



The Calming Effect of Green: Roadside Landscape and Driver Stress



Americans spend more time in their cars each year. In recent decades each American's average miles of yearly travel, number of trips and mileage per trip have increased 60 to 85 percent.

As we spend more time on the road and face more traffic congestion each year, driving stress becomes a public health issue.



Scientists have studied how human bodies and minds cope with stressful situations, including driving conditions. Can the driving environment mitigate the factors that cause stress?

Professional wisdom and folklore have long endorsed the idea that experiences of nature contribute to our well-being. Recent research confirms that the roadside landscape can positively affect some dimensions of stress response.

Stress and Driving

GENERAL STRESS RESPONSE - "Fight or flight" is our coping response to high threat stressors. Other low-level, constant stressors (such as crowding or work pressures) trigger less perceptible responses. Physiologically, we respond to both types of stressors on many levels - cardiovascular, skeletomuscular, and neuroendocrine - mobilizing the body and mind to deal with a demanding situation. Mobilization uses our body's energy and resources, leading to fatigue if the stress is a long-term influence. Psychologically, stress causes feelings of fear, anger, or sadness. Psychological and physiological stress response can, in turn, trigger negative behavior. Studies show that stress aftereffects include greater substance abuse, decline in frustration tolerance, and lower ability to perform work-related tasks.

DRIVING STRESS - The degree of stress response while driving depends on road and traffic conditions. Changes in mind and body are documented for all driving experiences. For instance, heart rate variability and blood pressure all increase when a person is driving compared to non-activity situations. Demanding driving conditions, such as on-ramps, off-ramps and roundabouts, tend to increase stress response.

COMMUTING EFFECTS - Commuting may be one of the most stressful experiences of urban life. Increased blood pressure is associated with longer or more difficult commutes. Lowered job satisfaction, higher illness rates, absenteeism and lower performance on various cognitive tasks have also been found to be related to longer or more difficult commutes.

Natural Environment Benefits

STRESS CAUSING ENVIRONMENTS – Research has often focused on environment as the source of stress. Environmental stressors (community noise, air pollution) are an ever-present reality of urban life. In addition, specific environments (e.g. urban highways) demand our attention and reaction.

NATURE AND STRESS REDUCTION – Might certain environments mitigate or alleviate stress response? Studies prove that contact with natural settings can aid in stress recovery and restoration of mental performance in many situations. Positive changes in both physiological and psychological function have been demonstrated in people when nature is used as a stress antidote. Studies confirm that experiences of nearby nature, such as brief contact with a small garden or a stroll in a park, produce beneficial affects.

In addition, views and contact with outdoor environments have helped people to heal faster in hospitals, do more productive work, be less violent during domestic conflict and recover better from life-threatening illness. There also seems to be an “immunization effect” - prior contact with a natural setting diminishes stress response as one enters a stressful situation.

Views of nature may be an antidote to stressful driving situations.



THE ROADSIDE AND STRESS REDUCTION –

While the stresses of driving and commuting are documented, surprisingly few studies have looked at what sorts of mitigating factors in the driving environment might ease stress response.

In one recent study a team of social scientists at Texas A&M University (Parsons et al.) conducted an extensive study of the effects of roadside character on stress response. Using physiological stress indicators such as heart rate, blood pressure and skin conductance the investigators discovered several response patterns.

First, drivers' viewing of built-up, strip mall style roadside environments both slowed down and impeded recovery from stressful situations.

Study participants exposed to roadside nature scenes (forests or golf courses) returned to “normal” baseline measures faster and had a greater ability to cope with introduced stressors.

The “immunization effect” was confirmed. Exposure to a natural roadside setting decreased the magnitude of response to a later stressful task. This suggests that an “inoculation” of nature experience enhances a driver's ability to cope with the demands of driving.



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