



Emotions, Stress, and Health

Chapter 12

1

Emotion

Emotions are our body's adaptive response.



2

Theories of Emotion

Emotions are a mix of 1) physiological activation, 2) expressive behaviors, and 3) conscious experience.



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Controversy

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

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Commonsense View

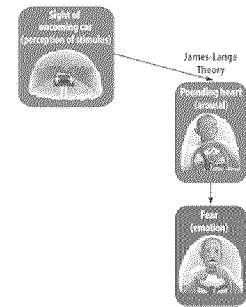
When you become happy, your heart starts beating faster. First comes conscious awareness, then comes physiological activity.



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James-Lange Theory

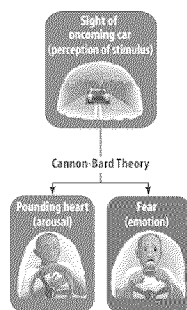
William James and Carl Lange proposed an idea that was diametrically opposed to the common-sense view. The James-Lange Theory proposes that physiological activity precedes the emotional experience.



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Cannon-Bard Theory

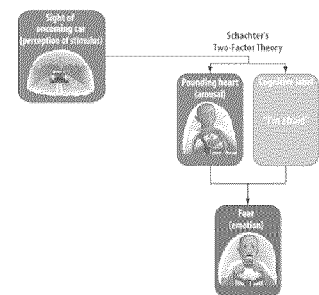
Walter Cannon and Phillip Bard questioned the James-Lange Theory and proposed that an emotion-triggering stimulus and the body's arousal take place simultaneously.



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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.



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Embodied Emotion

We know that emotions involve bodily responses. Some of these responses are very noticeable (butterflies in our stomach when fear arises), but others are more difficult to discern (neurons activated in the brain).

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Emotions and the Autonomic Nervous System

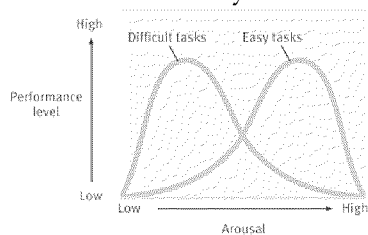
During an emotional experience, our autonomic nervous system mobilizes energy in the body that arouses us.

Autonomic Nervous System Controls		Physiological Arousal
Sympathetic division (arousing)	Parasympathetic division (calming)	
Pupils dilate	Pupils contract	
Decreases	Increases	Heart rate
Increases	Decreases	Respiration
Accelerates	Slows	Stomach
Relaxes	Contracts	Arteries
Increases	Decreases	Secretion of sweat glands

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Arousal and Performance

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



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Physiological Similarities

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

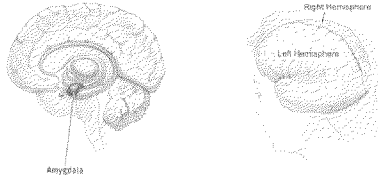


Excitement and fear involve a similar physiological arousal.

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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.

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Cognition and Emotion

What is the connection between how we *think* (cognition) and how we *feel* (emotion)?

Can we change our emotions by changing our thinking?

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Cognition Can Define Emotion

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

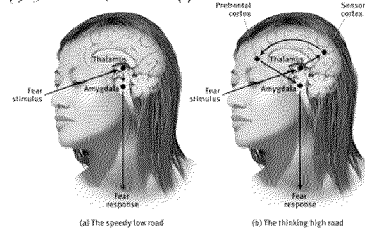


Arousal from a soccer match can fuel anger, which may lead to rioting.

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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).

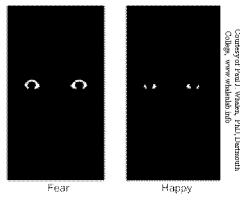


Emotions are felt directly through the amygdala (a) or through the cortex (b) for analysis.

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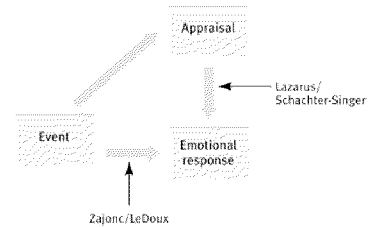
Cognition Does Not Always Precede Emotion

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



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Two Routes to Emotion



Zajonc and LeDoux emphasize that some emotions are immediate, without conscious appraisal. Lazarus, Schachter, and Singer emphasize that appraisal also determines emotions.

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Expressed Emotion

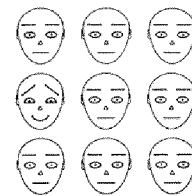
Emotions are expressed on the face, by the body, and by the intonation of voice. Is this nonverbal language of emotion universal?



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Detecting Emotion

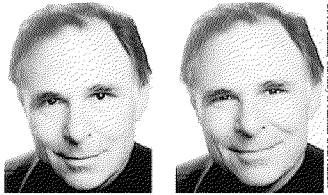
Most of us are good at deciphering emotions through nonverbal communication. In a crowd of faces a single angry face will "pop out" faster than a single happy face (Fox et al, 2000).



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Detecting Emotion

Hard-to-control facial muscles reveal signs of emotions you may be trying to conceal. A feigned smile may continue for more than 4-5 seconds while a genuine smile will have faded by then.

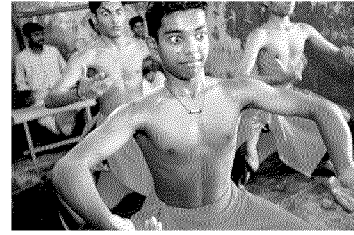


Which of Paul Ekman's smiles is genuine?

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Hindu Dance

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

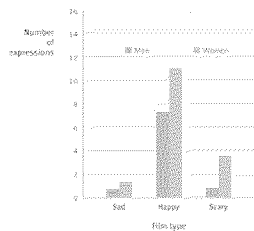


Harvard Photo Archives/Alamy

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Gender, Emotion, and Nonverbal Behavior

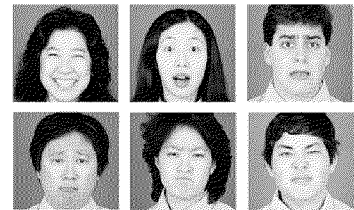
Women are much better at discerning nonverbal emotions than men. When shown sad, happy, and scary film clips women expressed more emotions than men.



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Culture and Emotional Expression

When culturally diverse people were shown basic facial expressions, they did fairly well at recognizing them (Matsumoto & Ekman, 1989).



Ekman & Matsumoto, Unmasked: Cross-Cultural Facial Expressions of Emotion

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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.

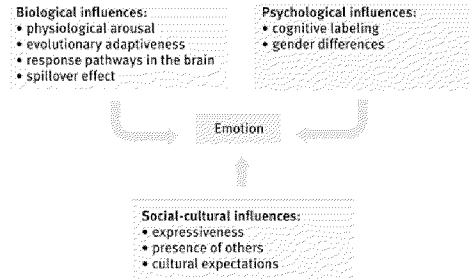


Charles Darwin (1809-1882)

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Analyzing Emotion

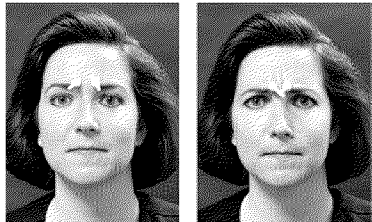
Analysis of emotions are carried on different levels.



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The Effects of Facial Expression

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

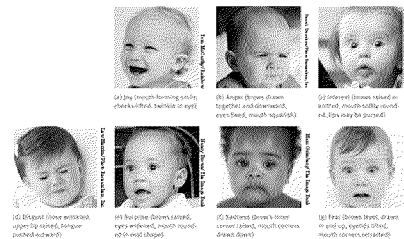


Attaching two golf tees to the face and making their tips touch causes the brow to furrow.

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Experienced Emotion

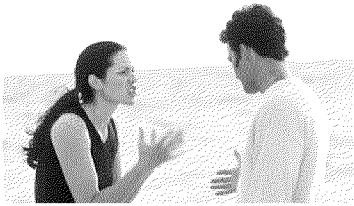
Izard (1977) isolated 10 emotions. Most of them are present in infancy, except for contempt, shame, and guilt.



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Anger

Anger “carries the mind away,” (Virgil, 70-19 B.C.), but “makes any coward brave,” (Cato 234-149 B.C.).



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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.

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Catharsis Hypothesis

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

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

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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.



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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.



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Feel-Good, Do-Good Phenomenon

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



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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.

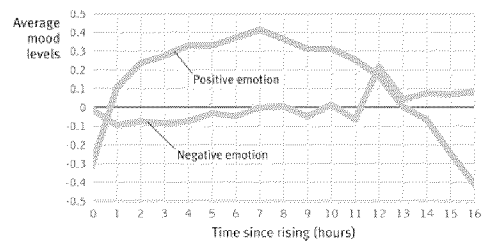


<http://www.flickr.com>

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Emotional Ups and Downs

Our positive moods rise to a maximum within 6-7 hours after waking up. Negative moods stay more or less the same throughout the day.



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Emotional Ups and Downs

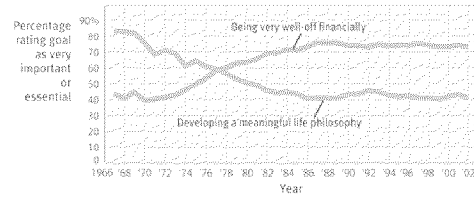
Over the long run, our emotional ups and downs tend to balance. Although grave diseases can bring individuals emotionally down, most people adapt.



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Wealth and Well-being

Many people in the West believe that if they were wealthier, they would be happier. However, data suggests that they would only be happy temporarily.



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Wealth and Well-being

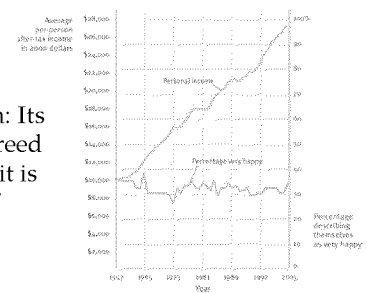
1. In affluent societies, people with more money are happier than people who struggle for their basic needs.
2. People in rich countries are happier than people in poor countries.
3. A sudden rise in financial conditions makes people happy.

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

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Does Money Buy Happiness?

Wealth is like health: Its utter absence can breed misery, yet having it is no guarantee of happiness.



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Happiness & Satisfaction

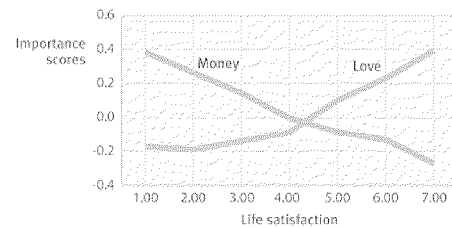
Subjective well-being (happiness + satisfaction) measured in 82 countries shows Puerto Rico and Mexico (poorer countries) at the top of the list.

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

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Values & Life Satisfaction

Students who value love more than money report higher life satisfaction.



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Happiness & Prior Experience

Adaptation-Level Phenomenon: Like the adaptation to brightness, volume, and touch, people adapt to income levels. "Satisfaction has a short half-life" (Ryan, 1999).

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Happiness & Others' Attainments

Happiness is not only relative to our past, but also to our comparisons with others. Relative Deprivation is the perception that we are relatively worse off than those we compare ourselves with.

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Predictors of Happiness

Why are some people generally more happy than others?

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.	

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Stress and Health

Psychological states cause physical illness. Stress is any circumstance (real or perceived) that threatens a person's well-being.



Latent Semantic

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

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Stress and Health

Stress can be adaptive. In a fearful or stress-causing situation, we can run away and save our lives. Stress can be maladaptive. If it is prolonged (chronic stress), it increases our risk of illness and health problems.

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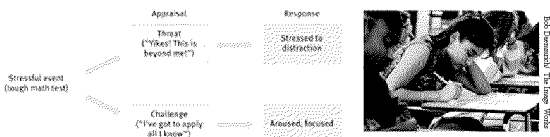
Stress and Stressors

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).

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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.

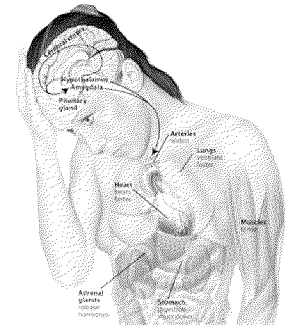


When short-lived or taken as a challenge, stressors may have positive effects. However, if stress is threatening or prolonged, it can be harmful.

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The Stress Response System

Cannon proposed that the stress response (fight or flight) 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.



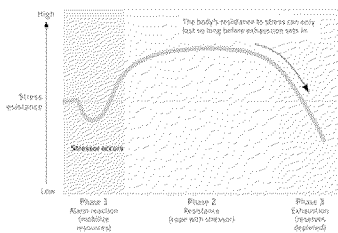
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General Adaptation Syndrome

According to Selye, a stress response to any kind of stimulation is similar. The stressed individual goes through three phases.



EPFL/ Tim Stockham/ ianone



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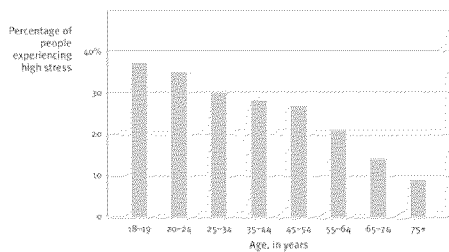
Stressful Life Events

Catastrophic Events: Catastrophic events like earthquakes, combat stress, and floods lead individuals to become depressed, sleepless, and anxious.

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Significant Life Changes

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



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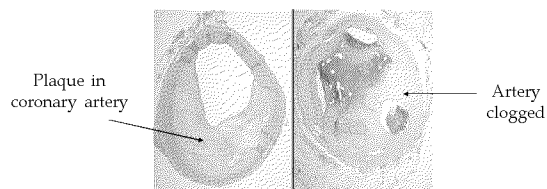
Daily Hassles

Rush hour traffic, long lines, job stress, and becoming burnt-out are the most significant sources of stress and can damage health.

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Stress and the Heart

Stress that leads to elevated blood pressure may result in coronary heart disease, a clogging of the vessels that nourish the heart muscle.



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Personality Types

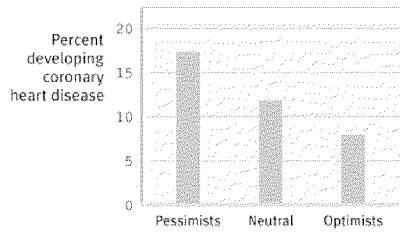
Type A is a term used for competitive, hard-driving, impatient, verbally aggressive, and anger-prone people. Type B refers to easygoing, relaxed people (Friedman and Rosenman, 1974).

Type A personalities are more likely to develop coronary heart disease.

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Pessimism and Heart Disease

Pessimistic adult men are twice as likely to develop heart disease over a 10-year period (Kubzansky et al., 2001).



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Stress & Susceptibility to Disease

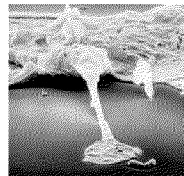
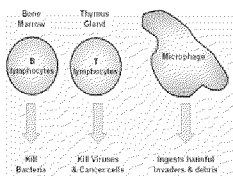
A psychophysiological illness is any stress-related physical illness such as hypertension and some headaches.

Psychoneuroimmunology (PNI) is a developing field in which the health effects of psychological, neural, and endocrine processes on the immune system are studied.

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Psychoneuroimmunology

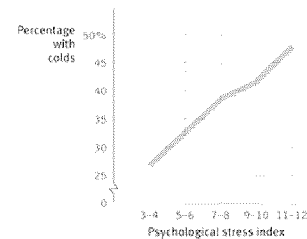
B lymphocytes fight bacterial infections, T lymphocytes attack cancer cells and viruses, and microphages ingest foreign substances. During stress, energy is mobilized away from the immune system making it vulnerable.



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Stress and Colds

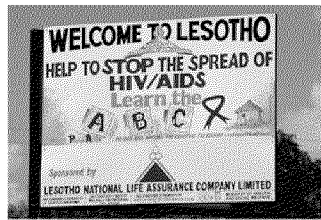
People with the highest life stress scores were also the most vulnerable when exposed to an experimental cold virus.



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Stress and AIDS

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



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Stress and Cancer

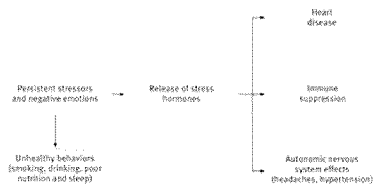
Stress does not create cancer cells. Researchers disagree on whether stress influences the progression of cancer.

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

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Health-Related Consequences

Stress can have a variety of health-related consequences.



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Behavioral Medicine

Psychologists and physicians have developed an interdisciplinary field of behavioral medicine that integrates behavioral knowledge with medical knowledge.

Mind and body interact; everything psychological is simultaneously physiological.

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Promoting Health

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.

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Coping with Stress

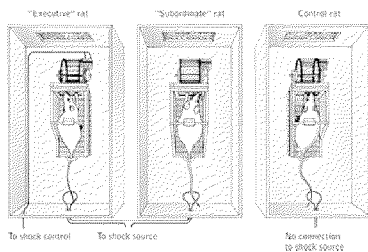
Reducing stress by changing events that cause stress or by changing how we react to stress is called problem-focused coping.

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

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Perceived Control

Research with rats and humans indicates that the absence of control over stressors is a predictor of health problems.



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Explanatory Style

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.



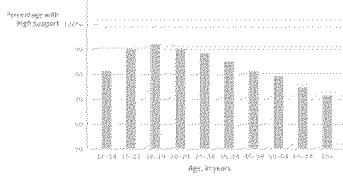
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Social Support

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 D'Amico/Stock Business

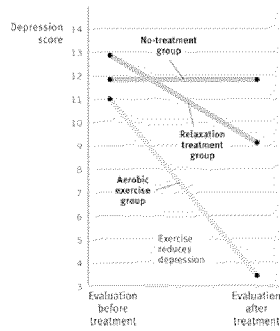


Managing Stress Effects

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

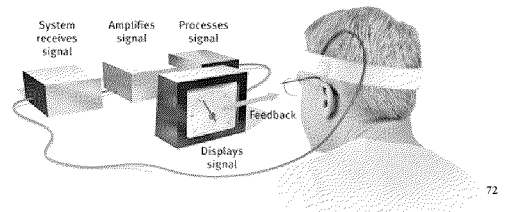
Aerobic Exercise

Can aerobic exercise boost spirits? Many studies suggest that aerobic exercise can elevate mood and well-being because aerobic exercise raises energy, increases self-confidence, and lowers tension, depression, and anxiety.



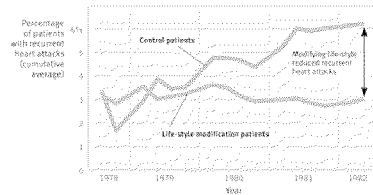
Biofeedback, Relaxation, and Meditation

Biofeedback systems use electronic devices to inform people about their physiological responses and gives them the chance to bring their response to a healthier range. Relaxation and meditation have similar effects in reducing tension and anxiety.



Life-Style Modification

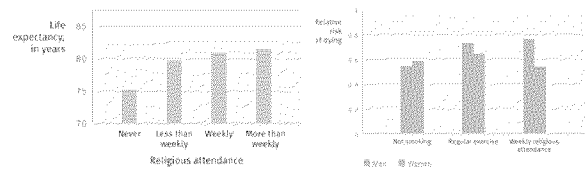
Modifying a Type-A lifestyle may reduce the recurrence of heart attacks.



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Spirituality & Faith Communities

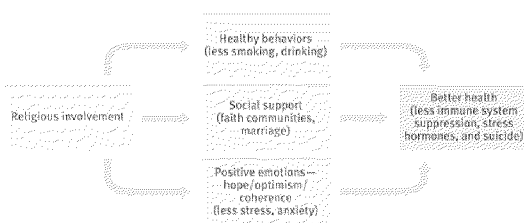
Regular religious attendance has been a reliable predictor of a longer life span with a reduced risk of dying.



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Intervening Factors

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



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