

# IQ & the Restorative Effects of Nature

*Many of us know that exercise helps us to get fitter, but did you know that it also carries amazing cognitive powers, especially when enjoyed outdoors? Please make sure you abide by current Government movement restrictions relating to coronavirus*

Numerous studies identify the role of exercise as an opioid, offering a natural high. It is so powerful, in fact, that even a single session has been proven to create a powerful effect against feelings of anger, stress and anxiety. Many of us are aware that exercise carries such powerful effects, but did you also know that it has been statistically significantly shown to also improve neural plasticity, memory, focus and overall cognitive reasoning & executive control? Exercise also – critically – offers the only way of powerfully reversing the effects of stress that cause the death of grey matter in the brain by promoting neurogenesis and neuroplasticity.



## Strengthening Mind & Muscles

Strength training is often associated with meatheads who pound dumbbells in a gym but if we look at the science we find a far more compelling story; strength based exercise increases the expression and synthesis of BDNF (Brain Derived Neurotrophic Factor) which improves mood, memory and cognitive function, neurogenesis, neural plasticity and neural repair. Interestingly, strength training produces more of some of these benefits than cardiovascular exercise.

## Sweating out Stress

Moderate to high-intensity aerobic exercise can also lead to an amazing three-fold increase in serum IGF-1 levels – a neurotrophic factor that works with BDNF to enhance neurogenesis and neural plasticity. It also increases a protein called VEGF which contributes to hippocampal neurogenesis.

Exercise decreases feelings of panic when we are fearful - which plays a significant role in promoting cognition. This is because panic and fear shut off the rational-control centre of our brain,

impairing memory, focus and attention (NB. this is why you might forget the brilliant opening line of your presentation when you are at a meeting, despite having successfully practised it ten times before! – or why you always forget where your keys are in the mornings when you are rushed and feeling stressed).

If exercise helps our bodies to react less powerfully to stress, those cognitive effects will subsequently become less intense, strengthening our ability to focus and perform even under pressure.

## Less Gym, More Outdoor Time?

Interestingly, studies of exercisers with an anxiety disorder reported the onset of anxiety symptoms only 2 weeks after cessation of exercise, and participants in exercise-related studies reported feeling less stressed about personal problems after only one walk!

What the reader might like to consider is the importance of where that walk took place; studies show that the restorative effects of nature are so powerful that exercising outside carries far more mental benefits than pounding the treadmill or hitting the gym in an artificial, indoor environment.

Scientific studies found the interaction effect to be so powerful that exercising in nature carries significant emotional, mental and physical benefits regardless of the level, type, duration or intensity chosen.

## Exercise or Restorative Recreation?

The combination of nature and exercise should perhaps be renamed 'restorative recreation' because when combined, the important effects of exercise and nature on the restoration of our cognitive, emotional and physical health crystallise. These effects move beyond traditional exercise-related goals ('lose weight, tone up',



etc.) to stress outcomes such as neurogenesis. Relying on the label ‘exercise’ might put off some individuals who would otherwise benefit hugely from this kind of incredibly restorative pastime.

Another important outcome of this kind of restorative outdoor recreation relating to cognitive function is better sleep quality, and lessened mental fatigue, both of which affect our ability to think powerfully and quickly.

### **The Amazing Powers of Nature**

Studies show that even looking at a photo of nature (e.g. a lake, or forest scene) immediately lowers stress hormones – so adding a photo of a natural scene to your work computer desktop or as a framed photo on your desk is an easy way to gain some of those benefits. Studies show that patients even recover more quickly from illness when they are in a room that includes a window with a view of nature (e.g. a garden) outside.

One reason why exercise helps our mental health is because it increases internal levels of serotonin and tryptophan. Exercising (or engaging in restorative nature-based recreation) outside really amplifies this effect as it brings external sources of serotonin and tryptophan into the mix, too, by benefiting from sunlight which can raise levels of serotonin and D3.

### **A Natural High**

Exercise, particularly when in nature, also increases a stimulant called phenethylamine, a cannabinoid known as anandamine, the



opioid endorphin and the bonding hormone oxytocin. It also has an analgesic effect, inhibiting the body’s stress response. This analgesic effect helps you when you are stressed, by making your body’s stress response a lot more efficient.

Ultimately, researchers have found that exercising in nature produces faster recovery from attention-demanding cognitive tasks, and also stimulates creativity, making restorative nature-based recreation (a walk with the dog, jogging, cycling around a lake) an incredibly powerful resource in the maximisation of our cognitive resources.

### **Find Out More....**

How does Nature Impact our Wellbeing? University of Minnesota review.  
<https://www.takingcharge.csh.umn.edu/how-does-nature-impact-our-wellbeing>

Mackintosh, C., Zehndorfer, E., Darko, N. (2016). Outdoor Recreation as a Potential Lever for Health Improvement: A Review of the Health Benefits, Barriers & Opportunities for the Sector. The Open University. (Available for free download via Semantic Scholar).

Sour Mood Getting you Down? Get Back to Nature. Harvard Health Publishing. Harvard Medical School.  
<https://www.health.harvard.edu/mind-and-mood/sour-mood-getting-you-down-get-back-to-nature>

### **About the Author**

*Dr. Elesza Zehndorfer is the Research Officer for British Mensa. A qualified Personal Trainer and Pilates coach, Dr. Zehndorfer earned her PhD from the Institute of Sport & Leisure Policy at Loughborough University in 2006. Dr. Zehndorfer writes and talks regularly on physiology-related matters. She is also a Thought Leader for Hartford Funds, one of the world's largest independent investment management firms, and has authored 5 books – ‘Leadership: A Critical Introduction’ (Routledge, 2014), ‘Charismatic Leadership’ (Routledge, 2016), ‘The Physiology of Emotional & Irrational Investing’ (Routledge 2018), ‘Evolution, Politics & Charisma: Why do Populists Win?’ (2019) and the forthcoming ‘Leadership: The Definitive Study Guide’ (2020).*

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