

Head Start children and parents show robust gains in new intervention

July 1 2013



Helen Neville, left, and Scott Klein, researchers in the Brain Development Lab at the University of Oregon, are part of a team that developed an intervention for families with children in Head Start. An initial 8-week study brought positive changes in both children and parents. Credit: University of Oregon

An eight-week intervention involving 141 preschoolers in a Head Start program and their parents produced significant improvements in the

children's behavior and brain functions supporting attention and reduced levels of parental stress that, in turn, improved the families' quality of life.

The findings—from the first phase of a long-term research project by University of Oregon [neuroscientists](#) that will monitor the families over time—appear this week online in advance of regular publication in the *Proceedings of the National Academy of Sciences*.

The new UO initiative is designed as an addition to the regular Head Start program, which was launched by the federal government in 1965 to enhance the education, health, nutrition and parental involvement for families living under the [poverty line](#).

A preliminary economic analysis, not included in the new study, estimates that implementing the program widely at Head Start sites would add just \$800 per family and could yield a strong return on investment, said project leader Helen Neville, who holds the UO's Robert and Beverly Lewis Endowed Chair in Psychology and heads the Brain Development Lab.

"This intervention didn't come out of thin air," Neville said. "It came out of basic research on [neural plasticity](#) that we have done in our lab for many decades." Neural plasticity refers to the brain's ability to shape and reshape itself over a lifetime.

"We've studied neural plasticity by looking at deaf people, blind people, children with language impairments, [bilinguals](#) and typical people," Neville said. "We've found that some systems of the brain don't show much neural plasticity. Some show a lot but only in a specific time period. So we targeted this second kind of system, focusing on [selective attention](#) of the developing brain."

Children from lower socioeconomic status (SES) often have more problems with attention skills than do children from higher SES backgrounds, because, on average, they have more difficulty suppressing, or ignoring, non-attended information, Neville said. Such difficulties likely arise as children in lower SES families grow up amid chaos and unpredictable environments, she added.

The UO team developed learning exercises (see link below for description), including games, appropriate for kids ages 3-5. The exercises, said co-author Scott Klein, require clear focus from the children.

Parents or other primary caregivers attended weekly two-hour sessions in which they learned standard parenting practices that build strong relationships and about the value of the attention skills their children were receiving. Much of the discussion centered on reducing negative components of parenting and fostering a positive atmosphere, such as providing guided choices for children, establishing expectations and praising good behaviors, said Klein, a research assistant in the Brain Development Lab. Training was reinforced with weekly phone calls to the parents to help address specific problems.

"We try to have all activities done with children embedded with the parents all of the time," Klein said. "We are building a systematic change one step at a time. We start small. Each step scaffolds on each other." (Audio from Klein on the reduction of [parental stress](#), 38 seconds, link below)

The parenting component said co-author Eric Pakulak, a research associate in the lab, is based on work done by the Eugene-based Oregon Social Learning Center, a non-profit, collaborative research center founded in 1977 by Gerald R. Patterson, a clinical psychologist and professor of psychology at the UO. "In our observations, we saw changes

quickly, often in a week. Parents begin to see results that they like—benefiting the children and themselves," Pakulak said.

A control group of children and parents engaged only in traditional Head Start programming. A second experimental group included the children's learning exercises but less parental involvement.

"The more parent-focused program was the clear winner," Neville said. The children showed significant improvements in their ability to focus—gains that are holding up over time, based on subsequent preliminary data from ongoing brain-monitoring assessments, she added.

The children's selective attention abilities, as seen in event-related brain potentials (ERP), were measured before and after the intervention using non-invasive electroencephalography, which records electrical activity along the scalp. The children also were evaluated for changes in cognitive abilities with standardized assessments of non-verbal IQ and language skills, both of which rose significantly in children whose parents received training.

In families where both the children and caregivers received the interventions, children were more likely to perform similarly to children from higher SES backgrounds, and caregivers reported significant reductions of stress in the home, particularly in dealing with their children.

"Chronic stress is literally toxic to the developing brain," Pakulak said, citing years of previous research in neuroscience. "The same parts of the brain that are important for learning in early development are the same parts of the brain that help moderate the stress response."

Many parents, Klein said, reported feeling as if portions of their personal lives had been restored, opening time for reading and outside activities.

Back in the classroom, Neville said, improvements were visible. "With the children having changes at home that help their attention—this is a multiplier. It helps in learning in the classroom, playing games and sports. It helps kids focus. It is rewarding for the kids and for the parents. With less stress, the [children](#) are better able to focus their attention."

More information: Family-based training program improves brain function, cognition, and behavior in lower socioeconomic status preschoolers, www.pnas.org/cgi/doi/10.1073/pnas.1304437110

Provided by University of Oregon

Citation: Head Start children and parents show robust gains in new intervention (2013, July 1) retrieved 26 June 2024 from <https://medicalxpress.com/news/2013-07-children-parents-robust-gains-intervention.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--