University scientists expose health risks of not responding to stress

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Anticipating a hectic Christmas? As the festive season gathers momentum, ageing and immunity experts at the University of Birmingham are exposing the health risks of not responding to stressful situations. Their latest research has found that people who react the least to stress could be at greater risk of conditions such as depression and obesity, and have lowered immunity to infection.

Collaborative research by Dr Anna Phillips and Professor Doug Carroll, of the School of Sport and Exercise Science, reveals that low (blunted) cardiovascular and cortisol reactivity to acute stress may be related to the development of long-term health problems, as well as addiction to alcohol and tobacco.

These findings emerged from analysis of a large community study set up by the Medical Research Council unit at the University of Glasgow. Dr Phillips says: ‘We kept finding associations in the opposite way to expected, instead of high stress reactivity being related to negative health outcomes or behaviours, it was the low stress reactors who were more at risk. In fact, those who did not show large heart rate and blood pressure reactions to a short laboratory stress task were more likely to become depressed and obese over the following five years.

With heart disease the biggest cause of the death in the UK today, it is widely accepted that people who have a profound physical reaction to acute stress, such as raised heart rate and respiration, run a higher risk of developing cardiac problems including high blood pressure and heart attack, or stroke.

By implication, low heart reactivity has been thought to be benign - and even protective - leading to the belief that ‘chilled out’ folk who show the lowest stress reactions are also likely to be the healthiest. But these new findings suggest there are significant health risks at both ends of the reactivity spectrum.

It is likely that having lower or no reaction to short-term stress reflects some sort of disorder of the motivational systems in the brain, explains Dr Phillips. These are the same areas that are disordered among smokers and alcoholics. Such dysregulation may arise for a variety of reasons, including exposure to many stressful events in early life.

The results of the analyses, conducted at the University of Birmingham in collaboration with the West-of-Scotland Twenty-07 MRC study, were published online in Biological Psychology.

Dr Phillips adds: ‘Whereas high reactivity contributes to and exacerbates inflammatory cardiovascular disease, low reactivity may compromise immunity and our ability to fight infectious disease and, as such, be the maladaptive response.’

The team now hopes to conduct a neuro-imaging study to shed further light on the brain mechanisms that underpin the stress processes.

She concludes: ‘In a recent meta-analysis, other negative psychological or behavioural traits, including anxiety, neuroticism and negative affectivity, were also revealed to be related to decreased cardiovascular reactivity.

‘Although the mechanisms of such associations are not yet fully understood, the growing literature associated with low cardiovascular reactivity suggests that we need a new perspective on reactivity and an expanded conceptual model of how departures from normal physiological response patterns have implications for adverse health outcomes.’

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