

Engineering Neuroscience & Health

Department of Biomedical Engineering

Division of Biokinesiology and Physical Therapy



ENH SEMINAR SERIES



Presents:

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Monday

September 12, 2011

4:00 p.m.

Refreshments served: 3:30– 4 pm

“Imaging the Developing Human Brain and the Impact of Prenatal Exposure to Drugs of Abuse”

Elizabeth R. Sowell, Ph.D.

Professor of Pediatrics, USC/CHLA

Director, UCLA Developmental Cognition Neuroimaging Laboratory

<http://www.loni.ucla.edu/~esowell/edevel/index.html>

During development, the human brain sacrifices plasticity for the sake of speed and efficiency. Underutilized synaptic connections are pruned away during childhood and adolescence, reducing plasticity, as myelination insulates highly used connections increasing speed of transduction between interconnected brain systems. Brain imaging technology has advanced in the last 2 decades allowing us to map trajectories of change in the human brain in vivo, and we and others have observed patterns of cortical thinning and white matter development in spatial and temporal patterns that likely reflect the trajectory of change in cognitive domains through out childhood and adolescence. Understanding more about typical brain development can lead to more accurate interpretations of alterations in the biological processes that result from teratogenic exposures in utero. The use of methamphetamine (MA) by young adults is a major problem in the United States, and its use by pregnant women continues. Many women who use MA during pregnancy also use alcohol, a known teratogen which can result in fetal alcohol syndrome (FAS) and a broad spectrum of disorders, making it difficult to determine the specificity of various drug exposures on subsequent cognitive, behavioral, and neuroanatomical abnormalities. Here, I will discuss recent findings on developmental changes in brain structure, brain activation, and neurocognitive functioning in typically developing children and adolescents, and the abnormalities associated with prenatal exposure to drugs of abuse. It is important to understand that the developmental path is malleable and influenced by genetic, hormonal, behavioral or environmental factors: understanding these relationships may lead to more effective interventions or treatments in individuals with disorders resulting from prenatal exposure to drugs of abuse.

Locations: *Seminar is simultaneously presented*

UPC: HNB 100 — LIVE
Hedco Neurosciences Building

UPC Campus Map/Directions:
<http://www.usc.edu/about/visit/upc/>

HSC: CHP 147 – Video Conference
Center for the Health Professional

HSC Campus Map/Directions:
<http://www.usc.edu/about/visit/hsc/>

Organized by Professor Francisco Valero-Cuevas <http://bbdl.usc.edu/ENH>

Web Cast

<http://capture.usc.edu/college/Catalog/pages/catalog.aspx?catalogId=946350f1-ca84-40e7-b867-e16adba01e4e>

Information about all seminars can be found at

<http://bbdl.usc.edu/ENH-Schedule.php>