Lessons from the gridiron: the impact of concussions—Lesson Plan

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Introduction
This lesson is intended to be used with the PBS FRONTLINE documentary “League of Denial” and supports student learning by contextualizing the concussion crisis in the NFL with background on concussions in youth.

Subjects
Sports, neuroscience and psychology

Estimated Time
One class period to do warm up activities and to start FRONTLINE’s “League of Denial”. If you choose to watch the documentary in its entirety you will need to spend a second class to do so as it runs for 1:53:00

Grade Level
Middle and high school

Materials
- “Memory” game

Warm Up Activity

Memory and an introduction to FRONTLINE’s “League of Denial” documentary

1. Test students’ memory with this quick game. Follow the directions on the “Memory” game handout. When finished ask students to reflect on the activity and think about this: What if remembering two digits was as hard as remembering 12 numbers? Explain to students that one of the symptoms of concussion is poor memory recall that could make the activity they just did temporarily impossible.

2. Show student the trailer to “League of Denial”, click here for the video.

3. Ask students for 10 facts about concussions and write their answers on the board.

4. Pass out the CDC’s Concussion Quiz to students and then go over the answers (located at the bottom of the page).

Main Activities

Activity 1: G-Force and concussions

1. To help students understand the power of the hits in the NFL take a few minutes to learn about G-Force. Ask students if they know what G-Force is. The correct definition is: a unit of force equal to the force exerted by gravity; used to indicate the force to which a body is subjected when it is accelerated.

2. Watch this short video on G-Force to help explain it better or click on the image at left.

3. Pass out the “Research Takes Some ‘Pop’ Out of Pop Warner Football” informational text to students and read the article together. Then look at the G-Forces involved in professional football to understand the gravity of the hits players are taking.
4. **Watch the interview** with high school student Alex from Windsor High School and ask students if they think the risks of playing football outweigh the benefits for young athletes? Count the “yes” and “no” answers and record them on the board.

5. **Watch TED Talk** “Kim Gorgens: Protecting the brain against concussion” (10 minutes) to learn about the danger of concussions, especially in children and teenagers and pass out “Kim Gorgens: Protecting the brain against concussion” TED talk questions.

6. Ask students again if they think that the risk is worth the reward? Record their answers on the board again next to the first set of recorded answers.

7. **Pass out the concussion model for imPact test.** This is the model for checking to see if athletes are ready to go back after a concussion.

8. **Watch the video below from the PBS NewsHour Student Reporting Labs** about about the imPACT test and their interview with one student who has cheated the imPACT test to get back into the game sooner.

**Activity 2: FRONTLINE League of Denial documentary**

The documentary runs 1:53:41 and can be watched over the course of two class periods. Please [click here](http://www.pbs.org/newshour/extra/lessons_plans/lessons-gridiron-impact-concussions/) to view it.

- For organization and time management the video is broken into 5 sections each about 15-20 minutes long.
- Each section has an accompanying video guide for students to fill out as they watch the documentary.
- A teacher’s answer sheet is included in the materials section for easy grading purposes.
- Ask students one final time if the risk is worth the reward and put their answers on the board.

*Optional informational text from the New York Times about the controversy the film created.*

Open the discussion up for the class to reflect on what they have learned from the lesson using the “Concluding discussion questions and writing prompts” page for either verbal discussion or written responses.