

Impact of high fructose on health of offspring

4 February 2016

In a study to be presented on Feb. 5 in the oral session at the Society for Maternal-Fetal Medicine's annual meeting, The Pregnancy Meeting, in Atlanta, researchers will present findings on the effects of antenatal exposure to a high fructose diet on the offspring's development of metabolic syndrome-like phenotype and cardiovascular disease later in life.

The study, titled High fructose diet in pregnancy leads to fetal programming of hypertension, insulin resistance and obesity in adult offspring, randomly allocated either a fructose solution or water as the only drinking fluid for pregnant mice from first day of pregnancy through delivery. Offspring were then started on regular chow and evaluated after one year of life. Percent of visceral adipose tissue was measured along with liver fat infiltrates using computed tomography, and blood pressure using a non-invasive monitor. Glucose tolerance testing was also performed and [serum concentrations](#) of glucose, insulin, triglycerides, total cholesterol, leptin and adiponectin were measured.

Maternal weight, pup number and average weight at birth were similar between the two groups. Male and female offspring born to mothers who received the fructose solution group had higher peak glucose compared with controls. Female offspring from the fructose group were heavier and had a higher percent of visceral adipose tissue, liver fat infiltrates, fasting homeostatic model assessment scores, higher serum concentrations of leptin and lower concentrations of adiponectin.

No significant differences in these parameters were noted in male offspring. Serum concentrations of triglycerides and total cholesterol were not different between the two groups or either gender.

"While this study was done in a mouse model, it is an important indicator of the effect of the mothers' diet during pregnancy on the health of their

children later in life," explained Antonio Saad, M.D. with UTMB Galveston and the lead researcher of the study. "Through this study, we know that consuming high fructose during pregnancy puts the child at future risk for a variety of health conditions including obesity and the many complications it causes."

The study concluded that, while maternal intake of high fructose leads to fetal programming of adult obesity, hypertension, and metabolic dysfunction—all of which risk factors for cardiovascular disease; limiting high fructose enriched diets in [pregnancy](#) may have a significant impact on long term health.

Provided by Society for Maternal-Fetal Medicine

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