

# Stress and Health

## Learn the Effects of Stress and Techniques to Deal with It

Stress was first defined in 1936 by Hans Selye as “the non-specific response of the body to any demand for change.”<sup>1</sup> since then stress has been used to describe everyday unpleasant changes in our lives. Decades of research have shown that stress is a very regular phenomena that our brain and body goes through. Stress is a much-needed warning system that enables us to respond and be prepared. However, if it is not managed effectively, it can lead to an emotional “burn-out” feeling, and other health problems.

We often dwell on associated emotional/psychological symptoms and issues. Yet,

our body responds to physical stress the same as emotional stress. Physical activities, such as exercising etc. can stress our bodies. While we are active, our body is constantly under stress, working on maintaining normal body temperature, blood pressure, and heartrate. The same concept applies to certain acute (e.g. flu) or chronic (e.g. diabetes) illnesses. Stress and illness are unarguably linked.

Excessive stress is one of the most common contributing factors leading to chronic diseases. During an illness our body is constantly stressed while restoring itself. Hence, it’s crucial to pay

attention to stressors and find ways to manage them effectively.

Stress can be classified as “short term/acute stress,” “episodic acute stress” and “long term/ chronic stress.”

### **Short-term/Acute Stress**

Short-term/acute stress helps prepare our body and brain to perform certain immediate reactions such as instantly withdrawing our hands when touching a hot surface (physical stress) or nervous laughter in social settings (emotional stress). Some potential effects of short-term stresses are:

- Anxiousness and nervousness
- Sweating
- Shortness of breath
- High blood pressure and heartrate
- Hyperventilation
- Muscle tightening
- Panic attack
- Upset stomach<sup>2</sup>

Stress plays a significant role in our daily lives by making us more alert and prepared for certain tasks, responses and actions. Some positive stress effects are:

- Boosting immune response during surgery, vaccinations and minor infections;
- Increasing productivity at work by raising drive, motivation and competitiveness;
- Ensuring survival and alertness during critical circumstances such as immediate life-threatening situations or job interviews or important presentations.

### **Episodic Acute Stress<sup>10</sup>**

Episodic acute stress results from reoccurring life situations such as difficulties for a child in school, recurring health issues, and repeated weight gain

challenges. Many times we are not aware of these stresses due to how frequently they occur and become the “new” normal. These traits have shown to be more pronounced among individuals with Type “A” personality.<sup>10</sup> Type “A” personalities are usually characterized by excessive ambition, aggression, competitiveness, drive, impatience, need for control, focus on quantity over quality and unrealistic sense of urgency.

The general symptoms of episodic acute stress are:

- Obsessiveness
- Short-temperedness
- Anxiety
- Panic attack
- Tense muscles and fatigue
- Excessive competitiveness
- Insomnia
- Aggression
- Impatience
- Excessive worry<sup>10,13</sup>

### **Long-Term/Chronic Stress**

This type of stress lingers for months or years. Examples of long-term/chronic stress include chronic illness or the death of a loved one. The potential effects of long-term stress are:

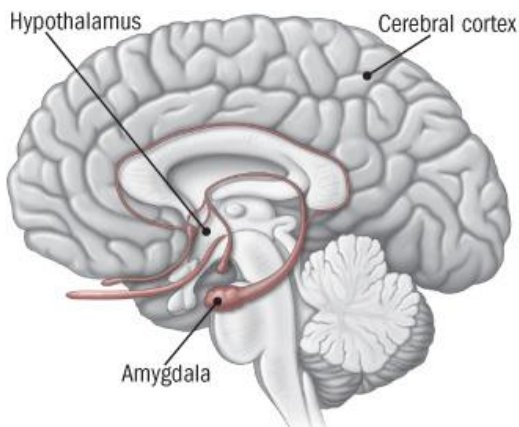
- Headaches and migraines
- Obesity and eating disorders
- Frequent hyperventilation
- Panic disorder
- Inflammation of circulatory system
- Increased chance of heart disease
- Greater risk of high cholesterol levels
- Hypertension (high blood pressure)
- Sleep disturbances and insomnia
- Depression
- Anxiety
- Trouble focusing
- Low self-esteem and self-confidence
- Social isolation<sup>3</sup>

## Stress Responses in the Brain

When we are under stress, our body goes through several physiological changes. Some of the most common stress responses are increased heart rate and blood pressure, excessive sweating, and nervous fidgeting.<sup>4</sup>

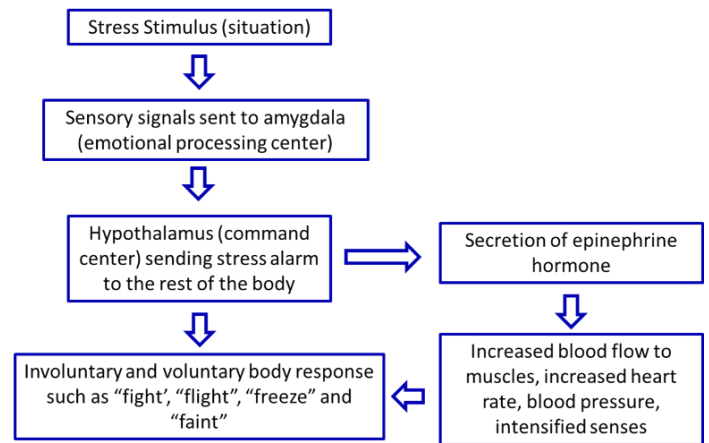
When we are under stressful situations, our eyes, ears and other sensory organs send signals to the *amygdala*, an area of the brain involved in emotional processing (Figure 1). From the amygdala, the signal is sent to the hypothalamus. The hypothalamus is a command center that communicates stress alarms to the rest of our body that affects several involuntary and voluntary body responses such as fight, flight, freeze and involuntary responses such as fainting.

**Figure 1: Medial sections of the brain structure are active during stressful conditions<sup>5</sup>**



A response signal from the hypothalamus also leads to the activation of stress hormones such as epinephrine. This results in increased heart rate and blood pressure, and increased blood flow to the muscles, lungs and heart. *Epinephrine* also intensifying sensory receptors in the body resulting in heightened senses (Figure 2).

**Figure 2: Physiological changes during stress in the body**



These changes are instantaneous and often unnoticeable. When we are under long-term stress, our bodies are constantly experiencing the same responses. Over time this can lead to harmful effects in our body. It is critical to use stress reduction techniques to counteract stress responses.<sup>5</sup>

## Ways to Reduce Stress

- **Notice the factors causing you to be stressed:** Write them down, and develop a plan to positively address those factors. Ask for help from family and friends to find creative ways to combat stress.<sup>4</sup>
- **Use relaxation techniques:** Deep breathing, visualization, meditation, repetitive prayer, yoga, and tai-chi can relax the body and reduce stress. Engaging in art activities has also shown to reduce stress responses. Mindfulness is another very effective way to reduce and manage stress. Mindfulness is a mental state achieved by focusing on your awareness of the present moment. This awareness is created by calmly acknowledging

and accepting your feelings, thoughts, and bodily sensations in a gentle, kind and loving manner. Mindfulness is not just limited to meditation practice; it can be practiced during simple everyday activities such as driving, eating, running etc.

- *Engage in physical activity:*  
Even though physical activity can cause certain amount of stress on the body, it also helps release muscle tension. Breathing increases oxygen flow into the body and brain. Physical activity also produces endorphins, the body's natural mood boosting hormones that help reduce stress and boost positive emotions.<sup>5,8</sup>
- *Seek social support and relationships:*  
Humans are social beings. We find solace and safety when we are in a positive social environment. Positive relationships can create a non-judgmental, comforting and supportive environment, and help us tackle stressful situations.

On the other hand relationships can also be one of the stressors in life e.g. Conflicts with peers or disagreements with a spouse or loved ones. To resolve such stressful situations, effective communication and goal setting can play significant role in creating safer and supportive environment.<sup>4</sup>

### **Everyday De-Stressor**<sup>6,7,8</sup>

#### *Physical de-stressors:*

- Practice deep breathing when feeling stressed
- Engage in physical activity
- Get plenty of rest
- Reduce caffeine and alcohol consumption
- Eat healthier foods and follow a balanced diet
- Spend time in nature
- Practice yoga, tai chi, or regular stretches

#### *Emotional de-stressors:*

- Practice relaxation techniques such as listening to soothing music, meditation, and mindfulness based activities.
- Engage in activities involving humor and laughter
- Avoid self-criticism and establish a positive dialogue with yourself using self-affirmations, journaling, positive communications with others and reading inspirational literature.
- Practice self-acceptance and self-compassion by noticing your thoughts and emotions, writing compassionate notes and letter to yourself, practicing meditation, noticing negative self-talk and changing it into positive and authentic conversation with self.

#### *Social de-stressors:*

- Seek out positive and creative people
- Spend time with pets and children
- Be an effective communicator
- Be a good listener
- Get professional help in identifying issues and creating an action plan to address those issues

#### *Other de-stressors:*

- Make time for hobbies such as painting and gardening
- Learn something new or find a new hobby
- Try journaling to express thoughts, feelings, and experiences to understand them more clearly. You can also use journaling to express positive affirmations, goals, and gratitude
- Travel to a new place
- Create a to-do list and prioritize
- Create goals or a bucket list for life
- Read good books
- Focus on a single task instead of multitasking. Our brain is most efficient when we give full attention to one task at a time
- Limit exposure to technology for a period of time and only focus on creative thinking and activities.

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