MITIGATING EFFECTS OF VIEWING NATURE ON STRESS AND OTHER HEALTH MEASURES

NUMBER FIVE : Ulrich R S. 1984. View through a window may influence recovery from surgery. Science 224, 420-21 *

A seminal and oft-quoted study involving a 10 year comparison of patients recovering from gall-bladder surgery in a hospital setting.. Probably one of the most robust studies into the links between nature and health and one of the few to use objective health measures. The study involved two groups of patients, one overlooking parks and trees and the other whose beds had a view of a brick wall. The patients with a green view used fewer analgesics, recovered quicker and had fewer negative comments in the nurses' notes.

Similar studies showing a link between viewing nature and positive health outcomes include one on Michigan prisoners who had fewer sick cell visits when the view from their cell was one of farmland rather than the prison yard. (Moore, E.O., 1982. A prison environment's effect on health care service demands. Journal of Environmental Systems, 11(1): 17-34).

Further studies by Ulrich involve patients' reactions to paintings of natural versus abstract themes. Currently a study by the West Dorset Hospital Trust, in conjunction with the Dorset Wildlife Trust is examining the effect of viewing nature on leukaemia patients in isolation wards, once again using objective measures which include blood samples to measure stress hormones and growth hormones. The results of this study are expected to be published in 2006.

Medical evidence suggests that stress has an adverse effect on health by affecting the immune system and decreasing resistance to illness. Several studies have sought therefore to show a reduction in stress levels with exposure to nature. These include the following :

Ulrich RS, Simons RF, Losito BD, Fiorito E, Miles MA, Zelson M. Stress recovery during exposure to natural and urban environments. Journal of environmental psychology 1991; 11: 201-203.

NUMBER SIX : Parsons R, Tassinary LG, Ulrich RS, Hebl MR, Grossman-Alexander M. The view from the road. Implications for stress recovery and immunization. Journal of environmental psychology 1998; 18: 113-140.

Study where drivers were exposed to stressful tasks (intended to replicate the sort of stress one may be exposed to at work) and then a simulated drive. Views from different types of road were projected onto a screen, either of green pleasant environments or built-up urban streets. People in the green and pleasant category showed reduced stress levels as
measured by blood pressure and forehead muscle tension.

NUMBER SEVEN : Hartig T, Mang M, Evans GW. Restorative effects of natural environment experiences. Environment and Behavior 1991; 23: 3-27.

Study supporting the attention-restoration theory put forward by Kaplan and Kaplan. The theory argues that natural environments lead to one's attention and fascination being drawn to more natural environments which have a restorative effect from stress.

FURTHER EVIDENCE OF MENTAL HEALTH BENEFITS OF NATURE (CHILDREN)

NUMBER EIGHT : Taylor AF, Kuo FE and Sullivan WC, 2001. Coping with ADD : the surprising connection to green play settings. Environment and Behaviour 33 : 54-77

American study supporting an increasingly popular theory that children with Attention Deficit Disorder have better levels of concentration when exposed to nature. The study concludes that a `green' learning environment may be beneficial to all children. It suggests that green play settings improved children's concentration: children with Attention Deficit Disorder were found to function better than usual after activities in green settings.

Work by Lancaster Uni commissioned by the Forestry Commision shows that older children (16-21) seek out the outdoors for dealing with stress (Small sample study)

EFFECTS ON HEALTH OF LIVING IN CLOSE PROXIMITY TO GREEN SPACE

ALSO SEE EVIDENCE NUMBER FOUR SHOWING LIVING CLOSE TO GREEN SPACE INCREASES LIKLIHOOD OF MEETING PHYSICAL ACTIVITY GUIDELINES.

The influence of nature in the living environment on health has been investigated by two large-scale epidemiological studies: a cross-sectional study of a Dutch population and a Japanese longitudinal study among elderly inhabitants of Tokyo.

NUMBER NINE : Takano T, Nakamura K, and Watanabe M. **(2002). Urban residential environments and senior citizens' longevity in megacity areas: the importance of walkable green spaces. Journal of Epidemiology and Community Health; 56, 913-18.**

A longitudinal epidemiological study of 3144 elderly people living in a built-up area in Japan. The study found that the probability of survival over a five-year period increased with the amount of accessible green space close to peoples' place of residence and the perceived ability to take a stroll in tree lined streets and parks. The study controlled for socioeconomic and demographic variances. **The study also showed a strong positive relationship between involvement in one's community and longevity.** This has led some to conclude that it is not just the provision of green space that is important, but the interaction that individuals and communities have with that greenspace, i.e. a sense of ownership and control.

Study weaknesses included a simplistic definition of what is deemed `accessible' leading to potential subjective interpretations which may have led to self-selection bias in the low response rate. (Just asked if they lived `near' to greenspace which may lead to very subjective answers depending on their mobility level). Furthermore, there was no clear definition of the term `greenspace'

NUMBER TEN : de Vries S, Verheij RA and Groenewegen PP. (2001) Nature and Health The Relation between health and green space in people's living environment. Euro Leisure-congress Netherlands. (Submitted to Environment and Planning.)

A cross-sectional study involving 10000 people in the Netherlands. Land-use data on the amount of greenspace in their living environment was combined with self-reported health (from a questionnaire). A multilevel analysis controlled for socioeconomic and demographic characteristics. People with more green space in their living environement (defined as within a 3 km radius) judged themselves to be healthier and report fewer health-related complaints. Sub-analyses showed the effect was stronger for housewives and elderly (groups which have more contact with their local environment). Also stronger for lower-educated people.

Living near green space created less health complaints and both better mental and physical health than an urban environment. For every 10% increase in green space there was a reduction in health complaints equivalent to a reduction of 5 years of age.

Study weaknesses for this type of study include the limited validity self-report health questionnaires and a low response rate that may have created study bias. Correlational studies do not explain the mechanism behind the observed relationship. Several mechanisms may be responsible for this result, ranging from air quality to social relationships. Subsequent studies by the same team have not yet been able to support the hypothesis that more physical activity in the form of outdoor recreation could lead to improved health.

Adjustments were made in both studies for socio-economic status, so they make allowance for the fact that more affluent people (who usually have better health) are more likely to live closer to greener environments.. But with both these studies, there may be some self-selection bias leading to people who value green space for their health choosing to live near green environments.

GOOD SOCIAL NETWORKS ARE A PREDICTOR OF GOOD HEALTH AND' ONGEVITY. LIVING CLOSE TO GREEN SPACE INCREASES SOCIAL NETWORKS

ONE FOR LUCK : Kuo F E, Sullivan W C, Coley R L and Brunson L. 1998. Fertile Ground for Community: Inner-City Neighbourhood Common Spaces. American Journal of Community Psychology 26: 823-51

Kuo et al. (1998) hypothesized that *"greener neighbourhood common spaces give rise to stronger neighbourhood social ties (NST's) ",* and has found a difference in the level of NSTs and the amount of vegetation in the common space, with the strongest ties occurring in areas rich in green matter. These residents had *"more social activities and more visitors, knew more of their neighbours,reported their neighbours were more concerned with helping and supporting one another and had stronger feelings of belonging"* . The study reinforces the notion that regular contact with nature is indispensable, as residents prefer areas with trees and grass and negatively respond to areas devoid of vegetation. The mere presence of trees encourages more frequent use of the outdoor space and experiencing nature reduces mental fatigue, diminishes sensations of stress and has emphatic effects on mood.