

# Cheatham Chat

Updates and information from the Cheatham Nutrition & Cognition Team

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## Dr. C's Corner



### Foods The Way Nature Intended

By Carol L. Cheatham, Ph.D.

Nutrients do not appear in nature in isolation: there is no such thing as a fruit that contains JUST vitamin C. All foods have several vitamins, minerals, and fiber. This food "matrix" helps vitamins and minerals to be available for the body's use – a function called bioavailability. We have started thinking about bioavailability with respect to issues scientists have had finding evidence that one nutrient or the other has an effect on development. What if it is not one nutrient or the other, but rather is one food or the other?

Many of you helped us out on a study of human milk and infant cognition. We thank you again for your help with this study. We have analyzed three nutrients in the milk – choline, DHA, and lutein – and looked at them in relation to recognition data collected from the

infants at 6 months. The results were very interesting.

Choline emerged as a big player. If the milk contained higher levels of choline and higher levels of DHA, infants had better recognition memory. Similarly, if the milk contained higher levels of lutein and higher levels of DHA, the infant had better recognition memory. Thus, choline supports infant cognition by working with other nutrients, and DHA and lutein are at their best when they have the support of choline.

What does this mean for expectant and nursing mothers? As usual, a diet full of good, whole foods is best. Women of child-bearing age have a special system in place to get the needed choline from food, but it never hurts to lend support by insuring that your diet includes choline. Choline foods include eggs and meat of all types. For our

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500 Laureate Way  
Kannapolis, NC 28081  
704-250-5018  
[www.cheathamlab.com](http://www.cheathamlab.com)

vegetarian and vegan friends, choline is found in mushrooms and soy.

Importantly, I was looking at a list of choline-containing foods and was very pleased to find chocolate cake on the list! I don't know why. I don't question. Next time someone asks you why you are eating chocolate cake, you can say because Dr. C said it is good for you and your baby!

## B.E.R.R.Y Study Update!!

By Grace Millsap

It has been quite the adventure since we screened our first BERRY participant in February of 2012! It was truly an honor to meet each one of you that has volunteered to be a part of this study. Here are a few statistics that we thought were pretty neat:

We are happy to announce that we are inviting our participants back for a follow-up! If you have not already received a phone call inviting you back in, expect one soon! We look forward to seeing all of you again.

Total number of presentations: 79

Total number of people screened: 296

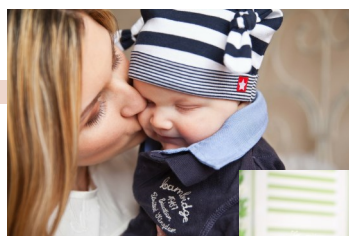
Total blueberry packets consumed: 25,410 = 25,410 cups of blueberries (980.34 pounds) – **WOW!!**

Total number of hours in testing - 9.25 hours each participant that completed, grand total of 1124 hours!

We are extremely grateful for every church, senior center, and lunch group that allowed us to come and talk about our exciting research. We felt welcomed by every group and individual, and loved the opportunity to eat some delicious home cooking!! We are currently working diligently to complete all the data from the three years of appointments. As soon as everything is completed and double checked, we will turn everything over to Dr. Cheatham for analysis, and finally **BREAK THE BLIND** so we can let you know which powder you were on!! We appreciate your patience and we promise to let you know as soon as we know! We are getting super close and can't wait to share the results with all of you!



Currently  
Recruiting!!



## **Do you have an infant who is healthy and 3 months old or younger?**

Researchers at the UNC at Chapel Hill Nutrition Research Institute (NRI) are seeking babies for a research study of nutrition and how it affects memory and learning abilities in the first year of life.

- The study involves up to eight visits to either the NRI in Kannapolis or Frank Porter Graham Child Development Institute in Chapel Hill.
- You will be compensated for your time and travel.

If you are interested in this research study, **please call 704-250-5018**, send an email to [feedingbrains@unc.edu](mailto:feedingbrains@unc.edu), or visit [www.cheathamlab.com](http://www.cheathamlab.com)

## **Newer Additions to Team Cheatham**



**Thomas Jackson**  
**Research Technician**

Thomas Jackson is a North Carolina native who joined the lab in November of 2014. Thomas earned a B.S. in Biological Sciences from NC State University in May of 2014. He hopes to gain a better foundation in the possibilities

that nutritional interventions offer to ameliorate fetal alcohol effects and to expand his knowledge of brain development through his work here on a fetal alcohol model. In his free time, Thomas loves to spend time with his dog, Daisy, and they can often be found at the park. Additionally, Thomas is a competitive bowler and enjoys bowling in leagues and tournaments.



**Lucy Connolly**  
**Intern**

Lucy is currently an undergraduate student at The University of North Carolina at Charlotte. She is going into her senior year and is working towards earning her Bachelor of Science in Public Health with a minor in biology. She has always

been passionate about the relationship between nutrition and health and hopes to turn that passion into a career. Lucy has dreams of becoming involved in nutritional epidemiology to study the causes and solutions to the many nutrition-related disorders that impact our world today. She strives to uphold a healthy lifestyle by making good nutrition and exercise a central part of her life every day.

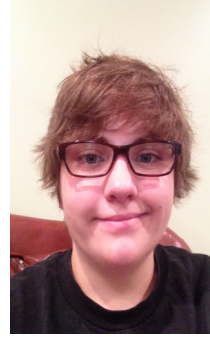
## Newer Additions to Team Cheatham continued



### **Anna Silver** **Intern**

Anna just graduated as valedictorian from Northwest Cabarrus High School, where she was very involved in athletics, community service, and student government. She will be attending the University of North Carolina at Chapel Hill in the honors program this fall.

She plans to major in biology and then continue on to medical school. She has always found the neuroscience aspect of biology particularly interesting, so she is intrigued by the studies in the Cheatham Nutrition and Cognition Lab.



### **Kalei Woodford** **Intern**

Kalei is currently a senior at Lake Norman Charter High School where she is involved in clubs like history and photography. She hopes to be admitted to the University of North Carolina at Charlotte.

She plans on majoring in psychology, history or criminal justice and continue to graduate school. She has always been interested in psychology and how it relates to biology, which makes the studies of the Cheatham lab particularly interesting to her.

*Farewell to some of our team members!*



### **Padydeh Doroodchi**

During my time at The Cheatham Nutrition and Cognition Lab I experienced what it means to work in a lab environment. The past eight months I understood what protocols need to be taken and how detail oriented a lab member needs to be in this environment. This lab in particular gave me a new perspective on how to work with human participants and what kind of challenges that come along with it. I was able to observe the lab collect data in a variety of different ways from the participants. The lab also showed me how important it is to have a strong team behind the lab because without teamwork nothing would be able to get done. My duties were different on a daily basis - I was able to organize samples one day,

while the next day I was brainstorming ideas on how to recruit more participants for a study. Needless to say, I had a wonderful time at the Cheatham Lab because of the great work environment the lab team showed me. This experience will definitely help me with my future endeavors. I am forever grateful for the opportunity the Cheatham Nutrition and Cognition Lab has given me.

### **Kierra Simmons**

This past semester we asked Kierra Simmons, a graduating senior from A.L. Brown, to design a toy that can be used in our lab as part of a study for children. The idea is that the toy will have three steps. The researcher will show the child each step and ask the child to complete the steps as they are shown. Kierra had this to say about her time with the lab, "This internship took me back to my pre-school days. Imagining what I, as a small child, enjoyed about my favorite toys. The design that I chose was a toy that has a button that is pressed to release a sliding slab and on that slab will be a picture. Unfortunately, my design had minor malfunctions and needed more work than expected. As a perfectionist, this taught me that as an engineer I will not always have a design that works perfectly the first time. Even with that little hiccup, I loved my experience with the Cheatham Lab, and it will be something that I will remember forever. "

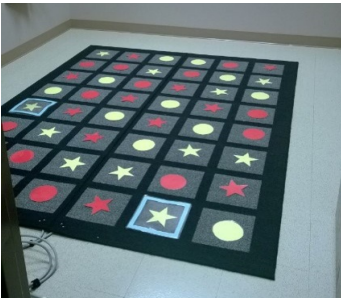


# Greetings

from the Cheatham Lab Graduate Students!

From Kelly Shepherd

We hope you are all having a great summer. It has been an exciting year for us graduate students. Grant and I attended two major conferences in March and April. The first conference was the Society for Research in Child Development (SRCD) in Philadelphia, which covered the developmental and psychological side of our work. The second conference was Experimental Biology (EB) in Boston, which covered the nutritional and biochemical side of our work. Thus far, there isn't a conference that covers everything that we do, but its getting better every year! I got to listen to talks that involved nutrition at SRCD and talks about cognition and development at Experimental Biology. This is very exciting for those of us who know how important nutrition is for the brain.



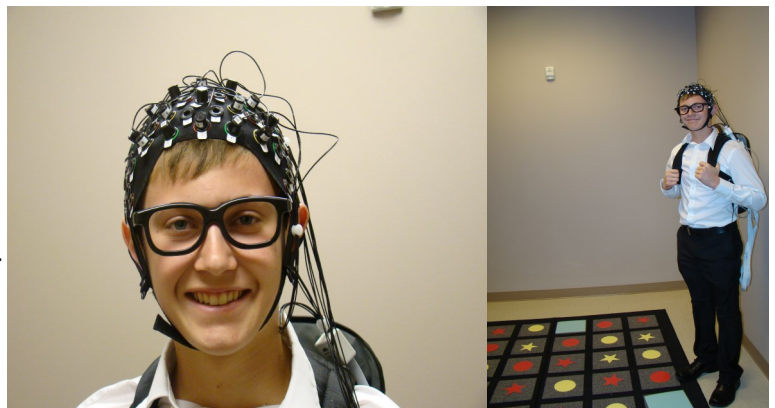
This was also an exciting year for me as I got to give my first talk at a major conference. I gave a talk on the Maze (see the picture to the left) that we've been using with children 7 to 12 years old. Some of you are familiar with how much fun the maze is, but I got to give a talk about how it is also a good measure of planning in our age range. The maze is a brand new idea that we have been testing as a better measure of planning than some of the other measures that exist. First though, we had to demonstrate that it measures similar things to the current tasks that everyone knows so that people will take the maze seriously. We were excited to be able to report that it did! The maze is similar to those other measures, such as the Stockings of Cambridge on our CANTAB computer tests, but may also

provide even more options for understanding how planning develops. We are looking forward to analyzing the brain imaging data we get from the near-infrared spectroscopy (NIRS) system (the cool cap in the picture below). We are hoping that it shows how well the maze captures changes in planning abilities that are related to nutrition and to development.

I was very nervous giving my first talk, but I had great support from everyone in the lab. They listened to my practice talks multiple times (they could probably give it themselves!), and Dr. Cheatham and Grant were at the talk in Philadelphia. We had a great audience, and people asked good questions. That was a good sign that people were interested in the maze. We've had some emails since the talk as well, and hopefully we'll have even more to talk about soon.

Thank you!

I thanked all our wonderful families at the talk, but I want to do it again because without you we wouldn't be able to test out these new ideas and present them to the world. I was glad I was able to tell everyone how much people like the maze, and I hope all of our families enjoy coming into the lab as much as we enjoy having you!





From Grant Canipe

I can't believe my second year in the lab is coming to a close; it sure has been an exciting second year! I finished my first project, a study using a rat model to study prenatal development, looking at the impact that certain environmental factors, namely the lack of proper nutrition, can have on the developing fetus. We hope to one day extend that work to the human side of the lab in a translational study by working with pregnant mothers in the community. We are also finishing up our BERRY study with our adults and I am excited to be part of the design and implementation of a follow-up to explore some new cognitive testing techniques. We hope to be able to better predict cognitive decline and the onset of diseases like Alzheimer's and dementia. So, it looks like a busy year ahead!

As Kelly mentioned, we got to attend two major conferences in our field. I knew when I began my tenure in the Cheatham Lab that I would be bridging multiple fields of science as we attempt to cover the interactive properties of nutrition, cognitive neuroscience, and the developmental psychology of behavior. Our first conference covered the developmental aspect of our work, followed by the trip to EB where I was fascinated by the talks in anatomy, physiology, and immunology, as well as nutrition. Attending these two conferences in close proximity to one another allowed us to see colloquia on some of the same topics, but from points of view and approaches to the questions that proved to be very different at times.

Two of the most notable adventures I got to take were talks on brain anatomy provided by two Nobel laureates, and a presentation from a group of researchers who went on a mission to space! Neurolab is a NASA Spacelab mission with multinational cooperative participation dedicated to work on the nervous system. Because the nervous system of every animal on earth is developed under 1G (gravity), taking the trip to space to study development under 0G presents a unique opportunity. The unique insight into the change in developmental milestones for rats in zero gravity from the space mission was an eye-opening experience to say the least. The opportunity these scientists had to approach the question from such a unique angle is priceless to us in the developmental sciences, as we think of new questions to ask and ways to explore them. Hopefully, the Cheatham Lab can plan for a trip to the moon in the near future! Another unreal experience I had was to attend a lecture from and talk with the Nobel laureates, where they provided a lot of support and motivation to the young scientists, pushing us to become outstanding scientists ourselves.

These conferences were also a great introduction for me into attending conferences in our field. Along side the talks on state of the art research, I was able to meet with and network amongst the big names in each field, and those I hope will be future colleagues. It is an exhilarating experience and a lot to take in, but I could not have enjoyed my time at both of these conferences any more!



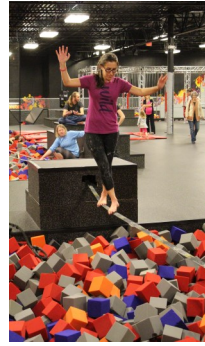
# Cheatham Lab Outings!

## Defy Gravity



There is no better way to celebrate the winter holidays like jumping on trampolines and climbing up ropes. At least that's what the Cheatham Lab thinks. Defy Gravity in Charlotte, was just the place to warm our hearts and get our holiday bells ringing.

We had a blast, and we are already planning our next visit!



## Patterson Farms

Thanks to everyone at Patterson Farms. We had a great time geocaching, meeting all the farm animals, and eating up the amazing peaches!



# #WhatsTheFork

By Christa Thomas

In May we released our brand-new redesigned website, [www.cheathamlab.com](http://www.cheathamlab.com), and newly designed logo. If you follow us on Facebook or Twitter, you probably saw us posting #WhatsTheFork.



## So, what is the fork?

It's our logo! The logo, a combination of a fork and a neuron, represents **“feeding the brain”**.

Before introducing the logo, people thought it looked like anything except what it was – ideas ranged from a scrambled egg, a scorpion, and a hand! This led us to develop the #WhatsTheFork campaign. We wanted to introduce our new logo and get people talking about what we are doing. During the week leading up to the release of the website, the fork made its way around North Carolina. It visited the mountains outside of Boone and The Well at UNC-Chapel Hill. It was photographed with Dr. Pamela Cain, Superintendent of the Kannapolis City Schools; Ryan Dayvault, Kannapolis City Council member and Mayor Pro Tempore; Dr. Steve Zeisel, UNC NRI Director; and Roger Day, family and children musician.



Pictured: Roger Day; family and children musician.

We are so thankful to everyone who had their photo taken with the logo, participated in our trivia, and asked us questions when they saw us carrying the large fork around town. In fact, it was a student at one of Roger Day's concerts who correctly guessed what our logo is!

We invite you to take the time to check out our website and interact with us on social media. Everyone in the lab has spent time helping to develop content that we hope you all find interesting. Thanks again for the support and we look forward to having you participate in future studies.

Visit us at [www.cheathamlab.com](http://www.cheathamlab.com)!





Cheatham Nutrition & Cognition Lab  
UNC-CH NRI  
500 Laureate Way  
Kannapolis, NC 28081  
Phone: 704-250-5018  
Website: cheathamlab.com  
E-mail: feedingbrains@unc.edu



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Next time you visit the Cheatham lab, join us  
at the UNC Lettuce Eat Café!

**"We invite you to make us your  
destination for your book club, coffee club,  
and business meetings! Or just for lunch!"**

The UNC Lettuce Eat Café is located in the same  
building as The Cheatham Nutrition & Cognition Lab!

**Open M-F 9am—2pm**