Psychology & Neuroscience News

Meditation in Research and Practice



Every Wednesday around lunchtime, graduate students Yoni Ashar and Rachel Vanderkruik, and research associate Pavel Goldstein, do their best to make it to "Just Sit," the drop-in meditation group for our

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department's students, faculty and staff. Once they arrive, they join other department members to sit silently for half an hour, practicing their own choice of meditation. The non-denominational group is also non-instructive, and the "Just Sit" moniker says it all: quiet sitting is the only activity going on in the room.

But for practitioners, meditation is a dynamic internal exercise. *Psychology Today* offers a definition that reflects an active mental state: "Meditation is the practice of turning your attention to a single point of reference. It can involve focusing on the breath, on bodily sensations, or on a word or phrase known as a mantra. In other words, meditation means turning your attention away from distracting thoughts and focusing on the present moment."

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Message from the Editor

Dear Alumni Readers,

Due to changing demands on staff resources in the department, this will be the last issue of *Psychology and Neuroscience News*. I've had the good fortune to write for and edit the alumni newsletter since it was started in 2009 by department chair Lew Harvey.

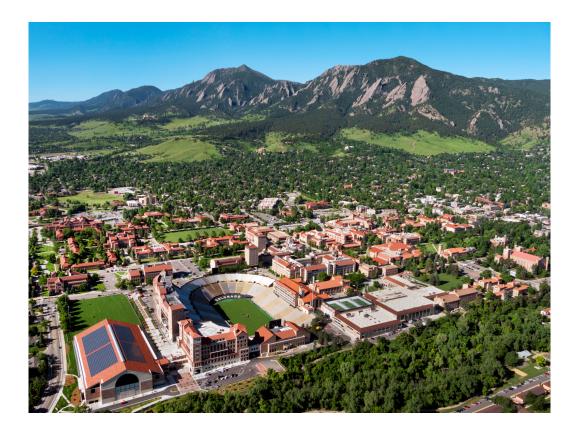
As this publication comes to an end, I'm left with a heartfelt gratitude and respect for our alumni who have shared their stories over the years, and for our wonderful department of faculty, staff, and students who have been a true pleasure to work with on the newsletter.

The Alumni News website will continue to be an active archive available to alumni. You're always welcome to send an update to psychology.news@colorado.edu. Your update will be added to the Alumni News website (psych.colorado.edu/alumni-news). And remember that

you can always visit our website at www.colorado.edu/psych-neuro to stay up-to-date with the goings-on in the department.

It's been an honor to be able to bring you news of the department all these years. I wish you all the best.

– Alicia Segal, Managing Editor



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Meditation in Research and Practice (continued)



Researchers Pavel Goldstein, Rachel Vanderkruik, and Yoni Ashar each maintain their own meditation practices, which helps to inspire their interest in meditation research.

In addition to maintaining their own practices of meditation, Yoni, Rachel, and Pavel are actively engaged in research on meditation. And over time, they've each noticed the interaction between their personal and professional relationships with meditation. This article looks at the research they each do, how their meditation practices developed and are influenced by their work, and how their practices affect their research.



Rachel Vanderkruik, a third-year clinical psychology graduate student, became interested in meditation as an undergraduate. Enrolled in pre-med courses at Bowdoin, a small liberal arts college in Maine, she was also a student athlete and led a very busy life. To cope with the stressful academic and athletic demands, her rowing coach suggested a weekly mindfulness program on campus. She attended regularly and found it so helpful that she continued her practice after graduating. This coincided with her work at the time: as a research assistant at Massachusetts General Hospital (MGH), she had heard about Jon Kabat-Zinn's Mindfulness-Based Stress Reduction (MBSR) program at UMass Medical School and was impressed with the recognition the program was getting from the medical and healthcare community. She was particularly interested in how mindfulness could promote health and wellbeing. After two years at MGH, Rachel went on to get a master's degree in public health from Harvard with an emphasis on maternal and child health.

Rachel was excited to discover that her research interests dovetailed with a faculty member in our department, Associate Professor Sona Dimidjian, and applied for graduate study in her lab. "Sona's expertise in mindfulness research was a big draw for me," she says, "as well as her focus on perinatal mental health, since both are areas of interest for me." Now a graduate student in Professor Dimidjian's lab, Rachel says she benefits from observing her faculty advisor's integrative approach. "Her projects cover a span of topic areas that really interest me, including mindfulness-based interventions, promoting healthy body image among girls and women, and increasing access to evidence-based therapies for maternal depression. I appreciate that she's able to cultivate expertise in several topic areas within the field, including mindfulness, and it's impressive to see how her creativity and multidisciplinary collaborations lead to very innovative projects and research."

Rachel is currently a research assistant on a study led by Professor Dimidjian and her colleague, Professor Zindel Segal from the University of Toronto. The study, called "Strategies for Overcoming Residual Depressive Symptoms Study (SOAR)," looks at the effectiveness of an online mindfulness program, Mindful Mood Balance (MMB). This is an online application of Mindfulness Based Cognitive Therapy (MBCT), a form of therapy combining the ideas of cognitive therapy with meditation practices, similar to the MBSR program that originally sparked Rachel's interest.

Meditation in Research and Practice (continued)

Working in collaboration with Kaiser Permanente, the study enlists patients with a history of depression who are currently experiencing residual symptoms of depression. These participants are randomized to receive MMB online or to be in a control group. Data are collected regularly from all participants via surveys, including scales for assessing changes in mindfulness and changes in depression. The study's investigators hypothesize that after completing the program, MMB participants will have a lower risk of relapse into depression or lower levels of depression than those in the control group.

Rachel acts as an MMB coach in this study, making initial contact with participants randomized to MMB and checking in with them each week during the course of the eight-week program. She supports them in building the skills involved in mindfulness and creating and maintaining a regular mindfulness practice, all goals of the MMB program. In carrying out this role, Rachel sees the benefit of being a meditator herself. "Having my own meditation practice is very helpful in my coaching role, in part because I understand the challenge of trying to make it a regular habit," she says. She also has insight into how mindfulness may be misconstrued and can help participants manage their expectations of the process and the outcome. "There tend to be a lot of misconceptions about mindfulness because it's currently a 'hot' term," she says. "A lot of people view mindfulness as something to do to relax or to become calm. That's not all that mindfulness is about. It's also about awareness and developing the skill to use and focus your attention in various ways. Relaxing can often be a by-product of having a mindfulness practice."

Rachel's involvement in this research has likewise affected her personal practice. "It's motivated me to try to maintain a regular meditation practice myself, and to incorporate mindfulness in all aspects of my life. It helps me to reflect on what I'm experiencing." She also sees meditation as an important element of progressing through her doctoral program. While balancing the many demands of being a grad student, she says, "it's rare to feel like you're doing your best at everything all of the time. Meditation helps me to foster self-compassion and not get caught up in the difficulties of the process."



Yoni Ashar had a fascination with the subject of consciousness from a young age, with early memories of lying in bed and watching passing thoughts and

sensations. As a teenager, he was also drawn to the idea of self-control. The ability of the mind to craft its own experiences appealed to his independent nature, his valuing of freedom, and his desire to be the master of his own thoughts. After traveling and exploring meditation in different cultures, he joined a meditation club on campus while attending the University of Maryland. He forged a strong connection with the teacher, a monk who taught him the basics of meditation and helped him consider meditation as an ongoing practice.

As a young adult, Yoni's continuing interest in meditation, spiritual paths and wisdom traditions led him to Jerusalem to study the Torah (Jewish scripture) and to set his sights on becoming a rabbi. His plans changed when he heard Richie Davidson give a public lecture in Jerusalem. Davidson, now a professor of psychology and psychiatry at the University of Wisconsin-Madison, was an early advocate of meditation research. "After I listened to him, I had an epiphany that I wanted to study meditation scientifically," Yoni says. "I was trained in computer science and had a scientific disposition, but didn't know that anyone was doing this kind of work until I heard his talk." Although this realization significantly changed his future direction, he notes as an aside that he didn't completely let go of his rabbinical aspirations-they were indirectly satisfied because "I got to marry a rabbi!"

He came to CU Boulder to work with Professor Dimidjian, known for her work with mindfulness meditation, and Professor Tor Wager, known for his research on the placebo effect and the regulation of pain and emotion. Yoni joined each of their labs and is now a fifth-year graduate student, focusing on emotion and the brain. He has been doing research on the placebo effect, empathy and compassion, and compassion meditation, which focuses on unconditional positive emotions of compassion and kindness.

Yoni believes his interactions with Professors Wager and Dimidjian have been significant in his development as a researcher. "They've influenced me tremendously in the research I do. One thing I've learned from both of them is that seemingly nebulous things like mindfulness can and should be studied with scientific rigor."

One of Yoni's research studies, done in conjunction with these two faculty advisors, was designed to develop a psychological model predicting compassionate behavior. The study, published in the journal *Emotion* and titled "Effects of Compassion Meditation on a

Meditation in Research and Practice (continued)

Psychological Model of Charitable Donation," looked at the effects of a smartphone-based compassion meditation program on charitable donation. The meditation program was compared to two active control conditions: placebo oxytocin, and a familiarity intervention designed to control for the increased familiarity with suffering others. Study outcomes showed that compassion meditation increased charitable donation relative to the control conditions. The journal article noted that these results contribute to the growing evidence base that compassion meditation can increase compassion and may impact helping behavior.

When he considers the connection between his research and his own meditation practice, Yoni remembers his original inspiration, Professor Davidson. "Richie Davidson talked about parallels between conducting research and practicing mindfulness," he says. "Both involve careful, dispassionate observation; both require a healthy dose of curiosity and focused attention to data; both have a pattern of wandering away and coming back to center. I strive to be really faithful to the data themselves—just like in mindfulness meditation, the core practice is attending to the present moment. In meditation, you get data from your sensory experience and in research you get data from your participants. The key in both is to be totally honest about what the data are telling you."



At the age of 17, while living in Israel and searching for a sense of meaning, Pavel Goldstein became interested in Reiki training. "Reiki is a touch therapy that brings attention to various physical sensations and parts of the body," he explains. "I practiced this as a form of meditation and I currently continue to do a variation of Reiki. It allows me to enter a specific meditative state of mind."

After practicing Reiki for a while, he happened to see an advertisement for a study of mindfulness meditation and wanted to participate since this was a type of meditation he was curious about. Coincidentally, he was working as a statistical consultant at the time and the study's researchers came to him for a consultation about the same project, not knowing he had been a participant. This serendipitous connection, in addition to his own positive experiences with meditation and a desire to understand meditation in a broader sense, propelled him towards finding a way to do his own meditation research. "Meditation is a personal experience for me with personal benefits that have been individual to myself," he says. "I wanted to test if what worked for me could be generalized to others. That motivated me to do research on meditation."

With this in mind, Pavel applied and was accepted in the University of Haifa's psychology department, where he graduated with his PhD this June. As part of a research group in Haifa, he focused on mindfulness meditation research. In one study, he and his colleagues set up mindfulness group interventions with a general population using group training and video training. They then measured outcomes including anxiety and depression, stress, mindfulness, and decentering (the ability to separate oneself from emotions). The researchers found that mindfulness significantly decreased anxiety, stress, and depression, while increasing positive emotion. They concluded that decentering mediated these effects. The study, titled "Decentering in the process of cultivating mindfulness: An experience-sampling study in time and context," was published in the Journal of Consulting and Clinical Psychology.

Pavel's personal experience with Reiki also stoked his interest in touch-related research and led to a PhD project on the effect of touch on pain analgesia and interpersonal physiological synchronization. During his graduate program, he became aware that Professor Tor Wager's studies on pain and the placebo effect corresponded with his own. He arranged to come to CU to work in Professor Wager's lab doing research on dual paradigms involving the interactions of two people in relation to pain and placebo.

Pavel sees a strong parallel between his meditation practice and meditation research. "In a way, I'm always doing personal research during my own meditation, trying to understand the process for myself," he says. "As I research my own experience with meditation, I get ideas for scientific research. And I like to apply the outcomes of research to my own practice. I see results from meditation studies and ask, 'Does that work for me?"

His own daily practices of Reiki and compassion meditation seem to work very well for him. After practicing, he says, "I have a totally different perception of reality. Practicing affects all parts of my life: my physical health, my mental health, my relationships with others. I find that compassion meditation helps me be more positively involved with the people around me in a helpful way. It just feels like something I need to do."



Research News

Why is the Social Category *Mothers* Viewed as More Meaningful and Enduring than *Fathers*?

by Professor Bernadette Park



One research focus in our lab concerns gender stereotypes and their consequences. Women continue to experience unequal work and family outcomes relative to men. A disproportionate number of women who train for professional careers—as doctors, lawyers, academics—leave those positions, and cite family obligations as the primary reason for doing so. And the women who stay in their careers are less likely to be married, to have children, and they postpone having children until a later age. These facts speak to the continued difficulty of "having it all," in part because the primary responsibility for childrearing continues to fall on women. A variety of psychological factors contribute to this continued inequity. One that we've demonstrated is the tendency to view mothers as having an underlying, often invisible essence that makes them what they are, and as a result, the category *mothers* is perceived as a more real, enduring, and

meaningful category than *fathers*. Across a series of studies, we've shown that mothers are consistently rated higher on these "essentialist" properties than fathers, and this appears to be driven in part by the very salient physical changes that women go through in the course of becoming mothers (e.g., the physical act of pregnancy).

Recently we've explored whether this robust difference in the characterization of *mothers* as a more real category than *fathers* might be minimized by calling attention to biological or physical changes that fathers experience. Participants read news-like articles describing actual changes that fathers experience. In one case the article described social changes such as the greater number of hours that fathers now spend with their children, in another, hormonal changes, and in a third, the phenomenon of the dadbod—that many fathers experience moderate weight gain, and a thickening of the waistline—was described. Both of the latter articles resulted in more essentialist perceptions of fathers, decreasing the difference in how mothers and fathers were perceived. Decreasing the divide in essentialist characterizations of mothers and fathers may help change expectations about a "fair" distribution of childcare responsibilities, and that in turn may help change opinions and actions in order to achieve greater equality for women in work and family outcomes.

The Neurobiology of Social Bonds by Assistant Professor Zoe Donaldson

The attachments we form with family, friends, and romantic partners represent a key facet of human nature. These bonds influence our health and well-being. Friends and family make us laugh and help us recover from stressful events and physical ailments. Yet despite the clear importance of healthy social relationships, we know relatively little about how the human brain encodes these bonds at the level of molecules and cells.

My lab investigates the basic neurobiology of social bonds by studying a monogamous rodent. Prairie voles are small rodents that live throughout the mid-western US and Canada. In the wild, these animals will typically mate for life; if one animal dies the remaining one rarely takes a new partner. We can easily study social bonds in these animals in the laboratory. Given the choice,



voles will prefer to spend time with their monogamous partner rather than a vole they have never encountered before. In my lab, we perform a variety of experiments to try to identify the neural basis of this desire to interact with a monogamous partner, including direct measurements of neuronal activity and manipulations of specific sets of neurons.

Our work has important implications. Attachment behaviors are disrupted in a variety of psychiatric and behavioral disorders, including autism, schizophrenia, depression, and separation anxiety disorders. By elucidating the basic neurobiology of social bonds, we hope to build a foundation for asking how these systems are disrupted in cases of mental illness. In addition, this work will directly contribute to our understanding of a fundamental human characteristic and help explain the evolution of complex human social behaviors.

New Faculty



Starting in August 2017, **Eric Pedersen** will be an assistant professor in social psychology. He received his PhD in psychology with an emphasis on evolution and behavior from the University of Miami in 2015. He has been a postdoctoral fellow in the Department of Psychology at the University of Miami. His research focuses on the proximate and ultimate causes of human social behavior and decision-making, using a theoretical approach to consider how psychological mechanisms process inputs from the environment to adaptively regulate social emotions and behavior. Some of his main interests include how the mind regulates punishment and anger, how gratitude and forgiveness function to build and maintain relationships, and how individual and cultural differences in cooperation arise.

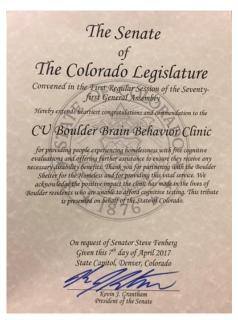
Starting in August 2017, **Karl Hill** will be an assistant professor in the Institute of Behavioral Science as the director of the Problem Behavior Positive Youth Development Program. He received his PhD in social-developmental psychology from Brandeis University in 1991. He has been a research professor with the University of Washington's Social Development Research Group. His research involves understanding the factors that influence positive and problem youth and adult development; intergenerational mechanisms and processes in development; and systems-oriented, social-developmental, life-span theory.





Starting in January 2018, **David Root** will be an assistant professor in behavioral neuroscience. He received his PhD in psychology (behavioral neuroscience) at Rutgers University in 2012. He has been a postdoctoral fellow at the National Institute on Drug Abuse in Baltimore, Maryland. His research involves delineating the cell-type specific neuronal networks of behaviors involving reward and aversion. He utilizes a multidisciplinary approach that molecularly identifies, electrophysiologically characterizes, and optogenetically perturbs specific cell-types and pathways in order to identify their contributions towards motivationally-relevant behaviors that characterize several disorders, including addiction and depression.

Brain Behavior Clinic Receives State Senate Commendation



The department's Brain Behavior Clinic in the Raimy Clinic, directed by Research Assistant Professor Emily Richardson (pictured upper right), received a commendation from the Colorado state legislature in April 2017. The commendation is "for providing people experiencing homelessness with free cognitive evaluations and offering assistance to ensure they receive any necessary disability benefits."

The Brain Behavior Clinic has been co-supervised by Rachel Thayer (pictured lower right), a graduate student in clinical psychology, who will be leaving to complete her training in neuropsychology at the University of California San Diego.

For more information on evaluations through the Brain Behavior Clinic, go to the Clinic's website at www.colorado.edu/clinicalpsychology/raimy-clinic -adult-assessment.





A Conversation with College Professor of Distinction Richard Olson about Life after Retirement



On May 11th, our department held a retirement party for College Professor of Distinction Richard Olson, a faculty member for the past 47 years. At the party, he traced his progression in the department since first applying for a position in the developmental program in 1970, through his current role as director of the Colorado Learning Disabilities Research Center, an NIH grant-funded program with four centers nationwide, including at CU Boulder. The Colorado center focuses on the genetic and environmental etiology and remediation of learning disabilities by studying identical and fraternal twins. In his typical kind and generous manner, he spoke with great appreciation for all the colleagues, students, and staff that have been part

of his academic life. "This has been such a rich intellectual environment that fits perfectly with my interests," he said, and made it clear how fortunate he feels to have been a member of the department.

A few weeks after the party, Professor Olson sat down with me to talk about life after retirement. Here is that conversation. *–Alicia Segal*

A.S.: What motivated you to retire at this particular time?

R.O.: In part, I was considering the timing of the renewal cycle for the center grant I work on. It's now going up for competitive review; each cycle lasts five years. For the past ten years, I've been the principal investigator on the grant, and prior to that I served as associate director with John DeFries [professor emeritus in our department]. We just submitted a renewal application with Erik Willcutt [professor in our department] taking over as principal investigator.

It seemed like time for the grant to move on with fresh blood, new ideas and new people. I'll be 76 years old at the end of the current grant cycle in November. It's the right time for someone else to step in with youthful energy and fresh ideas, and Erik Willcutt certainly fits



Retirement party for Dick Olson in Muenzinger on May 11th.

that description. And Marie Banich [professor in our department] will also have a project in the grant, so more new, fresh perspectives. If the grant is funded, I am committed to staying on as associate director.

So you'll be staying in the department for a while?

Yes, but I won't allow it to take me over—I view retirement as a door opening to new life experiences, and life is short! I plan to keep my office for another year. If the grant isn't funded, I'll still have work to do, taking all of the data the center has collected and making them publicly available. That will be a significant job.

(Continued on page 9)

A Conversation with Richard Olson (continued)

I want to stay connected here because I'm still very interested in my work. These are fascinating problems and we haven't solved them all yet. My wife [Distinguished Professor of Psychology Jan Keenan, recently]

retired from the University of Denver] feels the same way—she wants to stay connected to her work.

You and your wife retired at the same time.

Yes, our decision to retire was a joint decision. She's eight years younger than I am and could easily continue to work. But we now have a new 10-month-old granddaughter in Aspen. We want to spend more time with our grandchildren, our children, and our friends. We have a lot of things we want to do.

Such as?

As long as our health holds up, we want to hike, ski, enjoy traveling. In fact, in the near future we're planning to go to the Caribbean, then to Canada for a conference, and then to Australia for a month in the fall.

How does it feel to start letting go of your life in the department?

The past few years have been a period of reflection. I've largely had a feeling of gratitude for all the lucky breaks I've had and for all the great people I've been able to work with. Both the scientific and the social sides of working here have been very rewarding. My collaborators have been my friends and those friendships will continue.

As you've reflected on your time here, what's been most meaningful for you?

For me, the most meaningful thing has been the ability to collaborate across disciplines. This department is unique in its willingness and ability to form collaborative relationships between various disciplines. Bringing together people with expertise in their particular fields strengthens everyone in that collaboration.

The Learning Disabilities Center has been a platform for that kind of collaboration and that's one of the reasons we've been able to succeed. Understanding individual differences and problems in learning requires approaching those problems from a biological perspective, involving things like genetics and neuroimaging. But it also requires understanding aspects of cognitive ability and development from a

psychological perspective that may not be directly revealed through biology. The closer we get to understanding the brain, the more we'll be able to understand behavior, and our understanding of the psychological side of things will deepen our understanding of the brain.

What do you think your new post-retirement life will be like?

The range of things I'll be able to do will be much broader. When you're working in a professional capacity, you spend a lot of time reading in your area of research. I love to read broadly in science, not just in psychology. I'd like to dabble in reading more about physics, climate science, different aspects of biology and genetics, and see what other research is going on. I also love to

read fiction. I'm looking forward to spending more time in the Boulder area, taking hikes, going to concerts at Macky, watching plays at the Dairy Center.

Retiring is a huge step in life. A door opens up, and I'm excited about what's to come.



Enjoying some fine wine at A-Basin, circa late 1970s.



Dick's 10-month-old granddaughter, Zoë, demonstrating advanced developmental skills

Muenzinger Lobby Renovated!

Senior Instructor Heidi Day is very familiar with the Muenzinger lobby. On any given work day, she typically passes through the area at least twice each day. Several years ago, these daily treks got her thinking about the lobby environment. "When I walked through every day, I saw a lot of students using the lobby," she says. "Some were sitting on those cold, hard, concrete benches, but some were also sitting on the floor, using the pillars or walls for back support. Both looked uncomfortable and neither seemed productive for work or socializing."

It seemed clear to her that the area could be more comfortable and inviting for students. She also believed the lobby could be more visually attractive, creating a more appealing impression for those entering the building for the first time, and a more pleasing environment for



those passing through. So she decided to write a proposal to renovate the space. With the catchy title, "Muenzinger— Lobbying for a Better Lobby," her detailed proposal included an analysis of lobby use and offered suggestions and quotes for renovation.

The proposal suggested removing the concrete benches, restoring the flagstone flooring, painting the walls, and adding seating and tables with outlets for charging devices. It also recommended removing the bookcase on the wall in front of the elevator and replacing it with a slim counter, good lighting and high stools, with outlets above the counter for additional charging devices.

When the proposal was accepted, Dr. Day and Muenzinger's building manager, Kate Bell,

Muenzinger Lobby Renovated! (continued)



Dr. Heidi Day and Manager of Building Operations Kate Bell enjoying the comfort of the newly renovated Muenzinger lobby.

started working closely together to set the project in motion. For Muenzinger renovations, Kate is the person on the front line, working with CU's Facilities Management and their contractors, ordering furniture and lighting, working with designers, and dealing with issues particular to this old building. Since very sensitive human and animal research is frequently conducted in Muenzinger, noise and vibration issues are always at the forefront of Kate's mind. To make sure that renovation doesn't interfere with research, she keeps close tabs on the needs of each research lab. "It does complicate things," she says. "Sometimes we have to adjust the project's work schedule to evenings or weekends to avoid noise, vibration, and even chemical odors, all things that could affect the outcomes of the research."

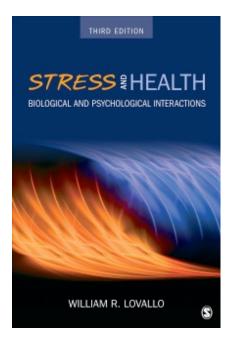
For design advice, Kate and Dr. Day consulted Lori Black, an interior designer who works with CU project managers. They all agreed on a guiding principle: creating a sense of warmth and invitation. They chose a color scheme with this in mind, focusing on warm colors to bring out the burnt orange and sandy beige of the flagstone floor. Moon ring lighting on the ceiling added an inviting visual appeal within the room and an intriguing look from the street. They found furniture that was sturdy and attractive as well as functional for the space: comfortable couches with greater seating capacity, tables with electrical outlets, a recharging counter to allow for quick stop-ins on the way to class, and an overall design that allowed for ease in passing through the lobby. The necessity of disability accommodations and abiding by university fire codes were also important considerations.

The lobby renovation got underway in the spring of 2016 and was finished a year and a half later. Though this was a challenging project, Kate says she relished the process. "I love transforming spaces and bringing color into Muenzinger whenever I can. Color seems to lift people's spirits. We wanted the lobby to feel very welcoming, and we tried to bring an uplifting and artistic sense to what might otherwise be an institutional space."

According to Dr. Day, who has been keeping an ear out for responses to the new lobby, that goal seems to have been achieved. She says, "I've heard a lot of positive feedback that the space seems very comfortable and functional. And from what I've observed, it seems to be getting a lot of use. I haven't seen a single person sitting on the floor!"

Alumni Bookshelf

Stress and Health: Biological and Psychological Interactions



Stress and Health: Biological and Psychological Interactions, by alumnus William R. Lovallo, PhD (MA '70), is a brief and accessible examination of psychological stress and its psychophysiological relationships with cognition, emotions, brain functions, and the peripheral mechanisms by which the body is regulated.

We have believed that being under stress can have an impact on our health, and now it is possible to trace how fears and anxieties can translate into effects on our body. These effects can influence the course of diseases such as high blood pressure. Stress hormones, particularly cortisol, can feed back to the brain and change how it responds under stress, with a long-term impact on our psychological reactions to events. More recently studies on rats and mice are gaining insight into how these changes in the brain can be transferred from mothers to their offspring.

Updated throughout, the third edition covers two new and significant areas of emerging research: how our early life experiences alter key stress responsive systems at the level of gene expression; and what large, normal, and small stress responses may mean for our overall health and well-being.

(Contributed by William R. Lovallo, PhD)

David E. Drutz Endowed Scholarships

In the near future, new endowed scholarship awards will be available in our department, made possible by a bequest of David E. Drutz, MA (BA '79), a former alumnus who died unexpectedly on April 19, 2015. Those who knew him said he held a special place in his heart for the university and our department. He made a generous bequest which will provide scholarships for psychology and neuroscience sophomores.

Our department is grateful for Mr. Drutz's meaningful gift. Through his supportive legacy for our students, we will remember his CU spirit for years to come.

In 2009, Mr. Drutz sent the following update to our Alumni News website. It seems fitting to reprint much of it here in honor of his life and his legacy:

I can still remember sitting in Dr. Greg Kimble's PSYC 1001 class in Muenzinger (Fall, 1975) with 400 other freshmen, wondering how I was going to get through the next four years. I was one of the few with a hand-held calulator for Statistics, and still recall getting up early to make coffee for 80 people when Psychometrics was oversubscribed in my senior year and had to be held at 8:00am! Another great memory is of our Developmental Psych professor lecturing in tennis clothes one day when a lunch tennis match ran late. She lectured without notes, using the chalk to make points on the board, and the tennis racquet for emphasis. I can also remember carrying a pigeon between labs in a pitcher (head down, they didn't try to flap), and anxiously scanning the corkboard outside MUEN110 for experiments to participate in. (A couple of years later I was the experimenter, relying on college sophomores for viable data).

I went on to a master's degree from Georgia Tech in Industrial Psychology in 1983, and moved to Virginia, where I have worked for the 'alphabet soup' companies around the Washington Beltway for over 25 years. These include CSC (12 years), BAE, SAIC, and most recently, IBM, and NGC (Northrup Grumman). I've concentrated on technical training for adults; mostly in classified programs with unique software. After over 3000 hours in the classroom, and an equal or greater amount of time doing training material development, I'm now in Richmond, Virginia, and part of a large team developing logistical training (WBT and ILT) in a \$1B SAP implementation for the US Army, due in 2012.

I still keep a stuffed Ralphie in, on, or near my desk at work. In a 'cube farm' environment, she is sometimes the only way to tell which of the ugly green workstations is your corporate home! My locator board, just below her perch, says 'I am not an animal— I'm a CU graduate."

Highlights from Alumni News on our Website

Alumni who sent us updates over the past year are listed below. You'll find a full account of their news, as well as updates submitted by other alumni over the years, on our Alumni News website (psych.colorado.edu/alumni-news).

1960s

John W. Madden, III, JD (BA '62) has practiced law in Denver for nearly 50 years. His private practice has been focused primarily on civil trial work. He also served as an assistant U.S. Attorney for the District of Colorado and was director for six states in the Denver Regional Office of the Federal Trade Commission.

Stephen Warren Link, PhD (BA '63, Psych, Sociology & Mathematics) recently opened a week-long scientific meeting in Moscow sponsored by the Russian Academy of Sciences with an introductory lecture on "Measuring Invisible Mental Phenomena."

Dave McCarty, MD (BA '69) retired from his internal medicine practice at Longmont Clinic and University of Colorado Health in December 2016. He and his wife enjoy traveling and volunteering for an international children's choir. He continues to exercise and enjoys his four grandchildren who live in the Longmont area.

1970s

William R. Lovallo, PhD (MA '70) is a senior research career scientist at the VA. His lab is now doing a large study of young adults from alcoholic families to understand the environmental and genetic influences that may contribute to the elevated level of risk in that group. See page 12 for information on his recent book.

Dexanne Bowers Clohan, MD (BA '71, Psych & Education) was chief medical officer for HealthSouth, a system of over 100 rehabilitation hospitals. She has retired from that role and now does consulting related to improving the quality of medical care.

Diane Follingstad (PhD '74) retired as a distinguished professor emeritus at the University of South Carolina Department of Psychology. She now holds the positions of endowed chair and executive director of the Center for Research on Violence Against Women at the University of Kentucky.

Eric A. Johnson (BA '74) joined the re-evaluation counseling (RC) community and practiced RC for 20 years. He went back to school to learn computer programming and has been a computer 'psychologist' ever since. He is currently employed by NTT Data, Inc. as a senior software consultant. Stephen Mercer (BA '75, Psych & Art History) is semi-retired, and currently continues to do process consulting work. He is also getting into real estate. He does artwork which can be viewed on his website at www.stephenmercer.net.

Christopher (Kit) Tennis, PhD (BA '75) has logged 30 years as an organization development consultant focused on diversity, inclusion and human-centric organization. He lives on a mountain above Boulder with his wife, consultant, speaker and author, Anita Sanchez.

Marcey Berman, MSEd (BA '78) earned a master's degree in special education after a career in restaurant management. She teaches middle school students with a variety of disabilities in Chicago. She also earned a second bachelor's degree in interpreting and is currently a freelance sign language interpreter.

David T. Burke, MD, MA (BA '78) is a professor and chair of the Department of Rehabilitation Medicine at Emory University, and is also the chairman of the board of Emory Rehabilitation Hospital. He specializes in brain injury and works closely with the hospital's psychology division to treat his patients.

Michael Masson (PhD '79) directs readers to his website (web.uvic.ca/psyc/masson) for an update.

1980s

Michael Drexler, PhD (BA, '80) works for the Department of Veterans Affairs as a staff psychologist and neuropsychologist at the San Francisco VA Medical Center. He also teaches at several universities in California, including as an associate clinical professor at the University of California San Francisco.

Mark McDaniel (PhD '80) is co-author of the book Make It Stick: The Science of Successful Learning. He shares several quotes reviewing the book, which can be found under his name on the Alumni News website.

Robert Caldwell (PhD '81, MA '76) is now a university ombudsperson at Michigan State University after having served there as a professor and associate chair in the psychology department, and as the associate dean for graduate studies in the College of Social Science. **Renée Albersheim, JD, MBA (BA '83)** worked for 15 years as a consultant in management information systems and then earned a law degree in 2001 from the University of Denver. She became an expert witness for U S West, and is still working for the company, which is now known as CenturyLink.

Lois Neff Look, MA, MBA (BA '83, Psych & Communication Disorders/Speech Science) has been a practicing audiologist in a variety of settings, including ENT offices, hospitals and school districts. Currently, she is an educational audiologist for the Douglas County School District in Colorado.

Kimberly Lord, JD (BA '85) got her JD from CU in 1989 and has been practicing law in Colorado since then. She is currently a partner at PackardDierking in Boulder, practicing real estate and general business law. She lives in Boulder, loves having the proximity to CU and still enjoys Buff football games.

Erin E. Harrison, MA, CCC-SLP (BA '88) received her MA in communication disorders and speech science in 1990 from CU and has been a practicing speech/language pathologist since then. She currently lives with her family in Rock Hill, South Carolina, and works with adults in that area.

Kelly (Stark) Card, MEd (BA '88) is the principal at East Elementary School, a public school in Littleton, Colorado. She was previously a classroom teacher and instructional coach. She says she uses her psychology degree nearly every moment of her workday and is grateful for that foundational knowledge.

Elizabeth Lampert (BA '89) runs her own public relations company (http://ElizabethlampertPR.com) that focuses on the legal industry, politicians, and professional services. She believes that psychology plays a huge part in understanding the communications industry and the news and people involved.

Lisa Kippur, MA (BA '89) has had positions at CU Boulder in student affairs, academic affairs, and administrative support. She is currently the executive assistant to the dean of libraries at CU Boulder. She also received a health coaching certification from the Institute for Integrative Nutrition.

Dave Redford, DMD (BA '89) is a dentist in downtown Denver at University Dental Arts. He says he enjoyed his time at CU and still attends many football games. Kirsten Wright (BA '89) taught middle school for about 18 years and has taught high school for the past two years. She currently teaches Algebra 1 and Geometry to freshman and sophomores. She took some time off during her career to have two children, one of whom graduated from CU Boulder in May.

1990s

Melissa Stegeman-Roberts (MA '90, BA '87) is now teaching full time at Metropolitan State University of Denver.

Gretchen Alkema, PhD, LCSW (BA '92) notes that she has had lots of life events since graduating. See http://www.thescanfoundation.org/gretchen-e-alkemaphd-lcsw to read her bio.

David McCain, MA (BA '92) re-started his business, Communicating with Heart, in 2016, to share the process of compassionate (nonviolent) communication with individuals and organizations in Northern Arizona. He invites CU alumni to email him at davewithheart@gmail.com

Jaymes Ryan (BA '93 Psych, BS '93 Advertising) has worked in advertising for his entire career, including newspaper, radio, magazine and the internet. For the last 15 years, he has worked in outdoor advertising. He says the psychology of perception has had an integral role in his success.

Jeffrey Joe, MS (BA '95) works as a human factors scientist at Idaho National Laboratory, studying people using specialized technologies in high-consequence, complex operating environments and working to make human-technology interactions more user-friendly and the operating environments safer.

Kristi (Beeson) Resler (BA '96) is a contributor to BECOMING Magazine, a publication for women seeking to grow in their relationship with God. She has been in ministry for over 20 years and is the preschool director at Parker Core Knowledge Charter School in Parker, Colorado.

2000s

Phil Boice, MS (BA '00) has been a naval officer since graduation and is currently the chief of operations at the Missile Warning Center inside Cheyenne Mountain in Colorado Springs, Colorado. He has been selected for command of a ship and started his training for that in June 2017.

Judy Choi, ALM (BA '00, Psych & English) earned a master's of liberal arts in psychology at Harvard and is currently working on 15 books, five of which she has completed. Two of her books will be printed this year through Tigre Fou Editions; the first is titled *The Cloud that Fell from the Sky*.

Vince Darcangelo, MFA (BA '01) received an MFA in creative writing in 2012 and was employed as the director of the University Testing Center at CSU for five years. Since September 2016, he has been the FCQ program manager for the Office of Data Analytics at CU Boulder, and is honored to be part of CU again.

Georgia Lindsay, PhD (BA '01, Psych & Studio Art) is a senior instructor and Honors Council representative in the Environmental Design Program at CU Boulder. Her research focuses on the user perspective on architecture, especially in cultural buildings such as museums and in LEED buildings.

Jeffrey Donenfeld, MBA (BA '04) received an Executive MBA from the University of Denver and is now an investment manager at Boomtown Accelerator in Boulder, Colorado.

Kelley Marie Micuda, PhD (BA '04 Psych, BFA '04 Film) completed her PhD in psychology with an emphasis on media in 2017 from Fielding Graduate University in Santa Barbara. She participated in the Department of Defense's counter-ISIL simulation in April 2016 as a media psychologist team member.

Eva Barlogie, MS, PA-C (BA '07) received a master's of physician assistant studies from the University of Arkansas for Medical Sciences in 2015.

Brian Gallagher (BA '07) and **Mackenzie Todd (BA '07)** became buddies while in *Neurobiology of Learning & Memory*, taught by Jerry Rudy. In 2013, Mackenzie started a golf business called Urban Golf Performance (www.ugp.la). Brian joined the company in 2014 and is now the general manager. They are in the process of being funded and will soon be opening new locations throughout California followed by a national roll-out.

Shane G. LeMaster, MA, LAC, CC-AASP (BA '07) has a private practice, Mind-Ops (www.Mind-Ops.com) which focuses on sport and performance psychology. He does consulting primarily with amateur and professional athletes, special forces military personnel, surgeons, lawyers, and students.

Natalie Golaszewski, MA (BA '08) received an MA

in health education from Columbia University and is currently working on her PhD in health behavior and health education at the University of Texas at Austin. Her research focuses on motivation and long-term adherence to physical activity.

Jason Turret, PsyD (BA '08) is a postdoctoral fellow at CU Boulder's Counseling and Psychiatric Services (CAPS). At CAPS, he provides psychological evaluations, individual psychotherapy, group therapy and walk in/crisis care for CU students.

Cortni Crawley, MA (BA '09) works as a integrated care counselor at a primary care office in Littleton called Doctor's Care. She is also a community fellow in The Irving Harris Program in Child Development and Infant Mental Health at CU Anschutz. She is currently working towards her Colorado LPC licensure.

Amie Marie Herrman Lofton, PsyD (BA '09) is employed by Tulane University School of Medicine, Department of Psychiatry in New Orleans, working at their children's hospital doing a variety of behavioral health work and consultation, including a subspecialty pediatric clinic and infant mental health work.

William F. House, MD, MS (BA '09) completed a master's in pharmacology and an MD at Tulane University. He is a family physician practicing in the Hudson Valley in New York. He plans to move with his wife and children to coastal Maine next year.

2010s

James Flood, MSW (BA '10) received a master's in social work from Smith College in 2014. He settled in Massachusetts and currently holds a position as an outpatient psychotherapist at a local community mental health organization. He is now approaching eligibility to take his independent clinical license exam.

Jeni Kubota (PhD '10) held a joint postdoctoral fellowship in social neuroscience at New York University and Harvard after graduating from CU. She joined the University of Chicago faculty in 2014 where she explores the social, cognitive, and neural processes involved in how we form impressions of others.

Maggie Rosenberg, MA, OTR/L (BA '10) received a master's in occupational therapy from the University of Southern California in 2016 and is currently pursuing her clinical doctorate (OTD), also at USC. She is a registered occupational therapist working in pediatrics. Megan Haines, MA (BA '11) works as a business manager for two medical practices: one that treats traumatic brain injuries and another that offers alternative medicine for chronic pain and illnesses. She recently received her master's in psychology from The Chicago School of Professional Psychology (online).

Rachel LaHoda (BA '11) is working towards her doctorate in psychology from the University of Denver. Her clinical practicum this year is at CU Boulder's Counseling and Psychiatric Services (CAPS).

Alexandra Nichols, MS (BA '11) is working on her PhD in clinical psychology at Palo Alto University. She received her MS in clinical psychology in 2016 and plans to graduate in 2019. She is also currently working as a therapist at a community mental health clinic in San Jose, California.

Nick Oszczakiewicz (BA '11) works as an air traffic control specialist with the Federal Aviation Administration. He currently works at the Air Route Traffic Control Center in Fort Worth, Texas.

Christian Tucker (BA '11) works for the Salvation Army in Waco, Texas, as an employment specialist. His goal is to help marginalized and disenfranchised people find help and healing in their time of need. He says he attempts to rely on the Spirit of God in his work and has seen recidivism goals shift when he does so.

Lisa Higuchi, MA (BA '12, Psych & Environmental Studies) has been working, interning and studying overseas for the past five years, and recently completed a master's degree in international business and management in the U.K. She currently works for a tourism advertising technology company.

Gianna Rea-Sandin (BA '12) is in a developmental psychology PhD program at Arizona State University. She says she wouldn't be where she is now without her amazing education from CU Boulder.

Jillian Barney, AuD (BA '13, Psych & SLHS) earned a master's in audiology in 2015 at Gallaudet University in Washington, D.C., and graduated with a doctorate in audiology in May 2017. She will be working with the deaf and hard of hearing community, facilitating communication.

Brianne (Dana) Harper, MS (BA '13, Psych & IPHY) is starting her second year of the Child Health Associate/Physician Assistant (CHAPA) program at

CU Anschutz Medical Campus. She will graduate in May 2019 and plans to become a PA in orthopedic surgery, neurosurgery, or emergency medicine.

Alexandra Hauber (BA '13) went to nursing school right after she graduated with her psychology degree and is now a pediatric RN in Colorado.

Meagan Kitt (BA '13, Psych, MCDB & EBIO) is a graduate student at Case Western Reserve University pursuing a PhD in neuroscience.

Aimee Sullivan (PhD '13) is a psychologist at the CU Johnson Depression Center on the Anschutz Medical Campus where she specializes in the treatment of early-onset bipolar disorder. She also works with the Colorado Family Project investigating the use of family-focused therapy with bipolar disorder.

Ana López, MSSW (BA '14, Psych & Sociology) taught Spanish to elementary-level students after graduating. She moved to Austin, Texas, in 2015 to get her Master's of Science in Social Work and graduated in July 2017. She plans to pursue a career in clinical social work.

Emily O'Connor (BA '14, Psych & Sociology) is the graduate student coordinator in the Department of Applied Math at CU Boulder, a position she's had for the past year. She enjoys working with students to help them achieve their goals, as well as plan and facilitate all of the events that occur within the department.

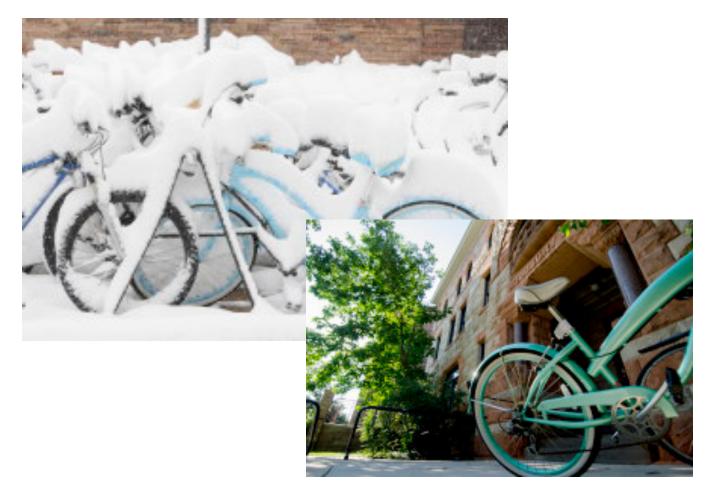
Erica Rozbruch (BA '14, Psych & Sociology) is getting her PhD in clinical psychology and plans to become a child psychologist. She works at NYU Langone Medical Center in the child study center, helping youth manage ADHD and overcome selective mutism.

Madison Whittemore (BA '14) is currently a wildland firefighter for the U.S. Forest Service with a crew called the Carson Hotshots, working an average of 80 hours a week on fires all over the United States, and sometimes Canada and Mexico.

Shawn Gomes (BA '15) is currently going to law school.

Gabrielle Filter (BA '16) spent three months in India, Nepal, and Indonesia, immediately after graduating. She is now providing disability care for a 56-year-old woman. She is also working outdoors, and studying Eastern Philosophy and Tibetan.





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