Could gold salts reduce damage from mercury?

An experiment by chemist Boyd Haley could be the first clue in solving a mystery: why the first child officially diagnosed with autism, back in the 1930s, recovered from the disorder. In addition, Haley's finding may lead to an effective treatment for today's autistic children.

Haley was intrigued by an article by investigative reporter Dan Olmsted which noted that "Donald T." recovered from autism after being treated for juvenile arthritis in 1947. The treatment that "Donald T." received involved gold salts (a compound of gold and other elements). Gold salts are still used today as a treatment for rheumatoid arthritis, although they can cause serious side effects in rare cases.

Haley, whose research supports a link between autism and thimerosal (a mercury-containing vaccine preservative), theorized that gold salts may inhibit the deleterious effects of mercury on the nervous system. To test his theory, he combined inorganic mercury—the form of mercury that thimerosal converts to in the brain—with a thiol-containing compound. Thiols, which contain a sulfhydryl group (sulfur and hydrogen), are integral parts of most enzymes. They also bind tightly to mercury, and when they do, the functions of thiol-containing enzymes can be impaired.

Haley added mercury to a colored thiol-containing compound that turns clear when mercury binds to it. In the initial test, this reaction quickly occurred: the "optical density" of the mixture dropped from 0.23 units to 0.11 units, and within half an hour it dropped to 0.03 units.

Next, Haley mixed the mercury with gold salts before adding it to the thiol compound. In this test, the optical density immediately dropped to 0.11, but then rose to 0.23 within half an hour. Haley told Dan Olmsted of United Press International, "The only way this could happen would be for the gold salts to remove mercury from the thiol-containing compound."

Haley does not recommend that clinicians use gold salts to treat autism at this time. However, he does hope that his findings will lead to clinical trials to see if the approach has merit.

—

"The Age of Autism: Gold salts pass a test," Dan Olmsted, United Press International, December 26, 2005.

Seafood mercury threat higher than claimed, paper charges

Store-bought seafood—including canned tuna—is far more contaminated with mercury than the government acknowledges, according to an investigation by the *Chicago Tribune*.

The paper sent samples of seafood from randomly selected supermarkets and fish markets to Rutgers University, one of the few institutions involved in testing seafood for mercury. In all, Rutgers tested 18 samples each from eight types of fish, including two types of canned tuna. The newspaper reports that:

—Testing revealed high levels of mercury in two types of fish not included in government warnings: orange roughy, and walleye. Four of the walleyes sampled contained levels of mercury higher than the U.S. limit of 1 part per million. Both orange roughy and walleye had average mercury contents much higher than the amount that triggered a government warning for albacore tuna.

Roe and Hawthorne conclude, "Regulators have repeatedly downplayed the hazards, failed to take basic steps to protect public health and misled consumers about the true dangers" of mercury in fish.

—Some samples of canned tuna, tuna steak, and grouper contained so much mercury that many women would exceed the U.S. limit for mercury exposure if they ate just one six-ounce serving in a week.

—Swordfish had the highest mercury levels, averaging 1.4 parts per million, "well above the 1.0 limit at which regulators can confiscate fish."

The *Tribune* notes that "federal officials have tested so few fish that they have only a limited idea of how much mercury many species contain;" for instance, the report notes, federal regulators have tested only four walleye and 24 shrimp samples since 1978. "The government does not seize high-mercury fish that violate U.S. limits," the article charges. "Regulators do not even inspect seafood for mercury—not in ports, processing plants or supermarkets."

The *Tribune* notes, too, that the Food and Drug Administration does not require fish-exporting countries to follow safety, sanitation and inspection rules required for domestic fish. In addition, responsibility for fish safety is divided between the Environmental Protection Agency (which monitors recreationally-caught fish) and the FDA (which monitors commercial fish)—with the result that people who fish recreationally receive mercury warnings from the EPA that shoppers do not receive from the FDA.

The *Tribune*'s reporters also charge that "U.S. tuna companies often package and sell a high-mercury tuna species as canned light tuna—a product the government specifically recommends as a low-mercury choice."

The reporters conclude, "Regulators have repeatedly downplayed the hazards, failed to take basic steps to protect public health and misled consumers about the true dangers" of mercury in fish.

Editor's note: The results of this investigation make it more clear than ever that due to a combination of prenatal exposure to mercury (including exposure from seafood) and postnatal exposure to thimerosal through childhood vaccines, many millions of children and adults are mercury-poisoned.

—

Toxic risk on your plate," Sam Roe and Michael Hawthorne, *Chicago Tribune*, December 11, 2005.

Mirror neuron malfunction again implicated in autism

(continued from page 2)

also correlated with lesser impairment in social skills.

The researchers conclude, "Typically developing children can rely upon a right hemisphere-mirroring neural mechanism—interfacing with the limbic system via the insula—whereby the meaning of the imitated (or observed) emotion is directly felt and hence understood. In contrast, this mirroring mechanism is seemingly not engaged in children with autism spectrum disorders, who must then adopt an alternative strategy of increased visual and motor attention whereby the internally felt emotional significance of the imitated facial expression is probably not experienced."

—

"Understanding emotions in others: mirror neuron dysfunction in children with autism spectrum disorders," Mirella Dapretto, Mari S. Davies, Jennifer H. Pfeifer, Ashley A. Scott, Marian Sigman, Susan Y. Bookheimer, and Marco Iacoboni, *Nature Neuroscience*, December 4, 2005 (epub). Address: Mirella Dapretto, Ahmanson-Lovelace Brain Mapping Center, Semel Institute for Neuroscience and Human Behavior, University of California Los Angeles, Los Angeles, CA 90095, mirella@loni.ucla.edu.

SCHOOLS AND SERVICES

The Autism Research Institute maintains a list of schools and services for autistic individuals. If your facility should be included on our list, and you believe it may not be, please send a self-addressed, stamped envelope to receive our referral list questionnaire.