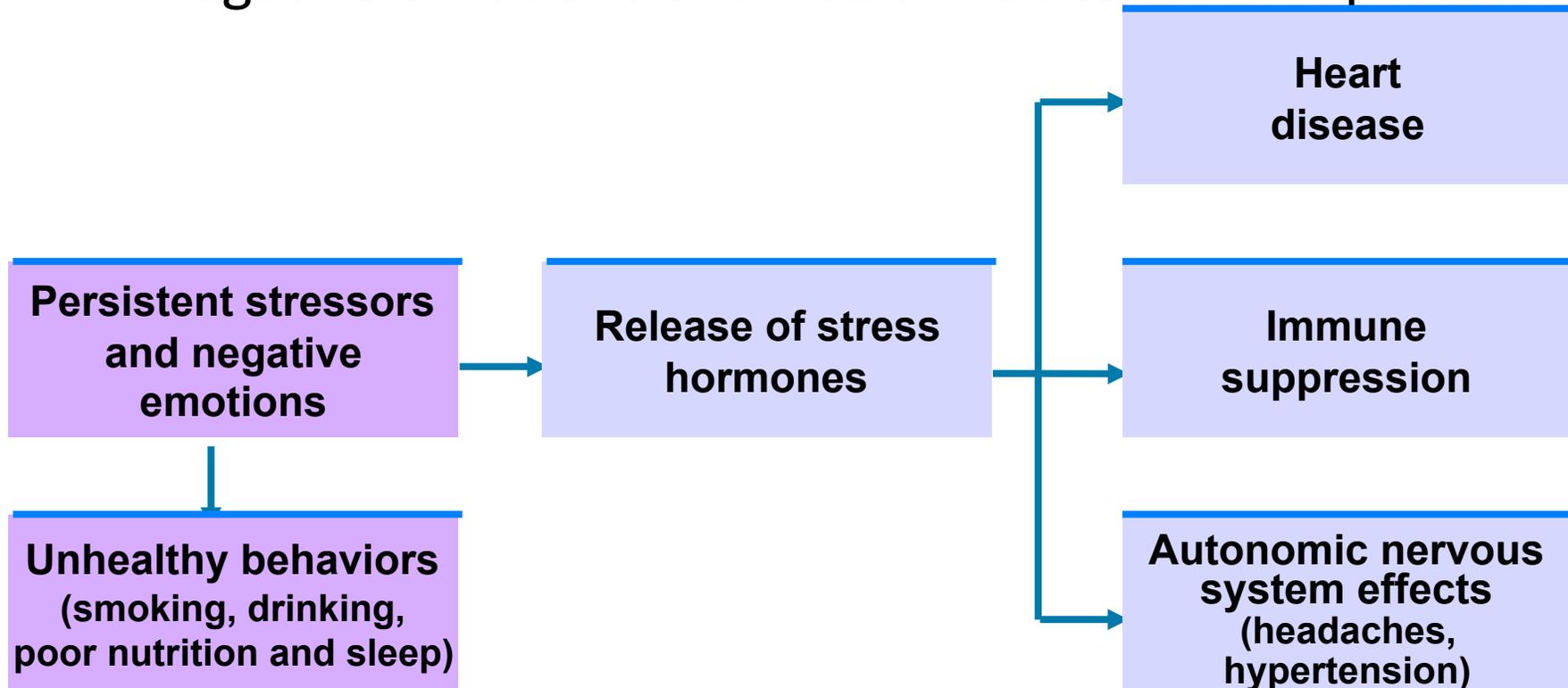
## Double Approach - Avoidance

The double approach - avoidance conflict is the most common.



The person has two goals, each has both good and bad characteristics.

- Negative emotions and health-related consequences



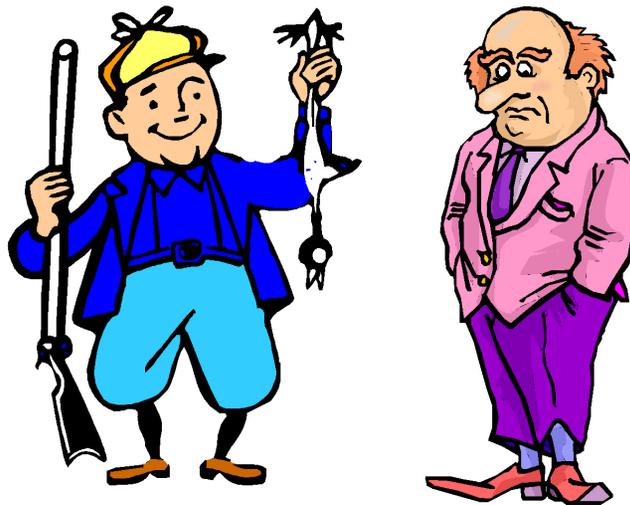
Promoting health is generally defined as the absence of disease.

We only think of health when we are diseased. However, health psychologists say that promoting health begins by preventing illness and enhancing well-being, which is a constant endeavor.

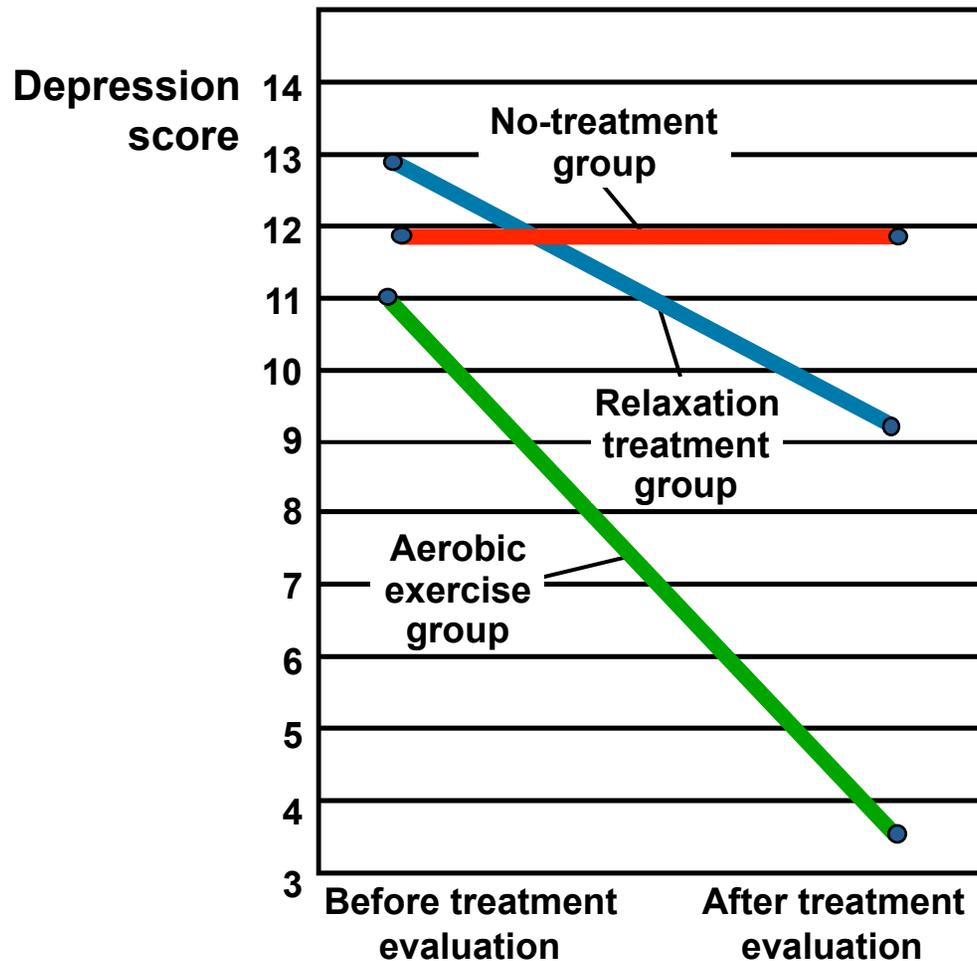
Reducing stress by changing events that cause stress or by changing how we react to stress is called **problem-focused coping**.

**Emotion-focused coping** is when we cannot change a stressful situation, and we respond by attending to our own emotional needs.

People with an optimistic (instead of pessimistic) explanatory style tend to have more control over stressors, cope better with stressful events, have better moods, and have a stronger immune system.



# Promoting Health



- Aerobic Exercise
  - sustained exercise that increases heart and lung fitness

## Exercise and Mood

Releases chemicals

- norepinephrine
- serotonin
- endorphins

Sense of accomplishment

Improved physique

Exercise & Mental Health 



## Exercise and Health

Strengthens heart

Lowers blood pressure

Lowers blood pressure reactivity to stress

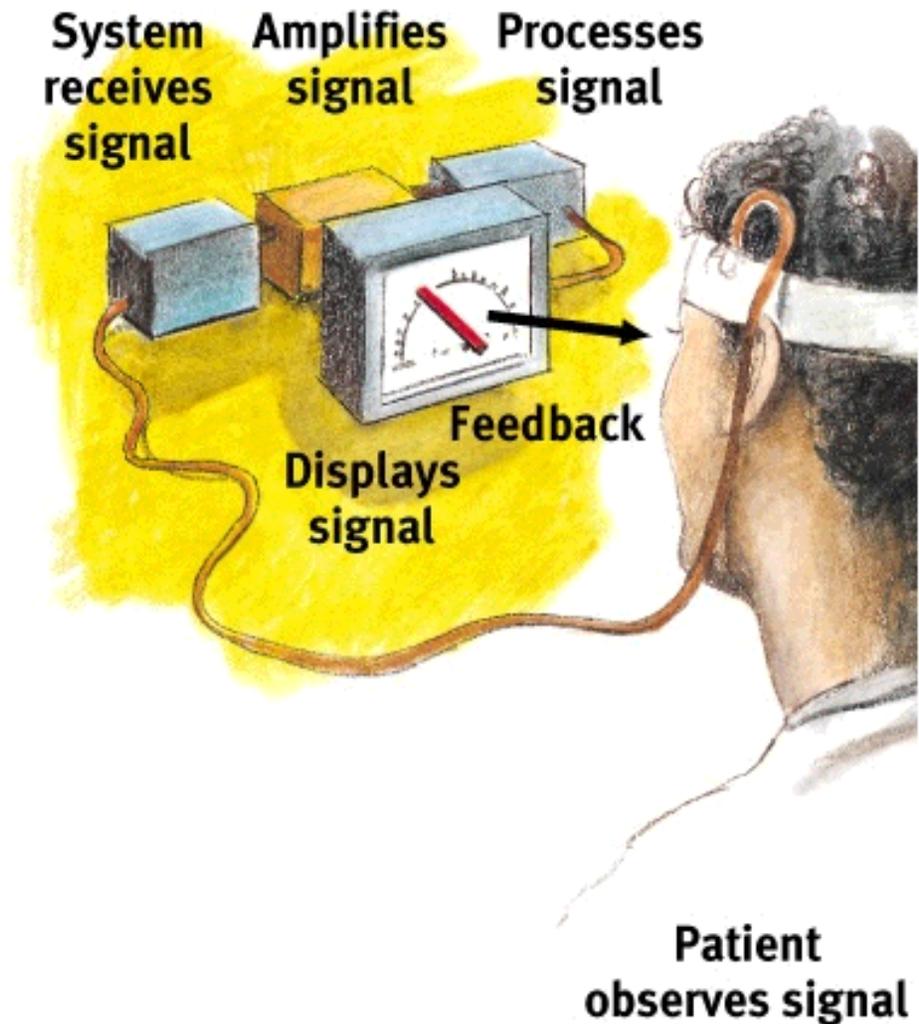
Moderate exercise adds two years to one's expected life.



## ■ Biofeedback

- system for electronically recording, amplifying and feeding back information regarding a subtle physiological state

- blood pressure
- muscle tension



Feedback about subtle bodily responses

- e.g., tension in forehead

Not controlling body's responses

People can influence some of these responses

- finger temperature
- forehead tension

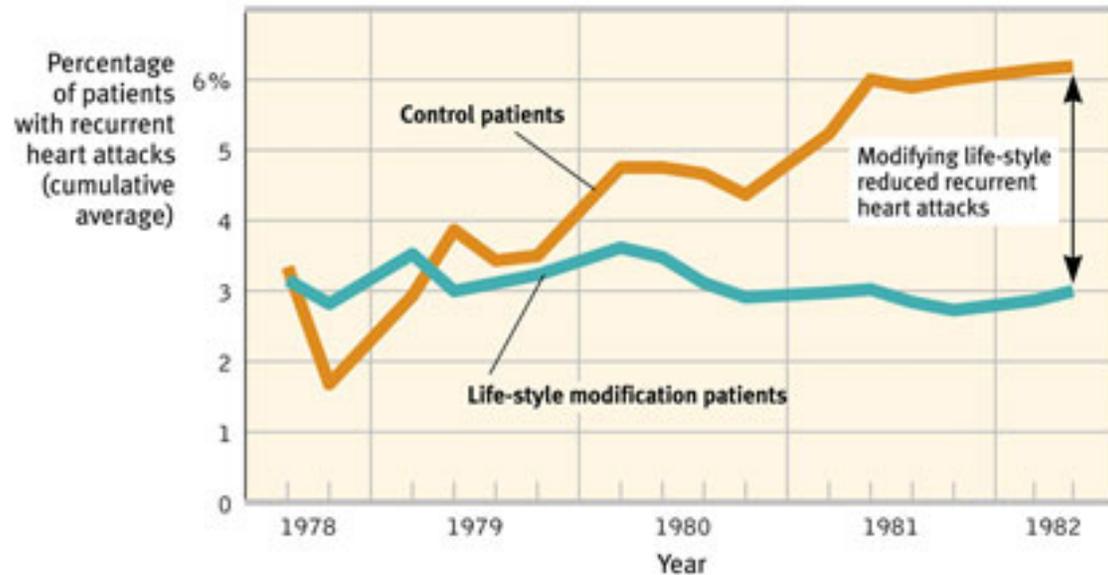
Reduce intensity of migraines

Help with some chronic pain

Relaxation crucial to biofeedback success

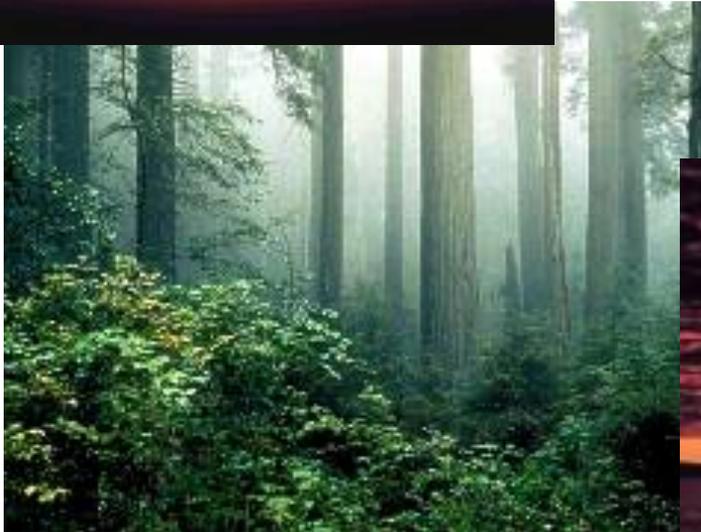
# Life-Style

Modifying a Type-A lifestyle may reduce the recurrence of heart attacks.



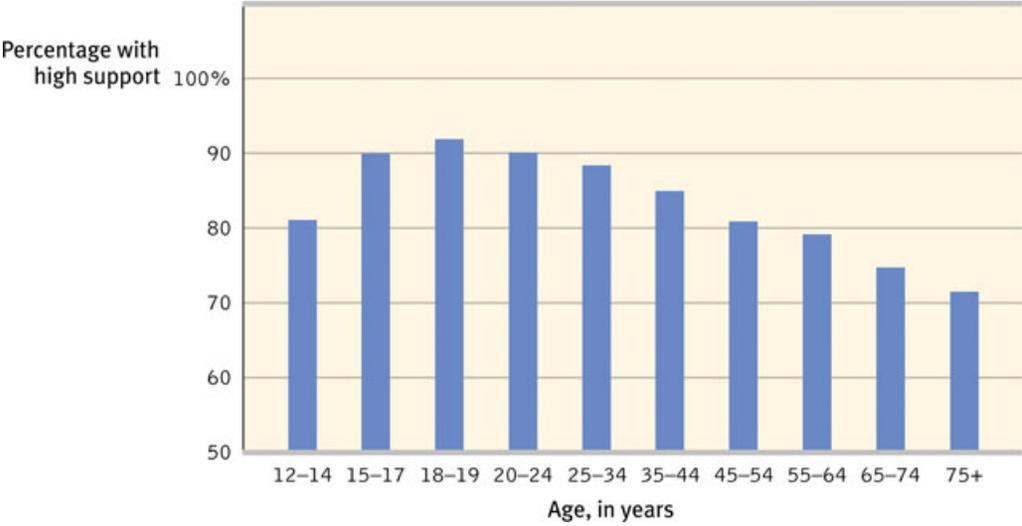
- Meditation can lower blood pressure, heart rate, oxygen consumption
- Can it help with stress-related disease?





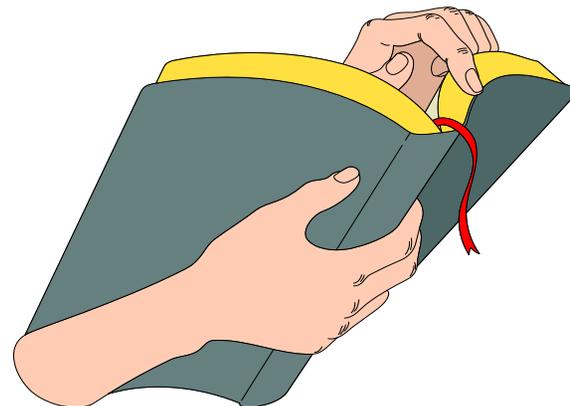
Supportive family members, marriage partners, and close friends help people cope with stress. Their immune functioning calms the cardiovascular system and lowers blood pressure.

Bob Daemrich/ Stock, Boston

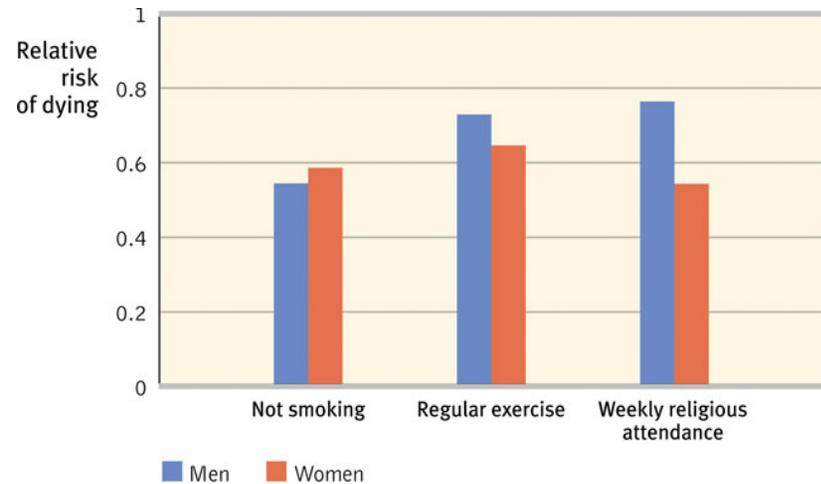
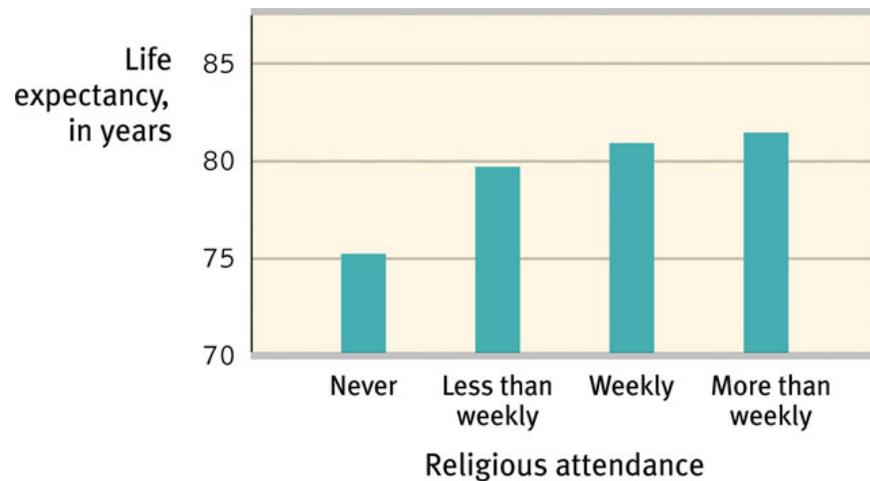


Having a sense of control, an optimistic explanatory style, and social support can reduce stress and improve health.

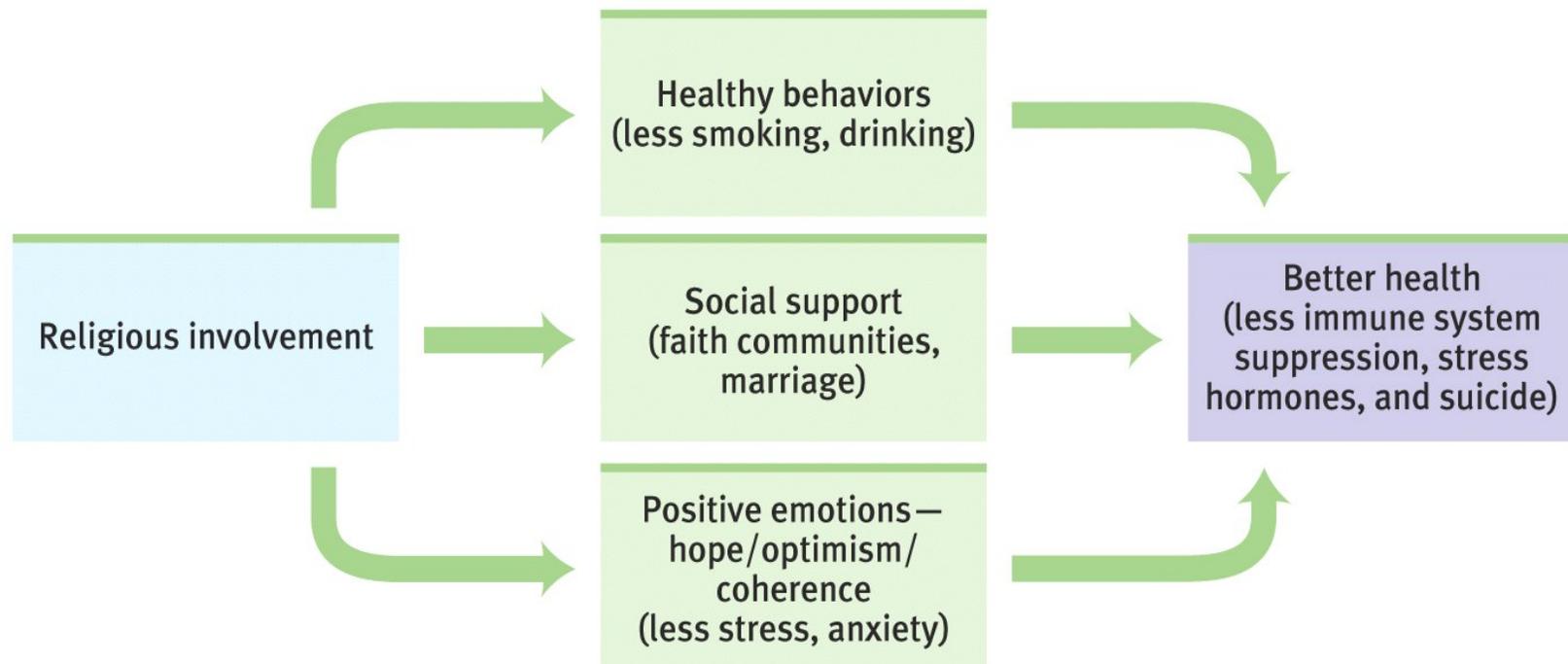
- Personal prayer, meditation, or other spiritual and religious practices can enhance medical treatment.
- Those who attend religious services experience lower death rates from coronary heart disease.



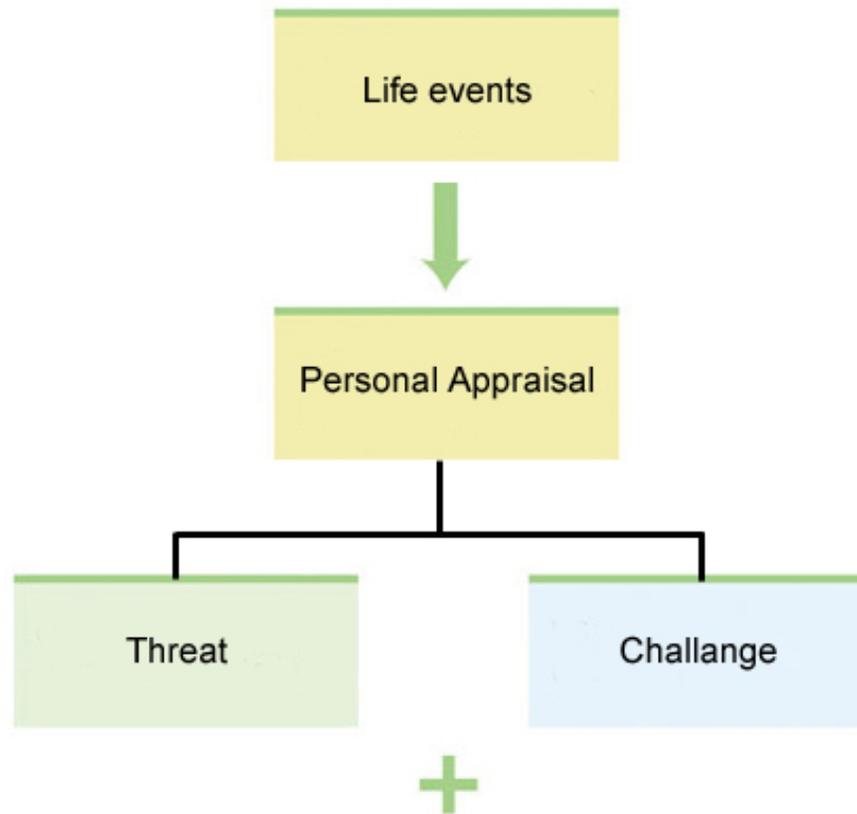
Regular religious attendance has been a reliable predictor of a longer life span with a reduced risk of dying.



Investigators suggest there are three factors that connect religious involvement and better health.



# How can stress be managed?



**The End**