

**Inside Grundy County**  
**By: Patrick Derdzinski, Grundy County Extension Director**  
**March 5, 2010**

**Childhood Obesity: Research Efforts to Prevent a Health Epidemic**

Every month, the USDA Agricultural Research Service (ARS) publishes a magazine called the Agricultural Research magazine. In the March issue, David Klurfeld, human nutrition program leader at ARS in Beltsville, Maryland wrote, “Some experts predict that—as a result of our nation’s huge increase in childhood obesity—the current generation of American kids may be the first to live shorter lives than their parents. We owe it to our children to make sure that this prediction never comes true.” That is a profound yet alarming statement. In his opening statement, Mr. Klurfeld cited a statistic that 68% of all adults and 32% of children in the U.S. are overweight or obese.

ARS research is not only investigating prevention methods but the causes of childhood obesity such as diet, genetics, and physical activity of our children. New genetic research on obesity is looking at a controversial concept called epigenetics. This means, “on or above genetics. When an epigenetic mechanism is in play, genes themselves aren’t altered. But the way the genes function, or are “expressed” (turned on or turned off), during early growth is indeed changed.

ARS investigator Kartik Shankar and other researchers were asking what role or influence does the weight of the mother before, during and after pregnancy have on the offspring’s ability to regulate its weight. In a laboratory study, Kartik looked at maternal influence of obesity in rats. All the rat pups had normal weight at birth and at weaning. However, when the weaned offspring were given free access to an unlimited amount of high-fat rations, the offspring of overweight dams gained significantly more weight, and more of that weight as fat, than did the offspring of lean dams.

Shankar points out, “This occurred despite the fact that the offspring of overweight dams ate the same amount of high-fat food as the offspring of lean dams.” He went on to say that the study “strongly suggests that exposure to the mother’s obesity—while in the womb—results in programming of the offspring’s body-weight-control mechanisms.” The dams’ obesity alone was sufficient to significantly increase the pups’ susceptibility to obesity.

A researcher by the name of Waterland did a follow-up study in mice. His research results indicate this mechanism is amplified in following generations. Keep in mind these studies have been in laboratory animals but they give researchers a lead on how the weight of mothers may influence a child’s weight while in the womb or after birth.

Another article highlighted the role that “feeding” style has on children’s body mass index (BMI), an indicator of body fatness. ARS nutrition researcher and professor of developmental psychology, Sheryl Hughes, led a research study looking at how involved parents or adult providers managed what children ate. She divided the research groups (3-5 year old preschool children) into 2 permissive groups, one group called indulgent and the other permissive group was called uninvolved. Two other groups were called authoritarian. The first of this feeding

style group were called authoritative (parents choose what is served but children determine what is eaten) or authoritarian (children have no choices).

The first two groups consumed fewer vegetables, fruit juices and dairy products and, as you may have guessed, had a higher BMI than the authoritarian groups. The researchers concluded “some level of parental control . . . seems to be needed to help preschoolers eat what’s healthful for them and to manage their weight.” The conclusion wasn’t surprising but reinforces the role that parents and other adults have in the preventing overweight and obesity issues in children.

To find these and other articles addressing child obesity, go to the following ARS website:  
<http://www.ars.usda.gov/is/AR/archive/mar10/>