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engage Born stressed?

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Born stressed?



Born stressed?



In this edition of engage, we briefly look at stress and the relationship it has with our genes. Can we actually be born stressed?



Contagious stress

A recent news item announced that stress is contagious.

While stress definitely can be contagious, it's also true that how our parents or grandparents responded to stressful situations, may in part determine how we handle ourselves today.

As individuals, we all respond to situations in our own unique way. The way you react to every situation determines the level of stress you will experience. We've all known people who we see as "laid-back," and those we term "emotional." The same situation that causes panic and deep anxiety to one person barely disturbs another.

Handling stress is often learned. If you are a child of stressed-out parents, you are less likely to be able to handle stressful situations positively, mainly through watching your parents reacting to stress badly.

However, over the past two decades, an area of gene research is challenging previous theories in science, and stress. It is called Epigenetics.

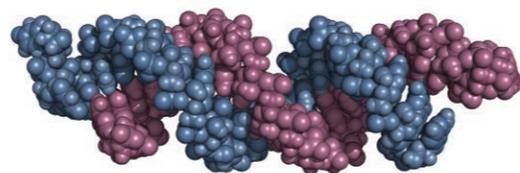
What is Epigenetics?

Epigenetics is a relatively new scientific field; research only began in earnest in the mid Nineties, and has only found traction in the wider scientific community in the last decade or so.

Epigenetics, as a simplified definition, is the study of biological mechanisms that will switch genes on and off. This new gene model suggests our characteristics are "memorised" and transmitted between individual generations. Slowly but surely, the evidence is mounting supporting this.

Already epigenetics is offering explanations to how our diets, our exposure to toxins, our stress levels at work, even one-off traumatic events, might be subtly altering the genetic legacy we pass on to our children and grandchildren.

It's opened up new avenues into explaining, and curing, illnesses that genes alone can't explain, ranging from autism to cancer.



Maternal love

The biggest excitement, and, indeed, controversy, surrounds growing research that suggests it's not just physical characteristics or illnesses we might be passing onto future generations.

Instead, our DNA might be affected by behavioural epigenetics too. Research on rats by Prof Michael Meaney of McGill University, Montreal, and Frances Champagne, have identified changes in genes caused by the most basic psychological influence: maternal love.

Their 2004 study showed that the quality of a rat mother's care significantly affects how its offspring behave in adulthood – that rat pups that had been repeatedly groomed by their mothers during the first week of life were subsequently better at coping with stressful situations than pups who received little or no contact.

Epigenetic studies show, now more than ever, our brains adapt to our experiences. This applies to both acute and chronic stress and can mould the way we see and react to the world.

9/11 trauma

It appears that even one-off traumas could affect later generations too.

The attacks of 9/11 offered a key insight. An estimated 530,000 New York City residents suffered symptoms of post-traumatic stress disorder (PTSD) after witnessing the attacks – of which approximately 1,700 were pregnant women.

Research by Rachel Yehuda, professor of psychiatry and neuroscience at Icahn School of Medicine at Mount Sinai, found that mothers who were in their second or third trimester on the day of the attacks were far more likely to give birth to stressed-out infants: i.e. children who reacted with unusual levels of fear and stress when faced with loud noises, unfamiliar people, or new foods.

In short, it seems some children inherited the nightmare their mothers experienced on that day. Will these 9/11 children pass that fear onto their own children? Yehuda has obtained similar results in the adult offspring of Holocaust survivors.

In the space of less than two decades, the field of epigenetics has exploded. With it has emerged new strands of data analysis, sociology, pharmaceutical research and medical discovery. The field is still young and yet already its bold claims are causing scientific schisms.



It's not a done deal

It's a mistaken assumption that everything you inherited in your genes is permanent.

Although epigenetic studies seem negative and upsetting, especially when it comes to the effects of stress, the good news is that many epigenetic changes are seen as reversible. In fact, a couple of drugs are being tested that help the genes to go back to their original state.

And, no surprise here, other new studies are showing that a healthy diet, regular exercise, meditation and plenty of sleep help stress and epigenetic changes as well. This may seem too flippant to sufferers of acute stress who may need far greater support. For others though, some relief can be found by setting aside some time each day just for yourself.

Talking to family, friends or work colleagues, and worries will help you "let off steam." You may be comforted to find that you are "not the only one." You may even find there is an easy solution that you had not thought of.

Finally, try to find your own de-stresser. Most people have something that helps them relax, such as reading a book, going for a walk, listening to music, or spending time with a friend or a pet.

It is interesting that what we do alters how our genes work. And it's good to know that no matter who our parents are, we do still have a lot of control over our own health and fitness.

