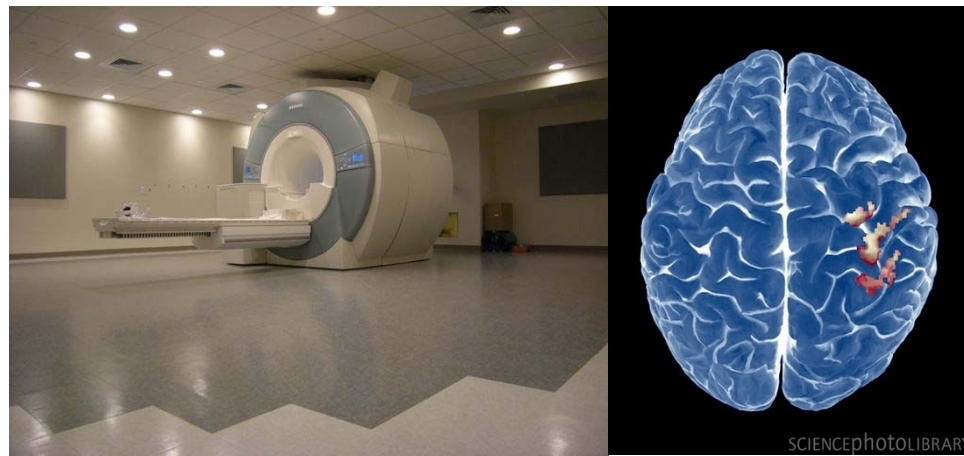


Cutting Edge Technology Comes to CU

Last summer, the Intermountain Neuroimaging Consortium* installed a state of the art functional Magnetic Resonance Imaging (fMRI) on the Boulder campus. IBG researchers have started using this technology for several pilot projects, and have submitted a grant for a larger study of executive functioning with twin participants.

A fMRI machine is a large magnet that measures changes in blood flow to the brain. When a certain brain area is active, more oxygen rich blood is directed to that area of the brain, and an MRI machine can pinpoint which areas are active using magnetic and radio waves to track the blood flow.

As our study participants complete various tasks while inside the machine, researchers can measure which areas of the brain are stimulated during these activities. This brain mapping is helping us understand in greater detail how the brain functions and what areas of the brain are related to different thought processes, perceptions, emotions and behaviors.



The Siemens T3 fMRI machine installed at CU, and an fMRI image showing an active brain region

If asked to participate in this study, you will be required to fill out a detailed screening form before you start. One reason for this is to insure that any metal objects or prostheses in your body will not interfere with the machine, as the magnetic field is extremely strong.

If you qualify for the study, you will be asked to enter the MRI machine and complete several tasks similar to ones you have completed previously, using a button box to record responses. We will then look at how your responses correspond to active areas in the brain.

Through this study, researchers hope to shine a light on which regions of the brain are associated with risk taking and decision making. Along with genetic and environmental data we have collected, brain mapping can provide additional insight into the complexities of human behavior.

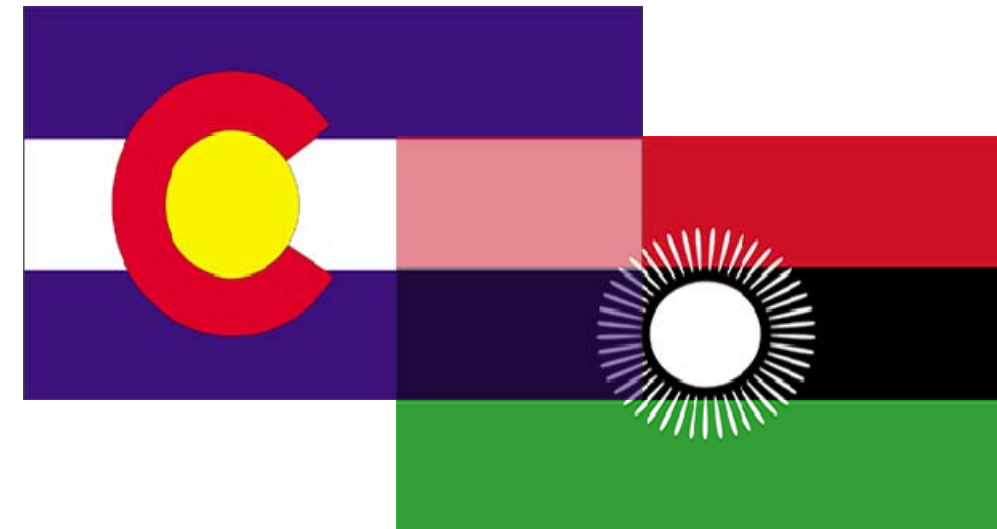
*The Intermountain Neuroimaging Consortium is a unique, collaborative research environment that brings together internationally-recognized neuroscientists from the rocky mountain region who study complex psychological processes such as addiction, pain, emotion, attention, sleep, and learning and memory.



Family Study News

INSTITUTE FOR BEHAVIORAL GENETICS | UNIVERSITY OF COLORADO BOULDER | SUMMER 2012

International Studies



Malawi Family Study. Researchers look at similarities in risk taking behaviors between Colorado and Malawi research participants.

The lifestyles of young adults living in rural Malawi and those living in suburban Colorado are about as different as can be. Cultural differences, family systems, recreational activities, and access to resources and health care vary widely between the two groups.

However, certain kinds of behaviors cross these cultural lines. Risk taking behavior such as substance abuse, fighting, gambling, vandalism and theft not only cause social problems in both places, they can also cause problems for the individuals engaging in them. In Malawi, sexual risk taking can be particularly dangerous due to the high rate of HIV and AIDS in that country.

Researchers at IBG recently compared answers to questionnaires given to study participants in Balaka, Malawi as well as participants in the IBG family studies. They found that in both samples, individuals who tended to engage in “risky” behaviors such as substance abuse, early drinking and fighting were also more likely to take sexual risks, such as having multiple sexual partners. This general risk taking profile was very similar across two very different cultures, providing evidence that a common genetic trait is contributing to these behaviors.

Muchimba, M., Burton M., Yeatman S.E., Chilungo A., Haberstick B.C., Young, S.E., Corley R. P. & McQueen, M.B. Behavioral Disinhibition and Sexual Risk Behavior in Malawi and Colorado: A Cross-National Study (submitted 2012).

TESTING UPDATES

COMMUNITY TWIN STUDIES

We have seen over 500 twins in our lab or on the phone since 08/2011. We have also interviewed 133 siblings of twins. In 2012 we are continuing with computer based studies of executive function, phone interviews, and recently completed a pilot fMRI study (see page 2). We have submitted several grants for larger fMRI studies in 2013, and will keep you informed of upcoming research opportunities next year.

COMMUNITY FAMILY STUDIES

We are continuing with our family studies phone interviews with family members who have not yet participated in the 3rd wave of data collection. Since August of last year we have completed 223 interviews with community family study participants.



COLORADO ADOPTION PROJECT

In 2012 we completed a 2 year follow up project with 35 year old subjects. This project was not renewed and we do not currently have a grant in submission. We are busy analyzing all of the data we have collected over the first 35 years and several papers are in review. We will keep you updated on future grant submissions and testing protocols should those arise.

THANK YOU!

FOR YOUR PARTICIPATION IN
OUR RESEARCH PROJECTS.

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2011—2012 Publication Highlights

CONDUCT DISORDER & ADOPTION

Researchers found that there were not significant differences between adopted and matched control participants on measures of Conduct Disorder (CD) symptoms, level of conduct problems, and CD diagnosis. However, higher levels of adolescent and parent adoption satisfaction were associated with lower levels of conduct problems.

*Nilsson, R., Rhee, R.H., Corley, R.P., Rhea, S.A., Wadsworth S.J., & DeFries J.C. (2011): Conduct Problems in Adopted and Non-Adopted Adolescents and Adoption Satisfaction as a Protective Factor, *Adoption Quarterly*, 14:3, 181-198*

GENETICS OF DRUG EFFECTS

Researchers looked at the genetic influences on the effects of tobacco, alcohol, and marijuana. They found that self reported effects of the drugs (ie. tired, energetic, restless etc when using) had a strong genetic component, and did not differ between males and females.

*Haberstick, B. C., Zeiger, J. S., Corley, R. P., Hopfer, C. J., Stallings, M. C., Rhee, S. H., Hewitt, J. K. (2011). Common and drug-specific genetic influences on subjective effects to alcohol, tobacco and marijuana use. *Addiction*, 106, 215-24.*