

New research reveals how 'stress-busting power' of nature brings emotional balance and well-being to humans

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Credit: University of Derby

Spending time in woodland regulates human emotions and the heart helping to restore a healthy balance when compared to time in urban environments, according to new research.

An analysis carried out by a team of researchers from the University of Derby and the University of Cardiff confirms the restorative power of nature and provides a new explanation of the links between time in nature, our emotions, our bodies and health.

The team examined the impact natural and [urban environments](#) has on the heart and discovered that nature regulates [heart rhythms](#), linking time in woodland with positive changes in the body.

Dr Miles Richardson, Head of Psychology at the University of Derby, said: "We're excited about this [research](#) as it brings together previous work in order to explain how nature regulates emotions and the heart and shows spending time in nature positively changes our health and well-being through helping balance the feelings of threat, drive and contentment we experience each day.

"Exposure to nature is emotional and emotion is the constant companion of sensation with feelings, rather than thoughts, coming first when we encounter nature and these emotions have a physiological basis, which nature and well-being research often overlooks.

"Overall, the work provides a simple yet compelling argument to convince others of the role of, and need for, nature in our everyday lives."

The team re-analysed previous studies that compared how the body reacts to being immersed in nature to being in an urban environment.

Earlier research measured heart-rate variability and, while the studies found differences between responses to both environments, they did not consider them in the context of emotional regulation – how nature links to emotion and well-being.

The researchers carried out a meta-analysis, a statistical approach to combine results from multiple studies. They used 13 studies with a total of 871 participants to examine the impact of natural and urban environments on heart rhythms.

Overall, the results revealed that natural environments promote greater parasympathetic nerve activity (contentment) and lower sympathetic [nerve activity](#) (drive) than urban environments.

A further new discovery was that the results supported the use of a 'three circles' model, which was developed by Professor Paul Gilbert, Research Professor at the University of Derby, to develop new mental health interventions. This new research shows that this model also provides an accessible way to help explain the benefits of nature through understanding our emotions and their underlying physiology.

The analysis and model revealed how nature can bring well-being through helping balance the feelings of threat, drive and contentment which humans experience each day.

It also highlighted how nature can bring two different types of positive emotion, both joy and calm; that nature can elicit feelings of ecstasy and wonder and foster feelings of comfort.

Professor David Sheffield, Professor of Health Psychology at the University of Derby, said: "Nature brings balance to our emotions and the nervous system that influences the function of our internal organs, such as the heart, ultimately revealing the stress-busting power of nature.

"The findings and '3 circles' model can also guide the way we engage people with nature, for example the types of [natural](#) spaces we should provide for people – moving from green spaces to green places where both a soothing contentment in nature, and joy and wonder can be found."

Kirsten McEwan, Research Associate at the University of Cardiff who helped with the study, added: "There is a lot of research evidence to show that spending time in green spaces is beneficial to our health and

well-being.

"However, policy-makers, planners and commissioners often remain unmoved by the arguments for the importance of green spaces.

"This research brings together evidence for the actual physiological benefits of spending time in green spaces and provides a more compelling argument for how green spaces could reduce the burden on the NHS and social services."

More information: Miles Richardson et al. Joy and Calm: How an Evolutionary Functional Model of Affect Regulation Informs Positive Emotions in Nature, *Evolutionary Psychological Science* (2016). [DOI: 10.1007/s40806-016-0065-5](https://doi.org/10.1007/s40806-016-0065-5)

Provided by University of Derby

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