

Grant awarded for obesity research

Research on Prader-Willi Syndrome may lead to understanding of genetic causes behind obesity

BY CHRISTEE LEMONS
Daily Titan Staff Writer
features@dailytitan.com

After three years of developing the idea and a year and 10 months of securing the funding, kinesiology Professor Daniela Rubin has begun her study.

“The Nutritional and Exercise aspects of Prader-Willi Syndrome (PWS) and Childhood Obesity” study is conducted by Rubin alongside her research team, which includes Cal State Fullerton professor Daniel Judelson and assistant professor Michele Mouttapa, two kinesiology graduate students and Children’s Hospital of Orange County Director of Endocrinology Dr. Susan Clark.

PWS is a non-hereditary birth defect that typically causes low muscle tone, short stature if not treated with growth hormones and incomplete sexual development, the Prader-Willi Syndrome Association USA Web site states.

It also creates a chronic feeling of hunger that, coupled with a metabolism that utilizes drastically fewer calories than normal, can lead to excessive eating and life-threatening obesity.

The abnormality affects about one in every 15,000 newborns.

Childhood obesity leads to so many other diseases such as Type 2 diabetes and kidney and cardiovascular disease, Rubin said, and it also affects children’s ability to participate in everyday activities.

“Their quality of life is much lower in the long run,” Rubin said. “That’s what really scares me and worries me and that’s why I want to learn more about obesity and exercise in children.”

The research program is a joint project between CSUF and the University of Florida that studies three aspects of PWS.

The physiological responses to exercise and the sociological affects are conducted by Rubin’s team, while nutritional issues are conducted by a team of investigators at the University of Florida, according to the Department of Defense’s Congressionally Directed Medical Research Programs Web site.

People with PWS always have an appetite and they never feel full, Rubin said, so the University of Florida is looking at what causes this constant hunger.

The CSUF researchers test two groups of subjects, children with PWS ages 8-11 and children and a control group of children ages 8-16 without the disease, Rubin said. The tests are administered at

CHOC and CSUF.

“We are trying to first describe how children with Prader-Willi Syndrome respond to different type of exercises,” Rubin said. “So to determine if there are differences between those responses to children who have Prader-Willi Syndrome to those who do not.”

The study consists of two years of fitness testing including one year of aerobic testing and one year of resistance testing, Mendoza said.

All the subjects are volunteers and the goal is to get the same volunteer subjects to come back for the second year of testing.

There are three tests used on the control group and the testing lasts two days, Mendoza said.

The first day includes a full body X-ray, which records the subject’s muscle mass percentage, body fat and bone mineral density, and the first cycling test.

On the second day, the subjects are required to eat a specific breakfast two hours before taking their second cycling exam, she said.

The PWS subjects’ testing will consist of all examinations performed on the controlled group but will be administered over a

three-day period, Mendoza said.

Both groups’ subjects have their blood drawn right before the test, then 15 minutes, 30 minutes and 60 minutes after the test is over.

The second part of the study is managed by Mouttapa, who examines the sociological impacts of the children through their parents.

She does this by conducting a focus group for parents of PWS children and administering a survey, Mouttapa said.

Parents from all over the U.S. have expressed interests in participating in the survey, she said.

The survey consists of questions like how important is it to the parents that their children exercise, what are their exercise barriers and what kind of activities do the children enjoy the most.

By combining the sociological and physiological aspects of these kids, Mouttapa said, we are thinking we can eventually develop an optimal and feasible fitness program.

“Something that the kids and the parents like that can be sustained in the long run,” she said.

The entire joint research program is funded by a \$895,000 grant awarded by the CDMRP from the Defense Department Rubin and Judelson worked together to create the grant proposal, she said.

After all the testing is completed and the data is collected and analyzed, Rubin said she wants the results to be presented to the medical community and published in a medical journal.

“.....
“Their quality of life is much lower in the long run. That is what really scares me and worries me and that is why I want to learn more about obesity and exercise in children.
.....”

– Daniela Rubin,
Kinesiology Professor