The study of pre-teens and teenagers with ADHD examined how movement – its intensity and frequency – correlated with accuracy on cognitively demanding tasks requiring good attention. It found that participants who moved more intensely exhibited substantially better cognitive performance.

The study, “A trial-by-trial analysis reveals more intense physical activity is associated with better cognitive control performance in attention-deficit/hyperactivity disorder,” was published earlier this year in the journal Child Neuropsychology. It was the first to assess the relationship between activity and task performance on a trial-by-trial basis in ADHD.

“It turns out that physical movement during cognitive tasks may be a good thing for them,” said Julie Schweitzer, professor of psychiatry, director of the UC Davis MIND Institute ADHD Program and study senior author. “Parents and teachers shouldn’t try to keep them still. Let them move while they are doing their work or other challenging cognitive tasks,” Schweitzer said. “It may be that the hyperactivity...
MIND Institute receives grant to measure language acquisition in autism

The evaluation of new treatments for autism spectrum disorder is being hampered by the lack of validated measures to assess the progress that individuals make in such treatments. UC Davis MIND Institute researchers, in collaboration with the University of Minnesota and University of Washington, are studying the utility of methods for measuring language acquisition in people with autism spectrum disorder, in order to evaluate their treatment progress, through a $125,000 seed grant from the Simons Foundation for Autism Research.

The approach, called expressive language sampling (ELS), analyzes spoken language samples to quantify aspects of language acquisition and use, such as vocabulary, as well as atypical language use, such as excessive repetition of phrases or words, often called perseveration.

ELS is an important alternative to most standardized tests available for treatment clinicians and researchers; leaders of private autism research organizations; and service and advocacy organizations.

The committee also includes federal government members who represent agencies within Health and Human Services including: The Administration for Children and Families, Centers for Disease Control and Prevention, Food and Drug Administration, Health Resources and Services Administration, National Institutes of Health and the Department of Education.

“Working initially with the parents who started the MIND Institute and subsequently with my colleagues there has taught me the value of combining basic and clinical research, and the need for communicating research findings in a comprehensible fashion to the autism community, as well as the value of remaining open-minded about the causes and course of autism,” Amaral said. “I look forward to providing whatever guidance I can to encourage increased research in autism spectrum disorder in a positive and collegial fashion.”

Amaral received a bachelor’s degree in psychology from Northwestern University and a doctoral degree in neuroscience and psychology from the University of Rochester. He conducted postdoctoral research at Washington University.

The study will validate ELS use for people with autism, and specifically its consistency during repeated administrations and across contexts. It also will evaluate how ELS validity differs among people of different ages, genders, autism severity and IQs.

The research will include 108 6- to 23-year-old individuals with autism, and will examine the ELS methods of narration, conversation and performance on the Autism Diagnostic Observation Schedule (ADOS-2). The data will be compared to data already being collected on same-age individuals with fragile X syndrome and Down syndrome in a project already funded by the National Institutes of Health.

The PI of the project is Leonard Abbeduto, MIND Institute director.

Autism research Continued from previous page

ADHD Continued from previous page

we see in ADHD may actually be beneficial at times. Perhaps the movement increases their arousal level, which leads to better attention.”

Twenty-six children with validated ADHD diagnoses and 18 who were developing typically and served as controls were included in the study. The research was conducted at the MIND Institute. The participants were between the ages of 10 years and 17 years when the study was conducted.

The participants’ movements were measured by affixing a device to their ankles that measured their level of activity while completing a “flanker test” that requires good attention and the ability to inhibit a frequent target of treatment.”

However, we don’t yet have tools sensitive and accurate enough to measure change in language in treatment studies,” Thurman said. “The preliminary data suggests that our procedures can measure even subtle but important change in language extending into late adolescence or young adulthood for most measures.”

The study says.

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Spreading hope for autism

The room is small. There is a countertop where the mother who lives here prepares food for herself and her two young children, a 4-year-old who has autism and an infant. There are two plastic milk crates outside the doorway in the dirt, used to sit and visit with neighbors or pulled into the tiny floor space. The milk crates and a double bed are the only furniture in the small house and the only furniture that can fit.

Sally Rogers is the co-creator of the Early Start Denver Model, acclaimed as a highly effective therapy for toddlers with autism. The intervention is now used worldwide, with training materials translated into 12 languages.

Lying on towels in a plastic laundry tub on the floor, the baby is sleeping. Sally Rogers sits beside the basket on one of the crates. She extends her hand to caress the sleeping child.

The room is the entirety of the home, in a township in Cape Town, South Africa. It is the spring of 2015.

“This is the only open space in her little home – this area about four by four feet – where she cooks, where the baby sleeps in a plastic basket, where she bathes herself and her children, using this tub, where she sits on the floor to eat with her son, dresses him – on the floor,” says Rogers, a UC Davis developmental psychologist. “Everything happens right here.”

The room is lit by a small lamp – and in that fact, Rogers finds hope.

“She had electricity,” Rogers said. “She had a small TV and a VCR and a smart phone. And I realized that if we had (autism) intervention materials on YouTube, she could have used them the next day. That was a very important experience for me.”

– Sally Rogers
Co-creator of the Early Start Denver Model

“Rogers visited South Africa to explore how to bring ESDM help to families in that country. The intervention teaches parents how to help guide their children’s development and is used worldwide, with training materials translated into 12 languages. Rogers and her staff hold ESDM seminars in many countries on several continents, and multiple training sessions take place every month all over the world.”

Now she is turning her attention to further democratizing access to the intervention by making ESDM materials available on the Internet – such as placing them on YouTube – where they would be available to everyone, everywhere.

“This mother in South Africa wants the same thing for her child that all mothers want. She wants him to be able to speak, to take him places and have him behave well, to go to school, to have some sort of work to do as an adult. Those are goals of all parents of children with autism.”

“There isn’t a MIND Institute available for most children in the world with autism,” Rogers says. “Most children with autism live in China, Africa and India,” places with the world’s largest populations. “In South Africa, there are no intervention services of any kind for children with ASD under 6, regardless of the circumstances.”

Despite that fact, the mother she visited was deeply committed to helping her child, “hungry for knowledge” – like mothers everywhere.
Training the next generation

Little more than 18 months ago we announced that the MIND Institute had been selected as one of only 15 Eunice Kennedy Shriver Intellectual and Developmental Disabilities Research Centers (IDDRCs) nationwide. With this designation came a commitment to use philanthropy to support the research of the next generation of neurodevelopmental investigators through a highly competitive pilot research grant program.

From those seed funds, some of the MIND Institute’s phenomenal early career investigators, Melissa Bauman, Rebecca J. Schmidt, Verónica Martinez-Cerdeño and Andrea Schneider, already have grown promising new lines of inquiry that will yield meaningful advances for people with neurodevelopmental disorders and their families.

Dr. Schmidt, whose earlier investigations identified the importance of prenatal vitamins for expectant mothers, is extending that research to explore the contributions of maternal supplemental iron intake and variations in genes that regulate iron metabolism to development of autism symptoms in the child. Her overall goal is to identify protective factors for autism, particularly in those who are genetically susceptible.

Dr. Martinez-Cerdeño, who is exploring how maternal autism-specific brain-reactive autoantibodies directly affect neurodevelopment in utero, already has published on the subject in the journal Cerebral Cortex. She and her colleagues found that prenatal exposure to autism-specific maternal autoantibodies directly affects the development of a specific class of cells, thereby presenting a viable pathologic mechanism for the maternal autoantibody-related prenatal autism risk.

Sickness during pregnancy is known to be associated with increased risk of neurodevelopmental disorders in offspring, including autism and schizophrenia. Dr. Bauman’s research is examining a number of factors – including genetic susceptibility, the intensity of the infection and maternal immune response to infection, the timing of the immune challenge and exposure to additional adverse environmental challenges – and how they may alter fetal development.

Dr. Schneider’s project is using aspects of electroencephalography (EEG) technology to establish new, more reliable biomarkers of brain dysfunction in fragile X syndrome that could serve as potential outcome measures for future pharmacologic treatments in fragile X and related disorders, including autism.

“I’m sure you will join me in applauding the work of these early career investigators, whose efforts are superb examples of the crucial role philanthropy plays in pushing forward important science and catalyzing greater discovery. I also want to express my most sincere appreciation to all of you who have made the gifts that supported these investigators.

Leonard Abbeduto
Director, UC Davis MIND Institute

Elizabeth McBride has joined the UC Davis MIND Institute as director of development

She comes to the MIND Institute from the Virginia Tech Carilion School of Medicine and Research Institute in Roanoke, Va., where she served as director of development. Prior to her work at Virginia Tech, she worked at Memorial Health Foundation in Savannah, Ga., as a senior development manager.

“Elizabeth is a perfect fit for the MIND institute,” MIND Institute Director Leonard Abbeduto said. “She is a consummate professional, has a wonderful work ethic, understands the importance of philanthropy to innovative science and is passionately committed to helping families.”

Donors are integral to the MIND Institute and its efforts to advance progress toward treatments through its groundbreaking research. Making a gift to the MIND Institute helps the millions of individuals and families living with the challenges of neurodevelopmental disorders.

To make a gift to help improve the lives of MIND Institute patients and their families and all people with neurodevelopmental disorders, please contact Elizabeth, at 916-703-0221.

Elizabeth K. McBride