

Effect of Stress on Physical and Mental Health

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Abstract

Stress can be defined as the degree to which you feel overwhelmed or unable to cope as a result of pressures that are unmanageable. At the most basic level, stress is our body's response to pressures from a situation or life event. What contributes to stress can vary hugely from person to person and differs according to our social and economic circumstances, the environment we live in and our genetic makeup. Some common features of things that can make us feel stress include experiencing something new or unexpected, something that threatens your feeling of self, or feeling you have little control over a situation. When we encounter stress, our body is stimulated to produce stress hormones that trigger a 'flight or fight' response and activate our immune system. This response helps us to respond quickly to dangerous situations. Sometimes, this stress response can be an appropriate, or even beneficial reaction. The resulting feeling of 'pressure' can help us to push through situations that can be nerve-racking or intense, like running a marathon, or giving a speech to a large crowd. However, there can be times when stress becomes excessive and too much to deal with. If our stress response is activated repeatedly, or it persists over time, the effects can result in wear and tear on the body and can cause us to feel permanently in a state of 'fight or flight'. Feeling this overwhelming stress for a long period of time is often called chronic, or long-term stress, and it can impact on both physical and mental health. In this paper, we explore the science of stress and its impact on physical & mental health. We look at how research is transforming what we know, providing hope for new treatments as well as showing effective ways to cope with stress in our everyday lives.

Introduction

You are sitting in traffic, late for an important meeting, watching the minutes tick away. Your hypothalamus, a tiny control tower in your brain, decides to send out the order: Send in the stress hormones! These stress hormones are the same ones that trigger your body's "fight or flight" response. Your heart races, your breath quickens, and

your muscles ready for action. This response was designed to protect your body in an emergency by preparing you to react quickly. But when the stress response keeps firing day after day, it could put your health at serious risk.

When the stress response becomes prolonged (chronic), it has a very different effect to the short bursts that enhance the body's abilities. In many cases, the system controlling the stress response is no longer able to return to its normal state. Attention, memory, and the way we deal with emotions are negatively impacted. This long-term stress can contribute to both physical and mental illness through effects on the heart, immune and metabolic functions, and hormones acting on the brain. Some of the emotional and behavioral symptoms of stress overlap with those of mental health conditions like anxiety or depression. This can make it hard to distinguish where one begins and the other ends, or which came first. Someone who is stressed may feel worried, down, unable to concentrate or make decisions, irritable and angry.

Signs of Stress

Emotional changes

When you are stressed you may experience many different feelings, including anxiety, fear, anger, sadness, or frustration. These feelings can sometimes feed on each other and produce physical symptoms, making you feel even worse. For some people, stressful life events can contribute to symptoms of depression. Work-related stress can also have negative impacts on mental health. Work-related stress accounts for an average of 23.9 days of work lost for every person affected

Behavioral changes

When you are stressed you may behave differently. For example, you may become withdrawn, indecisive or inflexible. You may not be able to sleep properly. You may be irritable or tearful. Some people may resort to smoking, consuming more alcohol, or taking drugs. Stress can make you feel angrier or more aggressive than normal. Stress may also affect the way we interact with our close family and friends.

Physical Changes

When stressed, some people start to experience headaches, nausea and indigestion. You may breathe more quickly, perspire more, have palpitations or suffer from various aches and pains. You will quickly return to normal without any negative effects if what is stressing you is short-lived, and many people are able to deal with a certain level of stress without any lasting adverse effects. If you experience stress repeatedly over a prolonged period, you may notice your sleep and memory are affected, your eating habits may change, or you may feel less inclined to exercise. Some research has also linked

long-term stress to gastrointestinal conditions like Irritable Bowel Syndrome (IBS), or stomach ulcers as well as conditions like cardiovascular disease.

The Biology of Stress & Mental and Physical Health

Central nervous and endocrine systems

Your central nervous system (CNS) is in charge of your "fight or flight" response. In your brain, the hypothalamus gets the ball rolling, telling your adrenal glands to release the stress hormones adrenaline and cortisol. These hormones rev up your heartbeat and send blood rushing to the areas that need it most in an emergency, such as your muscles, heart, and other important organs. When the perceived fear is gone, the hypothalamus should tell all systems to go back to normal. If the CNS fails to return to normal, or if the stressor doesn't go away, the response will continue.

Respiratory and cardiovascular systems

Stress hormones affect your respiratory and cardiovascular systems. During the stress response, you breathe faster in an effort to quickly distribute oxygen-rich blood to your body. If you already have a breathing problem like asthma or emphysema, stress can make it even harder to breathe. Under stress, your heart also pumps faster. Stress hormones cause your blood vessels to constrict and divert more oxygen to your muscles, so you'll have more strength to take action. But this also raises your blood pressure. As a result, frequent or chronic stress will make your heart work too hard for too long. When your blood pressure rises, so do your risks for having a stroke or heart attack.

Digestive system

Under stress, your liver produces extra blood sugar (glucose) to give you a boost of energy. If you are under chronic stress, your body may not be able to keep up with this extra glucose surge. Chronic stress may increase your risk of developing type 2 diabetes. The rush of hormones, rapid breathing, and increased heart rate can also upset your digestive system. You are more likely to have heartburn or acid reflux thanks to an increase in stomach acid. Stress does not cause ulcers (a bacterium called *H. pylori* often does), but it can increase your risk for them and cause existing ulcers to act up. Stress can also affect the way food moves through your body, leading to diarrhea or constipation. You might also experience nausea, vomiting, or a stomachache.

Muscular system

Your muscles tense up to protect themselves from injury when you are stressed. They tend to release again once you relax, but if you're constantly under stress, your

muscles may not get the chance to relax. Tight muscles cause headaches, back and shoulder pain, and body aches. Over time, this can set off an unhealthy cycle as you stop exercising and turn to pain medication for relief.

Sexuality and reproductive system

Stress is exhausting for both the body and mind. It is not unusual to lose your desire when you're under constant stress. While short-term stress may cause men to produce more of the male hormone testosterone, this effect doesn't last. If stress continues for a long time, a man's testosterone levels can begin to drop. This can interfere with sperm production and cause erectile dysfunction or impotence. Chronic stress may also increase risk of infection for male reproductive organs like the prostate and testes. For women, stress can affect the menstrual cycle. It can lead to irregular, heavier, or more painful periods. Chronic stress can also magnify the physical symptoms of menopause.

Immune system

Stress stimulates the immune system, which can be a plus for immediate situations. This stimulation can help you avoid infections and heal wounds. But over time, stress hormones will weaken your immune system and reduce your body's response to foreign invaders. People under chronic stress are more susceptible to viral illnesses like the flu and the common cold, as well as other infections. Stress can also increase the time it takes you to recover from an illness or injury.

How Can You Help Yourself?

Realize when it is causing a problem and identify the causes

An important step in tackling stress is to realize when it is a problem for you and make a connection between the physical and emotional signs you are experiencing and the pressures you are faced with. It is important not to ignore physical warning signs such as tense muscles, feeling over-tired, and experiencing headaches or migraines. Think about a plan to address the things that you can. This might involve setting yourself realistic expectations and prioritizing essential commitments. If you feel overwhelmed, ask people to help with the tasks you have to do and say no to things that you cannot take on.

Review your lifestyle

Are you taking on too much? Are there things you are doing which could be handed over to someone else? Can you do things in a more leisurely way? You may need to prioritize things you are trying to achieve and reorganize your life so that you are not trying to do everything at once.

Build supportive relationships

Finding close friends or family who can offer help and practical advice can support you in managing stress. Joining a club, enrolling on a course, or volunteering can all be good ways of expanding your social networks and encourage you to do something different. Equally, activities like volunteering can change your perspective and helping others can have a beneficial impact on your mood.

Eat Healthily

A healthy diet will reduce the risk of diet-related diseases. There is also a growing amount of evidence showing how food can affect our mood. Feelings of wellbeing can be protected by ensuring our diet provides adequate amounts of nutrients including essential vitamins and minerals, as well as water.

Exercise

Physical exercise can be an excellent initial approach to managing the effects of stress. Walking, and other physical activities can provide a natural 'mood boost' through the production of endorphins. Even a little bit of physical activity can make a difference.

Be Mindful

Mindfulness meditation can be practiced anywhere at any time. Research has suggested it can be helpful for managing and reducing the effect of stress, anxiety, and other related problems in some

Get Ample Sleep

Sleep problems are common when you are experiencing stress. If you are having difficulty sleeping, you can try to reduce the amount of caffeine you consume and avoid too much screen time before bed. Writing down your to do list for the next day can be useful in helping you prioritize but also put the plans aside before bed.

Conclusion

There are some actions that you can take as an individual to manage the immediate, sometimes unpleasant, signs of stress and identify, reduce, and remove stressful factors that may cause you to feel overwhelmed and unable to cope. If you feel comfortable, talking to a friend or close colleague at work about your feelings can help you manage your stress. However, sometimes individual actions on their own are not enough to reduce long-term stress for everyone. We can often be affected by factors that are beyond our direct control. Communities, workplaces, societies, and governments all have a role to play in tackling these wider causes of stress.

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