

Auditory Neuroscience Laboratory

www.brainvolts.northwestern.edu

Discovering early markers of language development by studying brain activity, listening, and learning.



back to school

Fall is here, and it's always exciting to be at Northwestern with the students returning, eager and excited to resume their classes. To make this Autumn even more exciting, President Obama visited campus and gave a major speech on October 2!



For our families, we know that it's an exciting time as well. Many of our kids are beginning kindergarten! Not to mention soccer, swim practice, music lessons, and more. We know things are busy, but we want you to remember that we're always here, and we're always here to work around your schedules ... after school, weekends, whenever!

This month we're delighted to tell you about new findings from our project that were just published in the prestigious *Proceedings of the National Academy of Sciences*! More to come, and we'll see you soon ...

--The BIoTots Team

Researcher Spotlight:



Adam Tierney, Ph.D.
Post-doctoral Researcher

Adam Tierney has been a post-doctoral fellow in the Auditory Neuroscience Laboratory since 2010. Although his work with BIoTots is all behind the scenes, he is an integral member of the team. In particular, Adam developed many of the rhythm games used in our study. He lends his expertise in rhythm and neuroscience to our ongoing data analysis as well. Outside of BIoTots, Adam is involved in our lab's research in the biological impact of in-school music lessons in adolescents.

Originally from Indiana, Adam received his Ph.D. in cognitive science from the University of California, San Diego, and now lives in Chicago with his wife.



We hope you had fun playing with us!

If you have any questions about the project or would like to share photos of your child with us, please call or email: (847) 491-2457

Music is good for your brain! Here's what we're listening to:



Ellie Thompson

loves music from all genres; in fact, she creates playlists each week for a friend's blog. Recently, she's been listening to more indie-rock bands like Volcano Choir, Glass Animals and The Temper Trap.



Kali Woodruff

loves listening to calming folk music by artists such as Glen Hansard, The Weepies, Of Monsters and Men, and Vance Joy. She also enjoys classical music by the composers Brahms, Debussy, and Stravinsky.



Evan Davies

has lately been listening to an eclectic group of artists, including: Led Zeppelin, Pink Floyd, Queen, Jimi Hendrix, David Bowie, Radiohead, Gorillaz, The Beatles, Bob Marley, The Roots, Sublime, 311, and Daft Punk.



Ahren Fitzroy

listens to Jaco Pastorius, Metallica, J.S. Bach, Kaki King, Joe Satiani, A Perfect Circle, Andy McKee, Dimos Goudaroulis, Eric Johnson, Disaster Piece, Don Ross, and Tool.



Joan Hargrave

has recently been indulging in the lyrical wonders of Bruno Mars.



Travis White-Schwoch

spent the past year going to 90s alt rock throwback concerts, including Beck, Belle & Sebastian, Björk, The Breeders, Cibo Matto, Mazzy Star, My Bloody Valentine, Neutral Milk Hotel, Slowdive, Veruca Salt, & Yo La Tengo.

We love listening to our music, and we love hearing it well. That's why each of us uses hearing protection when we go to live concerts and other noisy venues. Remember, we each only get one set of ears, and it's never too early to start protecting them. Parents, ask us any time about hearing protection!

Did you enjoy playing our drums?



Did you see us in the news lately? Your super drumming skills were featured in our recent paper that was reported by Science Magazine and Scientific American!



SCIENTIFIC AMERICAN

The ability to **drum** at the same time as someone else, or along to a **sound** that you hear, tells us how well your **brain** processes sound. **Rhythm** is all around us!

In fact, we found out that those of you who were really good **drummers** also had really good processing of **speech** sounds (remember the robot sounds you heard while watching your favorite movie?) and language skills.

We played some fun **language** games when you came to visit. Sometimes we asked you to copy us and repeat back long sentences or clap along to parts of **words**. Sometimes you helped us think of words that **rhyme**. Do CAT and HAT rhyme? Can you think of a word that rhymes with LOOK?

Your answers tell us what your **brain** knows about **language**. As you learn to **read** this year, we're excited to see how much you are **learning** about sounds!

Parents: you can read Kali, Travis, Adam, Dana, and Nina's paper, "Beat synchronization predicts neural speech encoding and reading readiness" on our website: www.soc.northwestern.edu/brainvolts/publications

Announcing the first annual Halloween costume contest!

Halloween is just around the corner, and that means **costumes!** We want to see your costumes, so please send us your pictures. **Or even better, wear your costumes to the lab!!** Each 'tot who submits a costume will be entered in a contest for a lab t-shirt. Please send* them to us by November 5th, 2014, to be eligible. And check back in our next newsletter to see the entires! (You can see there's already stiff competition.)

*Parents, by sending us your child's costume picture you are giving permission for us to use it in this newsletter and other media.



Research Update



nature

You may remember our research with Harmony Project, an LA based program that provides free music instruction to children from gang-reduction zones. We have an exciting update: we discovered that two years of participation improves the precision with which the brain tells speech sounds apart from one another. This is the first demonstration of brain changes following participation in a community music program, and it was covered by major media outlets including NPR and Nature!

Check out these radio stories online! Google "All Things Considered + Auditory Neuroscience Lab" for the NPR story on our collaboration with Harmony project and "60 second science + Rhythm" for coverage of our BIoTots work!

Has your family moved or plan to move soon?

Help us out by updating your contact information by sending an email to biototsresearch@gmail.com or calling (847)-491-2457.


And if you're leaving the Chicago area, your participation in the study doesn't have to end! Families can still participate by completing questionnaires by mail and, most importantly, kids will get a new lab t-shirt.

We're looking forward to seeing you soon!

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 @brainvolts

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