

Protect the Brain - Concussion!

An Interactive Exhibit for Brain Awareness Week and Beyond

Donita L. Robinson & Joyce Besheer

Bowles Center for Alcohol Studies, University of North Carolina, Chapel Hill, NC 27599, USA

Goals

1. To inform and promote enthusiasm about neuroscience to residents of North Carolina, targeting youth
2. To provide fun, structured opportunities for students, faculty and staff at the UNC Bowles Center for Alcohol Studies to practice community engagement

Partnerships

North Carolina Museum of Life and Science provided hands-on lab space and support from museum staff

UNC Bowles Center for Alcohol Studies provided new, brain-centered exhibit staffed by scientist volunteers

Dana Foundation provided Brain Awareness Week supplies (activity books, pencils, brain erasers, stickers)

National Institute of Alcoholism and Alcohol Abuse provided funding through P60 Alcohol Research Center at UNC and brochures on prevention of alcohol abuse

Materials

1. Brains

- Human brain loaned from the UNC School of Medicine Body Donation Program
- Sheep brains from Carolina Biological Supply
www.carolina.com
- Rat and mouse brains from research labs (scheduled for euthanasia)
- Brain models from
www.amazon.com

2. Distortion goggles & coordination

- Distortion goggles that simulate concussion via double vision from
www.fatalvision.com
- Caution tape
- Peg/board game
- Brain pencils from Dana Foundation

3. Concussion videos

- <http://brain101.orcasinc.com/5000/>
- https://youtu.be/Sno_0Jd8GuA

Brain Awareness Week: Protect the Brain – Concussion! interactive exhibit

Activity Guides

The following information was provided to all volunteers prior to their shift.

Outside of the lab, visitors waiting in line

- **Video to play outside of the lab:** <http://brain101.orcasinc.com/5000/> This is a 3-4 min video showing how student can get concussions from different sports and how to recover.
- **Video to play on the screen behind the lab:** https://youtu.be/Sno_0Jd8GuA This is a short video that will loop to demonstrate how a hit to one side of the head can cause the brain to bounce around in the head and affect multiple areas.
- **Talking to visitors that are waiting in line:** When school groups come to the lab, there is often a line of visitors waiting to enter. We can only handle so many visitors at a time due to the capacity of the space. While they wait, a volunteer can engage them in conversation, preparing them for the lab. You can use the plastic brain as a prop.
 - What is a concussion? (see video playing on screen)
 - When might you get one?
 - How can you protect your brain?

Station 1 – Brains and skulls

The human brain that we borrow from the UNC School of Medicine is the star of the show. People are either excited or scared or disgusted or curious – they have definite opinions on touching a brain! Rat and mouse brains will be in small, sealed vials. Sheep brains and the human brain can be touched by visitors, but only with gloves. Sheep and human brains need to be kept damp when not in use.

1. Questions to ask when visitors first come in to the lab:
 - (Young children) – Did you bring your brain today? Where is it?
 - Are you using your brain right now? What's it doing?
 - What are your senses? (Let the list them.) How do you know what you see or what you hear? You ear hears, but how do you know what you are hearing? (The brain).
2. Next, have each visitor who wants to touch a brain to put one glove on. This is to save gloves and reduce waste. Some children will need help; ask them, "Which hand do you want to use to touch the brain?" However, if a parent requests 2 gloves for their child, it's usually because they don't trust the child to control their hands – in this case, use 2 gloves!
3. Finally, remind visitors to be gentle with the brains. Before they touch them, you can ask:
 - What do you think it will feel like? Will it be cold or warm?

After they see it and touch it, you can ask:

- Does it feel like you thought it would?
- Why do you think it's this color? What color do you think your brain is right now?
- What do the different parts of the brain do?
- Point out sensations, movement, memory, thinking
- How does the body protect the brain?
- What happens if you get hit on the head?

For this station, we will have some props – pictures of the human brain with the general function labeled or with neuroanatomy labeled. Keep the human brain damp – cover it with a damp cloth when we are not actively using it. Wipe the counter and laminated brain pictures as needed. We will have two sheep brains that visitors can touch. If a visitor really wants to hold a brain, let them hold this one.

Station 2 – Concussion goggles

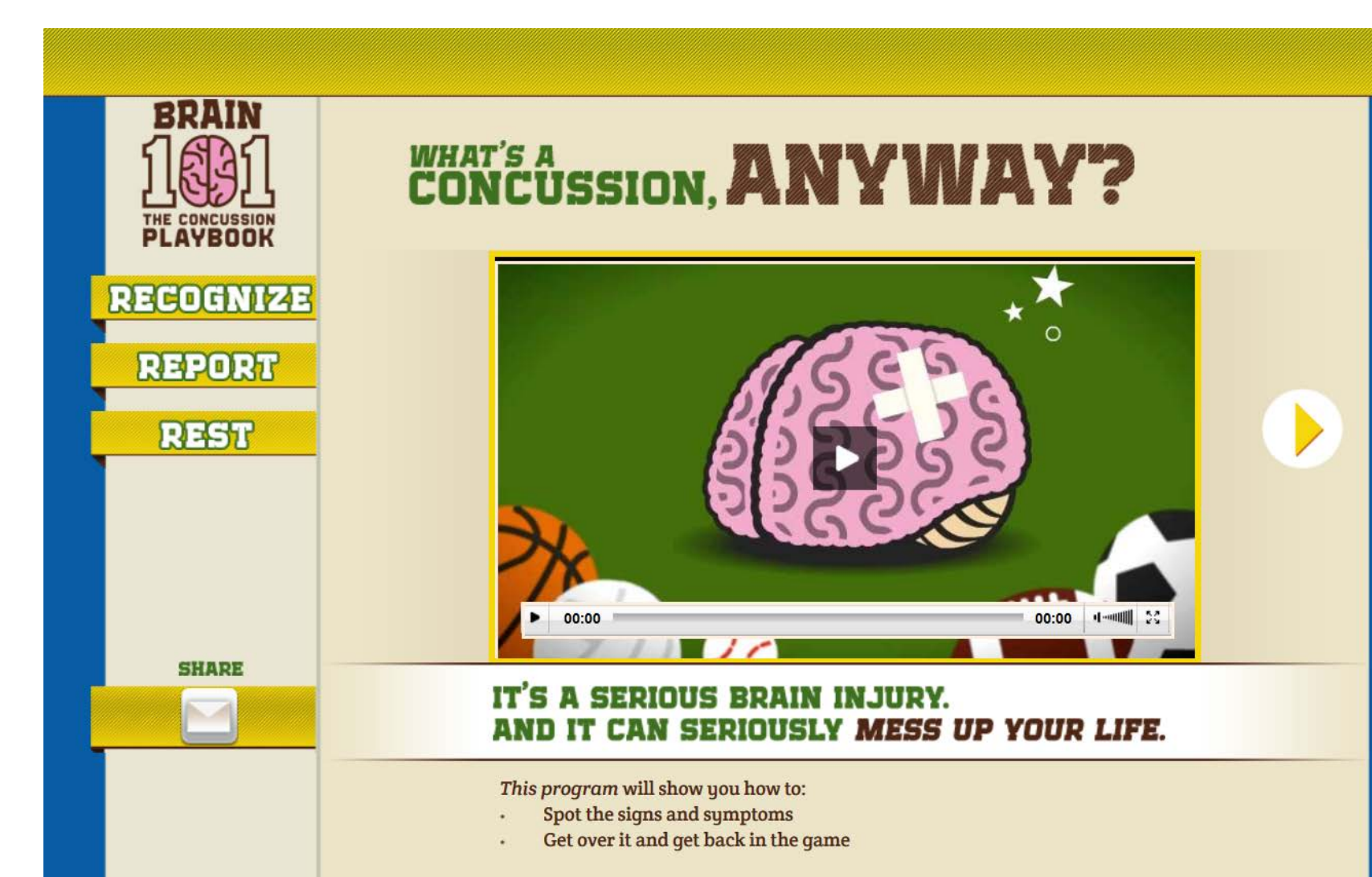
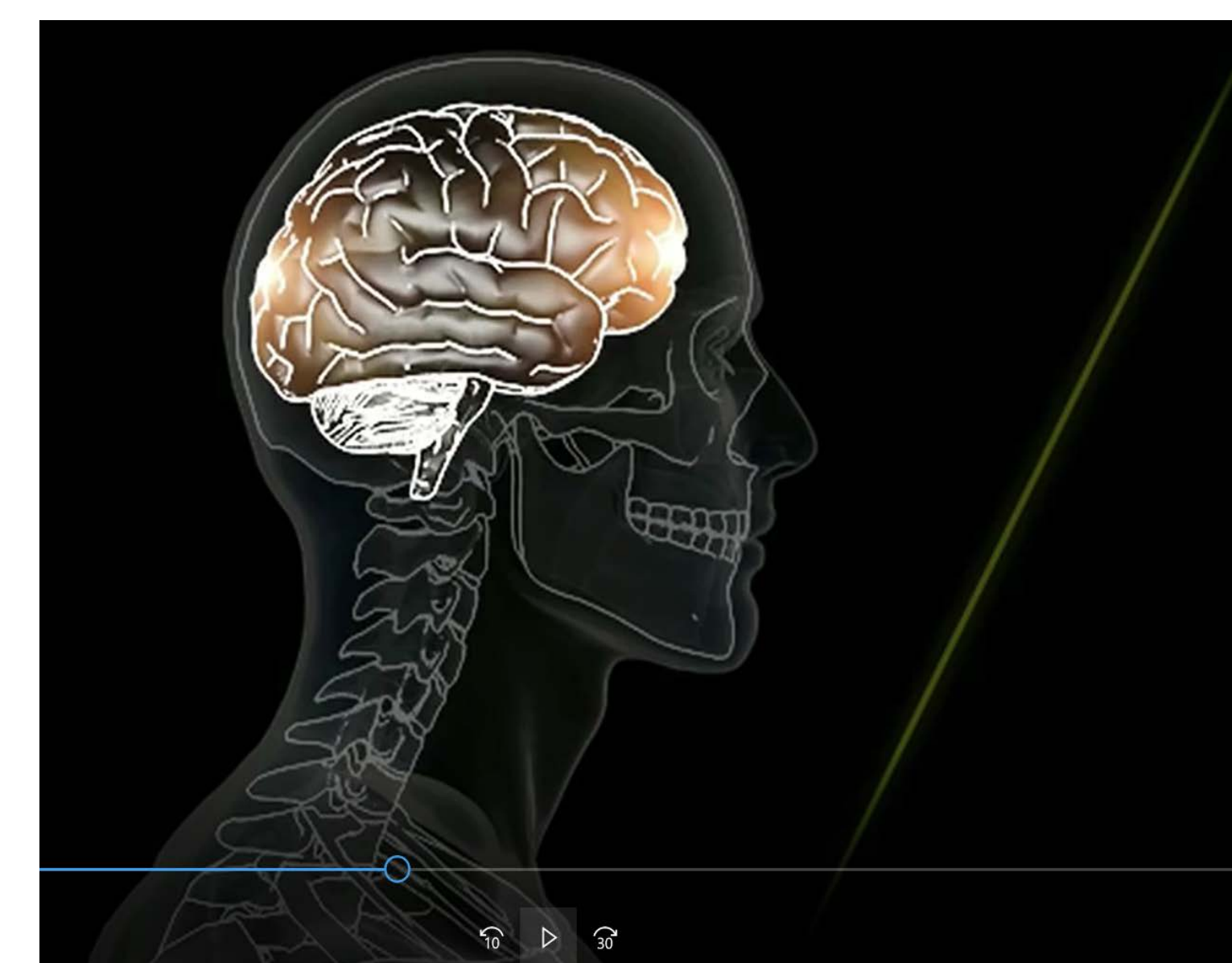
This station will let kids experience double vision with specialized goggles. Do 2-3 activities, depending on how much time you have (this depends on how many people are waiting and visitor flow through the lab). For all activities, have visitors do things without the goggles first, and then with the goggles, to show how the goggles impact their success. This part is really fun – feel free to giggle with the children!

1. Take a pencil or playing card from your hand (or from another visitor).
2. Toss a small toy brain back and forth, or toss it into a container (like a box).
3. Walk down a black and yellow line taped to the floor.

Questions you can ask:

- What's happening? You did this just fine a minute ago? What's different now?
- Why do you think you are so much worse when you are wearing the goggles?
- Why do you think these goggles act like a concussion? What if you got hit on a different part of the head?
- What part of the brain might be hurt if your vision is like this or if you are dizzy?

https://youtu.be/Sno_0Jd8GuA



<http://brain101.orcasinc.com/5000/>



Public health message

Please look for opportunities to talk to the visitors about taking care of their brains. We are right by the crash test dummy – that can be a good example of how to get a concussion.

- How can you protect your brain (helmet, seatbelt)
- What should you do if you get hit in the head? (tell your parent, teacher, coach)
- REcognize, REport, Rest (we have little cards that you can give to older students playing sports or to teachers)
- How do you rest your brain? (no video games, maybe even take a break from schoolwork, sleep, dark glasses)

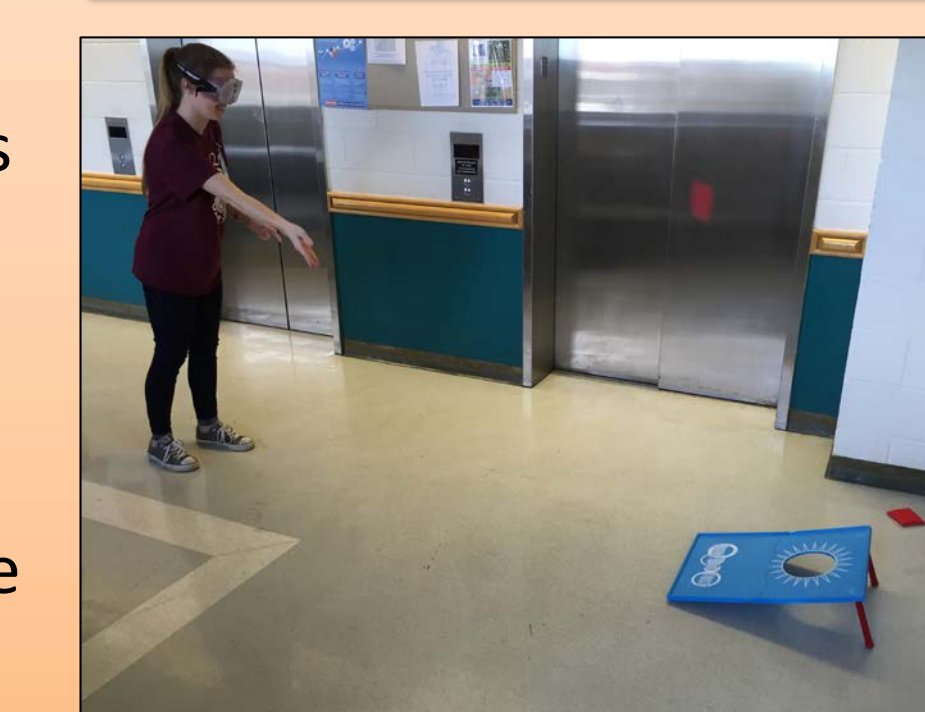
The Exhibit - Specifics & Numbers

- 26 volunteer scientists from UNC and the community
- 660 visitors (430 children, 230 adults)
- Groups of 3-5 children (plus parents) came through the exhibit at a time
- Station 1: Brains
 - One scientist showed visitors the brains, asking questions
- Station 2: Concussion goggles
 - Two scientists worked with 2-3 children (and parents) each to illustrate how the goggles distorted visually-guided motor control and balance
- Feedback
 - Visitors wrote what they learned on a poster board and received BAW stickers and pencils
- We had brochures on underage drinking and how to talk to your kids about drinking for parents and educators.



UNC Science Expo

- An outdoor street fair on campus
- Part of the NC Science Festival
- Activities:
 - Animal brains in jars
 - Concussion distortion goggles
 - Bean bag toss (corn row)
 - Caution tape on ground
- 6 scientists volunteered
- Over 10,000 people attended the UNC Science Expo



Acknowledgments

Thanks to many UNC students, postdocs, faculty and staff who participated in the events. Funding provided by NIH (P60 AA011605 "Molecular and Cellular Pathogenesis in Alcoholism: Translation/Information Dissemination Component") and the UNC Bowles Center for Alcohol Studies.