Mother's intake of soy may affect development of fetus

NEW YORK, Nov 04 (Reuters Health) -- A high intake of phytoestrogens -- substances found in soybeans and other legumes -- during pregnancy may affect the developing fetus, and the timing of puberty later in the child's life, according to scientists at the Cedars-Sinai Medical Center.

However, much more research will need to be done before it is known whether or not pregnant women should limit their soy intake, the researchers note.

Phytoestrogens, or isoflavones, mimic the role the sex hormone estrogen plays in the body. Some studies have suggested that phytoestrogens may help to treat the symptoms of menopause. But in the fetus, these substances may affect how tissues develop.

In a press release, Dr. Claude Hughes of the Cedars-Sinai Medical Center in Los Angeles, California, explained that "`in the first months of life, there is good reason to believe... that sex hormones are very important in getting things organized properly." He added that ``if mom is eating something... that can act like sex hormones, it is logical to wonder if that could change the baby's development." Hughes and his colleagues presented their results at the Third International Symposium on the Role of Soy in Preventing and Treating Chronic Disease, held in Washington, DC.

The researchers fed pregnant rats either corn oil (as a 'control') or genistein -- a component of soybeans known to mimic estrogen in the body. Both sexes of newborn rats whose mother consumed genistein had lower weights at birth than the newborns of rats fed corn oil. The investigators also observed a masculinizing effect in these newborns and early onset of puberty in the males.

"Whatever the clocks are in the brain that control the timing of puberty appear to have been advanced by a couple of days, which is highly significant in this kind of animal model," Hughes explained.

Hughes and his team then measured levels of phytoestrogens and a compound found in pesticide that inhibits testosterone formation in amniotic fluid (fluid around the fetus in the womb) of human mothers between 16 and 20 weeks of pregnancy. The
researchers found that 30% of the human fetuses received exposure to significant levels of the pesticide compound and 40% were exposed to phytoestrogens at a level up to 180 times that of estrogen produced by the mother.

"The human fetus is exposed to physiologically relevant levels of (these substances) during this critical period of... development," Hughes and colleagues write. They note that "the effect of these exposures, if any, is unknown at this time."

However, in the press release, Hughes commented that he believes that the effects observed in the rats "`will be at least somewhat predictive of what occurs in humans. There is no reason to assume that there will be gross malformations of fetuses but there may be subtle changes, such as neurobehavioral attributes, immune function, and sex hormone levels."

In an interview with Reuters Health, Hughes commented that these results cannot be used to make recommendations about consuming soy products during pregnancy. "Do these compounds (phytoestrogens and pesticide compound) individually affect the fetus? We don't know. Do they interact in some way? We don't know."

Hughes added that these results "could be nothing or could be something of great concern". His group will attempt to determine the effects of fetus exposure to phytoestrogens in future studies, he said.