37th Annual Hunter Psychology Convention
13th Annual NEURON Conference

Program Addendum

Poster Session II

Effects of Dysfunctional Insulin Signaling Pathways on Cognition, Depression, and Anxiety in Mice

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This study examined the effects of dysfunctional insulin signaling pathways on cognition, depression and anxiety in mice. Docosahexaenoic acid (DHA) and phosphoinositide 3-kinase (PI3-K), two components of the insulin signaling pathway were manipulated separately and in combination. Mice were fed low-DHA or control diets and treated acutely with Wortmannin (PI3-K inhibitor) or saline. Blood glucose, insulin, total activity, depression, anxiety, and cognition were evaluated. Results show Wortmanin-treated mice have elevated insulin, blood glucose, anxiety and depression compared to control mice. Wortmannin-treated mice on control diets showed diminished cognition compared to control animals and the low DHA-dietary group. These data suggest that PI3-K inhibition effects energy availability in the brain resulting in diminished cognition and increased anxiety and depression. Studies are underway to further examine energy dynamics in this model system.

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Poster Session II

The Effect of Ketogenic Diets on Puberty in Female Long-Evans Rats

Kathryn Gudsnuk
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The Ketogenic Diet (KD) is a therapeutic alternative to medicine in children with intractable epilepsy. The effects of KDs on development and onset of reproductive maturity are of interest, but have not yet been examined. In this study the effects of different KD preparations on growth, development, onset of puberty and estrous cyclicity were examined in female Long-Evans rats (n=48). Animals were weaned (day 21), placed in one of four ad libitum diets; rodent chow, 8%, 14%, or 18% protein KD diets. Body weights, blood glucose, blood ketones, vaginal opening and estrous cyclicity were examined. Through three months, data indicate a delay in vaginal opening and estrous cyclicity in all three KD groups. The 8% KD demonstrated the slowest development and highest ketone levels. Results suggest that a high fat diet could interfere with the normal pubertal processes when consumed by prepubescent children.

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Poster Session II

Assessing the Behavioral and Neural Mechanisms of Spontaneous Alternation Behavior as an Animal Model of OCD

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Animal models of anxiety have the potential to offer new avenues for drug development and to promote the investigation of the neural basis of this type of mental illness. The present study was designed to investigate the role of the neurotransmitter serotonin in a model of obsessive-compulsive disorder (OCD). A disruption of spontaneous alternation behavior in rats produced by a single injection of the serotonin agonist 8-OH-DPAT has been characterized as an OCD model. In the present study rats were injected with 2 mg/kg 8-OH-DPAT 15 minutes before a choice test was conducted on the elevated T-maze. Results show that control rats alternated in

their arm choice as expected while those rats injected with 8-OH-DPAT alternated significantly less than untreated rats. Following behavioral observations, brain tissue was collected and activity was assessed using c-Fos immunohistochemistry. 8-OH-DPAT reduced neuronal activity in the orbitofrontal cortex, caudate putamen, and the shell and core of the nucleus accumbens. Dual label immunohistochemistry is currently being conducted to examine serotonergic activity in the dorsal raphe nucleus (DRN). This pattern of neural activity and behavior provides potential understanding of the neural basis of OCD.

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Poster Session II

College Students' Perceptions Towards Peers with Disabilities: A preliminary overview of campus perspectives

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This study will investigate college students' attitudes towards peers with disabilities. One hundred college students, ages 18-22, will participate in a survey which includes a Likert measure. Students will be questioned about their comfort level regarding peers with general disabilities and specific conditions. Students will be given an opportunity to disclose any experiences that they have had that may influence their answers to questions. Demographic criteria and past experience with disabilities will be taken into account. Also, majors (math, psychology, education) will be compared in order to see if certain majors are more comfortable with disabilities than others. Comfort levels, based on the Likert Measure, will be averaged using standard means, to statistically compare the results. Implications for future research will be discussed.

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TH 518 1:00 - 1:30

Religiosity and Suicidality Among Hispanic in New York City

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Religion was examined to investigate whether low religiosity or high religiosity was a risk factor of suicidality among Hispanics. This study used secondary data analysis. Methodology variables used from the available database to assess the relationship between religion and suicide were hopelessness, depression, suicidal ideation, religiosity, and ethnicity. We examined four categories of participants (Catholic and Non Catholic, Hispanic and Non Hispanic) to determine if there were significant differences between religion and suicide. Results demonstrated no relationship between religiosity and suicidal behavior.

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Poster Session II

The dopamine D2 antagonist sulpiride prevents behavioral sensitization to cocaine in zebrafish (*Danio rerio*)

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The phenomenon known as behavioral sensitization refers to the progressive escalation of behavioral responses to psychomotor stimulants that develops during repeated administration. Cocaine blocks the dopamine transporter which results in the elevation of synaptic dopamine contributing to sensitization. Previous studies from our laboratory and others have characterized behavioral sensitization to cocaine in zebrafish. The study described here further characterizes the behavioral response of zebrafish to cocaine and how the dopamine D2 antagonist, sulpride, affects this response. The results demonstrate that behavioral sensitization to cocaine can be significantly inhibited by blocking dopamine D2 receptors and suggests that the behavioral and neurophysiological response of zebrafish to cocaine is similar to that of mammals.

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Poster Session II

Potential neuroprotective effects of docosahexaenoic acid against neurotoxicity induced by high pathological levels of peroxynitrite in vitro

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The effects of omega-3 fatty acid docosahexaenoic acid (DHA) on cell viability and neurite outgrowth were investigated after exposure to 1mM sin-1, a peroxynitrite donor for 2hrs following DHA treatment. Previous studies with 1mM sin-1 have shown its neurotoxic effects on neurite morphology and survival of cultured neurons. In this study, 1 week old cell cultures were prepared with 12.5-100µM DHA using three different time points for incubation with DHA, 24, 48, and 72hrs. Pretreatment with docosahexaenoic acid (50-100 µM) was found to significantly enhance survival and neurite outgrowth after 48hrs with optimal time period for incubation observed after 72 hrs of treatment, yet there were no significant differences between both concentrations across 24-72hrs period. Potential neuroprotective effects were also observed for 25µM DHA but only after 72hrs of DHA treatment. At the lowest concentration used, 12.5µM DHA, there were no significant effects observed on cell survival and neurite morphology relative to cultures stimulated with sin-1 for 2hrs without any DHA treatments. These findings suggest that optimal pretreatments with DHA (50-100µM) for 72hrs prior to neurotoxicity induced by sin-1 can potentially have neuroprotective effects that involves DHA's role during cell signaling in apoptotic pathways as well as contribution to enhanced ATP production.

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Poster Session II

Effects of Ketogenic Diets on Cognition in Adult Rats and Mice

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Ketogenic diets (KDs) are high-fat, low carbohydrate, diets that have been used to treat intractable epilepsy in children. Recent studies suggest that KD's diminish cognitive function in animals treated immediately post-weaning. The purpose of the present study was to examine the impact of KDs on cognitive function in adult rats and mice and to determine if cognitive deficits could be reversed upon resumption of a control rodent chow diet. After 4 weeks of KD treatment cognitive function was assessed using the Morris water maze. Results showed a decline in cognition in KD-treated animals. All KD-treated animals were subsequently placed on the control chow diet for four weeks and were retested. Results show an improvement in cognition after resumption of a chow diet. These data suggest that the cognitive decline with KD's is not exclusive to post-weaning treatment and is a transient phenomenon which can be reversed with resumption of a control chow diet.

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