

CRIME Times

Linking **Brain** Dysfunction to
Disordered/Criminal/Psychopathic Behavior

Volume 16, Number 4, 2010

This final issue of *Crime Times* is dedicated to the memory of Lisa Wacker, who died of cancer in July. Lisa was the inspiration for the formation of the Wacker Foundation, which has funded and published current, credible research pertaining to biological brain dysfunction, in addition to funding *Crime Times*. Brain dysfunction can cause problems ranging from subtle learning and social differences to severe disordered and criminal behavior.

We want to thank A. K. Blake, Editor of *Crime Times*, for the wonderful job she has done for all 16 years of its existence.

Mental health courts lower re-arrest rates

Mental health courts can significantly reduce re-arrests and lengths of incarceration, according to a new study.

Currently, there are about 250 mental health courts in the United States. The courts typically enroll nonviolent defendants who have mental illnesses, including many who have coexisting substance abuse disorders. Clients typically receive a hearing before the court, enter a guilty plea, and agree to the court's decision.

continued on page 2

'Bad boys:' antisocial males' brains may be malfunctioning

Boys who exhibit antisocial behavior and abuse drugs or alcohol may make poor life choices because their brains don't work correctly, according to a new study by Thomas Crowley and colleagues.

The researchers studied 20 antisocial male teens, comparing them to a group of teens with no history of antisocial behavior. Most of the antisocial adolescents were on probation for crimes, and all had histories of substance abuse (although they were not using drugs at the time of the study).

Participants played a computer game while undergoing functional magnetic resonance imaging (fMRI). The game repeatedly asked them to choose between a cautious and a risky behavior. If they pressed the left button, they always won a penny. If they pressed the right button, they would either win five cents or lose ten cents.

The researchers found significant differences in brain activity between the two groups. In particular, the antisocial boys showed less activity in the anterior cingulate cortex and the dorsolateral prefrontal cortex. The anterior cingulate cortex monitors changing rewards and punishments and provides this information to the dorsolateral prefrontal cortex, which uses the data to regulate behavioral choices.

The antisocial boys also exhibited less activity than controls in other decision-making areas of the brain including the orbitofrontal cortex, amygdala, and insula.

Altogether, the researchers note, about 6,000 voxels activated significantly less in antisocial boys than in

comparison boys during decision-making. (A voxel is a unit of measurement, similar to a three-dimensional pixel, used in fMRI to measure volume.) No voxels activated more in the antisocial boys than in controls during decision-making.

In addition, the antisocial boys' brains responded less than the

Crowley and colleagues say the brain underactivity they identified could impair decision-making and contribute to disinhibited antisocial and drug-using behaviors.

comparison boys' brains when they won in the game. They also exhibited "punishment hypersensitivity," showing a greater response to losses—a phenomenon that the researchers say may contribute to the antisocial boys' dysphoria.

The researchers say the brain underactivity they identified could impair decision-making and contribute to disinhibited antisocial and drug-using behaviors. They conclude, "Extensive research suggests that adolescent ASD is a genetically initiated, drug-exacerbated, persisting disposition to make risky antisocial and substance-use decisions. Our findings suggest that abnormal neural processing of risky decisions, rewards, and losses may contribute to these patients' frequent, dangerous relapses. Such patients can improve during, and for some months after, treatment, but the brain abnormalities report-

continued on page 2

Large-scale study indicates that children with psychopathic traits are poor readers

Children who exhibit psychopathic personality traits are likely to be poor readers, according to a new study.

Michael Vaughn and colleagues examined data collected on 432 children in seven middle schools. All of the children were in seventh or eighth grade. Of the children, 78 were defined as typically developing readers and 354 as struggling readers.

The researchers used three different measures to evaluate the children's reading comprehension. To measure psychopathic traits, they used the self-rated Youth Psychopathic Traits Inventory (YPI) and the teacher-rated Inventory of Callous-Unemotional Traits (ICU). They also tested the children's IQs and evaluated them for symptoms of hyperactivity and attention disorders.

Their analyses, the researchers say, showed that "self-report and teacher ratings of psychopathy were statistically significant inverse predictors of reading performance." They add, "Specifically, affective facets of psychopathy were potent predictors of reading comprehension over and above ADHD, IQ, and an impulsivity component of psychopathy."

The researchers say there are several possible explanations for their findings. "First," they note, "numerous studies have shown that youth with callous-unemotional deficits process emotion-laden information (i.e., words, pictures) in abnormal ways compared to youth without these traits." Since reading involves understanding the emotional content of words, Vaughn and colleagues say that impairments in

this ability may lead to lower reading scores.

In addition, the researchers note, children with callous-unemotional traits may not be emotionally invested in their own academic success or care enough about the feelings of teachers and parents to worry about their performance on reading tests or to work hard in school.

—
"Juvenile psychopathic personality traits are associated with poor reading achievement," Michael G. Vaughn, Matt DeLisi, Kevin M. Beaver, Jade Wexler, Amy Barth, and Jack Fletcher, *Psychiatric Quarterly*, October 19, 2010 (epub prior to print publication). Address: Michael Vaughn, School of Social Work and Department of Community Health, Division of Epidemiology, School of Public Health, Saint Louis University, Tegeler Hall, 3550 Lindell Boulevard, St. Louis, MO 63103.

Mental health courts reduce re-arrest rates (cont. from page 1)

sion. Participants are nearly always required to agree to treatment, and the courts can sanction defendants who fail to follow through with this treatment.

Henry Steadman and colleagues compared 447 individuals who went through the mental health court system to 600 individuals who were eligible for these courts but were not referred or were refused. The researchers examined the defendants' records from 18 months prior to entering the system to 18 months afterward.

The researchers report, "On five key public safety outcome measures (subsequent arrest rates, number of subsequent arrests, reduction in pre- to post-mental health court arrests, number of subsequent incarceration days and change in pre- to post-mental health court subsequent

incarceration days), the overall mental health court group is significantly lower than the treatment-as-usual group." They conclude, "Mental health courts meet the public safety objectives of lowering post-treatment arrest rates and days of incarceration."

—
"Effect of mental health courts on arrests and jail days: a multisite study," Henry J. Steadman, Allison Redlich, Lisa Callahan, Pamela Clark Robbins, and Roumen Vesselinov, *Archives of General Psychiatry*, October 4, 2010 (epub prior to print publication). Address: Henry Steadman, Policy Research Associates, Inc., 345 Delaware Ave., Delmar, NY 12054, hsteadman@prainc.com.

—and—
"Mental health courts appear to shorten jail time, reduce re-arrest for those with psychiatric illness," Newsweek, October 1, 2010.

Brains of 'bad' boys may be malfunctioning

(continued from page 1)

ed here may persist into adulthood, leaving these patients continually vulnerable to substance and anti-social relapse."

—
"Risky decisions and their consequences: Neural processing by boys with antisocial substance disorder," Thomas J. Crowley, Manish S. Dalwani, Susan K. Mikulich-Gilbertson, Yiping P. Du, Carl W. Lejuez, Kristen M. Raymond, and Marie T. Banich, *PLoS ONE*, Vol. 5, No. 9, September 2010, e12835. Full text available free of charge at www.plosone.org. Address: Thomas Crowley, thomas.crowley@ucdenver.edu.

—and—
"Could brain abnormalities cause antisocial behavior and drug abuse in boys?", news release, University of Colorado, September 2010.

—From the bookshelf: recommended reading for professionals, students, and parents—

Editor's Note: Our final book review column features three books on a range of topics we think you'll find interesting.

SPARK: The Revolutionary New Science of Exercise and the Brain

John J. Ratey, M.D.

With Eric Hagerman

Little, Brown and Company, 2008

Recommended audience: lay readers, professionals, and students

In this book, Ratey—one of the country's leading authorities on attention deficit hyperactivity disorder—makes a powerful case for prescribing exercise as a front line treatment for behavioral and mood disorders.

"In today's technology-driven, plasma-screened-in world," Ratey notes in his introduction, "it's easy to forget that we are born movers—animals, in fact—because we've engineered movement right out of our lives." Ratey argues that this is a huge mistake because exercise is the "spark" that creates a cascade of chemical reactions that affect our thinking, our mood, and our ability to control our behavior.

In this book, Ratey describes the chemical reactions triggered by exercise—reactions that can actually spur the development of new nerve cells in the hippocampus and alter the way brain cells connect with each other. Physicians and lay readers dealing with conditions ranging from ADHD to depression to addiction will find his insights intriguing and his suggestions easy to implement.

Quotes from Spark:

"A study in London in 2004 showed that even 10 minutes of exercise could blunt an alcoholic's

craving. The researchers divided 40 hospitalized patients who had just completed detox into two groups: one was assigned to stationary cycling at moderate intensity, the other, light intensity. The next day they switched the groups and found that intense exercise significantly reduced the urge for a drink."

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"In October of 2000, researchers from Duke University made the New York Times with a study showing that exercise is better than sertraline (Zoloft) at treating depression. What great news! Unfortunately, it was buried on page 14 of the Health and Fitness section. If exercise came in pill form, it would be plastered across the front page, hailed as the blockbuster drug of the century."

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"Given the leading role of dopamine and norepinephrine in regulating the attention system, the broad scientific explanation for how exercise tempers ADHD is by increasing these neurotransmitters. And it does so immediately. With regular exercise, we can raise the baseline levels of dopamine and norepinephrine by spurring the growth of new receptors in certain brain areas."

—§—

**CRIMINALS IN THE MAKING:
Criminality Across the Life Course**

John Paul Wright, Stephen G.

Tibbetts, and Leah E. Daigle

Sage Publications, 2008

Recommended audience: Professionals and students

In this book, the authors—all leading authorities on criminality—discuss how biological factors and life experiences interconnect to influence criminality across the life-

span. They explore every stage of life from prenatal development through adulthood, noting how biological and social variables intertwine at each period to foster either pathological or positive behavior.

Noting that a greater understanding of the biosocial roots of criminal behavior can lead to effective and humane interventions that address the root causes of criminality, the researchers lay out a plan of action designed both to protect brain health and to address the environmental circumstances that make biologically vulnerable individuals more likely to commit crimes. In addition, they call on the scientific community to raise its awareness of biological influences on criminality. "Although criminology has made considerable advances," they say, "it has yet to fully embrace interdisciplinary research. It is still reluctant to enter into the fields of genetics and biology, and criminologists still remain largely unaware of how these fields can supplement or change our understanding of the development of criminal behavior."

Quotes from Criminals in the Making:

"Healthy human development cannot occur in polluted areas. Still, today, in many inner cities, children are exposed to toxic levels of environmental pollutants that can have disastrous effects on their brains and their development. The deleterious effects are known, pervasive, and unalterable. From our point of view, there is no justification for the continued poisoning of children."

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"Studies... generally find that genes are responsible for most of the
continued on page 4

—From the bookshelf: recommended reading (continued from page 3)—

variation in problem behaviors and traits—anywhere from 50% to 90%. After genes, the most influential effects are generated by nonshared sources of variation, predominantly peers. Finally, shared environmental influences, typically measured as parenting behaviors, are sometimes found to be influential, but most often not. When parenting effects are found to be influential, the size of the effect is usually small.

“Does this mean that parents are unimportant in affecting their children’s behavior? No, but the thrust of these findings does suggest that the ways that parents matter are likely more complex than we had realized.... Good parents can produce dangerous sociopaths through no fault of their own, while even the worst parent can produce a child that grows up to be a genius.”

—§—

**THE BODY TOXIC:
How the Hazardous Chemistry of
Everyday Things Threatens Our
Health and Well-Being**

Nena Baker

North Point Press, 2008

Recommended audience: Professionals, students, and lay readers

When Baker, an investigative reporter, underwent a “body burden analysis”—an extensive analysis revealing the levels of toxic chemicals in her body—she discovered that she was, as she puts it, “a poster child for the era of better living through chemistry.” Her body contained traces of toxic flame retardants called PBDEs and even higher levels of PFCs (used to make nonstick coatings). In addition, her analysis showed traces of

at least three dozen toxic chemicals including DDT and PCBs, both banned for years.

Baker’s search for answers about her exposure to these chemicals led to interviews with leading authorities who discussed their concerns about the dangers presented by unregulated toxins that accumulate in people’s brains and other organs both before and after birth. In this book, she describes the toxins that pose the biggest threats to our mental and physical health and outlines the steps we can take to protect ourselves and our children. In addition, she looks at the role of government and industry in allowing thousands of toxins to remain in the products we use every day.

Quotes from *The Body Toxic*:

“Ridding our bodies of these chemical invaders simply isn’t possible because of their persistence and the frequency of new exposures. But there are better ways to move forward. Protecting future generations from contamination requires identifying and eliminating the most dangerous persistent, bioaccumulative chemicals and developing alternative production methods that use non-toxic materials.”

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“About 10,500 ingredients are used in the product category of cosmetics, spanning everything from common table salt to chemicals linked to cancer, birth defects, and reproductive problems, according to [an analysis by the Environmental Working Group]. Yet the FDA has banned or restricted only nine ingredients in the seven decades it has monitored cosmetics safety.”

“When questions arise about chemicals, manufacturers can—and often do—use the absence of information to argue that a substance is harmless. Under our regulatory structure, ignorance is rewarded: manufacturers have no obligation to test for the safety of the substances they sell. Indeed, they have a financial incentive not to do so.”

—§—

*Also recommended for
professionals and students:*

Genes and Behavior: Nature-Nurture Interplay Explained, by Michael Rutter, Blackwell Publishing, 2006.

Genes, Environment, and Psychopathology: Understanding the Causes of Psychiatric and Substance Use Disorders, Kenneth S. Kendler and Carol A. Prescott, Guilford Press, 2006.

Quotable....

“We know that some people have genetic predispositions to conditions like depression and anxiety. And we know that being raised by a parent with mental illness can increase the risk of mental illness in the offspring. It may be that the intrauterine environment is a third pathway by which mental illness is passed down in families . . . [This kind of research] is pushing back the starting line for when we become who we are.”

—Psychiatry professor
Catherine Monk, in

*“How the first nine months
shape the rest of your life:
the new science of fetal origins,”*
Annie Murphy Paul, *Time*,
October 4, 2010

Want to know more? *Crime Times* recommends the following websites

Professionals and parents interested in continuing their exploration of the issues *Crime Times* has covered will find the following websites valuable.

The Dana Foundation

<http://www.dana.org/>

The Dana Foundation is a private philanthropic organization that supports brain research through grants and educates the public about the successes and potential of brain research. The foundation offers a wide variety of free publications for professional and lay readers and produces a free online magazine, *Cerebrum*.

Food and Behaviour Research

<http://www.fabresearch.org>

This British site is an excellent resource for nutritional news and advice on approaches that can be beneficial for children or adults with a wide range of problems including ADHD, antisocial behavior, and depression.

Food and Mood

<http://www.mind.org.uk/foodand-mood/>

This website focuses on the effects of nutrition on mental health and provides links to current research.

Environmental Working Group

<http://www.ewg.org/>

A good resource for parents and professionals seeking to limit children's exposure to brain-altering toxins such as lead and BPA.

EPA Information on Toxins

<http://www.epa.gov/epahome/children.htm>

This website of the Environmental Protection Agency offers

information on protecting children from toxic exposure.

Interview with Herbert Needleman

<http://itc.conversationsnetwork.org/shows/detail3938.html#>

In this audio interview, Dr. Herbert Needleman—an expert on lead toxicity and a *Crime Times* board member—outlines the neurobehavioral effects of this brain toxin.

Amen Clinics

<http://www.amenclinics.com/blog/>

An entertaining and informative “brain blog” for lay readers.

Fetal Alcohol Syndrome

<http://www.fetalalcoholsyndrome.org/>

This website of the FAS Family Resource Institute offers information on the physical and mental effects of this devastating disorder.

Interview With Adrian Raine

<http://abcnews.go.com/Nightline/brutal-psycho-killer-minds/story?id=11461505>

In this ABC News program, Dr. Adrian Raine—an expert on psychopathy and a *Crime Times* board member—describes some of the brain anomalies his research has detected in psychopaths.

Center for Neuroscience and Society

<http://neuroethics.upenn.edu/>

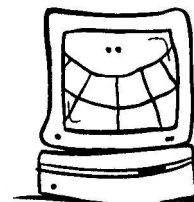
This University of Pennsylvania organization is dedicated to promoting the responsible use of neuroscience research to benefit society.

Interview with Bernard Weiss

http://ehp03.niehs.nih.gov/article_fetchArticle.action?articleURI=in

[fo%3Adoi%2F10.1289%2Fehp.trp100110#top](http://ehp03.niehs.nih.gov/article_fetchArticle.action?articleURI=info%3Adoi%2F10.1289%2Fehp.trp100110#top)

Dr. Bernard Weiss, an expert on toxins and a *Crime Times* board member, discusses the behavioral effects of food colorings.



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Note to Readers:

- While this is the final issue of *Crime Times*, all content of *Crime Times* will remain available on the Internet. We hope you will continue to find this resource valuable.

Early choline supplementation may enhance cognition

Pregnant women may not be getting enough choline to ensure optimal brain development in their children, according to a recent research review by Marie Caudill.

Caudill notes that the Institute of Medicine recommends an intake of 450 mg per day of choline during pregnancy and 550 mg per day during nursing. However, data from the National Health and Nutrition Examination Survey (NHANES) in 2003-2004 revealed that the average choline intake among pregnant women in the U.S. is only 338 mg per day, and around 90% of pregnant women have intakes below the recommended level.

Caudill notes that during fetal development, large amounts of choline are needed for organ growth. "The development of the central nervous system is particularly sensitive to choline availability," she says, noting that "increased choline intake (about four times normal) by pregnant rats resulted in long-lasting improvements in attention, learning, and memory in the offspring; choline deficiency had the respective adverse effects."

Caudill's review of the research also raises questions about infant formulas. Human milk, she notes, contains large amounts of choline, and serum-free choline concentrations are about two times higher in breast-fed babies than in formula-fed babies. Caudill cites studies of rodents showing that increased choline intake after birth can enhance cognitive function.

Caudill notes that most prenatal vitamins do not contain choline. In addition, the risk of choline deficiency may be increased in women who are not taking folic acid supplements. Thus, she says, it is important for pregnant or nursing women to eat plenty of foods containing high levels of

choline. These include eggs, meat and fish, and some beans and vegetables.

—
"Pre- and postnatal health: evidence of increased choline needs," Marie Caudill, *Journal of the American Dietetic Association*, Vol. 110, August 2010, 1198-1206. Address: Marie A. Caudill, Cornell University, Division of Nutritional Sciences, 228 Savage Hall, Ithaca, NY 14850, mac379@cornell.edu.

Smoking cessation drug linked to violent thoughts and acts

People taking a popular drug designed to help them quit smoking are at heightened risk of committing violent acts or having violent thoughts, a new study indicates.

Thomas Moore and colleagues reviewed 26 case reports involving the drug varenicline (Chantix). The cases involved 10 assaults, nine cases of homicidal ideation, and seven cases involving acts or thoughts of aggression or violence. The researchers report that the events typically were inexplicable and unprovoked and involved people with no history of violence. In addition, patients tended to strike out at anyone nearby, rather than targeting specific individuals. They also tended to develop psychiatric symptoms quickly after starting the drug—often before they even quit smoking.

Moore and colleagues say, "The clear temporal relationship, lack of prior history of this behavior, and unusual nature of these events strengthens the accumulating scientific evidence that varenicline is associated with thoughts and acts of aggression/violence."

—
"Thoughts and acts of aggression/violence toward others reported in association with varenicline," T. J. Moore, J. Glenmullen, and C. D. Furberg, *Annals of Pharmacotherapy*, Vol. 44, No. 9, September 2010, 1389-94. Address: Thomas J. Moore, tmoore@ismp.org.

Violent videos desensitize key brain regions in teens

A new study provides evidence that exposure to violent TV shows, movies, and video games may desensitize the brain to violence.

Maren Strenziok and colleagues studied 22 boys between the ages of 14 and 17. The researchers used functional magnetic resonance imaging (fMRI) to analyze the boys' brain function as they watched videos and measured their skin conductance response (an indicator of emotional state and responsiveness to stimuli). The boys viewed short clips of low, mild, or moderate violence and rated how aggressive each scene was.

Study co-author Jordan Grafman says, "We found that as the boys were exposed to more violent videos over time, their activation in brain regions concerned with emotional reactivity decreased and that was reflected in the data from the functional MRI and in the skin conductance responses." In particular, one brain region—the lateral orbitofrontal cortex, which appears to play a role in emotional responses to events—became less sensitive to the most violent videos over time. Videos with very low levels of violence did not have the same effect.

Prior to the experiment, Grafman and colleagues interviewed the participants. They found that those exposed to the highest levels of video violence at home showed the greatest desensitization.

Grafman says, "The implications of this are many and include the idea that continued exposure to violent videos will make an adolescent less sensitive to violence, more accepting of violence, and more likely to

continued on page 7

Violent videos desensitize teens' brains

(continued from page 6)

commit aggressive acts since the emotional component associated with aggression is reduced and normally acts as a brake on aggressive behavior."

Grafman notes that while video violence is different from real-life situations, the same structures in the brain are activated when people imagine being aggressive themselves.

"Most people can distinguish between playing a video game and real live behavior," he says, "but given the right circumstances where the rules are a bit more ambiguous (what if a bully provokes me) and provocative (someone is trying to take my lunch money), would an adolescent tend to be more aggressive and accept that aggression as normal behavior given prior exposure to video games? I think so. Particularly if they are a heavy user of games and, in our device-driven world, that will be more and more likely in the future."

—
"Fronto-parietal regulation of media violence exposure in adolescents: a multi-method study," Maren Strenziok, Frank Krueger, Gopikrishna Deshpande, Rhoshel K. Lenroot, Elke van der Meer, and Jordan Grafman, *Social Cognitive and Affective Neuroscience*, October 7, 2010 (epub prior to print publication). Address: Jordan Grafman, Cognitive Neuroscience Section, National Institute of Neurological Disorders and Stroke, National Institutes of Health, 10 Center Drive, Building 10, Room 7D43, Bethesda, MD 20892, grafmanj@ninds.nih.gov.

—and—

"Watching violent TV or video games desensitizes teenagers and may promote more aggressive behavior," news release, Oxford University Press, October 18, 2010.

Quotable....

"The classic criminal justice model assumes that behavior is entirely a matter of free will. This assists the often difficult task of sentencing but what is less clear is how one can exercise that free will without involving the brain. And since the brain is a physical organ, how can the brain function properly without an adequate nutrient supply? Straightforwardly, it can't. Crime may often be described as brainless but we should not take that literally."

—Lord David Ramsbotham and Bernard Gesch in *"Crime and nourishment: cause for a rethink?"*, *Prison Science Journal*, March 2009

"We need to see action at the most fundamental level to circumvent the mental health epidemic facing our society. The issue must be addressed in school-level education; maternal and infant nutrition; food, agricultural and fisheries policies; and in moving to adequately address river, estuarine and coastal pollution.

"We estimate that the bulk of the mental health issues could potentially be addressed and the impending rise in disorders reversed through adequate nutrition and we urge all parties to come together in tackling this most serious of problems."

—Professor Michael Crawford, leading expert on nutrition and the effects of omega-3 fatty acids, speaking at a May 2010 Royal Society of Medicine meeting

"Over my 25 years in pediatrics practice, I have noticed a striking connection between how children are fed and how healthy they are. Mothers who consistently do not allow any unhealthy food to pollute the minds and bodies of their children seem to have healthier children.... These 'pure children' seem to get tagged with fewer labels, such

as 'ADD' or 'learning disabled.' Even when these children do warrant such tags, they seem to cope better with behavioral and learning differences and these seem less severe."

—William Sears, M.D., in *The Family Nutrition Book*

"We are faced with two major unanswered questions. First, to what extent do chemicals in the environment cause neurodevelopmental disabilities or other developmental disorders? Second, which chemicals in the environment in addition to lead, PCBs, and methyl mercury can cause neurodevelopmental disabilities? These are critical questions to address and resolve, because disabilities arising from exposure to toxic chemicals should be preventable."

—Bernard Weiss and Philip J. Landrigan, in *"The developing brain and the environment: an introduction,"* *Environmental Health Perspectives*, June 2000

"Children are not only being born into a chemically toxic world, they are exposed to these toxins throughout their gestational development. They are exposed to hundreds of toxic compounds via cord blood and release many of them in the meconium. These toxins include numerous neuro-, immuno-, and endocrine-toxic compounds present during the critical stages of hormonal, immunological, and neurological development. Outcome studies have shown that animal and human offspring who are so exposed can not only be born with birth defects, but suffer from lifelong health and behavior problems."

—W. J. Crinnion in *"Maternal levels of xenobiotics that affect fetal development and childhood health,"* *Alternative Medicine Review*, September 2009

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QUOTABLE:

“Research on brain structures and neurochemistry shows how toxic chemicals undermine normal emotions and behavior.... The complexity of gene-environment interactions challenges accepted theories of gender, sociopolitical inequalities, ethnocentrism, and history.”

—Roger D. Masters,
in *“Biology and politics:
linking nature and nurture,”*
Annual Review of Political Science, June 2001

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