



# Psychology News

## A Partnership That Works

Michael Block, director of programs for the Boulder Shelter for the Homeless, was meeting with a lawyer in Longmont several years ago to determine benefits for one of their clients with a brain injury. The lawyer reviewed the client's brain scan and recommended that he get a neuropsychological assessment, the results of which might help him to get benefits. As he was driving back from Longmont, "bells started going off in my head," Mr. Block says, when he realized that a cognitive evaluation could potentially make a significant difference in benefits acquisition. He knew that such assessments were pricey and funds for the homeless were already scarce. So over the next few months, he rallied the community and managed to raise funds to evaluate this client and several others, but he also followed a lead given to him by the lawyer. She referred him to Professor Emily Richardson, who heads the Brain Behavior Clinic (BBC) in our department.

The BBC is part of the clinical psychology graduate training program at CU-Boulder. It offers affordable cognitive assessments for adolescents and adults in the community and also provides training for clinical graduate students in administering and evaluating cognitive neuropsychological assessments. Professor Richardson has long been an advocate of providing psychological services to the underserved in the community (she is also the director of our department's



Raimy Psychological Clinic, a training clinic that serves the community and includes the BBC as one of its components). So when Mr. Block contacted her, it seemed like a natural fit to consider working with the shelter's clients.

As a population without available funding, those clients would need to be served for free, so Professor Richardson applied for a grant through the CU Outreach Office. Outreach grants, which have a competitive application process and are awarded annually, are set up to encourage faculty to provide services to the community and learning opportunities for students at the same time. The BBC project fit the bill and has been awarded an outreach grant for the past two years in a row.

In terms of community service, providing cognitive evaluations for homeless clients can make a dramatic difference in their lives. Clients documented to be cognitively disabled have a much greater chance of qualifying for Social Security Disability Insurance (SSDI) or Supplemental Security Income (SSI). Obtaining these benefits secures Medicaid or Medicare for the recipient, as well as opening the door to other benefits such as free meals, housekeeping help and transportation.

If anyone would know the importance and challenge of obtaining benefits for the homeless, it's Janet McLachlan, the regional benefits coordinator at the  
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## Message from the Chair



The lead story in this issue of the newsletter describes some of the good work that is being done by members of our department and how that work spreads beyond the Muenzinger Psychology Building. That this is being done via a “partnership” is not surprising when we look into what the word actually means: *“a relationship between individuals or groups that is characterized by mutual cooperation and responsibility...for the achievement of a specified goal”* (<http://www.thefreedictionary.com/partnership>). Collectively working together on a designated goal is one of the most rewarding activities we are fortunate enough to engage in as human beings. And from the perspective of nature and biology, successful partnerships are key to surviving and thriving.

There are many active and productive partnerships between the Department of Psychology and Neuroscience and other entities, both on campus and in the community. As an example, I regularly work at the Denver VA Medical Center in the VISN 19 MIRECC<sup>1</sup>, where the main emphasis is on reducing suicidal ideation and behavior. In collaboration with the director, Dr. Lisa Brenner<sup>2</sup>, I and other faculty colleagues, including Dr. Marie Banich, executive director of the Intermountain Neuroimaging Consortium<sup>3</sup>, are conducting research in which we measure how a mild

traumatic brain injury (TBI) with or without post-traumatic stress disorder (PTSD) impacts Veterans’ lives, from the level of behavior through to brain function. The ultimate goal of these studies is to gain a better understanding of the consequences of these conditions. And it is this understanding that should lead to new treatment strategies that improve lives.

Whether you are reading this as you continue your studies in the department or as a graduate from long (or not-so-long) ago, it is my hope that the word “partnership” reminds you of the important work you are doing with others, while pursuing a common goal. Through partnership, be it via familial relationships, your job or education, you can and will accomplish great things. May working together in partnership towards a common goal serve as a cornerstone to your productive, healthy life.

*On another note...* I am delighted to announce that seventeen students graduated in December 2013 as the first class to receive the new neuroscience degree. Go to <http://psych.colorado.edu/graduation/index-dec.html> to view photos of this event.

—Theresa D. Hernández

### Notes and Links:

1. Veterans Integrated Services Network 19, Mental Illness Research, Education and Clinical Center: <http://www.mirecc.va.gov/visn19/>
2. For information about Dr. Brenner see: <http://www.mirecc.va.gov/visn19/staff/brenner.asp>
3. <http://www.colorado.edu/ics/intermountain-neuroimaging-consortium>

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The alumni newsletter for the Department of Psychology and Neuroscience  
is published biannually and distributed to all alumni.

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## A Partnership that Works (continued from page 1)

Boulder shelter. Ms. McLachlan, who helps clients apply for benefits, notes that the percentage of approved applications for the homeless is only a third as many as the 35% approved for the general population. This is primarily due to three factors of homelessness: the lack of a permanent address or contact information to allow for government contact; decreased access to medical care and the resulting dearth of medical evidence for the application; and the impact of psychological or cognitive impairments that may prevent effective interaction with the benefits system.

Shelter clients evaluated by the BBC have fared much better than most according to Ms. McLachlan's reports. Of the twenty people who completed evaluations in the year and a half that the program has been in place, twelve have been awarded benefits and five are currently pending.

Ms. McLachlan has seen lives turn around as a result of securing benefits. She remembers a client who had been homeless for most of his adult life. He was approved for benefits based on his application that included an evaluation done by the BBC and was able to use those benefits to cover a low-cost hotel on a long-term basis. "He told me that this was the first time in his life he ever had a key of his own or any spending money of his own," Ms. McLachlan says. "It was life-changing for him."

She goes on to say that the evaluations done by the BBC are a crucial component of the benefits application for many of their clients. "It's so important. I don't know of any other way that we'd be able to get the cognitive evidence we need for the applications."

Having access to cognitive assessments is particularly important for the homeless because cognitive disabilities are so common among them. "It's hard to overstate how prevalent cognitive impairments are in this population and how often they go undiagnosed," Michael Block says. "It's very meaningful to have a tool to assess this, to be able to uncover cognitive impairments that may have affected people their whole lives. When we speak to providers assisting the homeless in other locations, they say cognitive testing is needed but usually not an option because it's so expensive. So to have free testing for our clients is a dream come true." He also explains that having evidence of cognitive problems is significant for homeless clients themselves. "It gives a

meaning and a context to what their struggles have been and what's gone wrong in their lives. It helps them to know that their disabilities are real."

Besides benefitting the homeless, the grant also benefits clinical graduate students. In addition to helping them hone their assessment skills, students learn from interacting with homeless clients in a professional context. "This process teaches our graduate students how to sit with someone whom they might be intimidated by," Professor Richardson says. "It helps students learn to be with individuals who are different from them, whom they might have preconceived notions about, and helps them develop the ability to be professional in the face of that, to interact well with others who don't have the

same education or life experiences as they do. They gain a real empathy and appreciation for this sector of the population that's often invisible or turned away from."

Students involved in the BBC complete courses in assessment skills taught by Professor Richardson before performing the clinic's evaluations. Ashley Smith Watts, the BBC's intake coordinator and a fifth year graduate student, says that the evaluations assess a variety of cognitive abilities, including attention, memory,

executive functions, language abilities, general intellectual abilities, and visuospatial skills. She notes that students also "conduct clinical interviews and review medical records to better understand the individual's functional difficulties and get a clearer picture of what they're struggling with. Our assessments take around four to six hours, over the course of two to three appointments. We then summarize our findings in a written report supervised by Dr. Richardson." Ms. Smith Watts says that her involvement in this project has affected her both personally and professionally. "This work has really opened my mind to the hardships faced by individuals who are in such a difficult spot in their lives, and has helped me realize that each individual we meet in the clinic has a very unique story....These are people who are very much struggling and are often lost in the system, and they need help and support." Based on this experience, she says, "I want to ensure that some aspect of my professional life focuses on community involvement....Providing philanthropic services to the community is an incredibly important aspect of connecting to those around us." —*Alicia Segal*



Professor Richardson (left) demonstrates assessment techniques to a clinical graduate student in the BBC program



## News from Research Professors

### Neuroimaging of Substance Use and Abuse *by Research Professor Barbara Weiland*



I am an assistant research professor here in the Department of Psychology and Neuroscience with a Ph.D. in biomedical physics. I recently moved from the University of Michigan where I completed a postdoctoral fellowship in the functional neuroimaging of substance use disorders at the Addiction Research Center of the Substance Abuse Program in the Department of Psychiatry. I am currently funded through a Mentored Research Scientist Development Award (K01) from the National Institute of Drug Abuse and a NARSAD Young Investigator Grant from the Brain and Behavior Foundation, both focusing on the role of the dopaminergic reward system in substance abuse risk. My research utilizes multimodal neuroimaging including magnetoencephalography (MEG), functional magnetic resonance imaging (fMRI), as well as positron emission tomography (PET) to investigate

the interaction of genetic liability and environment in risk, and the effect of substance use on the brain. My research on brain connectivity in youth at high risk for substance abuse, based on their family histories, suggests that a preexisting neurobiological vulnerability for substance abuse may result from competition and interaction of brain networks, rather than single brain structures. Our more recent work, here at CU, supports a negative impact of chronic alcohol use on brain connectivity and, therefore, function. My continued focus includes combining brain-imaging techniques to investigate the interactions of genetics with neurochemical systems and brain function as they relate to substance use and abuse.

### Studying the Biological Basis of Nicotine Addiction *by Research Professor Michael Marks*

Our laboratory has a long-standing interest in the biological basis for nicotine addiction. We use mouse models to investigate the roles of genetic factors in mediating both acute and chronic responses to nicotine. Many of the effects of nicotine are mediated through the actions of this drug on nicotinic receptors in the brain. The availability of a large number of genetically identical mouse strains allowed us to determine that there are significant genetically determined differences in response to nicotine that correlate with expression of some nicotinic receptor subtypes. We discovered that chronic treatment with nicotine elicits an increase in some of these receptors. This response was subsequently shown to occur in human smokers. Molecular biological studies have identified a large family of receptor subunits prompting the generation of “receptor knockout mice” (mice from which a single gene has been specifically deleted). Studies using these mutant mice have allowed us and others to begin to identify and characterize the complex array of receptor subtypes expressed in the central nervous system and to investigate how these unique subtypes respond to chronic nicotine treatment. One subtype, originally identified by its unique interaction with a peptide isolated from the venom of a cone snail, is highly and relatively selectively expressed in dopaminergic reward pathways. Given its unique localization, this particular receptor is an especially attractive target for the development of new smoking cessation drugs, the possibility of which we are investigating in a collaborative drug development program.



### Examining Memory Vulnerabilities in the Aging *by Research Professor Ruth M. Barrientos*



Healthy aging individuals are more susceptible to suffering profound memory impairments following an immune challenge than are younger adults. My research examines the mechanisms associated with this aging-associated vulnerability. Interestingly, immune challenges (such as a bacterial infection or a surgery) that are initiated in the body are capable of producing an inflammatory response in a region of the brain (hippocampus) important for forming memories. My research has demonstrated that in the aged brain this inflammatory response, produced by the immune cells of the brain called microglia, is exaggerated and prolonged. Normal aging aggravates microglia, causing their normal response to an immune challenge to be amplified and thus impair several molecular processes important for long-term memory formation. Pharmaceutically blocking the exaggerated

inflammatory response thwarts the memory impairments. I have recently published a paper demonstrating that a small amount of voluntary exercise in aged subjects quells microglia, which in turn completely prevents the exaggerated neuroinflammatory response and the memory deficits produced by a bacterial infection. Current research is aimed at understanding the mechanisms that aggravate microglia in the normal aging brain. My future research goals include understanding neuroinflammation-associated memory deficits in aging menopausal females and the role that estrogen may play in controlling microglial responses.

## Faculty News



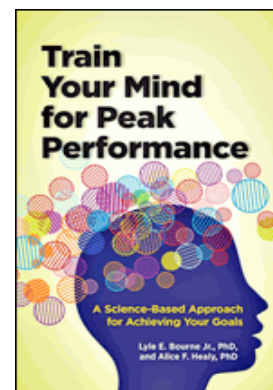
**Professor Marie Banich** has been awarded a 2013–2014 James McKeen Cattell Fund Fellowship. Presented in partnership with the Association for Psychological Science (APS), the fellowship allows recipients to extend their sabbatical period to pursue new research. The APS notes that “the focus of her project during

the period of her Cattell sabbatical award will be to understand the interrelationship between the development of neural systems involved in executive function, and those involved in the interpretation and processing of emotional information, during the adolescent time period.” For more details about the award, go to [tinyurl.com/banichaward](http://tinyurl.com/banichaward).

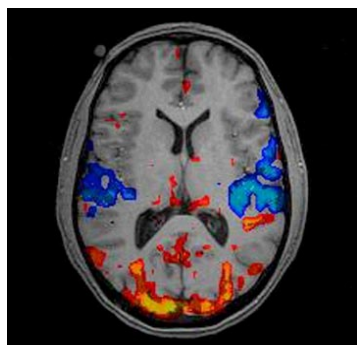
**Professor Bernadette Park** was named the Thomas M. Ostrom Scholar in Residence at Ohio State University for 2013. The award is given to a scholar in the field of social psychology with an emphasis in social cognition or cognitive science. While in residence, Professor Park gave an invited talk entitled “You’ve Come A Long Way, Baby...Well, Sort Of,” in which she described research findings on the self-concept tension women experience in managing their parent and professional identities. She also taught a workshop for graduate students on the Quad model, a method for separating automatic versus controlled processes in speeded judgment tasks.



**Professor Emeritus Lyle Bourne** and **College Professor of Distinction Alice Healy** are the authors of a new book entitled *Train Your Mind for Peak Performance: A Science-Based Approach for Achieving Your Goals*, published by APA Books. The book reviews the best training conditions for learning and job performance, offering readers effective training principles as well as exercises. This is a “trade” book (for the general reader) reviewing the training principles developed at CU’s Center for Research on Training. These principles are derived from cognitive psychology laboratory experiments and are used to enhance the acquisition, retention, and transfer of knowledge and skills. It is part of the APA’s series “LifeTools: Books for the General Public.” It should be available in book stores throughout the nation. For more information about this book, go to <http://www.apa.org/pubs/books/4441021.aspx>.



## Board of Regents Approves Neuroscience Degree



The Department of Psychology and Neuroscience now offers both a BA in psychology and a BA in neuroscience. The Colorado Board of Regents approved a Bachelor of Arts in Neuroscience at their meeting in September 2013. CU-Boulder is now one of the few public universities in America to offer neuroscience as an undergraduate degree program. College Professor of Distinction Jerry Rudy has been instrumental in getting the degree approved and will be director of the new program.

Previously, the department had a neuroscience track that allowed students to get a degree in psychology with an emphasis in neuroscience. Now that the neuroscience degree has been officially approved, all students enrolled in the neuroscience track as of December 2013 will graduate with a degree in neuroscience. Gwen Robeson, academic advisor for the neuroscience degree program, has been assisting students in

smoothly transitioning to the new program. “The students are thrilled with the creation of the Bachelor of Arts in Neuroscience,” Ms. Robeson says. “Their coursework is heavily weighted in biology, chemistry and neuroscience, and now their diploma will reflect that.”

## Undergraduate Research: Andrei Semenov



Andrei Semenov, a May 2013 graduate, had a keen interest in research throughout his undergraduate career. As a freshman, he joined Professor Yuko Munakata's lab, the Cognitive Development Center. His interest in research deepened as a junior when he took Professor Munakata's class on critical thinking which focused on parenting styles and parenting myths, and he decided to do an honors thesis in that area of interest during his senior year.

When Andrei was ready to do his honors thesis, he benefited from a timely event: the lab was exploring a new direction in its research which he was able to integrate into his thesis. The lab was examining whether children's executive function (also known as cognitive control) was related to how they spent their time. The unique aspect of the lab's research was a time diary that parents filled out to track how their children spent time throughout the day.

Andrei hypothesized that the more time children spent in unstructured activities, the better their performance would be in endogenous control tasks. The term "endogenous control" indicates an internal focus for problem solving, for example, when children find a problem difficult and choose to change their own behavior and try something different to solve the challenging problem rather than seeking the answer from an external source such as a parent.

The next phase was analyzing the data. Andrei discovered that "looking at the data was the fun part" despite it being such a large task. He was elated to find that the data supported his hypothesis. Andrei is now serving as a co-author on the lab's paper currently being submitted for publication.

Since defending his honors thesis in Spring 2013, Andrei has decided to pursue an advanced degree and continues to work in the Munakata lab. He speaks highly of the lab's research team and notes that they, and particularly Professor Munakata, gave him the essential help that made his research possible. "Working with these people was probably the most rewarding and educating experience I had," he says. —Kate Bell

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## In Memoriam: Vic Ryan (1943-2014)



Assistant Professor Emeritus Vic Ryan passed away on January 3, 2014, at the age of seventy. He completed his bachelor's degree at Northwestern University and earned his Ph.D. in clinical psychology at the University of Michigan in 1970. He was appointed to the psychology faculty at CU-Boulder shortly thereafter. From 1973 to 1981, Professor Ryan was director of the Psychology Clinic (now known as the Raimy Clinic), a training site for clinical psychology graduate students. He also served the department as clinical training program director (1987-1991) and associate chair and director of graduate studies (1991-1994). During his tenure, he developed and taught several well-received graduate classes, including courses on psychotherapy and clinical supervision, as well as a very popular undergraduate class, *Clinical Psychology*, which he taught for over thirty years. He retired from the department in 2005.

Professor Ryan was best known as a gifted teacher, clinician and supervisor in the department. With colleagues, students and supervisees alike, he shared a depth of insight, humor and compassion, the same qualities that made him an excellent therapist. Professor Louise Silvern, a colleague in the department who knew him well, describes his therapeutic skills by saying, "He was able to weave together multiple theoretical frameworks for the benefit of individual clients. And while all clinicians try to be empathic and non-judgmental, he was especially remarkable in those aspects." He was greatly valued as a supervisor and many of his students stayed in contact with him long after they graduated. "He cared intensely about every clinical graduate student he supervised," says Professor Silvern. After retiring, he volunteered for several years as a supervisor for the clinical program, and continued throughout his retirement to volunteer as a consultant with former students and clinical psychologists in the community. He will be remembered and missed by all whose lives he touched.



## Alumni Spotlight: Rob Rapier, DPT (BA '00)



### Colorado Journey *by Rob Rapier*

I was inspired to pursue a career in healthcare during my years as a competitive distance runner in Alabama. As an athlete, I developed a natural interest in the human body. During the summer of 1989, I came to Boulder to visit some friends. Over the course of

a weekend, I fell in love with the beauty and openness of Colorado. I immediately flew back to Alabama, quit my job, packed up my car, and drove the 1,300 miles back to Colorado to start a new life. My quest for more knowledge led me to enroll at the University of Colorado Boulder in January 1994 as a non-traditional student double majoring in kinesiology and psychology.

My interest in the “mind and body” connection, health, and well-being only deepened during my CU studies. CU provided the opportunity to enrich my original interest in human physiology by studying the mind’s role in exercise performance and its role in maintaining a healthy body. I read extensively both on my own time and as a part of my course studies. One of my seminal CU experiences was participating in an internship in New Delhi, India. There, I was privileged to work at a school for disabled children with an occupational therapist and professionals in various other healthcare disciplines. During this time, I expanded my interest in the relationship between mind and body and ultimately resolved to embark on a career as a holistic practitioner.

After my return from India, I continued to channel my interests specifically to holistic health and the mind/body relationship and committed myself to writing an honors thesis. I had a fortuitous meeting with Diane Martichuski in the psychology department. With her guidance, I spent one year reading, researching, and writing my thesis, “Psychosocial Determinants of Health Protective Behaviors and the Use of Alternative Medicine.” One of the thesis subjects I explored was an examination of the factors that predict a person’s use of alternative medicine.

My year working with Diane helped me further sharpen my focus on the type of health profession I wanted to pursue and to think deeper about precisely how I wanted to work with future patients. Diane was a perfect match for me: she was able to help me shape and

expand on my thesis, guide me in critical thinking, and help me develop professionalism. Her inspiration and support, along with my rich experiences at CU and my natural curiosity and passion, ultimately led me to a career as a massage therapist and physical therapist.

I currently work for Arbor Occupational Medicine in Boulder, Colorado. My practice consists of a combina-

tion of a unique blend of physical therapy and massage therapy to rehabilitate people recovering from acute and chronic injuries and post-surgical procedures. Working with patients from a wide variety of backgrounds and occupations, I emphasize the need for patients to engage actively in their own healing process. A crucial component of my therapy is providing and encouraging patient education through clear and open communication.

A significant part of my patient clientele consists of University of Colorado employees. After working at CU as a student resident advisor, I now find it very rewarding to help the entire CU family “get better.” It makes me feel like I’m contributing back to a place and people that helped shape me into the person and professional I am today.



Helping a back surgery patient improve postural muscle strength



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Visit our Alumni News website for updates from alumni who sent us news.

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