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EFFECT OF ENVIRONMENTAL STRESS ON HUMAN HEALTH

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ABSTRACT

Over the past three or four decades, there have been important advances in the understanding of the actions, exposure-response characteristics, and mechanisms of action of many common air pollutants. Environmental physiology is the study of the physiological mechanisms that allow animals to cope with and adapt to changes in temperature, humidity, atmospheric pressure, and other natural factors of their physical environment these ideal test conditions are clearly not representative of the fluctuations in the natural environment encountered by humans and other animals on a day-to-day basis. How variations in the natural environment will alter physiological responses to toxicants. Temperature and exercise are the two well-studied parameters in the fields of environmental physiology and toxicology. In general, high temperatures exacerbate the toxic effects of many environmental toxicants. Quantitative and qualitative understanding of the effects of a small group of air pollutants/ toxicants has advanced considerably, but the understanding is by no means complete, and the breadth of effects of all air pollutants is only partially understood. The prospect of global warming also warrants a better assessment of how higher environmental temperatures may impact on the response of humans and other species to toxic chemicals. Hence, this paper focuses on the salient aspects of the interaction between environmental stress and physiological response to toxic agents with particular emphasis on temperature.

Keywords:

Heat stress; Toxic response; Environmental physiology; Epidemiology, Air pollutants.

INTRODUCTION

Our environment plays a vital role in determining our health. We live in an environment and the quality of our life depends on the quality of the surrounding environment. Today various types of pollution (e.g., water, air) are creating stress for the people. A large number of diseases come from the environment in which we live. In this paper we will study about the factors in our environment which produce stress, their psychological impact and analyze some of the ways of overcoming them. Stress occurs when an event or stimulus requires us to change in some way. Stress is our brain's way of saying, 'I know I have to change, but I don't have to like it!' Stress involves an imbalance between what is demanded of us and what we are able to cope with or respond to. Stress varies based on the individual and situation. Most stress is temporary, although there are situations where stress can last for a long time. For example, people who work in sales and advertising generally find that there are high levels of stress associated with their careers. In these cases, stress must be managed. Stress can build over time if not managed properly, causing several health effects, including anxiety, headaches, problems sleeping, depression, and high blood pressure.

WHAT IS ENVIRONMENTAL STRESS?

Environmental stress can be defined as-“Constraints or pressure on the environment. Natural and/or human-directed causes can be the reasons. An example of human causes is the generation of pollution .An example of natural events/cause is drought.”

THE MAIN CAUSES OF ENVIRONMENTAL STRESS

While all sorts of things can contribute and cause environmental stress, there are certainly some main culprits. These include:

Heat: When it's very hot we become much more likely to get stressed and irritable. This has even been put forward as one of the reasons that some people in sunny countries are often described as being 'passionate'. The term 'hot and bothered' is a very apt description of feeling when things don't go our way and we're in the blazing heat. If you want to reduce stress, crack open a window!

Weather: Weather can also cause stress in other ways. Being constantly rained down on and getting soaking wet can make us stressed and irritable for instance and so too can the weather changing very rapidly or being extremely cold. While it's not environmental stress as such, low light in the mornings can also cause depression – this is what's known as seasonal affective disorder or 'SAD'.

Lighting: Continuing on the theme of lighting, light itself can also cause you to become more or less stressed. Specifically, artificial light that is closer to fluorescent lighting can cause us to produce more cortisol. This is actually a good thing in the morning as cortisol helps us to wake up but if we're sitting in a fluorescently lit office all day then it will only contribute to existing workplace stress. Light from our computer screens and phones can also prove to be bad when we are trying to get to sleep. At night, low lighting is supposed to stimulate the production of melatonin and other sleep hormones. But due to bright phone screen it will cause stress and thus wake you right back up.

Noise: Noise is one of the most common and serious causes of environmental stress. Loud noise that is above 85 decibels – examples including motorcycles, lawn mowers, loud music and jet engines. Traffic is pretty bad too so if you're living by a main road then all that noise can very likely increase your blood pressure and make you that much more likely to snap at your partner. Noise that's much quieter though can also increase environmental stress. For instance, a high pitched ringing that is too high pitched to even be heard by humans can actually still increase levels of stress hormones and increase your chances of aggression.

Pain: While it's not necessarily 'environmental' being in pain is another external factor that can increase stress, as can a general lack of comfort. This is worth bearing in mind because if your office chair is uncomfortable at work – or even if you just have a sharp bunch of keys digging into your pocket – then this could very realistically be making you anxious and stressed.

Crowds: Finally, crowds have also been shown to increase environmental stress – raising cholesterol and hit someone who is getting on our nerves. In fact, if someone walks towards you then this can trigger a fear response. If you live in a busy city then you will have countless people walking directly towards you every single day on your way in to work. On top of this you will be constantly queuing at the traffic lights and constantly having people step on your toes. This is where the term 'pavement rage' comes from and it's a very real and serious phenomenon. Fortunately there are a number of things you can do to address each of these various different types of stress.

THERMAL STRESS AND THE PHYSIOLOGICAL RESPONSE

At the same time, think about making changes to your environment in other ways that will make it more relaxing and calming. Adding a plant to your desk for instance has been shown to instantly lower heart rate and blood pressure and to decrease workplace stress. Most toxicological and pharmacological studies are performed in laboratory animals maintained under comfortable environmental conditions. Yet, the exposure to environmental toxicants as well as many drugs can occur under stressful environmental conditions during rest or while exercising. The intake and biological efficacy of many toxicants is exacerbated by exposure to heat stress, which can occur in several ways. The increase in pulmonary ventilation during exposure to hot environments results in an increase in the uptake of airborne toxicants. Furthermore, the transcutaneous absorption of pesticides on the skin as well as drugs delivered by skin patches is increased during heat stress because of the combined elevation in skin blood flow coupled with moist skin from sweat. The thermoregulatory response to toxicant exposure, such as hypothermia in relatively small rodents and fever in humans, also modulates the physiological response to most chemical agent.

THE EFFECTS OF STRESS ON OUR BODY

Stress is the body's reaction to any change that requires an adjustment or response. The body reacts to these changes with physical, mental and emotional responses. Stress is a normal part of life. Many events that happen to you and around you, and many things that you do yourself, put stress on your body. You can experience stress from your environment, your body and your thoughts. Human body is designed to experience stress and react to it. Stress can be positive, keeping you alert and ready to avoid danger. Stress becomes negative when a person faces continuous challenges without relief or relaxation between challenges. As a result, the person becomes overworked, and stress-related tension builds. Stress that continues without relief can lead to a condition called distress, a negative stress reaction. Distress can lead to physical symptoms including -headaches, upset stomach, .elevated blood-pressure, chest pain and problems with sleeping. Research suggests that stress can also bring on or worsen certain symptoms or diseases. Stress also becomes harmful when people turn to alcohol, tobacco, or drugs to try to relieve their stress. Unfortunately, instead of relieving the stress and returning the body to a relaxed state, these substances tend to keep the body in a stressed state and cause more problems. Consider the following: 1. The Health and Safety Executive says around 10.4 million working days are lost each year to stress, depression or anxiety. 2. Occupations with the highest rates of work-related stress are social work, teaching and public administration. 3. The NHS says psychological problems, including stress, anxiety and depression, are behind one in five visits to a GP. 4. Stress can play a part in problems such as headaches, high blood pressure, heart problems, diabetes, skin conditions, asthma and arthritis.

CONCLUSION

Stress can affect all aspects of our life, including your emotions, behavior, thinking ability and physical health. No part of the body is immune, but, because people handle stress differently, symptoms of stress can vary. Symptoms can be vague and may be the same as those caused by medical conditions. It is important to discuss them with our doctor. You may experience any of the following symptoms of stress, observe them, solve them and get relieve from stress. Most of all though, just recognize the role of environmental stress and do whatever you can to reduce it. You'll find that if you can make your environment calmer and more soothing, you'll feel tons better as a result.

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