



"I see a tree. A trunk with branches, twigs, needles. How young I would be if that was all there was to it. But it is a larch, it moves its long curtained arms and it dances and mourns. How old I am."

~ M Vasalis, *Vergezichten en Gezichten*,
(*Panoramas and Views*), 1954

Have you ever hugged a tree? Or placed your hands on its trunk and felt its strength, power and life? Trees are the lungs of the Earth. It's common knowledge now that if trees didn't exist and breathe, neither would we because of their role in absorbing carbon dioxide and producing oxygen. One tree alone can supply almost 260 pounds of oxygen, which provides two people with oxygen for the entire year. Most know this basic process reduces greenhouse emissions, but trees create a multitude of surprising benefits beyond keeping us alive.

For many years, I lived near a national park in Sydney's northwest. I walked religiously in the forest every day. I would revel in the energy of the soaring gums, enjoy the sunshine glittering on their leaves and listen to them rustle in the breeze. The river was wide and deep and, at times, I couldn't resist diving in to absorb the glorious feeling of nature all around me. Upon leaving, I felt clear, happy, energised. It was as though the forest had enchanted me; imparted some magical spell to clear me of my worries.

The Japanese have a word for this type of activity: they call it *shinrin-yoku*, which means "taking in the atmosphere of the forest" or "forest bathing". And that magical effect I was once so sure about is now grounded in scientific research.

FOREST BATHING FOR HEALTH

The director of the Japanese Forestry Agency, Tomohide Akiyama, coined the phrase *shinrin-yoku* in 1982 to encourage people to take advantage of the therapeutic value of being in the forest. Some of the effects of forest bathing, or *shinrin-yoku*, are as follows.

A 2010 study reviewed field experiments conducted in 24 forests across Japan. In each experiment, 12 subjects walked in or viewed a forest or city area. Researchers took a number of physiological measures, such as blood concentrations of cortisol (a

TREES please

Trees are necessary to sustain life on this Earth but, as we find out, there's much more that these green giants can bring into our lives.

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Forest bathing produced a significant relaxation response, lower stress levels and improved immunity when compared to city environments.

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stress hormone), pulse rate and blood pressure. All biological measures showed that forest bathing produced a significant relaxation response, lower stress levels and improved immunity when compared to city environments.

Other studies back up these effects and have shown that forest bathing also decreases hostility and depression and increases liveliness. Forest bathing was especially helpful for long-term stress and therefore may assist in decreasing the incidence of stress-related conditions. It was also found that pleasure and happiness only become greater as tree density increases — up to the point at which the trees are too tightly packed, then the scene becomes foreboding and can increase fear.

An argument for why this effect occurs is that phytoncides —chemicals emitted by the trees, including natural preservatives, antimicrobial compounds, fungicides and volatile organic compounds of the kind found in aromatherapy — may produce the positive effects of the forest, though concentrations of these are low and vary from forest to forest.

Furthermore, studies reveal that even just observing a scene of a forest and introducing trees and plants inside a place where one spends time have significant positive benefits. Bringing plants into your environment has been shown to improve health in offices,

reduce illness in hospitals and increase productivity in the workplace.

Plants can also help you concentrate better at work. A recent study found that people performed better on a task and could hold their concentration longer in an office with plants compared with those who were in an identical office without plants.

It makes sense then that being among trees may have helped some of our greatest thinkers arrive at their most timeless conclusions. After all, Plato and Aristotle did their best thinking in the olive groves around Athens, Buddha found enlightenment beneath a bo tree and Isaac Newton realised his theory of gravity when an apple fell from the tree under which he was sitting.

Even being able to observe a natural environment through a window is thought to influence recovery from surgery. One study published in the journal *Science* found that when patients were able to see trees through their windows after surgery rather than a view of a wall they stayed in hospital for approximately one day less and used weaker painkillers. Even the nursing staff made fewer negative comments about patients who had a view of trees.

LIVING IN GREEN SPACES

Given that walking among trees and even observing them can produce such positive effects, surely living in a

more natural environment should have health benefits. Two large-scale studies have shown this. A large study in the Netherlands found that residents of neighbourhoods with abundant green space tend, on average, to enjoy better general health.

In Japan, a comparison was made between having easy access to walkable green spaces with trees and plants and mortality rates in a large group of elderly inhabitants of Tokyo over a period of five years. The study found that living in a neighbourhood with access to lots of green space correlated with lower mortality risk.

Walking and living among and even viewing trees makes us more relaxed, healthy and positive, so what is it about trees that affects our brains? Research using MRI scans provides answers. When subjects viewed urban or city scenes, there was an increase in activity in the amygdala, which is associated with anxiety and impulsivity. Viewing urban scenes also increased activity in the anterior temporal pole, which is associated with anger and depression.

Viewing scenes of trees and nature, on the other hand, produced increased activity in the anterior cingulate, which is associated with emotional stability and a positive outlook. It also produced activity in the insula, which is associated with love. Both of these areas are also linked to increased empathy.

EVEN MORE TO OFFER

Psychologically and emotionally, then, it's clear that trees are of enormous benefit. They produce clearer thinking and a more positive, happier outlook, and make us more relaxed and balanced. If you think that keeping us humans alive and promoting our psychological and physical wellbeing is a big enough job for any living thing, however, think again.

Trees provide even more benefits:

■ **Trees reduce pollution.** Urban trees in the US filter out around 711,000 tonnes of polluting particulate matter each year. By removing harmful airborne pollutants, trees help prevent asthma and other respiratory problems.

■ **Trees decrease noise pollution.** The US Department of Transportation reports that 30 metres of dense vegetation beside a busy highway can cut down noise by five decibels.

■ **Trees can increase the value of your property.** Homes with large trees in the backyard and streets have a 3–15 per cent higher property value than those without trees.

■ **Trees decrease crime.** Public housing areas with more trees and greenery have been shown to experience 52 per cent fewer total crime incidents.

■ **Trees cool cities.** A park filled with trees can be up to 7°C cooler than the surrounding city area at night.

■ **Trees decrease car accidents.** Trees act as a psychological cue to drive slower

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and calmer, even allowing you to faster anticipate curves in the road. A recent study reported 46 per cent fewer car crashes on main streets and highways following landscape improvements.

■ **Trees and shrubs control glare** from the sun, headlights and street lights, glass, water, snow and wet pavements. In addition, they accent buildings and provide privacy.

Healers such as the Ayurveda practitioners from India or Chinese medical practitioners have always advocated being among nature as a form of natural medicine. It was believed that trees, plants, rivers and mountains were filled with energy, a vital life force that could be transferred to promote one's health. As urban civilisations emerged, even greater emphasis was placed on the medicinal benefits of nature; for example, by Roman physicians such as Cornelius Celsus, who believed walking in gardens promoted health and sleep.

As can be seen from the research discussed above, this is not just the stuff of Romantic poets.

ONWARDS & UPWARDS

Trees do a lot more than sustain human life. They have considerable influence over our ability to feel empathy and love, to experience balance, to think clearly and relax. Their absence promotes stress, possibly even crime, and contributes to confusion and anger.

Humanity is now becoming the controller of the world forests. Three-quarters of the Earth's original forests have been cut. Logging of the remaining tropical and northern forests continues and the experimentation of planting sterile genetically engineered trees is underway.

Given the profound effect of trees on our state of being, the question must be seriously considered: what has the impact of the mass destruction of trees been? Not just on the balance of carbon dioxide and oxygen and the greenhouse effect, but on how we feel, behave and relate as humans — physically, psychologically and emotionally? And what will this impact be in the future if their mass destruction continues? 🌿

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