

How reaching for toys could change cerebral palsy therapy

14 September 2020, by Katharine Gammon



Credit: Julia Rendelman

Infants who are born early or at low birthweight can be at risk for cerebral palsy, a group of disorders that affect a person's ability to move and maintain balance and posture, caused by brain damage often before birth.

The standard of care is [early intervention](#), but that can mean a number of different things, said Stacey Dusing, associate professor and director of the Motor Development Lab. "Intervention tends to be very 'wait and see:' monitoring how delayed the kids are," Dusing said. "We are identifying that this is probably not the best practice for kids."

Physical therapy for infants typically works in skills like rolling, crawling and walking, Dusing explained. But that's not the only issue. "Kids don't move just to move. They move to access the world, to pick up toys, to bang things together," she explains. She and her research team had the idea to change the interventions to focus on thinking as the primary skill, to weave motor and cognitive learning together.

Dusing is a co-principal investigator for a new

National Institutes of Health grant that will compare interventions for infants with or at high risk of developing cerebral palsy. One group will receive a larger-than-usual dose of traditional physical therapy, which focuses on movement, while the other group receives the same amount of therapy that combines motor skills with cognitive skills, called Sitting Together and Reaching to Play, or START-Play.

The new study will take place over three sites across the United States, recruiting 150 infants between eight and 24 months old who have motor delays or early signs of cerebral palsy. The infants will be randomly placed in one of the two groups for 24 visits over a three-month period, with follow-up assessments at three, six, and 12 months after enrollment. Regina Harbourne, a physical therapist and researcher at Duquesne University is the other co-principal investigator. The University of Nebraska-Lincoln is the data management site. The University of Washington and the University of Nebraska Medical Center will also enroll children for the study.

"Cognition for free"

In practice, the biggest difference is how therapists use things like toys in the session, Dusing explained: If a therapist is helping a child crawl, she'd typically show the child a toy and then move it further away, to coax the child into extending the movement. But when incorporating cognitive learning alongside movement, a therapist would use the same toy, engage with it, and then encourage the children to do something harder with the toy, like putting the toy inside a container. That way, the child is learning something about how to use the object in addition to how to move.

Since both interventions focus on movement, Dusing said she expects the infants' motor skills will be similar at the end of the study—but she expects there will be more improvements in the cognitive

skills of the group getting the START-Play therapy. "We describe it as getting cognition for free in this [therapy](#), since we get equal motor gains," she said. In an earlier study of START-Play, the gains persisted beyond the [intervention](#) timeframe.

The ultimate goal, Dusing explained, is to understand better what type of [physical therapy](#) is the most effective for children who have [motor](#) delays and cerebral palsy. Dusing has worked as a pediatric physical therapist for 23 years, and one of the biggest questions in the field is what interventions are actually backed with strong evidence. "There are a lot of interventions for young kids that don't have a lot of evidence behind them," she said. "We don't know right now what is effective in these groups, and we want to provide that information to clinicians and parents."

Provided by University of Southern California

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