

IMPACT OF STRESS TO OUR BODIES

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(Clinical psychology)

WHAT DO YOU KNOW ABOUT STRESS?

*“a relationship between the **person** and the **environment** that is **appraised** by the person as **taxing or exceeding** his or her **resources** and **endangering** his or her **well-being**”* (Lazarus & Folkman, 1984. Cited by Singh & Sharma, 2012 and Pakenham & Stafford-Brown, 2012)

The stress **response** begins, not after the perception of the stimulus, but **after** the **cognitive appraisal** of that stimulus as a threat. (Singh & Sharma, 2012)

Chronic and intense stress has **negative effects** on **intelligence**, but also stressful life events and daily life stresses have both deleterious and cumulative effects on **human body**. (Singh & Sharma, 2012)

ACUTE STRESS? CHRONIC STRESS? EUSTRESS? DISTRESS?

Acute Stress:

Immediate, short-term. Fight or flight. The body prepares to defend itself. It takes about 90 minutes for the metabolism to return to normal when the response is over.

Chronic Stress:

Long-term, ongoing. The cost of daily living: bills, kids, jobs... This is the stress we tend to ignore or push down. Left uncontrolled this stress affects your health- your body and your immune system.

Eustress:

Stress in daily life that has positive connotations. Graduation, promotion, marriage...

Distress:

Stress in daily life that has negative connotations. Divorce, punishment, injury...

GENERAL STRESS IMPACT (SYSTEMIC STRESS). ADAPTATION

Hans Selye defined **stress** as the body's **nonspecific response to any demand**, whether it is **caused by or results in pleasant or unpleasant stimuli**. Selye hypothesized a General Adaptation or Stress Syndrome; this General Stress Syndrome, which consists of 3 stages, affects the whole body. Stress always manifests itself by a syndrome, a sum of changes, not by simply one change.

The **first stage**, which is termed the **alarm** stage, represents a mobilization of the body's defensive forces. In other words, the body is preparing for the **"fight or flight"** syndrome. This involves a number of hormones and chemicals excreted at high levels, as well as an increase in heart rate, blood pressure, perspiration, respiration rate, etc.

In the **second** phase — the **stage of resistance** — the body becomes adaptive to the challenge and even begins to resist it. The length of this stage of resistance is dependent upon the body's innate and stored adaptation energy reserves and upon the intensity of the stressor. The acquired adaptation is lost if the individual is subject to still greater exposure to the stressor.

The organism enters into the **third and final stage** — the **exhaustion** stage — and then dies because it has used up its resources of adaptation energy. Thankfully, few people ever experience this last stage!

2014 STRESS STATISTICS

U.S Stress Statistics	Data
Percent of people who regularly experience physical symptoms caused by stress	77 %
Regularly experience psychological symptoms caused by stress	73 %

People who cited psychological symptoms experienced the following	People who cited physical symptoms experienced the following
Irritability or anger 50 %	Fatigue 51 %
Feeling nervous 45 %	Headache 44 %
Lack of energy 45 %	Upset stomach 34 %
Feeling as though you could cry 35 %	Muscle tension 30 %
	Change in appetite 23 %
	Teeth grinding 17 %
	Change in sex drive 15 %
	Feeling dizzy 13 %

Source: American Psychological Association, American Institute of Stress, NY. Research Date: 7.8.2014
[\(http://www.stress.org/daily-life/ \)](http://www.stress.org/daily-life/)

STRESS IMPACT TO OUR BODIES

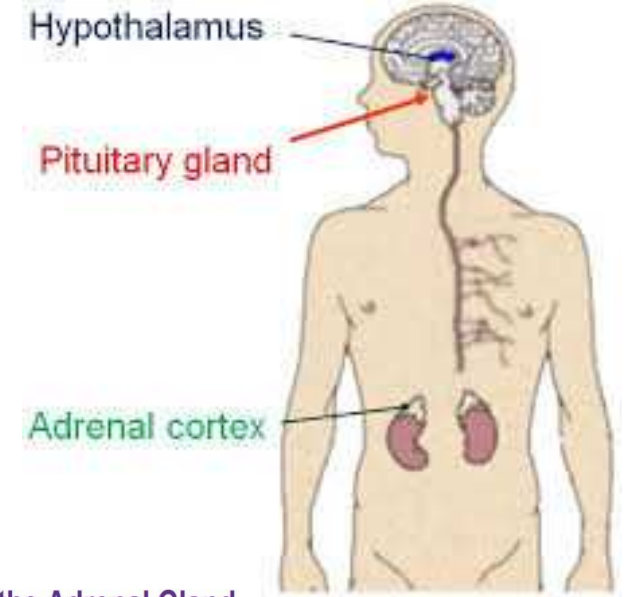
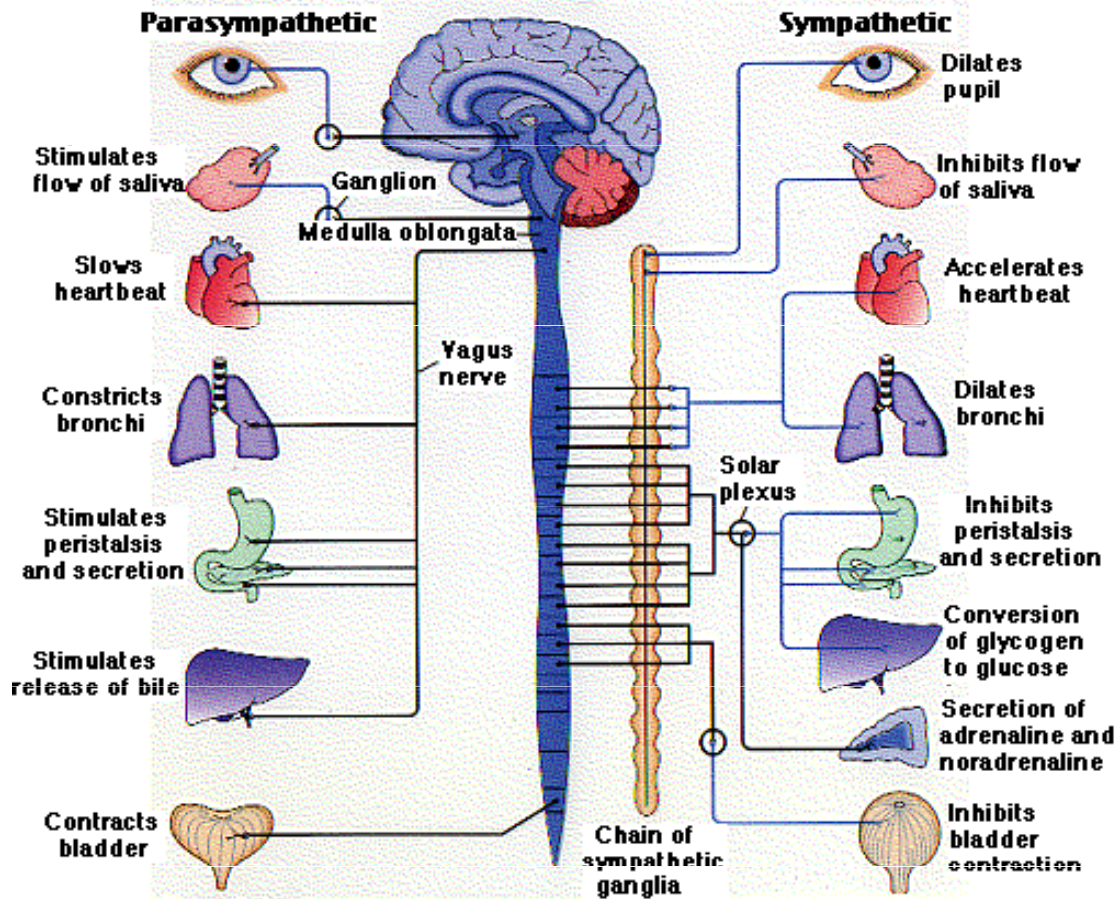
2 main systems make up the physiological stress response: the **autonomic nervous system** and the **HPA axis** (limbic–hypothalamic–pituitary–adrenal axis).

HOW DO OUR BODY REACTS TO **ACUTE STRESS**?

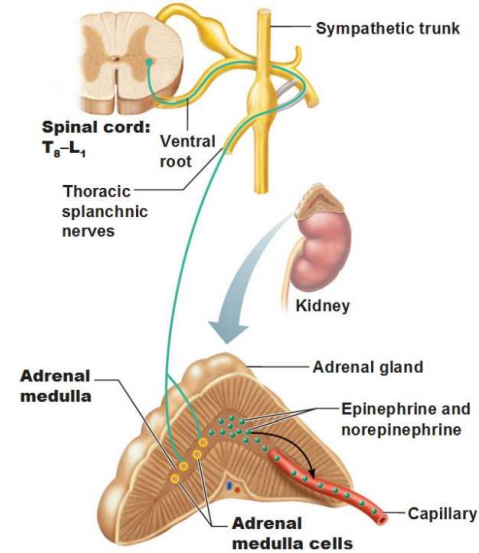
The **autonomic nervous system (ANS)** is comprised of the **parasympathetic** nervous system and the **sympathetic** nervous system. The ventral branch of the vagus is responsible for maintaining homeostasis during rest, thereby keeping heart rate low. **During** times of **stress** the parasympathetic nervous system is suppressed (rest and digest) while the **sympathetic nervous system is activated (fight or flight)**. When an organism is confronted with a stressor, the most immediate response involves vagal withdrawal, which leads to an increase in heart rate, indicating the organism's preparedness to respond to an anticipated stressor.

An area in the brain called the **hypothalamus controls the body's response to stress**. This is situated right next to the pituitary gland (sometimes referred to as the master gland because it controls the others) and both are located in the middle of the brain just behind the upper part of nose. The **hypothalamus** activates the adrenal medulla. The **adrenal medulla** is part of the autonomic nervous system (ANS). The adrenal medulla secretes the hormone **adrenaline**. This hormone gets the body ready for a fight or flight response. Physiological reaction includes increased heart rate. Adrenaline lead to the arousal of the sympathetic nervous system and reduced activity in the parasympathetic nervous system. Adrenaline creates changes in the body such as decreases (in digestion) and increases (sweating, increased pulse and blood pressure).





The Adrenal Medulla of the Adrenal Gland



STRESS IMPACT TO OUR BODIES

HOW DO OUR BODY REACTS TO **CHRONIC STRESS**?

The stressor activates the **Hypothalamic Pituitary Axis (HPA)**. The hypothalamus stimulates the pituitary gland. The pituitary gland secretes adrenocorticotrophic hormone (ACTH). ACTH stimulates the adrenal glands to produce the hormone cortisol.

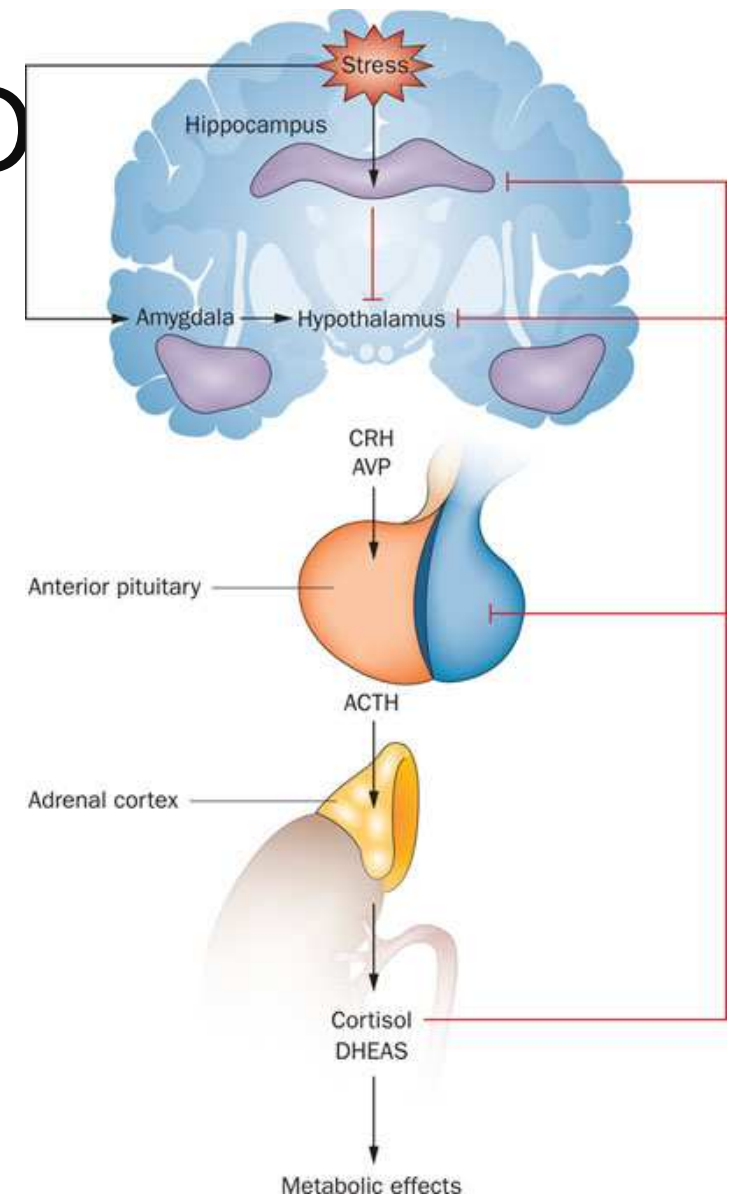
This have a number of functions including releasing stored glucose from the liver (for energy) and controlling swelling after injury. **The immune system is suppressed while this happens.** The HPA response to stress entails the production of corticotropin-releasing hormone by neurons in the paraventricular nucleus of the hypothalamus. This stimulates the secretion of adrenocorticotrophic hormone in the pituitary which in turn stimulates the secretion of cortisol in the outer cortex of the adrenal gland. When confronted with a stressful situation, the adaptive response of a healthy individual is a temporary increase in the secretion of cortisol, which occurs approximately 20 minutes subsequent to the onset of the stressor.



STRESS IMPACT TO OUR BODIES

HPA axis function is crucial to **maintain and restore homeostasis**. Regulated via the HPA axis, **cortisol** is the **primary hormone responsible for the stress response**. **Cortisol** is essential for general adaptation to stress and **plays a crucial role in cardiovascular, metabolic, and immunologic homeostasis**. **Low cortisol levels** have been observed in patients with different **stress-related disorders** such as post-traumatic stress disorder, chronic fatigue syndrome, and fibromyalgia. These disorders are characterized by a symptom: of **enhanced stress sensitivity, pain, and fatigue**.

<https://www.youtube.com/watch?v=sQj6GMrt8EE>



STRESS IMPACT TO OUR BODIES

Oxytocin is a stress hormone. It is **produced mainly in the hypothalamus**, where it is either released into the blood via the pituitary gland, or to other parts of the brain and spinal cord, where it binds to oxytocin receptors **to influence behavior and physiology.**

Although oxytocin is best known for its role in reproductive functions, studies indicate that oxytocin **regulates different social behaviors** including pair bonding and social recognition in animals.

Stress-related manifestation of oxytocin may produce physiological changes that then **encourage people to seek contact with others.**

CLASSICAL THEORIES OF COPING WITH STRESS

Theories may be classified according to two independent parameters: (a) **trait-oriented** versus **state-oriented**, and (b) **microanalytic** versus **macroanalytic** approaches.

Microanalytic approaches focus on a **large number of specific coping strategies**.

Macroanalytic analysis operates at a **higher level of abstraction**, thus concentrating on **more fundamental constructs**.

Trait-orientated (dispositional) strategy aims at early identification of individuals whose coping resources and tendencies are inadequate for the demands of a specific stressful encounter. An early identification of these persons will offer the opportunity for establishing a selection (or placement) procedure or a successful primary prevention program. **Trait-oriented** approaches in this field have established two constructs central to an understanding of cognitive responses to stress: **vigilance**, that is, the orientation toward stressful aspects of an encounter, and **cognitive avoidance**, that is, averting attention from stress-related information. Approaches corresponding to these conceptions are **repression–sensitization**, **monitoring-blunting**, or **attention-rejection**.

CLASSICAL THEORIES OF COPING WITH STRESS

The **repression–sensitization** construct relates different forms of dispositional coping to one **bipolar dimension**. When confronted with a stressful encounter, persons located at one pole of this dimension (**repressors**) tend to **deny or minimize the existence of stress**, fail to verbalize feelings of distress, and avoid thinking about possible negative consequences of this encounter. Persons at the opposite pole (**sensitizers**) **react** to stress-related cues by way of **enhanced information search**, rumination, and **obsessive worrying**.

Model of coping modes (MCM) deals with individual differences in attention orientation and emotional- behavioral regulation under stressful conditions. It assumes that most stressful, especially anxiety evoking, situations are characterized by two central features: the presence of aversive stimulation and a high degree of ambiguity. The experiential counterparts of these situational features are emotional arousal (as being primarily related to aversive stimulation) and uncertainty (related to ambiguity). Arousal, in turn, should stimulate the tendency to cognitively avoid (or inhibit) the further processing of cues related to the aversive encounter, whereas uncertainty activates vigilant tendencies.

CLASSICAL THEORIES OF COPING WITH STRESS

State-oriented, i.e., which centers around actual coping, has a more general objective. This research investigates the relationships between coping strategies employed by an individual and outcome variables such as self-reported or objectively registered coping efficiency, emotional reactions accompanying and following certain coping efforts, or variables of adaptational outcome (e.g., health status or test performance). This research strategy intends to lay the foundation for a general modificatory program to improve coping efficacy.

S. Freud's (1926, cited by Krohne, 2002) **'classic' defense mechanisms** conception is an example of **a state-oriented, macroanalytic approach**. Although Freud distinguished a multitude of defense mechanisms, in the end, he related these mechanisms to two basic forms: **repression** ('forgetting' or placing uncomfortable thoughts in relatively inaccessible areas of the subconscious mind) and **intellectualization** ('flight into reason', where the person avoids uncomfortable emotions by focusing on facts and logic).

COPING WITH STRESS

Oxytocin promotes positive communication in the context of a laboratory stressor in which couples discuss a point of contention in their relationship. So we can say that **oxytocin** may serve to **ameliorate** the **negative impact of social stress**.

“When you change your mind about stress, you can change your body’s response to stress” (Kelly McGonigal, 2013)


http://www.ted.com/talks/kelly_mcgonigal_how_to_make_stress_your_friend

COPING WITH STRESS

Relaxation-based stress management procedures have been used as effective psychotherapeutic tools in a variety of anxiety and **stress associated clinical disorders**, including pain syndromes, insomnia, gastrointestinal disorders, and cardiovascular disease.

Relaxation training can reduce circulatory responses during psychological stress. For example, relaxation has been shown to **reduce blood pressure responses to stress** in patients with a history of coronary heart disease, myocardial infarction and essential hypertension.

Relaxation is accompanied by **release of endogenous opioids**, and these opioids are at least partially responsible for the relaxation induced **reduction of circulatory stress reactivity.**



A wrong functioning of the psyche can do much to injure the body, just as conversely a bodily illness can affect the psyche; for psyche and body are not separate entities, but one and the same life. (C.G. Jung 1917, para.194, as cited in Kradin, 2011)

Despite the fact that mind/body are one, the suffering body is experienced psychologically as 'other'. (Kradin, 2011)

SOMATIZATION

Experience and **expression** of psychological and emotional **distress** through **somatic** (bodily) **symptoms**.

Psychosomatic disorders are manifestations of physical imbalance in which emotional components have a strong influence. The link between the affect and compromised health issues can be followed, in such cases, as the disease emerges, develops or repeats its pattern over time. "Psycho" or "psyche" refers to the emotional or mind related aspects and "somatic" has to do with the organic or physical symptoms and signs observed.
(International Encyclopedia of Rehabilitation)

PSYCHOSOMATIC (PSYCHOPHYSIOLOGIC) DISORDERS

Hysteria was a first recognized **psychological disorder**. It was recognized to be a disorder of 'imaginal anatomy', one that was concordant with the fantasies of the public with respect to how nerves might work but that did not fit with objective anatomy.

The psychosomatic symptom may be viewed as a **symbolic communication by the suffering self to caregivers**. In medical practice, this manifests as the patient's refusal to seek psychological assistance in an intimate relationship. Relationships with family, friends, and the workplace are impaired, and there is a regressive dependence on caretakers. Unconscious elements of secondary gain may be evident, but conscious malingering is rare.

Psychosomatic disorders are **symptomatically diverse** in their severity. In response to treatment of virtually any type, it is a rough estimate that ~1/3 of patients show improvement, ~1/3 grow increasingly symptomatic, and ~1/3 exhibit little change. It is important to maintain a reasonable hope of success, but as important to formulate the seriousness of pathogenetic issues accurately.

PSYCHOSOMATIC DISORDERS

Classification of psychosomatic or somatoform disorders, as presented in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSMIV)* is widely viewed as problematic.

Common antecedents of somatization include a **parent with physical illness**, a history of family secrets, and childhood maltreatment. Patients with medically unexplained symptoms often come from families with a high rate of physical illness during the individual's childhood. Children of parents with a somatization disorder have higher rates of psychiatric disorders and suicide attempts. There is growing evidence to associate somatization with child abuse. **Emotional abuse** is the **most frequent cause of somatization**.

PSYCHOSOMATIC DISORDERS

Few patients embrace the idea that they may be suffering from a psychosomatic disorder. **Somatization** is an **unconscious process** so that somatic symptoms are experienced exclusively in the body, with little or no recognition on the part of the patient that psychological factors might be operating.

Accepting the diagnosis is a source of **shame**, as patients must concede that their symptoms are imaginal—a humiliating defeat for them, as what is imaginal is equated with fictitious. The simple act of **letting patients know** that their **symptoms are 'real'**, whatever their cause, virtually always **elicits heartfelt appreciation and relief**. There are many 'positive' psychological features in these patients that allow a trained clinician to surmise the correct diagnosis without prompting an abundance of needless, expensive, and painful medical testing.

Psychosomatic health problems, such as **chronic fatigue, palpitation, sleep disorders, back pain, headache, stomach ache and stress-related diarrhoea**, are quite **common in the general population**.

PSYCHOSOMATIC DISORDERS

Psychosomatic disorders **resulting from stress** may include **hypertension, respiratory ailments, gastrointestinal disturbances, migraine and tension headaches, pelvic pain, impotence, frigidity, dermatitis, and ulcers.**

Many patients suffering from psychosomatic diseases respond to a combination of **drug therapy, psychoanalysis, and behaviour therapy.** In less severe cases, patients can learn to manage stress without drugs.

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