

Stress by Morag Campbell RPP

Maybe the most obvious place that we see the link between the mind and the body is in the area of stress. Stress, we are led to believe, is at the root of the majority of the illnesses that beset us. It leads to illness, we are told, because it suppresses the immune system. In fact, this may be too simplistic a statement, so let's take a look at stress and what it actually means and how it affects us.

Stress is anything that initiates the stress response within us. The stress response is a non-specific reaction to the world. It is the same physiological response to any stimuli or situation that we perceive as causing us to adapt or change or perceive as threatening to us. Since it involves our perceptions, there is a subjective psychological component to stress.

Firstly, a certain amount of stress is actually healthy and indeed desirable. Stress often provides us with a source of energy that can be directed towards some useful purpose. The experience of stress in our lives can also provide great learning opportunities for us. Dealing effectively with a stressful experience means that we have learned skills and strategies that can be put to good use on another occasion and we are better equipped to deal with future challenges or difficulties. A certain amount of anxiety can also be a strong motivating factor in our lives, encouraging us to complete tasks and even exceed our expectations of ourselves (in order not to suffer the fear or future failure)

Sometimes when working with a client who purports to be 'stressed' a simple reframing of the experience can be seen in a positive light.

However, when most people talk about feeling stressed it means that the effects of certain events in their lives are causing them real concern at both a physiological and psychological level. Of course there are many causes of stress ranging from sudden trauma to small hassles that build up day after day such as navigating rush hour traffic. Feeling like we have no control over our lives and dealing with the frustrations of not achieving what we want in life, or strained interpersonal relationships also lead to stress. These days there are also many environmental factors such as pollution, excess noise, overcrowding, etc. which take their toll.

One important thing to recognise when dealing with this topic is that stress is a very individual response to certain stimuli, be they physiological or psychological. An event which is highly stressful to one person can be much less so to another. The response seems to be predetermined, to a great extent, by an individual's genetic tendency to hormonal activity, that is to say, there seems to be a genetic or constitutional response to stress that indicates that our coping mechanisms may even be set up in the womb¹. On the other hand our perceptions of and reactions to stress may be determined by previous learned experience. We may learn to interpret a situation as stressful rather than interesting, challenging and full of promise.

The consequences of stress and anxiety in our lives are numerous. There can be feelings of inadequacy, anger or depression. There seems to be a focusing of one's attention on often exaggerated worries, such as concerns about one's health, which in turn can lead to phobias and obsessive behaviour. One of the most common physical symptoms is tiredness but stress can also give rise to a whole host of psychosomatic problems. Indeed most general medical practitioners claim that these types of problems account for 50-80% of the patients that they see on a daily basis². Stress enters every corner of our lives, interfering with our performance and often leading to poor decision making and even contributing to accidents.

However, it is a fact of life that, like death and taxes, stress is unavoidable. Each one of us, to some greater or lesser extent, is going to find certain times or events in our lives stressful. So

let's look for a moment at the physiology and biochemistry of stress in a simple way although the mechanisms involved are actually very complex³. We know that nerves connect the brain to every organ and tissue in the body and any challenging or threatening situation activates the body's stress response. This involves the release of a hormone that stimulates physiological arousal and regulates the immune system. The key areas involved in this stress response are the hypothalamus and locus ceruleus in the brain, the pituitary gland, the sympathetic nervous system and the adrenals. So called stress hormones are released from the brain, cortisol is released from the adrenal glands and nerve chemicals are released from nerve endings.

All this chemical activity modifies the ability of the immune cells to fight infection. There is, at this time, well documented evidence to support the fact that stress does indeed affect the body's ability to respond to viruses and bacteria and indeed also has a tendency to prolong wound healing.

The immune system operates as a decentralized network which responds to anything that invades or disrupts the body through immune cells that are generated in the bone marrow, lymph glands, spleen and thymus. Each of these areas communicates with each other via tiny proteins. These chemical messengers send signals to the brain through the bloodstream or nerve pathways. In this way a continuous communication is set up to balance the stress and the immune system response.

New research is now finding that under certain conditions, the stress hormone cortisol is not just an immuno-suppressant but that it may, in certain conditions, even enhance certain aspects of the immune function⁴. It seems that chronic stress is, as a rule, immunosuppressive, whereas acute stress can enhance cell mediated immunity. On the surface that sounds good, but can lead to the exacerbation of conditions like contact dermatitis and skin conditions. Once again, the key factor seems to be the balance between the hormones secreted by the hypothalamus (corticotrophin releasing hormone - CRH) and the amount of cortisol released from the adrenal glands.

The cortisol is the classic stress hormone but it also has an inhibiting effect that then regulates the stress response by sending a message back to the hypothalamus to stop the release of CRH. Cortisol is therefore an important immunoregulator, acting throughout system to prevent it from overreacting and harming healthy tissue. This is the reason why so many doctors treat inflammatory conditions with cortisol (hydrocortisone) injections.

Problems can also occur when for some reason the hypothalamus does not send out enough CRH which is the case in some conditions of depression which can blunt the stress response. This leads to lethargy, fatigue, increased sleep and increased eating. Interestingly, some people have all the symptoms of depression listed here but also have symptoms of a hyperactive immune system, such as those people suffering from fibromyalgia, who also experience muscle ache and joint pain. Here is a clear case of the chemical messenger communication getting thoroughly confused. Fatigue, coupled with hyperactivity of the immune response is associated with cortisol deficiency which occurs when CRH secretion decreases.

As I said, the picture is complex. We know that the slightest disruption of any of all of the hormonal system can wreak havoc throughout the entire body.

(edited text)

References

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3. For a more detailed biochemical discussion see "The Mind – Body Interaction in Disease" by Esther M. Sternberg and Philip W. Gold. Scientific American Special Issue – "The Hidden Mind." 2002
4. Dhabhar F.S., and McEwen B.S. 1996b. "Moderate stress enhances, and chronic stress suppresses, cell-mediated immunity in vivo." Society for Neuroscience Meeting, Washington, DC, Vol. 22, Abstr. 536.3. 1350.

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