Nicole Fameree-Gall, a military family member, fights off the double demons — sleep and anxiety — about 36 hours into the sleep-deprivation study.

You Snooze, You Lose

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photo illustration and photos by Tech. Sgt. Larry Simmons

The first night with no sleep was the most difficult.

"I had just worked all day, and when 1 (a.m.) rolled around I started getting tired," said Staff Sgt. Andree Scott. "That was the toughest part of the whole test."

Sergeant Scott, of the Air Force Research Laboratory at Brooks City-Base, Texas, participated in an Air Force study that examined the effects of sleep deprivation. He and a group of volunteers struggled to stay wake for 48 hours at the Brooks City-Base laboratory.

No caffeine. No naps.

The test results from Sergeant Scott's group will join those of 100 other volunteers undergoing the same test. Later, a follow-up study will include up to 400 subjects, one of the largest and most extensive studies in the Brooks laboratory's history.

It's common knowledge that lack of sleep degrades performance. Ever stay up all night and work the next day? Now, imagine going to war and having to stay up two or three straight days.

Although sleep-deprivation studies have been ongoing for years, researchers are using cutting-edge technology to study the effects of sleep deprivation on different people and in different Air Force jobs. For instance, why can some people go without sleep with little or no performance degradation, while others flounder trying to accomplish the simplest of tasks and struggle just to keep their eyes open?

Many think the answer lies in the human genes.

"We're not just looking at sleep deprivation, we're looking at genetics of performance," said Lt. Col. Tammy Savoie, chief of the biobehavioral performance branch at the Brooks lab. "We want to classify the genes to see who has the propensity to perform well under stress and those who are vulnerable."

To stress the volunteers, researchers didn't allow them sleep for 48 hours, during which time a computer program tested the subjects' cognitive skills. They were tested individually and in groups. Researchers also would like to know if people suffering from sleep deprivation work better individually or in a group.

"How do we get the best performance out of people? How can we increase the performance of those who may not do so well?" Colonel Savoie asked. "When someone comes into the world, genes influence that person's performance. We're studying their genes to see why they do so well and how they perform better than others."

In the end, researchers hope to optimize the performance of the expeditionary Airman, unleashing the utmost of human capability.

"We have Airmen out there working all hours of the day and night," Sergeant Scott said. "If there is a way to help them perform better during long hours of duty, I'm more than willing to help by volunteering for this study."

Sleep-deprivation test subjects talk about anything that will keep them awake during the last hours of the study.

Fighting off sleep was almost too hard for Senior Airman Corey Overton, who had to take an online math test — to test his reaction — after not sleeping for more than 40 hours.