Landscape and Health

Green Cities—Good For the Soul?

Text by Jenny Roe
Photography courtesy of Rob Bryce and Penny Travlou

"... A child said, What is the grass? fetching it to me with full hands;
How could I answer the child?...I do not know what it is any more than he.
I guess it must be the flag of my disposition, out of green, hopeful green stuff woven." [1]

These words, penned over a hundred and fifty five years ago by the American poet Walt Whitman, articulate what we all intuitively know, that nature is good for us. But is it universally important, and do some individuals respond more positively than others, and if so, why? Can poorer communities—rural and urban—truly benefit from green space? In this article, we address these basic yet fundamental questions, and illustrate some of the recent and far-reaching innovative research from the United Kingdom (UK) and around the globe which supports the view.

Does City Living Cause More Mental Stress?

Ask any teenager if they think that urban living carries health risks and they may look at you as if you were crazy! Teenagers love to adapt the built environment to meet their needs for risk and adventure, seizing urban squares and plazas for skateboarding and other free-range activities.

Yet those most vulnerable in our society—our children and young people—are becoming increasingly divorced from nature by spending greater lengths of time indoors, in part owing to the fascination with internet gaming and social media. We have somehow lost the ability to engage young people's curiosity with the natural world. Richard Louv has defined the problem as "nature deficit disorder"[2] believing that obesity, depression, and asthma rates in children will continue to rise unless we do something to reverse current trends. Whilst urban dwellers enjoy better health on average than people living in the countryside, their mental health problems are greater, particularly for poorer urban communities.[3] Schizophrenia, depression, and anxiety disorders are all more common in people born and living in cities. A recent study in Germany[4] using neural imaging has shown the different effects of urban upbringing on two regions of the brain that are activated under stress. The brain structure controlling negative emotion (the amygdala) was found to be more active under stress in city dwellers, and a regulatory brain area (the cingulate cortex) more active in people born in cities, as compared to people living in rural environments. This is the first study that clearly illustrates different neural effects of urban upbringing on stress processing in healthy adults. In addition, western city populations are becoming less active and more overweight. In the UK, the Department of Health has warned that nine out of 10 adults could be overweight or obese by 2050 unless we make lifestyle changes. So how might we plan for a healthier urban city that might tackle some of these health risks?

The Reinvention of a Green Model for Health

The notion of getting outside for a breath of fresh air is not a new or original concept. As our nations industrialised and as sophisticated technologies developed, green spaces became marginalised and absorbed by factories, buildings, and great swathes of urban living. These advances were achieved at the expense of truly understanding what was needed to nurture the soul and replenish a sense of wellbeing in the industrialised world. The Victorians went some way to addressing these very real issues by creating a legacy of parks as "green lungs" in our cities and promoting the concept of "taking the air" to enable better behaviour and improve physical health and mental wellbeing.

ABOVE "Green hopeful stuff".

Historically, psychiatric medicine has drawn on nature to help provide respite from mental illness; our psychiatric hospitals were typically located in inconspicuous green locations outside of the city in order to keep patients "out of sight" and not tarnish the sensibilities of a gentrified urban society. Ironically, psychiatric hospitals are moving back into cities in an attempt to connect patients with their local communities, but not always with positive effects, in part owing to the omission of natural surroundings. A hundred years ago, the social reformer, Ebenezer Howard, conceived the first "garden city" of Letchworth in north London and developed a new urban model that integrated elements of the country with city life, for example, by providing a garden for every house and walks through fields for factory workers. The model was copied worldwide (e.g., in Welwyn Garden City, UK, and Canberra, Australia) and offers many lessons today on how we might reinvent the model for health promoting eco-cities.

How Can City Green Help Our Health?

Trees and living vegetation simply help us breathe a little better. Via the process of carbon sequestration, our city trees can have a positive effect on respiratory diseases, like asthma. Trees are also linked with making our cities' pedestrian highways more walkable, and thereby reducing some of the potential risks from an inactive lifestyle, such as obesity. Trees in themselves have a living and permanency articulated by poets, novelists, and artists throughout the history of mankind. More recently, green architectural structures—such as green roofs and living green walls—have begun to play an important dual role in supporting the eco-balance of the city and promoting health. They not only improve a building's thermal performance but also offer valuable green spaces to relax and socialise in, offer views from the office window that bring relief from stress and tiredness, and provide valuable habitats to support city wildlife. The city of Chicago is the leading worldwide "green roof" champion with an innovative programme that has resulted in over 200 green roofs, covering 2.5 million square feet, more than any other US city, including retrofits which now sit atop the City Hall, the Apple store, and a McDonalds. Elsewhere similar programmes are blossoming, with Tokyo requiring that at least 20 percent of any new roof on medium and large buildings be cultivated. This architectural green trend is reflected in innovative "green architecture" such as the Bosco Verticale "flower tower" under construction in Milan and in the Harmonia 57 building in Sao Paulo that literally pulsates with living vegetation.[5]

Can Nature Protect Us From Early Death?

Several studies across the world indicate that green space might offer some protection against mortality. First, from Japan, there is evidence to suggest that living near an urban green space may improve life longevity.[6] Elderly people in Tokyo living nearer to areas with walkable green space lived flonger, independent of age, sex, and other demographic variables. Second, in America, a study found that people who had greater exposure to green open spaces were less likely to die from a stroke.[7] And third, a study in England and Wales has linked higher percentages of green space in a neighbourhood with reduced risks of all-cause mortality and particularly cardio-vascular mortality.[8] The same study also found that neighbourhood green space can help reduce the health gap between the rich and poor, since it found a stronger health

A study in England has shown that people living closer to green space are more likely to be physically active and less likely to be overweight or obese, independent of income or social group.

effect of city green on mortality in the poorest communities. Further support for an effect of green space in poorer urban communities comes from a recent pregnancy study carried out in Spain,[9] which found a beneficial effect of exposure to green space on the birth weight of babies born into the lowest socio-economic families, although this study is based on a small number (n=164) and requires further confirmation. Another study in England and Wales has found that the health effects of green space are stronger for men than for women,[10] but similarly it is in its early infancy and has not yet been replicated elsewhere in the world. Research from the Netherlands suggests that those who stay at home the most—such as older people, children, and those not in work for any reason—are more likely to experience general health benefits from living near green space.[11] Irrespective of the social background, age, or the built environment in which anyone lives, these cumulative findings indicate that everyone can potentially benefit.

Taken together, these findings suggest that providing access to good quality green space is a health and environmental justice issue. It is a fact that the poorest people in our urban cities live with less good quality green space.[12]

City Green Makes Us More Physically Active

Street trees and city parks generate environments that are both more "walkable" and "playable" by generally being more attractive. A study in England has shown that people living closer to green space are more likely to be physically active and less likely to be overweight or obese, independent of income or social group.[13] Those people living furthest away from city parks were 27 percent more likely to be overweight or obese compared to those living near a park. Elsewhere, around the world, studies have shown the beneficial effects of city green space on obesity and related diseases; for example, in America, researchers found that teenagers who lived close to a park were less likely to be overweight and at risk from obesity.[14] Walking, in turn, has a number of positive health outcomes: reducing our risk from all-cause mortality; reducing the risk of high blood pressure, stroke, and high cholesterol; and a host of mental health benefits.[15]

City Green Reduces Stress Levels, Improves Mood and Restores Attention Spans

Simply viewing green space from our window can have a "restorative" effect on our mental health that includes recovery from fatigue, stress, and depression. There is now considerable evidence showing that contact with nature—either viewed passively from, say, a window, or actively encountered outdoors—can: have a positive effect on self-esteem[16] ; promote improved mood and shift our mindset[17]; improve our attention[18]; reduce our stress and anxiety[19]; and reduce our anger levels in young people[20]. The Victorians pioneered the concept that green space could be used to improve behaviour, viewing a walk in the park as a tool to improve social behaviour and reduce city crime. In the twenty-first century, research on the effects of green space within deprived social housing communities in Chicago has consistently shown that benefits include reduced aggression[21] and reduced crime rates[22]. It is believed that the restorative affordances of green space stem from nature's ability to promote "soft fascination"—a form of involuntary attention that captures the mind effortlessly—as opposed to the direct attention, or "hard fascination", demanded by urban built environments.[23] This process is believed to be a key pathway underlying the relationship between green space and health.

Green Space Makes Us More Sociable

Some of the strongest evidence for links between health and green space are in relation to social wellbeing.[24] A Dutch study has found that less green space in people's living environments coincides with lower indicators of social wellbeing.[25] Alongside environmental factors, social company is a co-determinant of both physical activity[26] and better mental wellbeing[27]. In America, community open space and natural settings have been found to enhance social ties and a sense of community in: older adults[28]; residents of American urban communities[29];

CLOCKWISE FROM TOP LEFT Free-range teenagers in one of Edinburgh's civic squares; even in winter, city green space connects people together; a vital "green lung" in the heart of Edinburgh's main shopping area.

ABOVE Trees make our cities more walkable and breathable.

and residents of a large public housing development in Chicago[30]. In Denmark, the architect Jan Gehl has shown how "green" edges to a residential street can help facilitate social connections between people, generating powerful health promoting places.[31]

But Is All City Green Space Good For Us?

Enclosed green spaces in highly urban areas can exacerbate fears for safety owing to vegetation growth and lack of natural surveillance, but the evidence here is not conclusive. Some studies have suggested that green space may enhance feelings of social safety in a neighbourhood simply because there are more people out and about using it.[32] A Dutch study has shown that more green space in people's living environment can be associated with enhanced feelings of social safety,[33] but the issues vary by age. For example, in young people, there were issues of exclusion, hinging on territorialisation of urban green space, which acts as a barrier or "warzone" between communities.[34] As well as facilitating inclusion in some contexts, it seems that parks in other locations can exacerbate exclusion and isolation, with communities increasingly remaining within their own neighbourhood or territories.[35]

Quality City Green For Everyone

Despite the growing evidence—as yet—many communities are not fully exploiting their local green space for health, or indeed targeting it to those people who might benefit the most—older people, for example, or those individuals more susceptible to obesity. In addition, there are significant gaps in our understanding of how green space impacts health. For example, we do not yet have a full understanding of the impact of its quality on health, but we do know that quality green space is not equitably distributed in the UK; minority ethnic groups and poorer urban communities live with poorer quality open spaces. If city green is to be a really useful health tool, it needs to offer a quality environment and be actively promoted across all populations. Taken together, the findings reported here suggest that planning for green space in the city is not just an aesthetic concern but that access to green space is an environmental "right" that can promote health equity and a more just society. Many now feel that the driver for improving green space in the city will come from the health debate. CG

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