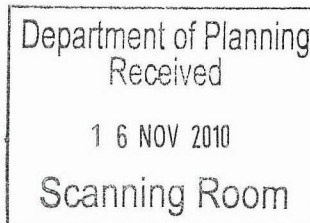


PCU016719

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MP 10_0096, Sydney Children's Hospital Extension

It appears that most or all of the remnant garden space at the Children's Hospital will be lost in this project.

The attached article, *Nurturing nature*, by Nora Schultz from *NewScientist* magazine, No. 2785, 6 November 2010, at pages 35-37, (Sydney, Reed Business Information) seems relevant.

We commend it to attention in the project consideration, in the hope that its lesson might somehow find application in the often stressful circumstances of the Children's Hospital.

Michael Rolfe
Principal

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Principal

15 November 2010

later and have their first child later," says Jocelyn Finlay at the Harvard Center for Population and Development Studies.

These habits of urban living may persist even when people go back to the countryside. A recent survey of 3000 Chinese women who had returned to their villages from the cities found that they were more likely to use contraception and to want fewer children than those who had never left the villages. What's more, their presence made it more likely that their neighbours would make similar choices (*Studies in Family Planning*, vol 41, p 31).

But do these benefits come at a high price for the people who have migrated to the cities? Crime rates are higher in cities than in the countryside, and the air pollution is undoubtedly unhealthy. That's not to mention the poor quality of life in slums, which, as Stewart Brand wrote in his 2009 book, *Whole Earth Discipline: An Ecopragmatist Manifesto*, "typically look like human cesspools and often smell like them".

Yet despite these reservations, Brand believes that slums may well be the best way to tackle poverty head on – provided that governments act to ensure the inhabitants have a reasonable standard of living. For one thing, cities offer better jobs that help people to pull themselves out of the poverty trap, and the high concentration of people makes it quicker and cheaper for governments to roll out services like education, sanitation and electricity to more people. For this reason, a 2003 UN report concluded that "the only realistic poverty reduction strategy is to get as many people as possible to move to the city".

Satterthwaite has seen first hand evidence of this. He works with women's savings groups – de facto banks that allow poor women to save a daily pittance – in 22 countries. "These 'banks' exist in villages but it's in the city that they talk to each other, form federations, and grow muscle," he says. Some members even buy land together. "Cities are where social reform has always taken place, and that's not going to change," he adds.

All of these benefits are evident in Ordos. Many of the farmers and shepherds who left behind their crops and flocks to take jobs as security men and waiters in Ordos City are five times better off than they were. As for the environmental changes, early reports suggest that the long grass is slowly returning to the abandoned fields – perhaps not enough to rival its glory days, but a sure sign that the desert is finally retreating. ■

Shanta Barley is a freelance writer based in London

Nurturing nature

When it comes to individual health and well-being, city slickers are missing out, says Nora Schultz

WAS it ever as good as this? Children bounding across a meadow or collecting nuts in the woods, the very picture of health and happiness. The idea that close contact with nature is the passport to good mental and physical health certainly runs deep, finding expression in the poetry of William Wordsworth and the hippy movement of the 1960s. The theme has recently been taken up by author Richard Louv in his best-selling book *Last Child in the Woods*, in which he warns that complaints like obesity, depression and asthma are on the rise due to our children's divorce from nature. But where is the evidence?

Until recently, it had been somewhat

Play in nature may be key to a child's mental and physical health

tenuous. Now carefully controlled research from the last few years suggests the Romantic ideals do hold some truth, with studies of thousands of people revealing that natural surroundings really do have a significant impact on our well-being.

There is no doubt that younger generations already spend less time in the countryside than any of our ancestors would have done, and over the same period of time, there have been huge changes in the population's health. Childhood obesity, for example, has risen ➤

"Natural surroundings reduce the health gap between the rich and poor by buffering the stressful effects of poverty"

steadily over the last few decades. A child's weight might be expected to correlate with the amount of time they spend playing outside, rather than sitting in front of a screen – but does it matter whether their surroundings contain a lot of greenery?

To find out, Janice Bell at the University of Washington, Seattle, and colleagues tracked the body mass index (BMI) of 3831 children over two years. They found that children living in greener areas had a lower BMI and gained weight more slowly over the study period. Sixteen-year-olds, for example, were roughly 6 kilograms lighter in the greenest compared to the most urban neighbourhoods (*American Journal of Preventive Medicine*, vol 35, p 547).

Importantly, the effect was independent of the socio-economic status of the children's families, which might have had an impact on their diet, and the housing density, which might indicate how much outdoor space was available for playing in – be it a leafy park or a concrete play area or car park. Bell's team concludes that children are more likely to play physically and exercise if their surroundings include plenty of green space.

When it comes to problems such as asthma, depression and heart disease, evidence is more tenuous. If people living in green areas are more likely to exercise, you might expect associated health benefits, like a more robust immune system and a strong heart. There is also the possibility that we are better able to relax in the countryside, which should bring its own physiological benefits.

One of the pioneers in this area has been Roger Ulrich, head of the Center for Health Systems and Design at Texas A&M University, College Station. In one experiment in the early 90s, he showed a group of volunteers an upsetting film of someone suffering an injury. He then split the group into two, showing each half a further video: one of typical country scenes, the other of typical city scenes. Based on measurements such as blood pressure, Ulrich found that the volunteers who saw the natural scenes recovered more quickly from the stressful impact of the first film than those shown quiet urban sites (*Journal of Environmental Psychology*, vol 11, p 201).

Since then, numerous studies have examined the effect of more direct contact with nature, with similar results. A relaxing stroll through the woods lowers cortisol levels, pulse rate, blood pressure and sympathetic nervous system activity more than a walk through pleasant urban areas (*Environmental Health and Preventive Medicine*, vol 15, p 18). Country walks have even been found to enhance the activity of human natural killer cells and other aspects of the immune system

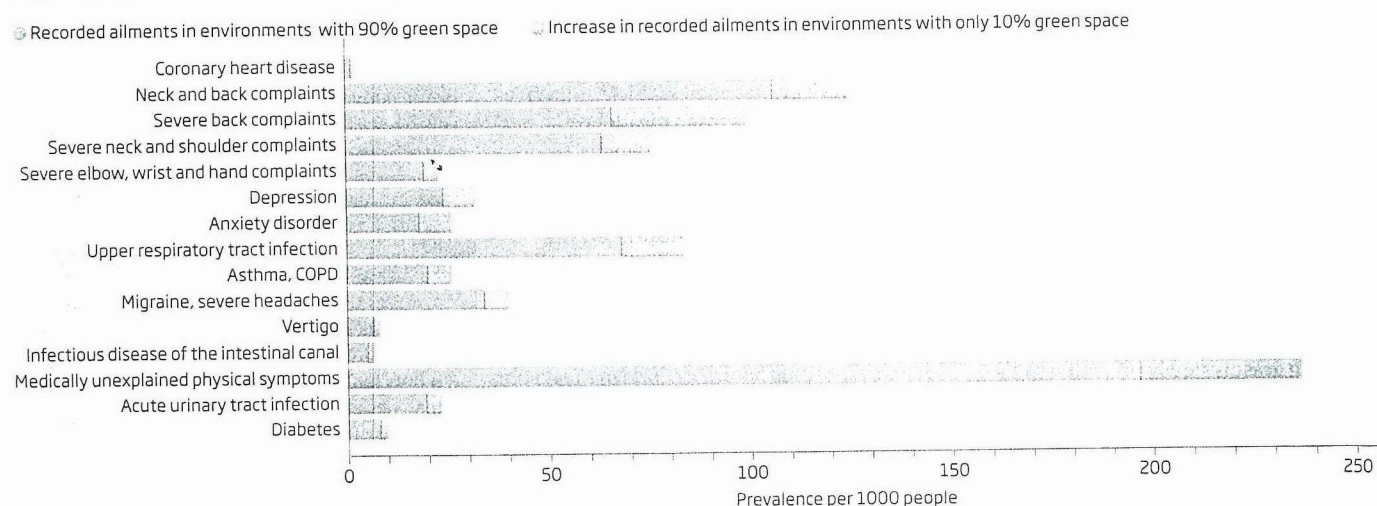


(*Environmental Health and Preventive Medicine*, vol 15, p 9). All of which could contribute to good health, but since few of these studies looked at the effects of exposure to nature over longer periods, the long-term effects remain speculative.

Some encouraging evidence came last year, with a survey examining the medical records of 345,143 people registered with 96 Dutch doctors' practices. The results showed that the prevalence of 15 common illnesses

The healthier option

People living in greener surroundings are less likely to suffer from various complaints, according to a survey of more than 340,000 people in the Netherlands. The study controlled for socio-economic status and other possible confounding factors





Natural scenes contain "soft fascinations" that loosen our attention

mortality rate of the poorest people was nearly twice that of the richest. In the greenest areas, however, this ratio dropped to roughly 1.4, suggesting that green space may buffer some of the stressful effects of poverty.

Precisely why we seem to be more attuned to natural scenes than to peaceful urban environments remains a thornier issue, however. Psychologists Rachel Kaplan and Stephen Kaplan at the University of Michigan, Ann Arbor, put it down to the fact that nature offers us "soft fascinations" like moving clouds, dancing flames, rustling leaves or gurgling water that restore our concentration by allowing our attention to wander. Built environments, on the other hand, constantly require us to focus on specific tasks, such as navigating our way through traffic or reading street signs. The same applies when we watch TV or play a computer game.

This preference for nature probably arose deep in our evolutionary history, says biologist E. O. Wilson of Harvard University. According to his "biophilia" hypothesis, our brains evolved to process the stimuli our ancestors would have faced in nature, leading to a hard-wired disposition to respond positively to the natural environment. With brains less well suited to the sights and sounds of human-made environments, we may find these surroundings more stressful and tiring. Recent brain scans support this view, revealing that disparate brain regions communicate with each other more easily, and therefore process sensory information more efficiently, when we consider natural scenes (*NeuroImage*, vol 53, p 611).

This restorative effect may explain why a short walk in the park improves the symptoms of children with attention-deficit hyperactivity disorder (see "Mother Nature's classroom", above right). The greater relaxation would also bring the numerous physiological benefits which might stave off disease and mental health problems.

Whatever the reason for nature's beneficial impact on our health, these results should not be ignored. "While it is important to be careful not to overstate the research, we know enough to act," says Louv. Louise Chawla, an environmental psychologist at the University of Colorado, Denver, agrees. "Although the number of studies is still small, the positive effects keep turning up with striking consistency," she says. She also points out that interventions need not be expensive and are unlikely to pose any dangers, "so we don't need the kind of evidence base that you need for a new drug".

MOTHER NATURE'S CLASSROOM

A child's concentration appears to improve when they are exposed to nature. Andrea Faber Taylor and Frances Kuo at the University of Illinois at Urbana-Champaign, for example, found that children with attention-deficit hyperactivity disorder (ADHD) concentrated better after a walk in the park - about as well as if they had taken standard medication (*Journal of Attention Disorders*, vol 12, p 402). Walking through quiet and pleasant areas of town with less greenery offered no such benefits. Based on these results, Faber Taylor says she feels strongly that time spent in natural surroundings "might at the very least supplement current therapies" for treating ADHD. "It might even work as a stand-alone treatment for children with very mild symptoms."

Being taught in the great outdoors may benefit other children, too. Forest kindergartens that hold classes in the woods, come rain or shine, are becoming increasingly popular throughout northern Europe. The early evidence has been encouraging. A study conducted for Peter Häfner's doctorate at the University of Heidelberg, Germany, for example, found that children who attended forest kindergartens can concentrate better and are more motivated than their peers who went to conventional nurseries. They also have more advanced social skills.

Studies have found, for example, that hospital patients recover more quickly when they have a view of greenery outside their window (*Science*, vol 224, p 420). Even a few house plants or a well-tended garden may be of some benefit, with recent research finding that children are more resilient to stressful events if they have more greenery in and surrounding their houses (*Environment and Behavior*, vol 35, p 311). We should also push for urban parks to be maintained, and encourage authorities to plant trees on city streets.

A large-scale migration back to the country would be too drastic, though. "What worked in the past may not apply now," says Louv. Instead, he thinks we should look for ways to bring more nature to the cities. "We are rapidly moving into a very different era in which we may need to recreate nature in ways that fit with urban life." ■

Nora Schultz is a freelance journalist based in Berlin, Germany

depended on the amount of green space within 1 kilometre of the patients' homes. The list included depression and anxiety, asthma, heart disease, diabetes, bone and muscle pains, headaches, diabetes and respiratory infections (see chart) (*Journal of Epidemiology and Community Health*, vol 63, p 967).

Early deaths

Depression fell from 32 cases per thousand, in the least green areas, to 24 cases per thousand in the most green areas, for example. The same was also true for physical complaints: respiratory infections fell from 84 to 68 cases per 1000. These differences are comparable to the relative rates of illness in the young and the old, says Jolanda Maas at the Vu University Medical Center in Amsterdam, the Netherlands.

Ultimately, natural surroundings seem to lower the risk of death at any point in someone's life, according to a recent study that looked at the causes of death in 366,348 people below retirement age who died in England between 2001 and 2005. Controlling for socio-economic factors, and for additional environmental factors such as air pollution, the team found that mortality due to ill health was 5 per cent lower in the greenest areas than in the least green areas (*The Lancet*, vol 372, p 1655). The results were more pronounced when the team examined the health gap between the richest and poorest people in their study. In the least green areas, the