

# Effect of Pesticide Exposure on Learning and Development

**Patricia Moulton, Ph.D.**      **Thomas Petros, Ph.D.**  
 Center for Rural Health      Psychology Department  
 University of North Dakota  
 Grand Forks, ND

Preventing Harm to Growing Brains: Environmental Contributors to Learning & Developmental Disabilities in Children  
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## Pesticide Research Team

<b>UND Faculty</b> Thomas Petros Patricia Moulton Ric Ferraro Sally Pyle Sue Offutt Steve Hawthorne Ruth Paur	<b>CDC Pesticide Laboratory</b> Dana Barr Charles Dodson Ralph Whitehead	<b>Phlebotomists</b> Sandie Antonson Kristi Grove Tara Johnso Dawn Korynta Naomi Sterf Tara Waldal
<b>Graduate Students</b> Holly Dannewitz Matt Garlinghouse Shyla Muse Matthew Myrvik Anna Marie Carlson Jason Douglas Patrick Kerr Karyn Plumm Kristi Sather Caitlin Schultz Jen Short	<b>Undergraduate Students</b> Cassandra Lee Silje Lynne Ashley Olson Bethany Reuter Christine Wegner Catherine Woell	


## What are Pesticides?

- Herbicides
- Insecticides
- Rodenticides
- Fungicides

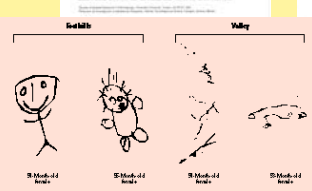





## Pesticide Exposure and Children



## Pesticide Exposure and Cognitive Ability in Children

## Objectives of Current Study

1. Examine the impact of chronic routine exposure to pesticides on cognitive and motor performance in children between 7 and 12 years of age, including memory performance, executive function performance, motor performance, and performance on school-related achievement tests.
2. Measure the concentration of several pesticides and cholinesterase in the blood or urine in children between 7 and 12 years of age and examine associations between pesticide and cholinesterase concentration and cognitive and motor performance.



## Red River Valley

## Participants

Pesticide Group= 64 children and their parents living on or next to an active farm or field

Control Group= 64 Children and their parents living at least one mile from an active farm or field

UNiversity of North Dakota

Research participants needed for a study examining the impact of pesticides on cognition in children ages 7-12.

Call Dr. Patricia Moulton at 701-777-6781 for more information.

## Measurements- Children

**Physiological**

Height and Weight  
Blood and Urine- pesticides, cholinesterase, trace minerals

<b>Motor</b>	<b>Cognitive</b>
Grooved Pegboard Test	WISC-III
Benton Visual Retention Test	CVLT-C
Finger Tapping Test	Verbal Fluency Test
Hand-eye Coordination Test	CPT
	WCST
	WIAT- 2 <sup>nd</sup> ed- Reading & Listening Comprehension

## Measurements- Teachers

**Behavioral**

Teacher Report Form for CBCL  
Teacher Report Form for ADHD Rating Scale-IV

An illustration of a classroom with two children sitting at desks, a teacher at the front, and a green chalkboard with letters A, B, and C.

## Measurements- Parents

<b>Cognitive</b>	<b>Behavioral</b>
WAIS-III Vocabulary & Block Design	CBCL ADHD Rating Scale-IV
<b>Nutritional Status</b>	<b>Developmental</b>
NIH Diet History Questionnaire Food Security module 24-Hour Dietary Recall	Tanner Pubertal Development Test Developmental Milestones
<b>Environmental</b>	
Pesticide use and exposure questionnaire Surveys on family and child medical history, sleep, occupation, income, education level	

## Preliminary Results

A photograph of a young child wearing a blue hat and a pink jacket, standing in a field of dry, brown grass.



• **For more information contact:**

Patricia Moulton, Ph.D.  
Center for Rural Health  
University of North Dakota  
pmoulton@medicine.nodak.edu  
701-777-6781

Thomas Petros, Ph.D.  
Psychology Department  
University of North Dakota  
thomas.petros@und.nodak.edu  
701-777-3260

