

Autism affects motor skills, study indicates

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A child places shapes on a pegboard. Researchers from Washington University School of Medicine in St. Louis used activities such as this to measure motor skills in children with autism. (ROBERT BOSTON)

(Medical Xpress) -- Children with autism often have problems developing motor skills, such as running, throwing a ball or even learning how to write. But scientists have not known whether those difficulties run in families or are linked to autism. New research at Washington University School of Medicine in St. Louis points to autism as the culprit.

Their findings were reported in the journal [Autism](#).

“From our results, it looks like motor impairments may be part of the autism diagnosis, rather than a trait genetically carried in the family,” says lead author Claudia List Hilton, PhD, assistant professor in

occupational therapy and an instructor in psychiatry. “That suggests that motor impairments are a core characteristic of the diagnosis.”

The researchers studied 144 [children](#) from 67 families in which at least one child had a diagnosis of autism spectrum disorder as well as at least one biological sibling in the same age group. Of the children families, there were 29 in which two had an autism spectrum disorder, including six identical twins; and 48 in which only one child had an autism spectrum disorder.

The children were observed performing a range of [motor skills](#), including placing pegs in a pegboard, cutting with scissors, copying forms, imitating movements, running, throwing a ball and doing push-ups. Researchers used a standardized measure of motor proficiency widely used in children with disabilities that measures fine manual control, manual coordination, body coordination and strength and agility.

The Washington University study is the first to evaluate motor impairments in children with autism spectrum disorder and their siblings who don’t have the disorder.

Hilton, along with co-author John Constantino, MD, and their team also studied the link between motor impairment and the severity of the autism spectrum disorder.

Testing showed that 83 percent of children with autism spectrum disorder were below average in motor skills. Their siblings without an autism spectrum disorder generally scored in the normal range, with only 6 percent below average.

In addition, identical twin pairs had very similar scores. Non-twin siblings who each had autism spectrum disorder also had similar scores. And siblings in which one child had an autism spectrum disorder and one

didn't had very different scores.

"The data suggests that genes play a role in the motor impairments observed in those with autism spectrum disorder," Hilton says. "This is further evidence that autism spectrum disorder is a largely genetic disorder."

"It's possible that developmental processes in the brain which give rise to motor coordination and social responsiveness are shared by both systems," says co-investigator Constantino, the Blanche F. Ittleson Professor of Psychiatry and Pediatrics and director of the William Greenleaf Eliot Division of Child and Adolescent Psychiatry at Washington University. "This could explain their association in autism and provide new ideas about intervention strategies to help affected children, such as innovative methods for promoting motor development."

In addition, the study showed that the lower motor proficiency score in children with an autism spectrum disorder, the greater the degree of social impairment and severity of the disorder.

"Kids who have difficulty with motor skills might have trouble with what we think are simple things like brushing their teeth, buttoning, snapping or starting a zipper – things that are so basic to being independent, but would cause other problems at school," Hilton says. "They would need to have an aide or someone helping them, and that would set them off as different from the other kids."

These impairments can lead to bigger problems later on, Hilton says.

"Some kids aren't socially aware enough that it bothers them, but others are aware, and they feel bad about themselves," she says. "They may have low self-esteem, so even if they have delays only in the motor

skills, there is a lot of impact on their well being into adulthood.”

More information: Hilton CL, Zhang Y, White, MR, Klohr CL, Constantino J. Motor impairment in sibling pairs concordant and discordant for autism spectrum disorders. *Autism*. Published Jan. 18, 2012.

Provided by Washington University School of Medicine in St. Louis

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