Natural Learning Initiative, College of Design
Outdoor Learning Environments as Active Food Systems: Effectiveness of the Preventing Obesity by Design Gardening Component

Object ve

Research Function
To assess the impact of a Gardening Component on 4-5 year olds enrolled in 15 childcare centers in Wake County, NC, using a waitlist/control group, randomized controlled trial research design (2017-2022).

Education and Extension Functions
Translate research findings into education materials, tools, and resources.

Description on
Fifteen centers were selected in 2018 and randomly assigned to intervention/waitlist/control groups to evaluate the impact of fruit and vegetable (FV) gardening on children’s physical activity, FV liking, FV knowledge, and FV consumption.

Garden installation: Six identical raised/planting beds (6 x 2) at each intervention center, with similar, controlled growing conditions. Six vegetable and fruit types were selected and planted consistently at each center.

Outcome Measures

1. Child Data
   - Physical Activity: Measured by accelerometers
   - FV Liking and Knowledge: Measured via a modified electronic method (Conners’ CDRS, 2014) using portable tablets
   - FV Consumption: Measured using modified Fruit & Vegetable Snack Tool (Witt & Duncan, 2012)

2. Environmental Data
   - Pre-weighted 6 fruits and 6 vegetable portions were served to children in 15 childcare centers.
   - Fruits and vegetables were served on different days of the week.

Preschool Outdoor Environments Measurement Tool (POEMS) and Childcare Outdoor Environment Quality Tool (COELQT)
Two validated scales, Preschool Outdoor Environment Measurement Scale (POEMS) (Dallford, et al., 2005) and Childcare Outdoor Environment Quality Tool (COCET, 2014), were used to measure the physical environmental quality of the participating childcare sites. These data were collected as a control measure to compare environmental richness of the centers at the beginning of the study.

Conclusions and Implications

Because childcare centers are policy-sensitive institutions, evidence underscoring the benefits of fruit and vegetable gardening may encourage regulators to adopt supportive rules (Tandon, Walters, et al., 2016). With approximately 76% of the U.S. population living in areas with an annual growing season >200 days (ASA 2013), a gardening component may be a promising obesity prevention strategy for young children in those regions, where 77% of total ($170 billion) U.S. regulated childcare centers are located (CCAA 2012).