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**THE EFFECTS OF  
HEARTRATE ON  
PERFORMANCE  
MEASURES WITHIN  
A COMBAT  
SIMULATION**



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# THE FUTURE OF SIMULATION

## Why does the Army care about simulations?

Well, simulations can be used to effectively train soldiers in a relatively cheap and time efficient manner. So it is becoming increasingly important that these simulations, in order to offer quality training value, are more realistic than ever.

## So what simulations are out there?

Combat simulations come in all shapes and sizes, from first person shooters to flight simulators, the sky is the limit. The Army these days is focusing a lot of effort on its top of the line simulator, America's Army!

## America's Army?

This is a squad level simulator that immerses participants into lifelike combat situations. The Army is pumping big money into this system for both a training and a recruiting tool. Developers are currently looking to create more realistic A.I. (artificial intelligence) to increase the real-world applicability of game-play.

# OUR STUDY

There are so many factors out there that affect how a person behaves. We wanted to take a look how physical stress affects peoples' shooting ability. This way, we could help America's Army developers incorporate these effects into game-play.

## Method

We had participants reach 60, 70, and 80 percent of their maximum heart rate and then fire a three shot group at a qualification target in the Engagement Skills Trainer in Cullum Hall on the West Point Campus. They used M-16s with air operated blowback so the simulation was very similar to a real firing situation.

We then recorded each participant's time it took to start shooting, total shooting time, and shot group diameter. We had predicted that each would increase with an increase in heart rate.

## Results

Although we didn't find any statistical significance between our 60, 70 and 80% groups within the three measures, we are still hopeful for future research. We think that

perhaps running more subjects will help us gain better results in the future. Graphs of our results are located below and on the back page.

In the future we also want to examine other factors affected by physical stress such as muzzle movement. Any information we can gather will potentially be useful in designing a more efficient and worthwhile America's Army simulation.

