For Immediate Release

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OU Research Tests Device That Helps Disabled Infants Crawl

Study evaluates impact of device on infants' motor, cognitive and social development

Crawling is an essential milestone in a baby's development. But many infants with cerebral palsy are unable to crawl or creep and that can have lifelong consequences.

Researchers at the University of Oklahoma Health Sciences Center, in collaboration with colleagues at Virginia Commonwealth University, want to know if infants with cerebral palsy can learn to use a skateboard-like robotic device that enables locomotion. In addition, they are evaluating whether moving independently with assistance of the device will lead to improvements in problem-solving, spatial relationships, social interaction and hand-eye coordination for infants in the study.

The device, called a self-initiated prone progression crawler, or SIPPC, is more than a platform with wheels. It includes high-tech sensors that gather information about the infants' learning and mobility patterns when the baby lies on the device belly down.

"The SIPPC is unique in that it is not only an intervention device that simultaneously generates performance outcomes, but it can also be used to gather comprehensive information about how infants, both with and without cerebral palsy, learn a movement-related task like crawling," said Thubi Kolobe, Ph.D., a professor of rehabilitation sciences at the OU College of Allied Health.

Kolobe is testing the high-tech device on both babies with cerebral palsy and those who do not have cerebral palsy.

“For infants with cerebral palsy, the device provides their first opportunity for autonomy,” Kolobe said. “Infants are able to explore and gain control over their immediate environments by using the device to reach toys and follow parents and siblings around the house.”

Kolobe said this ability is vital to a child’s brain development.

“When they don’t move, cells in parts of the brain that control movement die,” she said. “This may be a way to keep those parts alive and as the infants mature, they may have access to those parts of the brain and be able to form additional connections with other parts of the brain. Our goal is not for them to walk but to be more functional and autonomous.”

Tracy Hawkins’ daughter Aniyah participated in the study. She was six-months-old at the time and one of the babies who does not have cerebral palsy who used the crawler as part of the research.

“At first she was stubborn and wanted off,” Hawkins said. “But she figured it out. “

Hawkins, who works as a housekeeper at OU Medical Center, said she hopes her daughter’s involvement will help researchers refine the machine so that it can be of use to babies with disabilities.

OU and Virginia Commonwealth have jointly filed for a patent on the technology. Ultimately it could be mass produced and sold commercially.

Peter Pidcoe, Ph.D., an associate professor of physical therapy and bioengineering at Virginia Commonwealth, said the device has several modes, a passive one that works much like an auto mechanic’s creeper; and motorized versions that can react to sensors and engage intuitively after a child initiates movement.

If the device is shown to produce improvements in babies with cerebral palsy, researchers believe it might also prove useful for infants with other developmental disabilities like Down syndrome and Spina bifida.

The research is funded by a $429,834 grant from the National Institutes for Health, which represents 85 percent of the study’s total funding, with additional funding from the Presbyterian Health Foundation, OU College of Allied Health and Foundation for Physical Therapy.

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