

## The Linkage Between Horticulture & Health: The Case of People-Plant Interactions

From obesity and chronic disease to depression, social isolation, or increased exposure to environmental toxins and pollutants, communities around the world face pressing health challenges that are far different than those we've experienced in the past. Along with unprecedented rates of chronic disease (which affect half of all adults and include conditions such as heart disease, stroke, type 2 Diabetes, and certain types of cancer), Americans are also facing tremendous mental health challenges today.

Health outcomes from plant interactions
<i>Better sleep/mitigated sleep apnea</i>
<i>Healthier birthweights</i>
<i>Reduced incidence of diabetes</i>
<i>Protect against cancer</i>
<i>Decreased ocular discomfort</i>
<i>Decreased respiratory disease</i>
<i>Enhanced immunity</i>
<i>Better Circadian system functioning</i>
<i>Improved autonomic nervous system</i>
<i>Faster hospital rehabilitation</i>
<i>Lower cardiovascular disease risk</i>
<i>Lower heart rate &amp; blood pressure</i>
<i>Decreased migraines</i>
<i>Lower rates of mortality</i>
<i>Decreased incidence of respiratory disease</i>
<i>Improved pain control</i>
<i>Improved digestion</i>
<i>Decreased urinary tract infections</i>
<i>Reduced incidence of obesity</i>
<i>Decreased atopy (allergies)</i>
<i>Increased physical activity</i>
<i>Enhanced cognitive development</i>
<i>Reduced anxiety and stress</i>
<i>Enhanced attention deficit recovery</i>
<i>Decreased incidence of depression</i>
<i>Enhanced memory retention</i>
<i>Greater happiness / life satisfaction</i>
<i>Mitigation of PTSD</i>
<i>Increased creativity</i>
<i>Enhanced productivity &amp; attention</i>
<i>Slowing cognitive decline / dementia</i>
<i>Improved self-esteem / socialization</i>
<i>Decreased anxiety disorders</i>
<i>Environmental equity</i>
<i>Disaster resilience</i>
<i>Improved air quality</i>
<i>Reduced urban heat islands</i>
<i>Improved school performance</i>
<i>Reduced crime rates / improved safety</i>
<i>Decreased recidivism</i>
<i>Reduced noise pollution</i>
<i>Reduced absenteeism / presenteeism</i>

The interactions between people and plants offer promise both as prevention and as treatment of chronic physical and mental issues. Benefits summarized in the sidebar are backed by hundreds of peer-reviewed citations (<https://ellisonchair.tamu.edu/benefitsofplants>). Potential advantages include lower costs relative to conventional medical interventions, safety, practicality, and multiple co-benefits. Few medications can boast these attributes.

However, many questions regarding the health benefits of people-plant interactions remain unanswered. For example, a robust program of scientific research is needed to generate evidence-based answers to these (and other critical) questions:

- What dose and duration (and associated metrics) of people-plant interaction is needed to optimize benefits and how is that dosage most effectively delivered?
- How do preferences and perceptions of people-plant interactions vary by socioeconomic status, ethnicity, and demographic factors and how do these differences affect choices regarding time spent in nature and aesthetically-improved landscapes?
- What messaging regarding the benefits of people-plant interactions resonates most with clientele so they proactively engage in horticulturally-intensive greenscapes? What areas of the brain are being triggered prior to and during engagement in these interactions?

*Potential research and outreach partners include faculty and experts associated with the Department of Horticultural Sciences; the Ellison Endowed Chair in International Floriculture; the Benz School of Floral Design, the TAMU Human Behavior Lab; the Department of Hospitality, Hotel Management, & Tourism; the Department of Landscape Architecture and Urban Planning; the Center for Health Systems & Design; the Department of Agricultural Leadership, Education, and Communication; the Texas A&M Health Science Center; the Department of Psychological and Brain Sciences; the Master Gardener and Junior Master Gardener network; Healthy Texas; Better Living for Texans; the Center for Nature and Health; the Institute for Advancing Health Through Agriculture, the Aplin Center; and The Gardens and Aggie Park.*