

# Understanding Association between Nature Exposure and Health Benefits

Based on Liddicoat et. al

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## Introduction

There is a plethora of evidence that links positive health benefits to an immersion in nature. This exposure to green space can lead to benefits including improved mental health and improved immune system. Understanding the source of these benefits represents an important opportunity to provide potential health care alternatives. These alternatives can potentially provide more cost effective treatment as well as more efficient treatment when compared to traditional medical treatments. One possible hypothesis to the benefits of green exposure is due to the increased biodiversity of our gut microbiomes.

A team of scientists from the university of Adelaide in South Australia explored the link between microbial diversity and differing levels of anxiety in mice. The scientists believed this link would be based on the specific bacterial species, *Kineothrix alysoides*. *K. alysoides* is a soil derived species and is known to produce butyrate, a short-chain fatty acid essential for the immune system. It was theorized that prolonged outdoor exposure would lead to increased *K. alysoides* levels which would provide anxiolytic properties in mice. To test this hypothesis, the team exposed mice to dust from soil of varying biodiversity levels.

After the experiment the team was able to successfully conclude that exposure to high microbial diversity via dust resulted in altered gut microbiota and a reduced anxiety response to anxiety inducing test areas. The research study provided a number of figures to establish their conclusions. My goal was to produce additional figures based on the supplemental data provided that also demonstrate their findings.











