**iPads Help Children with Autism Develop Language**

The Apple iPad is helping children with autism who are minimally verbal learn to speak later than previously thought, according to a study funded by Autism Speaks. Researchers found that speech-generating devices can help children ages 5 to 8 develop speaking skills and learn considerably more spoken words than other interventions. All of the children in the study learned new spoken words and several learned to produce short sentences as they moved through the training.

Augmentative and alternative communication devices, which use symbols, gestures, pictures, and speech output, have been used for decades by people who have difficulty speaking. Now, with apps that emulate those devices, the iPad offers a more accessible, cheaper, and more user-friendly way to help children with autism who are minimally verbal learn to communicate. Also, the iPad is far less stigmatizing for young people with autism who rely on them for communicating with fellow students, teachers, and friends.

As many as one third of children with autism have mastery of only a few words by the time they are school age. Previously, researchers thought that if children with autism had not begun to speak by age 5 or 6, they were unlikely to acquire spoken language. But researchers believe these results may help change that notion.

Building on these findings, researchers have begun a new 5-year study using iPads in two contrasting interventions (direct teaching and naturalistic teaching) to evaluate the effectiveness of the interventions for children who have autism and use minimal spoken language. Results from this study will be available in spring 2014.


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**Studies Will Test Safety of Substance Abuse Treatment Medications**

SRI International has been awarded a 5-year contract valued up to $9.75 million from the National Institute on Drug Abuse (NIDA) to conduct preclinical safety studies of potential new medications to treat substance abuse. SRI researchers will study potential drug-drug interactions between new treatment therapies and common drugs of abuse to assess potential adverse reactions.

As part of SRI’s contract, NIDA will first identify compounds that may be potential therapeutics. Then, SRI researchers will work with NIDA to design and execute preclinical studies to assess the safety of these compounds, both individually and in combination with known drugs of abuse. In the process, SRI researchers will test compounds at various stages of drug development with the goal of advancing promising discoveries into clinical trials.


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**Nurses Bring Fresh Perspective to Caring for Troubled Teens**

Psychiatric nurses offer a missing and critical point of view in treating adolescents in foster care who have mental health issues, according to a study published in the *Archives of Psychiatric Nursing*.

The study article described the role of Julie Bertram, MSN, on a treatment team that studied foster youth and chronicled reactions to her involvement from case workers and teens.

Mental illness is a major problem for children in foster care. Three quarters have experienced serious traumas such as sexual abuse or mistrust. Typically one or both parents have histories of mental illness and substance abuse.

Not surprisingly, teens in foster care receive mental health services at a very high rate. Their use of medications for psychiatric problems is up to five times the rate of young people who are not in foster care, and many take multiple different drugs. Additionally, they frequently change psychiatrists as they move between homes, some accumulating conflicting diagnoses and medicines. As a result, they leave foster care ill-equipped to survive in the adult world, without fully understanding their mental health issues and treatment options, Bertram said.

For the qualitative research study, Bertram served on the care team of eight adolescents with histories of hospitalization for psychiatric problems. Considered high-needs youth, these teens took multiple psychotropic medications and lived and attended school in residential care foster facilities, or locked group homes, when the study began. They were transitioned out of the residential settings to live with foster families who received special training.


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**Building on these findings, researchers have begun a new 5-year study using iPads in two contrasting interventions (direct teaching and naturalistic teaching) to evaluate the effectiveness of the interventions for children who have autism and use minimal spoken language. Results from this study will be available in spring 2014.**

Bertram was the nurse consultant on the treatment team; she synthesized medical information, shared pertinent details at weekly team meetings, and intervened in times of crisis and when routine medical questions arose. She also met with teens and their foster parents, establishing a rapport and trust and teaching them how to have a voice in decisions about their medical care.

Bertram began her work by completing a comprehensive psychiatric assessment. She reviewed past medical records and charts and interviewed case managers, foster parents, psychiatrists and teens to clarify mental health issues, such as diagnoses and what medications were prescribed. She then organized the medical profile to create a comprehensive mental health summary.

Bertram said the teens each had taken an average of 13 psychotropic medications—some as many as 21—and had an average of eight different diagnoses for psychiatric problems. By conducting the initial assessment, she was able to purge old, outdated, or inaccurate diagnoses across cases, reducing the number of diagnoses to an average of two problems. She also reviewed medication profiles and recommended changes.

Case workers described the management of medical information as “ridiculously difficult” and found the newly reorganized report to be very helpful. The teens also gave positive feedback, saying that the reports answered questions they had about their diagnoses and gave them information to advocate for their own health needs.

Micromovements Hold Hidden Information About Severity of Autism

Movements so minute that they cannot be detected by the human eye are being analyzed by researchers to diagnose autism spectrum disorder and determine its severity in children and young adults, according to research presented at the 2013 Society for Neuroscience annual meeting in November.

Earlier research published in Frontiers of Neuroscience looked at the speed maximum and randomness of movement during a computer exercise that involved tracking the motions of youths with autism when touching an image on the screen to indicate a decision.

The new study looks at the entire movement involved in raising and ex-
tending a hand to touch a computer screen. The device researchers use can record 240 frames per second, which allows them to measure speed changes in the millisecond range.

“We looked at the curve going up and the curve going down and studied the micromovements,” said Jorge V. José, PhD, vice president of research at Indiana University. “When a person reaches for an object, the speed trajectory is not one smooth curve; it has some irregular random movements we call ‘jitter.’ We looked at the properties of those very small fluctuations and identified patterns.”

Those patterns also identify the degree of the severity of the person’s autism spectrum disorder, he said.

“Looking at the speed versus time curves of the motion in much more detail, we noticed that in general, many smaller oscillations or fluctuations occur even when the hand is resting in the lap,” José said. “We decided to carefully study that jitter. Our remarkable finding is that the fluctuations in this jitter are not just random fluctuations, but they do correspond to unique characteristics of the degree of autism each child has.”

Researchers said the more detailed information allows for subtyping autism spectrum disorder and Asperger’s and identifies typically developing individuals much better than what had been done before in terms of the global distribution of movements.

The next step is to compare the output of the new methodology in individuals with autism of idiopathic origins with those with autism of known etiology. The new refinement may help advance research on autism spectrum disorder to develop treatments tailored to the individual’s needs and capabilities.

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