Obesity, Diabetes, and Brain Function

By Jan Rosemergy

One of the most significant health risks shared by children and adults with developmental disabilities and by the general U.S. population is obesity. According to the national Centers for Disease Control and Prevention (CDC), roughly two-thirds of U.S. adults aged 20 and over are overweight or obese, and the prevalence has increased sharply for both adults and children since the mid-1970s. Obesity rates remain high, at 31.9%, among children and adolescents ages 2-19 years.

Little is known about the national or state prevalence of obesity among persons with disabilities, because it is not routinely measured or reported. One study (Rubin et al., 1998) found that in a sample of 290 persons with Down syndrome, 45% of men and 56% of women were overweight using the criteria established in the Healthy People 2000 report, a finding that suggests that the prevalence of obesity is likely to be even higher in persons with developmental disabilities than in the general population.

Obesity and Type 2 Diabetes

Obesity increases the risk for many diseases, including type 2 diabetes, hypertension, cardiovascular disease, respiratory problems, certain cancers, and lowered life expectancy. Among obesity-related diseases, national attention is being devoted to the increase in type 2 diabetes. According to the CDC, from 1980 through 2005, the number of adults aged 18-79 with newly diagnosed diabetes almost tripled from 493,000 in 1980 to 1.4 million in 2005 in the U.S.

“Obesity and diabetes not only are major health problems in and of themselves,” said Kevin Niswender, M.D., Ph.D., “but they also have implications for mental health, depression, attention deficit hyperactivity disorder (ADHD), and even substance abuse.”

Niswender, assistant professor of medicine and molecular physiology & biophysics, is a physician-scientist who conducts innovative research on diabetes and obesity. He has teamed with Vanderbilt Kennedy Center investigator Aurelio Galli, Ph.D., associate professor of molecular physiology & biophysics, who studies the mechanisms for how neurotransmitter imbalance leads to neurological disorders such as schizophrenia, ADHD, and addiction to substances of abuse.

“What Dr. Galli and other cutting-edge investigators have hit on is that addiction biology is involved to some degree in human...”
Obesity, Diabetes from page 1

feeding behavior and potentially in the obesity and diabetes epidemics," Niswender said. "What is really phenomenal is that his work brings the process full circle. The brain controls appetite, feeding, and ultimately insulin production. What we’re beginning to understand is what happens downstream; insulin itself actually feeds back to the brain and regulates many of the processes involved in feeding and potentially addiction, cognition, and other aspects of neurological function that were previously not thought to be ‘metabolically’ regulated.”

Brain Dopamine and Obesity

Food intake is regulated by several neurotransmitters, including dopamine, GABA, norepinephrine, and serotonin, as well as by peptides and amino acids. Dopamine is of special interest because it seems to regulate food intake by modulating the “reward” circuitry of the brain. Drugs that block certain dopamine receptors increase appetite and lead to significant weight gain, while drugs that increase brain dopamine levels dampen appetite and lead to weight loss. The involvement of dopamine in pathological eating and obesity is not yet well understood, but it is an area of intense interest.

Using mouse and rat models, Galli, in collaboration with Niswender, investigates how food intake regulates neurotransmitter transporters. Neurotransmitter transporters are integral membrane proteins responsible for clearing the neurotransmitters (e.g., dopamine) from the synaptic cleft, to control the magnitude and duration of synaptic signaling. Neurotransmitter transporters include the dopamine (DAT) and norepinephrine (NET) transporters. Substances of abuse such as cocaine and amphetamine, or drugs with clinical relevance such as Ritalin (used for treatment of ADHD), act upon these transporters to alter the concentration of dopamine in the synaptic cleft.

“The focus of my laboratory,” Galli said, “is to try to understand the mechanisms of action of these drugs with the intent to improve the

“but in humans, where food intake usually occurs in a discrete meal, there are many nonhomeostatic mechanisms as well. Eating foods that are high in fat and simple carbohydrates tickle the same parts of the brain that substances of abuse activate and that mediate addiction. The work of Dr. Galli and others shows that dopamine is one of the key neurotransmitters involved in addiction and now, we think, in feeding biology as well.”

Insulin’s role typically is associated with blood sugar control and diabetes. “The whole idea that insulin does anything in the brain is beginning to receive increasing attention,” Niswender said.

The brain requires glucose, and the body requires insulin in order to use glucose effectively, he explained, but the brain does not require insulin for glucose metabolism. In fact, insulin in the brain reflects what the energy stores in the body are, so that the brain

Galli indicated that they are discovering that when an animal starts to become obese, the dopaminergic function that is involved in the reward process, as well as in cognition and motor activities, is altered. The dopamine transporter leaves the plasma membrane, affecting both dopamine clearance and brain dopamine levels. The group hypothesizes that because of brain insulin resistance that develops in obesity (or diabetes), the transporter can no longer be properly regulated.

Niswender explained that animals and humans feed in response to what are termed “homeostatic signals” related to how much fat is present in the body. If one has too little fat, the brain signals strongly to eat more to restore fat mass in order to maintain healthy, optimum metabolism. When one has too much fat in the body, what typically should happen is that the brain should signal to eat less, in order to reduce fat mass, which can be detrimental.

“These are long-term homeostatic signals that function over days, weeks, months,” Niswender said, “and added: “These are long-term homeostatic signals that function over days, weeks, months,” Niswender said, “and the brain can generate adaptive responses. If one eats the correct amount of food and the glucose level drops, insulin levels drop, and that reduction in insulin levels signals, in a homeostatic way, that one needs to eat. Galli’s lab has identified the molecular pathway from the insulin receptor all the way through to the dopamine transporters in the brain, which Niswender characterized as "phenomenally novel and important.”

Galli pointed out that diabetes has co-morbidity with other disorders, including ADHD, motor impairment, depression, and aggression. The underlying biological mechanisms of these disorders also are related to neurotransmitters like dopamine.

“What we’re really studying,” Galli said, “is how this impairment is happening. How are diabetes and obesity affecting dopamine transporter function? How does it affect the signaling pathway?”

Niswender indicated that in studies of obese persons who have had gastric bypass surgery to reduce weight, there have been reports of increased incidence of addiction to nicotine, amphetamines, cocaine, or other substances of abuse. He summarized, “The take-home message is that what we thought were separate universes of metabolism and addiction biology are now converging and overlapping quite remarkably. And certainly dopamine is a central player.”
Focuses on Down Syndrome

Hispanic Community

Migula, Interim Associate Director
Continuing the recent tradition of VKC leadership that integrates basic and clinical science, Migula announced the appointment of Interim Associate Director, Louis J. Migula, M.D., Ph.D.

His research focuses on the importance of corticortin-releasing hormone and glucocorticoids in neuroendocrine modulation, behavior, and perinatal development, and on the neurobiology and genetics of preterm birth.

"For leadership of the Center as an NICHD-funded Intellectual and Developmental Disabilities Research Center, his research strengths will complement my own clinical science strengths on behavioral phenotypes of genetic IDD syndromes," Dykens said.

Muglia joined the Vanderbilt faculty in December as the Edward Claiborne Stahlman Professor of Pediatrics, Professor of Molecular Physiology and Biophysics, and Vice Chair for Research Affairs in the Department of Pediatrics.

Previously, Muglia served as Alumni Endowed Professor of Pediatrics and Professor of Developmental Biology and Obstetrics and Gynecology at Washington University School of Medicine, Director of the Division of Endocrinology and Diabetes in the Department of Pediatrics, and Director for the Center for Preterm Birth Research at Washington University.

He also served as the Program Director for the NICHD-supported Child Health Research Center of Excellence at Washington University. Thus, in addition to research that reflects key priorities of the EKS NICHD IDDRCs, he also has substantial administrative experience that he will bring into his role of interim associate director.

"This is one of those occasions when a time of transition is proceeding smoothly," Dykens said.

"Thanks to this Center’s historical and contemporary strengths, the vision and dedication of its researchers, trainees, and staff, and Vanderbilt’s commitment to pushing the frontiers of biomedical and behavioral research and practice to improve the lives of persons with disabilities and their families, the Center has never been stronger and is looking forward to continued accomplishments."
Behavior Analysis Clinic: A Turning Point for Families

By Courtney Taylor

“I was exhausted,” said Angela Bechtel. “Our home was a very stressful place. Chase was throwing tantrums, was not following instructions, and it was not uncommon to witness the two of us involved in a physical struggle. Though we had been working with behavior consultants, I can see now it was a real problem that we did not have a behavior plan set in place. Chase would scream and one person might say, ‘stop it!’ another person might ignore it, and yet another might scream right back at him. We weren’t able to see what was motivating him to hit or to throw a tantrum. We didn’t understand the motivation behind his behaviors.”

After years of working with behavior consultants, and with no long-term improvements in Chase’s behavior, Bechtel contacted the Vanderbilt Kennedy Behavior Analysis Clinic (BAC). The BAC works with children and young adults, ages 3 to 18, who have been diagnosed with a developmental disability, and who also engage in problem behavior.

It is estimated that 17% of children and adolescents with developmental disabilities have behavior problems. Services at the Clinic are supervised by Board Certified Behavior Analysts, who provide functional behavior assessments, develop behavior intervention plans (BIP) based on the assessments and observations, and provide training in the home to support families and caregivers in the implementation of the BIP.

“What makes the services provided by a behavior analyst different from many of those provided by other types of behavior consultants is that, when we intervene, we use research-based interventions, rather than theoretical constructs that aren’t based in the hard sciences,” said Clinic coordinator, Nea Houchins-Juarez, M.A., B.C.B.A. “We observe behaviors, manipulate environmental variables, and take data to develop our interventions. We repeat measures to be sure that the interventions are socially significant for the people they affect. A behavior analyst will never put something in place that has not been shown to be effective for a particular issue or scenario.”

Chase entered the BAC to address issues of noncompliance (saying “no,” or engaging in another form of verbal delay to ignore instructions), tantrums, physical aggression, elopement (leaving the room or area without permission), and a habit of putting his fingers in his ears. On his first visit, an analogue functional analysis (AFA) was conducted. Eight 5-minute conditions were carried out in which Chase interacted with the BAC staff. During the different conditions, consequences such as “attention” were provided. After the AFA was completed, the staff indicated that Chase’s target behaviors were maintained primarily to escape demands and to access attention.

“Having someone point out why Chase was doing what he was doing was so liberating,” remembered Bechtel. “Knowing why allowed us to move forward in how to address his behaviors. I was so tired of guessing. It was incredible to have someone tell me why he was doing what he was doing, and then even more incredible for them to tell me, ‘This is what you do when Chase does this or that.’ It was absolutely liberating.”

In Chase’s behavior intervention plan, Clinic staff outlined positive procedures for the Bechtels that could be implemented to potentially prevent problem behaviors. They recommended that a picture schedule be set in place to allow Chase to anticipate future activities and to know when he would be separated from his mother. They recommended precise methods of problem solving, of prompting, and of reinforcement. They also outlined detailed instructions of how to react effectively when Chase’s problem behaviors could not be prevented.

“I won’t lie,” said Bechtel. “At times, it is difficult to follow the plan. It’s difficult for everyone to be on the same page even when it’s right in front of you. Like my daughters found it very difficult to ignore Chase when he came up and hit them. That’s a hard thing to ignore. Having my child hitting me feels so unnatural, and sometimes I couldn’t ignore it, you know? And I was supposed to ignore it. I knew he hit when he wanted attention, so if I didn’t reward him with the attention, eventually he wouldn’t find hitting a worthy path. When I did ignore it, the aggression would subside. The plan would work when I followed it. It was just hard sometimes.”

Bechtel is not alone. Houchins-Juarez says that although many parents are relieved to have the guidance of a behavior plan, they often experience difficulty in maintaining them. All have good intentions, yet many may find themselves falling into a pattern of thinking that their child should behave just because they should know better. Others may find themselves thinking that because their child has a disability, they could not possibly know better. It also is common for parents to follow the plan carefully at first, notice improvements in their child’s behaviors, and then gradually become lax in the implementation.

“It takes a lot of resolve and commitment,” said Bechtel. “It’s tiring, but you know there is a payoff. If you stick to this thing, you’re going to see results as opposed to hoping you will see results when you’re guessing at what to do. I knew it was the best option we had, so that gave me a sense that we were doing the right thing. When you know you are doing the right thing, it motivates you. I felt desperate. I knew I was working with the top people in the field, and if they think this is what needs to be done, then I am going to do it. And we have.”

Bechtel reports that Chase is doing very well. She says they still have their moments, but that, for the most part, his behaviors have improved dramatically.

“There will be times when I’m tired and won’t follow the plan,” said Bechtel. “Then, I’ll begin to notice a little bit of the behaviors coming back and that motivates me to get back to the plan and be disciplined. I can see what happens when I am not disciplined. He starts to regress and I think, ‘Oh no, I don’t want to go down that road again!’ It’s just so amazing that when you follow the plan, it really does work. The more time you spend following the plan, the easier it does get. The behavior plan was a definite turning point for our family.”

For information about the BAC, contact (615) 322-9007 or bac@vanderbilt.edu.
STAT Test Kit Now Available

The STAT is an interactive measure to screen for autism in children between 24 and 36 months of age, and it now also includes a provisional scoring system extending downward to 14 months. The STAT consists of 12 items and takes about 20 minutes to administer. Activities assess key social and communicative behaviors, including imitation, play, requesting, and directing attention. The STAT Test Kit includes: a web-based Training Tutorial, User’s Manual, Scoring Sheets, Test Materials, and Test Protocols. The STAT is designed for use by community service providers who work with young children in assessment or intervention settings and who have experience in autism.

“The STAT Test Kit can be used in diverse clinical and research settings,” said Amy Swanson, M.A., coordinator of STAT Training and Development, “for example by speech-language pathologists, developmental pediatricians, or birth-to-three service providers.”

The STAT Training Tutorial, included in the Test Kit, is an interactive, web-based application that provides thorough instruction on item administration and scoring, and includes video examples and practice tests. Information about interpreting the STAT results and explaining results to parents is provided.

Certification for independent use of the STAT can be obtained by successful completion of the Tutorial Posttest. One-day STAT Training Workshops also are available periodically at the Vanderbilt Kennedy Center.

“As a community provider who uses the STAT, I find this tool adds significantly to aid early identification of children referred with social communication concerns and suspected autism,” said Quentin Humberd, M.D., FAAP, developmental behavioral pediatrician and chief of the Exceptional Family Member Program, Blanchfield Army Community Hospital, Ft. Campbell, Kentucky.

The STAT was developed by TRIAD director Wendy Stone, Ph.D., professor of pediatrics and psychology, with Opal Ousley (now at Emory University), with grant support from the U.S. Department of Education’s Office of Special Education and Rehabilitative Services.

Development of the Training Tutorial was funded by a National Institute of Mental Health Small Business Innovation Research Grant to Ken Kobak.

To obtain the STAT Test Kit, contact (615) 322-6533, STAT@vanderbilt.edu, TRIAD.vanderbilt.edu/STAT.

Wow! Look There! Baby Sibs and Joint Attention

The most effective treatments for autism spectrum disorders (ASD) involve early intervention—and the earlier intervention begins, the greater the potential benefit. A challenge to “acting early” is that the developmental signs of autism before age 2 are not yet clear—which is why autism researchers are studying the development of “baby sibs.”

Younger children of siblings on the autism spectrum are at elevated risk for autism, although risk is still low,” said Wendy Stone, Ph.D., TRIAD director and professor of pediatrics and psychology. Later-born siblings of children with ASD show varied social-communication developmental outcomes, ranging from ASD behaviors, to less serious symptoms like language delay, to no detectable symptoms.

Stone is directing a new study that examines joint attention, an aspect of social and emotional development. Impairments in social and emotional development are a core feature of ASD.

“Joint attention is the ability to attend to an event or object and to share that experience with another person, usually with a positive emotional expression like a smile or laugh,” explained Elizabeth Catania, Ph.D., the study coordinator.

Joint attention has two components. First, it involves the ability to shift one’s attention away from one thing and toward another. Second, it involves being able to share enjoyment in an object or event. Even a baby can show joint attention by gazing from dad to a teddy bear and back to dad while smiling, cooing, or arm waving.

“We’re investigating how these two skills combine and develop over time in infants who have an older brother or sister with autism and in infants with older siblings who are typically developing,” Catania said. “We want to understand how these two skills develop over time and the extent to which each of them contributes to the development of joint attention involving positive affect—like smiling—and social engagement with others, and how it affects later development of language and social skills.”

Infants enter the study at either 6 or 12 months of age, and are followed at regular intervals. The study involves five to seven visits at 6, 9, 12, 15, 18, 24, and 36 months of age. Each visit includes a variety of interactive social and play activities, as well as measures of brain activity. Families will be compensated for their time and expense.

Families interested in taking part can contact (615) 343-3723 or babysibstudy@vanderbilt.edu. The project is supported by a grant from the Eunice Kennedy Shriver National Institute of Child Health and Human Development.
Leading the Vanguard of Discovery

FRANK E. HARRELL, JR., PH.D.
Professor of Biostatistics and Chair of the Department
Director of Vanderbilt Kennedy Center Statistics and Methodology Core
Vanderbilt Kennedy Center Member
Joined Vanderbilt Kennedy Center 2006

Mitchell Lecturer, Department of Biostatistics, Glasgow University, 2008

Selected Publications
The first two publications listed below are the #1 and #3 most cited publications in the 27-year history of Statistics in Medicine.


Research Interests
Statistical analysis
Clinical prediction
Statistical models
Statistical computing and open-source software
Statistical graphics
Statistical reporting
Research data management
Cardiovascular disease
Medical applications of statistics
Clinical trials
Clinical safety assessment and analysis in pharmaceutical trials
Risk adjustment
Health services and outcomes research
Pharmaceutical research
Medical diagnosis and prognosis

Clinical Interests
My interests are primarily focused on statistical and graphical methods for biomedical research and study design. Before joining Vanderbilt in 2003, I was involved primarily in cardiovascular disease diagnosis, prognosis, and treatment. I remain very involved in drug development, randomized clinical trials, and assessment of pharmaceutical safety. Since coming to Vanderbilt, I have become involved in sports medicine research, basic research, and a host of other areas, including developmental disabilities.

Principal Investigator
• Study to Understand Prognoses Preferences Outcomes and Risks of Treatment, Robert Wood Johnson Foundation. I am director of the Statistical Center for this multi-center study of end-of-life decision making.
• I have been co-investigator on many NIH grants, e.g., in the areas of cardiovascular disease, orthopedics, statistical methodology, health services research, pulmonary disease.
• I direct the Design Biostatistics and Research Ethics Core for the Vanderbilt Institute for Clinical and Translational Research.

Honors and Awards
Fellow, American Statistical Association, 2005
Distinguished Alumnus Award, School of Natural Sciences and Mathematics, University of Alabama-Birmingham, 2005

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Grants Awarded

Manganese Exposure and Huntington Disease
Aaron Bowman, Ph.D. (Neurology)
National Institute of Environmental Health Sciences

Visual System Organization and Development
Vivien Casagrande, Ph.D. (Cell and Developmental Biology)
National Eye Institute

Calculations, Word Problems, and Algebraic Cognition
Lynn Fuchs, Ph.D. (Special Education)
National Institute of Child Health and Human Development

National Children’s Study—Vanderbilt Medical Center Site
Betina Bech, D.P.H., M.P.H. (Medicine) (PI); Katherine Hartmann, M.D., Ph.D. (Obstetrics and Gynecology) (co-PI); Robert Hodapp, Ph.D. (Special Education) and Richard Urban, Ph.D. (Pediatrics) (collaborators)

Parent-Based Sleep Education Program for Children with Autism Spectrum Disorders
Beth Malow, M.D. (Neurology)
Autism Intervention Research Network on Physical Health (AIR-P), Health Resources and Services Administration

Vitamin C Transporters in the Brain
James Hay, M.D. (Medicine)
National Institute of Neurological Disorders and Stroke

Molecular Genes of Neural Specificity
David Nilis, Ph.D. (Cell and Developmental Biology)
National Institute of Neurological Disorders and Stroke

Consequences of In Vivo Neurochemical GAD67 Downregulation
Karyl McEvoy, M.D. (Psychiatry)
National Institute of Mental Health

Social-Emotional Development of Infants at Risk for Autism Spectrum Disorders
Wendy Stone, Ph.D. (Pediatrics)
National Institute of Child Health and Human Development

LEND Pediatric Audiology Subaward to MIND Training Program (Mid-Tennessee Interdisciplinary Instruction in Neurodevelopmental Disabilities)
Anne Marie Thomas, Ph.D. (Hearing and Speech Sciences)
Maternal and Child Health Bureau, Health Resources and Services Administration

LEND Autism Expansion Award to MIND Training Program (Mid-Tennessee Interdisciplinary Instruction in Neurodevelopmental Disabilities)
Mary Therese Urban, M.P.H., Ph.D., N.R. (Pediatrics)
Maternal and Child Health Bureau, Health Resources and Services Administration

Sertorius Transporter Variant Associated With Autism
Jeremy Vennata, Vanderbilt U, M.D. (Psychiatry)
Autism Speaks

VCK Nicholas Habbs Discovery Grants

The Carroll Family Discovery Grant
Thalamocortical Pathways and Sensory Processing in Autism
Caritas Cacchio, Ph.D. (Psychiatry)

Donna and Jay Richards Discovery Grant
Impact of Stress on Behavior and Family Functioning in Angelman Syndrome
Suzanne Goldman, Ph.D. (Nursing)

Generating Patient-Derived Pluripotent Stem Cells for the Study of Down Syndrome
Aaron Bowman, Ph.D. (Neurology)

A Targeted Proteomic Approach to Identify Proteins Underlying the Pathogenesis of Angelman Syndrome
Kevon Haas, M.D., Ph.D. (Neurology)

Marino Autism Research Institute Discovery Grants

Reaction to Diagnosis and Parental Well-Being in Families of Young Children Recently Diagnosed With ASD
Zachary Warren, Ph.D. (Psychiatry)

Is Social Interaction Aversive or Not Motivating for Children with Autism Spectrum Disorders?
Barbara L. Thompson, Ph.D. (Psychology)
Synergy in MIND Training

By Jan Rosemberg

Synergy is the term that recurs when Terri Urbano, M.P.H., Ph.D., describes the MIND Training Program, which she directs. Synergy is the energy that comes from a unique coming together of parts—and, in many ways, that’s an apt description of MIND—Mid-Tennessee Interdisciplinary Instruction in Neurodevelopmental Disabilities.

A National LEND Program

MIND is Vanderbilt’s LEND Program. Each LEND—Leadership Education in Neurodevelopmental Disabilities—provides long-term, graduate-level interdisciplinary training as well as interdisciplinary services and care. Funded by the Health Resources and Services Administration, Maternal and Child Health Bureau, LENDs aim to improve the health of infants, children, and adolescents with disabilities by preparing trainees from diverse professional disciplines to assume leadership roles in their respective fields and by insuring high levels of interdisciplinary clinical competence. MIND is among 34 LENDs in 27 states.

Established at Vanderbilt within the Department of Pediatrics’ Center for Child Development, recently MIND moved administratively to the Vanderbilt Kennedy Center (VKC), a member of two national networks with whom LENDs partner. The VKC is among 34 national Eunice Kennedy Shriver Intellectual and Developmental Disabilities Research Centers and is among 67 University Centers for Excellence in Developmental Disabilities, which provide training, research, services and technical assistance, and dissemination.

“MIND is a perfect fit,” said Urbano. “It’s one leg of a three-legged stool, where interdisciplinary training, research, and service programs work together and serve as catalysts for innovation in all three areas. It’s a comprehensive approach to meeting the needs of families.”

Vanderbilt Pediatrics continues to be central to MIND, with Tyler Reimschisel, M.D., assistant professor of pediatrics and neurology and director of the Division of Developmental Medicine and Cognition, serving as MIND associate director. The Center for Child Development and other Pediatrics clinics serve as major sites of clinical experiences for MIND trainees.

MIND Training Program

The MIND Training Program has several components. An academic component involves coursework specifically related to neurodevelopmental disabilities. Professionals from multiple disciplines, family members, and disability advocates present seminars on specific disabilities, early identification and screening, diagnosis and intervention. Various perspectives are included, e.g., disability policy and advocacy.

The family component is equally crucial. Julie Sullivan, co-director of Family Voices of Tennessee and a parent of a child with a disability, is a MIND faculty member. In collaboration with the Families As Mentors Program of the Junior League Family Resource Center, Monroe Carell Jr. Children’s Hospital at Vanderbilt, MIND trainees have experiences with families in their homes, where families are teachers. A family trainer is funded in part by the Tennessee Council on Developmental Disabilities, which also is designated a UCEDD (University Centers for Education and Disability) by the U.S. Department of Education. Trainees participate in community settings, where they learn about resources available to families and acquire leadership skills. “It allows us to bridge the gap between academic education and real-life community-based experience,” Urbano said. Students also work with their faculty mentors in clinical settings in their own disciplines and take part in interdisciplinary clinics.

Trainees carry out group projects so that they gain experience in interdisciplinary teaming, and they do individual projects that prepare them for future leadership roles in academic settings or in community health care systems.

MIND includes faculty from Vanderbilt University, Belmont University, Tennessee State University, M.D. Mary Medical College, and the University of Tennessee. Students enter via their respective graduate degree programs at these universities, and their faculty advisors, MIND faculty, recommend them as MIND trainees; MIND also accepts postdoctoral trainees.

Autism Expansion

The synergy created by MIND as part of the VKC is exemplified by MIND recently receiving a competitive supplementary LEND grant to train professionals across disciplines to identify, assess, and provide services for children with autism spectrum disorders. It was among only 18 universities and research organizations nationally to receive the funding.

“This funding is of major importance to Tennessee, since our state, like so many others, lacks enough trained professionals to meet the dramatically increasing needs of families affected by autism,” indicated Urbano. The participation of the VKC Treatment and Research Institute for Autism Spectrum Disorders (TRIAD) contributed to this successful effort.

“TRIAD is key to MIND’s expansion in training related to autism,” Urbano said. “We’ll now have additional trainees who are interested in acquiring diagnostic skills, gaining experience in our specialty autism clinics, and learning about clinical services. Additionally, trainees will gain knowledge and skills in the development of research tools. We’ll provide community professional education, as well as autism-related product development of public education materials.”

In addition, the autism supplement allows MIND to expand distance training for the Tennessee Department of Health. The MIND Training Program has provided monthly distance education to Tennessee public health nurses and other public health personnel for several years. “Now we’ll be able to have a specialized focus on autism. This is important because so many nurses work as ‘first-line responders’ in their communities, which often lack the resources for early identification and intervention,” Urbano indicated. “This is a really unique opportunity to partner with a State agency and to contribute positively to the whole system of care.”

Act Early Regional Summit

Still another example of synergy is the partnering of MIND, the VKC UCEDD, and the University of Tennessee Boiling Center for Developmental Disabilities, which also is designated a UCEDD and a LEND, which hosted a regional Act Early Summit in January 2009. The Act Early Summit pulled together key stakeholders in Tennessee and their counterparts in Kentucky, North Carolina, and South Carolina to improve systems of care for children with autism. This regional summit was sponsored by the National Center for Birth Defects and Developmental Disabilities of the Centers for Disease Control and Prevention and the Maternal and Child Health Bureau, Human Resources and Services Administration, with support from the Association of University Centers on Disabilities.

“We would not have been positioned to host this Summit if we hadn’t had pre-established working partnerships. These collaborations serve as a catalyst for statewide initiatives like the Act Early Summit,” Urbano said.

For information on MIND, contact (615) 936-1104; MIND@vanderbilt.edu.
All That a Playground Can Do  

By Courtney Taylor

The two playgrounds at the Susan Gray School (SGS) do more than provide a fun and exciting outlet for children eager to exert their energy. They do more than facilitate an environment where the students can develop social and motor skills, focus their attention, and build self-confidence and self-esteem. They even do more than positively contribute to the students’ health, imagination, and classroom performance. The playgrounds at Susan Gray School tell stories. They tell stories about overcoming grief through acts of generosity, and stories about learning how to advocate for one’s place in a whole new inaccessible world.

When Sorrow Leads to Joy

C. Robb Swaney was an architect and a Nashville native. In 2001, Keith Crabtree, the son of the late Brenda Crabtree, with whom Swaney had worked for over 17 years, was tragically killed just 2 weeks after graduating from high school. Everyone in Swaney’s office went into deep mourning, and Swaney and his wife Mary Jane decided to donate a gift to an organization to honor Keith’s life. They chose to donate to the Susan Gray School. Keith had volunteered at SGS over a summer and had been deeply affected by his experiences there. Originally planning to donate a bench or a swing set, Swaney changed his mind after touring the school’s playground.

“Robb was concerned that the playground for the 2- to 3-year-olds was in terrible shape,” remembered Mary Jane Swaney. “After a tour of the School, he came home and declared he was going to design and coordinate construction of an entire new playground. I remember going on a tour of playgrounds across the city on a very dreary day. We learned all kinds of things about playgrounds. We learned about constructing a covering for the sandbox to prevent animals from adopting it as their restroom. We learned about creating a ground surface that is cushioned to prevent injuries. We learned also that many young children are afraid of large structures, and so scaling the pieces down became a part of Robb’s design.”

Swaney worked diligently designing, recruiting contractors, and raising funds. Along with the Swaney’s gift, generous gifts were received from Sam and Linda Brooks, from the Tennessee Titans, and from other private donors. During that time, Swaney became very ill and although he was able to witness children playing on the playground, he did not live to attend the dedication. C. Robb Swaney died in September 2002.

“He had given more than his strength,” said Mary Jane. “Though he grew weaker each day, the amount of joy that he received in the completion of the playground was boundless.

The personal relationships we formed during that time were so important to all of us. We were like a family and were a part of something very special. Robb took a very tragic situation and transformed it into a gift that will enable joy in children for years to come.”

When Watching From Afar Leads to Action

The Finan Family Playground—for the 4- to 5-year-olds at Susan Gray School—would be designed, constructed, and dedicated 6 years later in 2008. Spearheaded by Kelly Finan, Vanderbilt senior and SGS volunteer, the new playground is barrier-free and accessible for all SGS students.

“I was doing crafts with the kids one day, and after we finished we headed out to the playground for playtime,” remembered Finan. “While some of the children ran around freely, enjoying the playground equipment, the children with physical disabilities and I sat at the top of a dirt-covered hill just watching. We couldn’t get to the equipment. I knew right in that moment that something needed to be done.”

Finan found herself empathizing with the children with physical disabilities in a very real and personal way. Health concerns, which had kept her in and out of the hospital during the year prior and had made walking without pain impossible for her, dictated that Finan return to Vanderbilt to complete her undergraduate degree using a wheelchair.

“I was going through a major life adjustment,” said Finan. “Although I was getting healthier each day, it was apparent that my life was forever changed. I knew the kids were receiving an excellent education, but I also knew that something about what I witnessed from the top of that dirt-covered hill was not fair. I met with Ruth [Wolery] and set to work.” Wolery, Ph.D., SGS director, was well aware of and distressed about the playground’s inaccessibility, and had been working to raise funds for years, primarily through the SGS annual “Holidays Around the World” event. To begin her efforts and also to fulfill a requirement of a social justice class she was taking, Finan decided to develop a “mock grant proposal.” She began brainstorming with Wolery, with her mentor Ann Neely, Ed.D., Associate Professor of the Practice of Education, and with Shan Foster, Vanderbilt senior and basketball player.

Finan’s efforts paid off when Shan’s coach, Kevin Stallings, and David Williams, J.D., vice chancellor for university affairs and athletics, became involved and pledged financial support from Vanderbilt Athletics. A number of private and anonymous donors also stepped in to help, as did Finan’s parents, Tom and Mary.

“My parents are so amazing,” said Finan. “They knew how important the project was for me, and their financial and emotional support and encouragement during the whole process was overwhelming. Once the funding was in place, the work began on the construction. I went home for the summer, but I was able to watch the playground’s progress over a webcam. I feel so lucky to have the playground as a tangible and effective way to leave my mark as a Vanderbilt student.”

When Watching From Afar Leads to Action

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Postsecondary Education Program Launched

The Vanderbilt Kennedy Center for Excellence in Developmental Disabilities (VKC UCEDD) has received a 3-year grant from the Tennessee Council on Developmental Disabilities (TN Council) to develop and coordinate a Postsecondary Education Program for students with intellectual disabilities at Vanderbilt University. The program will be the first of its kind in Tennessee.

“The Council made a commitment to develop a pilot project on the campus of a Tennessee college or university for postsecondary students who have an intellectual disability and did not receive a high school diploma,” said Wanda Willis, TN Council executive director. “Continuing education programs like this are increasingly available on college campuses across the country. At present, Tennessee does not have such a program. Our goal is to launch a demonstration project on the campus of Vanderbilt University on January 1, 2009.”

Vanderbilt will accept its first students in January 2010, after an initial planning year. Working with University of Minnesota, UCLA, University of Hawaii, Ohio State University, and University of South Carolina. Other participating universities include the University of Minnesota, UCLA, University of Hawaii, Ohio State University, and University of South Carolina.

For information contact (615) 343-2540; elise.mcmillan@vanderbilt.edu

Teen Fusion Rocks!

On a December Saturday, a unique group of teens was enjoying bowling, eating, and talking—marking the first event of Teen Fusion, a new Vanderbilt Kennedy Center sibling support program exclusively for teenagers.

Previously, these teens attended SibSaturdays, a sibling support group that includes games like “clothes-pin tag” and “knots,” decorating holiday paraphernalia like trick-or-treat bags, and, of course, discussing their roles as siblings, with the help of the “Wheel of Feelings.” Now Teen Fusion allows for these teen siblings to engage in more age-appropriate activities but still have the support they value.

Ashley Coulter, an adult sibling and facilitator for SibSaturdays, says that the impetus for Teen Fusion was to provide activities and support for teens “who were aging out of SibSaturdays but didn’t want to quit coming.” This program, which gives the teens more support and independence, is one of the first of its kind.

“I would have appreciated that [kind of support] growing up,” Coulter adds.

Another aspect of Teen Fusion is “Junior Facilitators,” which gives teens an opportunity to help the 5- to 7-year-old siblings at SibSaturdays.

Discussion began slowly, but once they were asked where they wanted to go and what activities they wanted to do at their Teen Fusion meetings, voices chimed in and the participation and energy rose. Upcoming events may include rock climbing, ice skating, video gaming contests, and Vanderbilt sporting events.

With a swift segue into a discussion of siblings, it was soon discovered that everyone present was older than his or her sibling with a disability, chronic health condition, or mental health concern. With some adult-sized responsibilities of helping to care for their younger sibling, the teens expressed that they took these new duties in stride, and were glad that they knew a group of people who were going through some of the same things as they were.

Kendall Hill and Derek Putthoff, both long-time SibSaturday goers, were part of the first group of teenagers to experience Teen Fusion. Both said they were excited to visit new places and were happy to be around people their own age.

“I thought it would be more grown-up than SibSaturdays, and Teen Fusion was fun because we got to bowl,” said Putthoff. Both Hill and Putthoff, along with seven other Teen Fusion peers, also are interested in becoming Junior Facilitators.

When asked what words of encouragement he might offer to a “new” sibling, Hill suggested that they “keep on going. It’s all right, no matter the situation. Just have faith it’ll be okay.”

For information contact the Vanderbilt Kennedy Family Outreach Center, (615) 936-5118.

Hillary Hamblen is an AmeriCorps volunteer.
From Dinner to Discovery  By Jan Rosenergy

When Brian was 4 months old, he had open-heart surgery at Vanderbilt Children’s Hospital, and I vividly remember thinking how lucky we were to have such a facility available to us,” said Kelly Clippinger, addressing over 200 persons attending the Vanderbilt Kennedy Center Leadership Dinner. “I didn’t realize then that we were equally lucky to have the Kennedy Center right across the street. The impact it has had on Brian’s life is invaluable, and he will continue to benefit from the skills he has learned, through his adolescence and into adulthood.”

The Clippinger family, the Dinner’s Honorary Chairs, were part of an inspirational night at the Dinner, held November 11 and attended by Nicholas Hobbs Society members and their guests. The Dinner is an annual celebration of community support for scientific discoveries to create a better future for individuals with disabilities and their families.

The Discovery Dinner was planned by Cathy Stewart Brown, Leadership Council Chair, with Donna Eskind and Shirley Speyer, Nicholas Hobbs Committee Co-Chairs, who led table sponsorships. Over $100,000 was raised through Hobbs Society memberships and table sales.

Entertainment was provided by the W. O. Smith School Singers directed by Lynn Adelman, music director of the VKC Music Camp.

The funds raised support Innovative Discovery Grants for VKC researchers investigating the causes and treatments of disabilities.

Hobbs Discovery Grants

The “Dinner to Discovery” theme was highlighted by VKC investigator Beth Malow, M.D., associate professor of neurology, who reported findings from her research on sleep disorders in children with autism and other developmental disabilities. Malow’s Hobbs Discovery Grant has led to funding by Autism Speaks of a larger study to investigate the use of melatonin to improve sleep in children with autism.

Discovery Grants for 2009-10 were announced. The Carol Family Discovery Grant was awarded to Carissa Casco, Ph.D., assistant professor of psychiatry, to investigate brain pathways and sensory processing in autism. Suzanne Goldman, Ph.D., assistant professor of neurology, received the Donna and Jay Richards Discovery Grant, which she will use to study the impact of sleep on behavior and family functioning in Angelman syndrome. Discovery Grants also were awarded to Aaron Bowman, Ph.D., assistant professor of neurology, and Karen Summar, M.D., assistant professor of pediatrics and director of the Vanderbilt Down Syndrome Clinic, for research on the use of patient-derived stem cells in the study of Down syndrome; and to Kevin Haas, M.D., Ph.D., assistant professor of neurology, to identify proteins relating to the genetics of Angelman syndrome.

MARI Discovery Grants

Marino Autism Research Institute (MARI) Discovery Grants were awarded to Zachary Warren, Ph.D., assistant professor of clinical psychiatry, who is examining reaction to diagnosis and parental well-being in families of young children recently diagnosed with autism; and to Barbara Thompson, Ph.D., postdoctoral fellow, who is investigating whether social interaction is aversive or not motivating for children with autism. The MARI Discovery Grants are supported by the Dan Marino Foundation.

Clippingers, Honorary Chairs

The Clippinger family served as Honorary Chair. Kevin and Kelly Clippinger shared their family’s story of how VKC service and research programs have helped their son Brian, who has Down syndrome, and how their other children Patrick and Blythe have found their own VKC program in SibSaturdays.

“The Vanderbilt Kennedy Center has been a part of our vocabulary since our son Brian was born with Down syndrome 11 years ago,” the Clippingers said. “The first local Down Syndrome Association meeting we attended was held at the Center, and at that time we had no idea what a constant and important role the Kennedy Center would play in our lives.”

Brian attended Explorers Camp, where he took part in a pilot research study on a method of teaching children with Down syndrome to read. “At Explorer’s Camp, the researchers taught Brian, without his realizing it was a lesson, and it was a fun and amazing experience for him. Only recently did we realize that the study was made possible by a Hobbs Discovery Grant.”

Continued on page 11
The Clippingers shared that the VKC Reading and Behavior Analysis Clinics continue to provide the education, skills, and the support that helps their family.

“We have been overjoyed with the progress Bryan has made in reading over the last several years that he's been enrolled at the Reading Clinic—especially since we know that reading is an essential skill that will serve him the rest of his life. Reading is now his favorite subject at school, behind lunch and recess. Brian’s progress in reading was confirmed when we received his first TCAP scores in August. We were thrilled to find that his overall reading score was just one point shy of qualifying him as proficient for his grade level. We know Bryan could not have accomplished this without the support of the Reading Clinic.”

The Clippingers gave special thanks to VKC Leadership. “We are indebted to member Andrea McDermott and the Spickard family for endowing the Team William Scholarship for the VKC Reading Clinic; Brian was its first recipient.

“...the Clippingers summarized. “There is a synergy that is special and unique to the Center, and it is clear that everyone there is working to set all children up for success in the future.”

Levitt and his wife Harla received a framed collage made up of all the commemorative plates featuring work by artists with disabilities, which have been gifts at each Dinner—an idea, along with art note cards, which have been gifts by artists with disabilities, which have been gifts made, we offer our sincerest apology and ask that you contact (615) 343-5322.

From Dinner to Discovery

from page 10

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Spring 2009 Discovery

Leadership Council of Vanderbilt Kennedy Center

Mrs. Cathy S. Brown, Chair
Mrs. Annette S. Ekkind, Past Chair
Mrs. Barbara Gregg Phillips, Past Chair
Mrs. Honey Alexander
Mrs. Sissy Allen
Mrs. Dana M. Atkins
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Mr. Glenn Funk
Mrs. Charlotte Guigian
Mrs. Bernice Gordon
Mrs. Carol Henderson
Mr. Robert W. Henderson II
Ms. Luslie Houseworth
Ms. Bethany Jackson

Please keep the Calendar insert and also check the Event Calendar on the VKC website for updates. If you wish to receive event announcements by email, send your email address to amy.pottier@vanderbilt.edu. Event announcements are no longer being direct mailed. Thank you.

Improved VKC Website

Visit kc.vanderbilt.edu
Easy access to Research, Services, and Training at the Vanderbilt Kennedy Center
Features include:
News and Events—links upcoming events, news, and featured video or podcasts
Topics—includes 97 research and disability-related topics, each linking to related grants, services, researchers, news, and video or podcasts
StudyFinder and the Research Family Partners registry provide ways to take part in research
Subscription—includes RSS feeds so that website content can be syndicated to site visitor’s personal feed reader program or online news aggregator
Website meets accessibility standards of Worldwide Web Consortium and includes an Accessibility Options troubleshooting section
Comments and suggestions welcome!
Contact VKC webmaster nick.williams@vanderbilt.edu

Discovery is a quarterly publication of the Vanderbilt Kennedy Center designed to educate our friends and the community, from Nashville to the nation. The Center is committed to improving the quality of life for persons with disabilities of thinking, learning, perception, communication, mood and emotion caused by disruption of typical development. The Center is a university-wide research, training, diagnosis, and treatment institute. It is a Eunice Kennedy Shriver Intellectual and Developmental Disabilities Research Center funded by the Eunice Kennedy Shriver National Institute of Child Health and Human Development, and a University Center for Excellence in Developmental Disabilities (UCEDD) funded by the Administration on Developmental Disabilities.
## Calendar of Events

Unless otherwise noted, events are free and open to the public. Events are subject to change.

**Please check the calendar and also check the Event Calendar on the VKC website for updates. If you wish to receive event announcements by email, send your email address to amy.pottier@vanderbilt.edu. Event announcements are no longer being direct mailed. Thank you.**

For disability-related training and other events statewide and nationally, see **Pathfinder Disability Calendar** www.familypathfinder.org

### March

#### FEBRUARY 21
Adapting Daily Routines: Mealtime, Bathtime, and Bedtime

**MARCH 11**
Developmental Disabilities Grand Rounds
Siblings of Individuals with Intellectual Disabilities Over the Life Span
Julie LoundsTaylor, Ph.D., Assistant Professor of Pediatrics and Special Education
Co-Sponsor VKC Interdisciplinary Training Council and Pediatrics
Wednesday 8 a.m. Room 241
Vanderbilt Kennedy Center/MRL Building

**MARCH 26**
Lectures on Development and Developmental Disabilities
Pediatric Anxiety: Current and Future Approaches to Therapeutics
Daniel Pine, M.D., Chief of Emotion and Development Branch, Chief of Section on Developmental and Affective Neuroscience, Chief of Child and Adolescent Research in the Mood and Anxiety Disorders Program, National Institute of Mental Health
Thursday 4:10 p.m. Room 241
Vanderbilt Kennedy Center/MRL Building

### April

**APRIL 1**
Developmental Disabilities Grand Rounds
Immune Transcriptome Changes in the Temporal Cortex of Individuals with Autism
Karyn Mirnics, M.D., Associate Professor of Psychiatry
Co-Sponsor VKC Interdisciplinary Training Council and Pediatrics
Wednesday 8 a.m. Room 241
Vanderbilt Kennedy Center/MRL Building

**APRIL 3-4**
Tennessee Adult Brothers and Sisters (TABS) First Annual Conference

Keynote speakers:
- **M. Doreen Crosier**, Executive Director, American Association of Intellectual and Developmental Disabilities
- **Laurie Stallings-Vanderpool**, Sibling

Topics include futures planning, caring for caregivers, research, legislation and advocacy, family dynamics and relationships
Co-sponsors Tennessee Council on Developmental Disabilities, University of Tennessee Boiling Center for Developmental Disabilities, Harwood Center, and TigerEye Advisory, LLC
Friday-Saturday, Holiday Inn Select at Vanderbilt, 2613 West End Ave., (888) 465-4329
$45 fee covers registration, meals, snacks, TABS t-shirt
Register (required) at kc.vanderbilt.edu/registration or contact (615) 322-8529 ext. 15

**APRIL 15**
Neuroscience Graduate Seminar
Serotonin Modulation of Brain Development: Impact on Affective- and Anxiety-Related Adult Phenotypes
Jay Gingrich, M.D., Ph.D., Assistant Professor of Psychiatry, Columbia University; Director, Sakker Laboratory of Translational Neurogenetics, New York State Psychiatric Institute
Co-sponsor Vanderbilt Brain Institute
Wednesday 4:10 p.m. Room 1220
MRB III Lecture Hall

### May

**MAY 15**
Waddell & Reed Financial Services Charity Golf Tournament
Benefiting Vanderbilt Kennedy Center Camps
Friday 7:30 a.m.
Hermitage Golf Course, The General's Retreat
Contact (615) 343-5322
kc.vanderbilt.edu/golf

**TRIAD School-Age Services**

With the TN Department of Education, TRIAD offers free autism-specific workshops for parents, school personnel, and the community.

These events are held in different locations across the state.

Information and registration, contact: Linda.Copas@state.tn.us, (615) 741-7790
See also tennessee.gov/education/speced/seannounce.shtml

**MARCH 3**
Full-Day Workshop for Special Educators and Parents (Jackson)

**MARCH 6**
Full-Day Workshop for Special Educators and Parents (Nashville)

**MARCH 25-27**
TRIAD Teacher Training: Basic Middle/High School (Nashville)
VKC Summer Camps

Contact Gretchen Herbert, Recreation and Art Coordinator, (615) 321-8761

J une 8-J une 26
TRIAD Social Skills Camp
June 8-12, June 15-19, June 22-26
Three 1-week sessions for campers, ages 7-11
3-week session for campers, ages 12-21

J une 8-26
Camp Shriver Transitions and Sports Camp
For campers with developmental disabilities, ages 16-25

J uly 5-10
Music Camp
For campers, ages 16 and up, with developmental disabilities

Vanderbilt Kennedy Center Exhibits
Monday-Friday 7:30 a.m.-5:30 p.m., Lobby
Vanderbilt Kennedy Center/M R L Building
For information contact (615) 321-8761

J ANUARY 30-MARCH 27
Expressions Through Color
Co-sponsored by the Frist Center for the Visual Arts

APRIL 1-J JULY 31
Art Through the Eyes of Autism
Co-sponsored by VSA Arts of Tennessee and Autism Society of Middle Tennessee (ASMT)
Reception at the Vanderbilt Kennedy Center on Thursday, April 23, prior to the ASMT educational workshop

Behavior Analysis Clinic
For families of children, 3-18, with developmental disabilities
Contact (615) 322-9007

Sibling Supports
For children, teens, and adults who have a sibling with a disability, chronic health care issue, or mental health concern
For all programs below, contact (615) 936-5118
roxanne.carreon@vanderbilt.edu

APRIL 11, J UNE 13, AUGUST 8, OCTOBER 10, DECEMBER 12
SibSaturdays
Ages 5-7 and 8-13 years
Games, friends, conversation
$10/child or $20/family
Financial assistance available
Advance registration required
Saturdays Room 241 Kennedy Center/ M R L Building
See also SibSaturdays sponsored by Autism Society of Middle Tennessee and Down Syndrome Association of Middle Tennessee

MARCH 14, J UNE 20, SEPTEMBER 12, DECEMBER 19
Teen Fusion
Ages 13-17
Fun field trips
Locations and activities vary

Tennessee Adult Brothers and Sisters (TABS)
Contact Ashley Coulter, (615) 322-8529 ext. 15
Register online at kc.vanderbilt.edu/site/services/disabilityservices/tabs.aspx
See April calendar for conference details

Statewide Directory
2007-2008 Disability Services and Supports West, M iddle, and East Tennessee volumes
$25 per directory
Contact (615) 322-8529 ext. 15
ashley.coulter@vanderbilt.edu
Project of Vanderbilt Kennedy Center for Excellence in Developmental Disabilities and Tennessee Council on Developmental Disabilities

Community Events

APRIL 4
Team William Mini-Marathon (5K Run/Walk)
Saturday  Warner Parks-Vaughn Road
Registration 8 a.m. Race begins 9 a.m.
Information 370-8115
aspickard@harpethhall.org
Proceeds benefit Team William Scholarship Endowment, VKC Reading Clinic

MAY 28-30
Tennessee Disability MegaConference
Nashville Airport Marriott
For more information, visit www.tndisabilitymegaconference.org

ASMT Events

Autism Society of Middle Tennessee
www.tnautism.org
ASMT event and location information (615) 385-2077
Registration is requested for all events
ASMT members free; nonmembers $5/family

MARCH 19 & MAY 21, Orientation, 6:30-8:30 p.m.
Brentwood United Methodist Church

MARCH 21, SibSaturday, 10 a.m.-2 p.m.

MARCH 26,
Workshop: Make & Take It: Supporting Communication Through Visual Supports, 6:30-8:30 p.m.

Tennessee Adult Brothers and Sisters (TABS)
Contact Ashley Coulter, (615) 322-8529 ext. 15
Register online at kc.vanderbilt.edu/site/services/disabilityservices/tabs.aspx
See April calendar for conference details

Vanderbilt Kennedy Center Research Studies
For children and adults, with and without disabilities
Lynnette Henderson (615) 936-0448
Toll-free (1-866) 936-V UKC [8852]

Research Family Partners
kc.vanderbilt.edu/rfp
Register and be notified of research studies

StudyFinder
kc.vanderbilt.edu/studyfinder
View lists of studies, criteria, and contact information

See also VUMC Clinical Trials
www.vanderbilthealth.com/clinicaltrials

Phone, web, print resources
www.familypathfinder.org
English (615) 322-8529
Español (615) 322-8529 ext. 11
Toll-free (1-800) 640-INF O [4636]
tnpathfinder@vanderbilt.edu
Disability Calendar
Internet calendar of training and other disability-related events
kc.vanderbilt.edu/tnpathfinder/calendar.html

TN Disability Pathfinder

Down Syndrome Association of Middle Tennessee
www.dsamt.org
DSAMT event information (615) 386-9002
APRIL 24-25
Fired Up! for Down Syndrome Biannual Statewide Conference
Friday-Saturday 9:30-11:30 a.m.
Brentwood United Methodist Church