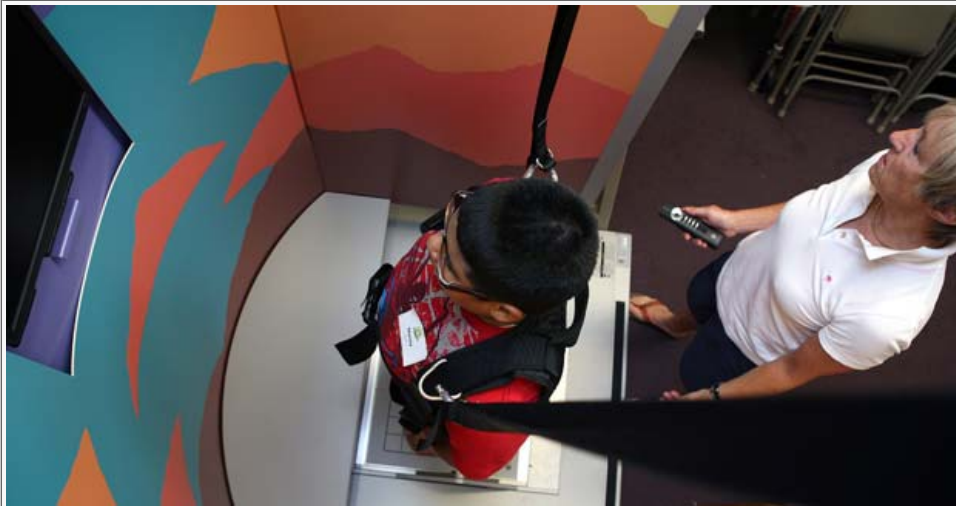


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A child taking part in Cal State Fullerton's Prader-Willi Syndrome and childhood obesity research takes a sensory test as Debra J. Rose, right, records his results. Photo by Greg Andersen

Tackling Obesity

Increasing Physical Activity is Goal of Prader-Willi Study

By [Mimi Ko Cruz](#)

It was difficult to keep his balance on a sensory-testing machine and he stepped off the platform twice, but the sixth-grade boy got through it, and Debra J. Rose meticulously recorded the results.



The professor of kinesiology and director of the Center for Successful Aging, is part of a team of professors, staff and graduate students working on Prader-Willi Syndrome and childhood obesity research. The syndrome is a genetic disorder that causes one in 12,000 to 15,000 people to develop an insatiable appetite, often resulting in life-threatening obesity.

"We're testing sensory perception, motor skills and activity levels, checking bone density and taking other related measurements today," Rose said on a recent Saturday as children with Prader-Willi Syndrome began participation in a 24-week study, with the goal of increasing physical activity levels.



Kinesiology grad student Lindsay Schroeder high fives a Prader-Willi patient after he completed a physical agility test. Photo by Greg Andersen

The project, which began in 2008, has been funded by U.S. Army Medical Research Agency grants. More than \$6 million (including a \$1.4 million grant awarded this month) has been awarded to date to complete several projects at Cal State Fullerton and at the University of Florida at Gainesville, under the helm of lead researcher Daniela A. Rubin, assistant professor of kinesiology.

Rubin and the research teams at Fullerton and Gainesville have been studying Prader-Willi Syndrome to gain insights into the role of exercise and nutritional phases of the condition. They are comparing data with that of those who are obese but don't have the disorder. Their conclusions, they said, will most likely result in effective interventions for obesity prevention or treatment.

During the first years of research, Rubin and Daniel Judelson, assistant professor of kinesiology,

About the Lead Researcher



DANIELA A. RUBIN
Assistant professor of kinesiology

City of residence: Buena Park

Education: Ph. D. in human movement science and M.A. in exercise science, from the University of North Carolina at Chapel Hill; Teaching B.A. from the Higher Institute of Physical Education Professorate, Mar del Plata, Argentina

Member of: South West Chapter of the American College of Sports Medicine, Prader-Willi Syndrome California Foundation and Prader-Willi Syndrome Association USA

Publications: authored two book chapters, 17 scientific journal articles, nine scientific journal abstracts and 15 abstracts in annals of scientific meetings

Year joined CSUF faculty: 2006

Excerpt from research statement: "My research interests lie in understanding the relationship between obesity in childhood and type 2 diabetes and cardiovascular disease. Specifically, I want to demonstrate the key role of physical activity or exercise in modifying these associations. My professional drive is fueled by the development of practical, feasible, and creative physical activity interventions for children and adolescents with the aim to ameliorate obesity and its accompanying comorbidities. People with disability, unfortunately, present not only a higher incidence of childhood obesity but also less participation in organized physical activity. Therefore, development of alternative programs is vital for this sector of the population to contribute to normal growth and development and ultimately a better quality of life. A decreased risk of metabolic and cardiovascular disease in the future adult population will translate into more productive workforce and less governmental expenditures in health care in the United States."

About the Research Funding

The U.S. Medical Research Agency grants awarded to Cal State Fullerton's Prader-Willi Syndrome and childhood obesity research, were originally sponsored by U.S. Rep. Ed Royce (R-Fullerton) in 2008.

"This research will help with a growing national health problem," Royce, a 1977 Cal State Fullerton alumnus (B.A. business administration-accounting) said when he successfully advocated for the funding. "Obesity plagues all branches of the military, with an estimated

evaluated how children with and without Prader-Willi Syndrome respond to different types of exercise.

From their results so far, Rubin said, "it appears that the hormonal and metabolic response of children with the syndrome are similar to those without the syndrome."

She said that at Gainesville, Daniel J. Driscoll, professor of pediatrics and genetics, and his colleagues have identified the different nutritional stages of Prader-Willi Syndrome, delineating a hormonal profile for each phase.

Preliminary findings from the ongoing studies have been reported in journal articles and the research team has made presentations at conferences nationwide.

Now, Rubin and her colleagues are administering a home-based intervention that involves 36 families so far. The intervention consists of a six-month physical activity curriculum called Active Play At Home. It includes a combination of playground games and interactive console-based games. Parents are involved as key mediators for the completion of the program, Rubin said.

Some of the parents in the Active Play At Home project also are involved in a decision-making intervention being directed by Jie Weiss, associate professor of health science.

The intervention involves obese children, ages 8-11, and youths with Prader-Willi Syndrome who are 8-16, plus their parents or guardians. The materials are being provided to families at no cost and instruction is being given in English and/or Spanish.

The curriculum was developed by Rubin; Rose; Lenny Wiersma, professor of kinesiology; and kinesiology graduate students Matt Junior and Lindsay Schroeder. The study subjects are taking part in different types of games at least three times a week.

Additional subjects and their parents are being sought for the Active Play At Home study. To sign up, call Diobel Mendoza Castner, project manager, at 657-278-8737.

"We are recruiting 65 families total at CSUF and 35 at the UFG until August," Mendoza Castner said.



Diobel Mendoza Castner, left, uses a DXA (dual X-ray absorptiometry) machine to measure the body fat and bone density of a research subject. Photo by Greg Andersen

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58.4 percent of America's soldiers, 22 and older classified as overweight. Prader-Willi Syndrome is a complex and potentially devastating condition that, if studied, may help control obesity and reduce healthcare costs over the long run."

Why Study Prader-Willi Syndrome?

Prader-Willi Syndrome is part of a growing national health challenge, according to researchers at Cal State Fullerton and the University of Florida at Gainesville. Faculty members at both institutions are exploring the disorder's links with obesity.

"In our first study, in collaboration with Children's Hospital of Orange County, we evaluated children with this genetic disorder and contrasted their physiologic responses to exercise with those of other children, overweight and normal weight. We wanted to determine if having excess fat lowers the benefits we obtain from exercise," said Daniela A. Rubin, assistant professor of kinesiology and the study's lead researcher.

"We also wanted to understand the factors that will increase a physical activity program feasibility, from a caregiver's point of view, so we could design more tailored interventions," she added. "With the information that we collected in our first study, we came about the concept of designing a physical activity program to be conducted at home. We know that children must have fun to be physically active, thus playing games is key to a successful program. This is how Active Play at Home was born. We are excited to have developed this physical activity program. The feedback from participating families has been very enthusiastic and positive. We look forward to begin analyzing our data to see, scientifically, if the program has a positive impact in the lives of the participants."

The number of Americans who are overweight has doubled in the last three decades, according to the U.S. Centers for Disease Control and Prevention. Being overweight or obese increases the risk of myriad diseases and health conditions, including the following:

- Hypertension
- Type 2 diabetes
- Heart disease
- Stroke
- Gallbladder disease
- Osteoarthritis
- Sleep apnea
- Respiratory problems
- Endometrial, breast and colon cancer

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[Taking Aim at Obesity](#)