

# 'Shoot-'em-up' video game increases teenagers' science knowledge

December 8 2009

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While navigating the microscopic world of immune system proteins and cells to save a patient suffering from a raging bacterial infection, young teenage players of the "Immune Attack" video game measurably improved their understanding of cell biology and molecular science, according to a study that will be presented at the American Society for Cell Biology (ASCB) 49th Annual Meeting, Dec. 5-9, 2009 in San Diego.

Remotely controlling the Microbot Explorer, named for its 25-micron diameter, the teenagers traveled through the bloodstream and connective tissue, interacting at the [nanometer scale](#) with receptors, hormones and lipids that have been drawn to appear like the schematics that scientists use in their own models.

Game actions, such as the capture of white blood cells by proteins on blood vessel walls, mimic activities that occur in nature.

"Immune Attack," a "third person shooter," three-dimensional video game, was devised by Melanie A. Stegman, Ph.D., and Michelle L. Fox of the Learning Technologies Program at the Federation of American Scientists in Washington, D.C.

Collaborating directly with teachers, Stegman and Fox evaluated "Immune Attack" with 180 seventh grade students.

The students' knowledge, comprehension of game dynamics and

confidence with the material were much higher than the 142 students who were tested after playing the Medical Mysteries Series [video game](#), which covers non-molecular aspects of infectious disease.

"Additionally, we have used 'Immune Attack' to inspire high school computer programming classes to create their own new videos games based on 'Immune Attack,'" Stegman added.

The first edition of "Immune Attack" is available for free download at [www.ImmuneAttack.org](http://www.ImmuneAttack.org) . "Immune Attack 2.0" should be released in early 2010.

Source: American Society for Cell Biology

Citation: 'Shoot-'em-up' video game increases teenagers' science knowledge (2009, December 8) retrieved 21 June 2024 from <https://phys.org/news/2009-12-shoot-em-up-video-game-teenagers-science.html>

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