Restorative experiences in favourite green, waterside and urban environments

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Funded by the Academy of Finland, project no 211031
Background

- Several studies in environmental psychology show that contacts with green space produce stronger **restorative outcomes** (stress-reduction, stress relief), than contacts with urban places without green space.

- Restorative outcomes include relaxation (indexed by alpha-waves, muscle tension in the forehead, skin conductance, pulse transit time, blood pressure), decrease in negative feelings, recovering attentional focus.
Figure 2: Examples of nature dominated by vegetation.
Figure 1: Examples of nature with water.
Figure 3: Examples of urban without water or vegetation.
Figure 5: Eyes-open alpha as function of environment viewed.
Tracking restoration in natural and urban field settings

Terry Hartig, Gary W. Evans, Larry D. Jamner, Deborah S. Davis, Tommy Gårding


Fig. 1. Views from within the Audubon Society’s Starr Ranch Sanctuary.
Fig. 2. Views of area adjacent to the UC Irvine Medical Center.
Walking in a nature reserve initially fostered blood pressure change that indicated greater stress reduction than afforded by walking in the urban surroundings. - 6 mmHg -

Performance on an attentional test improved slightly from the pretest to the midpoint of the walk in the nature reserve, while it declined in the urban setting. This opened a performance gap that persisted after the walk.

Positive affect increased and anger decreased in the nature reserve by the end of the walk; the opposite pattern emerged in the urban environment.
BLOOD PRESSURE AFTER WALKING IN URBAN AND NATURAL AREAS

Systolic Blood Pressure

- Natural
- Urban

Diastolic Blood Pressure

Mean Change from Baseline in mm Hg

Minutes into Environmental Treatment

Courtesy Terry Hartig, Uppsala University.
Background

- However, only few studies have compared restorative experiences or outcomes in different kinds of natural or urban environments.
- The results concerning differences between types of green space are mixed and do not include the experiences related to the respondents’ own everyday favourite places.
- Earlier studies have relied on student samples, laboratory experiments and on pictures or videos to represent environments.
In our studies we have proposed that visits to a close-to-home favourite place are one of the “windows” (units of analysis) through which restorative experiences (and self-regulation and emotion regulation more generally) can be fruitfully studied in an everyday context.
Aims

In our survey study, the aim was to compare **restorative experiences in different types of residential favourite places** including green, waterside and urban areas.

- We were interested in **cognitive** (experiences of clarifying one’s thoughts) and **emotional restoration** (experiences of relaxation and calmness).
Sampling

A simple random sample of 3000 (0.5% of the study population) Finnish-speaking inhabitants aged between 15 and 75 years from two major cities in Finland (Helsinki and Tampere) was obtained from the Population Register Centre.

- After two rounds of written remainders 1273 (37.4 % male, 62.6 % female) out of 2989 respondents with a known address returned our mailed questionnaire.

- A response rate of 42.6 %.
Favourite places of the participants aged 15-75 yrs. (Tampere and Helsinki), the distance to the place from home being equal or less than 15 km.

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<tr>
<th>Extensively managed nature areas</th>
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<tbody>
<tr>
<td>Extensively managed nature areas</td>
<td>466</td>
<td>43 %</td>
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| Built green spaces | |
|--------------------|----|----|
| Built green spaces | 253| 23 %|

| Waterside environments | |
|------------------------|----|----|
| Waterside environments | 203| 19 %|

| Exercise and activity/ hobby areas | |
|-------------------------------------|----|----|
| Exercise and activity/ hobby areas | 99 | 9 %|

| Indoor and outdoor urban areas/places | |
|----------------------------------------|----|----|
| Indoor and outdoor urban areas/places | 68 | 6 %|

| Total | 1089 | 100 % |
Three of the items reflected **relaxation**

“I feel myself calmer after being here”, “After visiting this place I always feel restored and relaxed”, “I get new enthusiasm and briskness to my everyday routines from here”,

- one item reflected **attention restoration**
  “my concentration and alertness increase here clearly”

- two items reflected **clearing one’s thoughts**
  “I can forget everyday worries here”, “visiting here is a way of clearing and clarifying my thoughts”.

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Restorative experiences and benefits in the favourite place (measured with six items = Restoration Outcome Scale = ROS)
Restorative experiences and benefits (Restoration Outcome Scale = ROS) in the favourite place

- “This item describes my experience”... rated on a Likert scale ranging from 1 to 7 (1 = not at all, 7 = completely).
- Internal consistency (Cronbach’s alpha) for the six-item scale (mean item response, M = 5.08, SD = 1.01, n = 1242) was $\alpha = .92$
- $r_{test-retest (10 months)} = .60, p = .000, n = 384$

Through multiple regression we found nine **determinants of restoration outcome (ROS) scores**; these were adjusted for in ANCOVA analyses.

| 1. Length of stay in favorite place           | (1 item) |
| 2. Nature orientedness                       | (scale, 5 items) |
| 3. Frequency of visiting the fav. place      | (1 item) |
| 4. Uplifts derived from social relations     | (1 item) |
| 5. Nature being important as such before 16 yrs. of age | (1 item) |
| 6. Nature hobbies                            | (1 item) |
| 7. Hassles/worries related to money          | (1 item) |
| 8. Satisfaction with life                    | (scale, 5 items) |
| 9. Hassles/worries with work                 | (1 item) |
Why should a person feel restored in a (natural) favourite place (in addition to the effects of physical char.)? (Covariates)

Perhaps s/he is a happy person in general, s/he is satisfied with his or her life which means that these positive feelings tend to raise more positive feelings and thoughts.

- Because she/ he is a nature person, s/he likes nature, may have nature hobbies and has positive experiences of it even from the childhood.
- The more often he/she visits and the longer she/he stays in the place the more the features of nature have time to influence him positively.
- Maybe s/he lacks company at that moment and is more tuned to outer environment than s/he would when in company.
- Perhaps s/he is stressed (with troubles with money and work) and fatigued so that s/he has more potential to feel restored for a while. Or his spirits may be momentarily elevated (for example, after good relations with loved ones) and s/he is inclined to stay in that mood, to keep that feeling up.
Results
Results

- Restorative experiences in favourite exercise and activity outdoor areas, waterside environments, and extensively managed natural settings (mainly urban woodlands) were stronger than in favourite places in urban settings or built green spaces (mostly parks).
Conclusions

○ Favourite urban places may provide equally strong restorative experiences as favourite built green spaces (parks) which is a somewhat contradictory result to experimental studies comparing natural and urban places (selected by the experimenter).

○ Thus, future applied and theoretical developments should take note that the superior restorativeness of natural places may not hold for all types of places in everyday life where people select from familiar urban and natural places according to their own preferences and emotional attachments.
Conclusions

As the restorative experiences in our three types of natural areas did not significantly differ from each other, we conclude that it may be the total amount, or rather, the existence of a **variety of natural spaces** (including recreation / exercise settings) near the housing block, not any specific type of green space, which is important if we want to provide restoration possibilities to a maximally large proportion of the population.
Publications: www.favoriteplace.info

The temporal appearance of restorative outcomes after a stressor

- Physiological responses 4-7 min. (alpha-waves, muscle tension in the forehead, skin conductance, pulse transit time, blood pressure)
- Mood and emotions 20 min. (increase in joy, happiness; decrease in negative feelings such as anger, sadness)
- Attention 40 min. (performance on an attentional test)
Health from the Forest

Hannamaria Potila
Background

• Urbanisation and modern lifestyles have increased sedentary work and mental stress
• Forest visits enhance physiological and psychological health
• Forest provide a rich reserve of the compounds that can be utilized in pharmaceuticals and functional food
Objectives

• to strengthen the field of know-how in the research and development of bioactive compounds and the effects of forests on human health and well-being

• to create a network between collaborators and experts in forest science, medicine and enterprises in the field of health and natural products. This objective will be achieved through a pilot study:
  – "Bioactive fungal compounds of Finnish trees and peatlands in an experimental model of age-related macular degeneration"

• to construct a therapeutic forest path/environment which promotes human health and well-being
A forest path with psychological, restoration-promoting guides/signposts.
A short example of the beginning of the signpost text

• "Breathe slowly and let your shoulders relax. Take a look around you and let your mind be attracted by some pleasant spots or details on the ground, in the woods or in the sky. Let the relaxation go deeper…"
Partners and co-operators

- Finnish Forest Research Institute
  - Senior Researcher, PhD Tytti Sarjala
  - Researcher, Clinical chemist, PhD Katja Viitala
  - Project Manager, PhD Hannamaria Potila
- University of Tampere, Faculty of Medicine
  - Professor of Ophthalmology, MD, PhD Hannu Uusitalo
  - Senior Research Scientist, DSc (Tech) Anne Huhtala
- University of Tampere, Faculty of Psychology
  - Adjunct Professor of Environmental Psychology, Dr. Psychol. Kalevi Korpela
- Other co-operators
Budget

• The project is funded by the European Regional Development Fund (ERDF) and the Council of Tampere Region

• 3 years, 350 000 €
More information...

http://www.metla.fi/hanke/7344/info.htm