

Crystal Parker

Dr. Wesley-Hunt

BI 101L

November 18, 2011

Article Review

“Brain-Eating Amoeba Thrives in Warm, Fresh Water”

By: Jennifer Viegas

After killing three people this summer, the infamous *Naegleria Fowleri* was featured in Discovery News and many other media sources this summer. The article is written by Jennifer Viegas and titled, "Brain-Eating Amoeba Thrives in Warm, Fresh Water". This deadly amoeba claimed the life of three people this summer: a 9 year-old boy, a 16 year-old girl, and a 20 year-old man. Because the amoeba is thermophilic, it usually infects people during July, August and September, the hottest times during the summer. The scorching heat this summer made the rivers, lakes, hot springs, poorly chlorinated pools and ground water the perfect home for the amoeba, as it thrives in warm and wet environments. After learning about different types of organisms and their characteristics in Biology, I wanted to explore something that isn't very common or talked about. This amoeba was perfect because although people have some idea about amoebas, they probably haven't heard about this kind or how phenomenal it is.

*Naegleria Fowleri*, often referred to as "the brain-eating amoeba", is a rare but deadly microscopic amoeba that kills nearly anyone who inhales it. With a 98% mortality rate, the amoeba has killed 153 people from 1937 to 2011. Deriving from kingdom Protista, *Naegleria Fowleri* is a eukaryotic Precolozoa, "a group of colorless protozoa, including many that can transform between amoeboid, flagellate, and encysted stages" (Wikipedia). Encased in its protective cyst, the amoeba lurks at the bottom of the water, until it's inhaled by the host where it travels up their nose to their brain and spinal cord. Because of its warmth, food source, and moisture, the brain is a perfect environment for the amoeba to live in. There, the amoeba uses its pseudopods, special feet that extend from their body to allow movement, to break the cell wall. This allows the amoeba to eat the brain tissue that leaks out from the broken cell. What makes these killers even more amazing is its ability to manipulate their body when defending themselves. When your immune system realizes it's being hijacked, it sends white blood cells to

attack the predator. Retaliating, the amoeba forms a protective shell called a cyst, which prevents the white blood cells from penetrating the barrier. The white blood cells stick on the cyst but *cannot get in; the amoeba sheds the cyst, leaving them behind, and beginning a new life cycle.* The amoeba then grows two tails called flagellum that allows them to swim to a better suited location. The process continues as the amoeba multiplies and eventually kills the host within two weeks.

Naegleria Fowleri does not directly affect me because I've developed a fear of swimming in anything but pools, decreasing my chances of inhaling this amoeba. However, before my fright began, I was a water junkie. I spent my summers tubing in lakes and swimming in rivers. I can honestly say I swallowed and inhaled the water 60% of the time. I could have inhaled the amoeba and probably wouldn't be writing this article review today. After reading and learning so much about this brain-eating amoeba, I've informed my family and friends who still enjoy good ole water fun about how to be safe when participating in such activities. As for me, I'll probably just cut swimming out of my life...just to be on the safe side. The CDC warns people to "hold their nose or use nose plugs when jumping or diving into water" (Viegas). So far, there is no cure for this disease.

After coming across and reading this article, one question that kept bugging me was how in the world did an amoeba with no brain, have the intelligence to conform and protect itself the way it did? I find this utterly amazing that a microscopic parasite like such is able to plan and carry out such a "brainy" (no pun intended) attack all while keeping itself safe.

#### Works Cited

“Percolozoa - Wikipedia, the free encyclopedia.” Wikipedia, the free encyclopedia. Wikimedia Foundation, n.d. Web. 18 Nov. 2011. <http://en.wikipedia.org/wiki/Percolozoa>.

Viegas, Jennifer. “Brain-Eating Amoeba Thrives in Warm, Fresh Water : Discovery News.” Discovery News. Discovery Communications, 18 Aug. 2011. Web. 18 Nov. 2011. <<http://news.discovery.com/human/brain-eating-amoeba-110818.html>>.

Good  
description  
Follows  
assignment

**General Biology 101**  
**Article Review and Discussion (45 points)**

**Purpose:**

To stimulate discussion of a wide variety of topics related to biology that may not otherwise be specifically discussed in the course.

**Due dates:** Article selected and approved: **March 30<sup>th</sup>**  
Written summary, oral presentation and outline: **April 13th**

**Point breakdown:** Written summary - 25 pts  
Oral presentation and outline – 20pts

**Procedure:**

You are going to write a summary of and verbally discuss an article of your choosing. See the guidelines below for selecting an appropriate article.

**Your selected article must be approved by your instructor no later than March 30<sup>th</sup>. You will not be permitted to discuss or turn in a written summary of an article that has not been approved by this deadline.** A copy of the article or the original article must be submitted with your summary.

**Guidelines and grading:**

**1) Written Summary**

- The summary must be typed using a 12 pt. font and double spaced.
- The summary should be **at least** two pages but not more than four pages.
- Do not plagiarize the article but discuss the article's subject matter in your own words.
- The summary should include **at least** the following information:
  - The title and author(s) of the article
  - An **explanation** of the key terms that are important for understanding the article. A discussion of these terms should be incorporated into your review of the article. **Do not simply list and define the terms separately.**
  - Identification of the main subjects mentioned in the article and an explanation of what events/phenomena are being discussed in the article
  - A brief discussion of how the article relates to your experience with BI 101.
  - The reason you chose the article
  - One question that comes to mind after reading the article
  - ***In a short paragraph, briefly discuss a specific example of how the biological concepts discussed in your article directly relate to your personal life or to a social issue that impacts you.***

The written summary is **due on the first day of the article presentations**. No late work will be accepted. If you do not have your written work, but are ready to discuss your article, then you may receive credit only for the oral presentation.

**2) Oral Presentation**

You will turn in an outline of your oral presentation on the day we discuss the articles. The verbal presentation will be simple. You do not have to get up in front of the class. You can remain seated and simply state what your article was about. **Do not simply read your written summary.** Be sure to mention the main subjects of the article and the central points being discussed. Integrate an explanation of key terms into your discussion. You may also talk about your personal interest in the article that you chose. You only need to speak for 5-10 minutes. The rest of the class is going to listen and comment on your summary. You must be in class on the date that you are scheduled to present or you will not receive any credit. Let your lab instructor know if you must attend another lab section.

### 3) Choosing an article

- The article must be of substantial length (e.g., 3 columns in a newspaper, at least a full page of text in a journal or magazine etc.).
- The article must be 3 years old or less.
- The article must directly relate to biology.

**Below is a list of sources from which you may find your article. You may NOT use internet sources unless they are an electronic version of the print sources listed below.**

Newspapers: (New York Times and Washington Post have a Science section on Mondays and a Health section on Tuesdays)

Journals: Bioscience  
Nature  
Popular Science  
Science  
Science News  
Scientific American

News Magazines: Discover  
National Geographic  
Natural History  
New Scientist  
Newsweek  
Time  
US News and World Report

Electronic versions of articles from these publications may be found through the Academic Search Complete, which can be accessed through the MC Library homepage. To use this service:

- 1) Go to the MC Library homepage at <http://www.montgomerycollege.edu/library>
- 2) Under "Articles and Databases, and More", select from either "on campus" or "home or work"
- 3) Click on "Academic Search Premier"

Note: When executing your search, check the box for "Full text"